

the many problems encountered. An interesting aspect was the effect of the different rock formations on the breaking of the face as the tunnelling advanced. The tunnel was commenced from the north side of the range because of the harder quartzite on that side (Fig. 1). From the south end it is proposed to put through a small pilot tunnel, because of the soft shale, to meet the main

tunnel from the north. It will then be possible to assess the difficulties of tunnelling and devise the best methods of attack.

The party was conducted on foot into the tunnel and many questions were asked of the guides.

A.E.G.

## Proceedings

### MARCH GENERAL MEETING

The March General Meeting of the Institute was held in Kelvin House, Johannesburg on 18th March, 1970, at 4.30 p.m.

Mr J. K. E. Douglas (President) was in the Chair.

There were also present fifteen Fellows, Messrs H. Britten, R. C. J. Goode, Prof D. D. Howat, Mr T. C. A. Meyer, Dr R. E. Robinson, Messrs V. C. Robinson and P. W. J. van Rensburg (Council Members), S. K. de Kok, Dr N. P. Finkelstein, Messrs K. W. Findlay, H. N. Hepker, J. Levin, Dr K. A. Murray and Mr A. H. Mokken.

Four Members including Mr D. Ayres, Dr M. I. Britten and Dr A. Granville.

One Associate: Mr G. S. Stander.

One Student, Mr R. N. Guest.

Four Visitors, Messrs S. A. Allison, C. N. Leibb, C. J. Kooij and A. Mavrogdato.

Secretary: Mr D. C. Visser.

Total present: Twenty-seven.

### OBITUARY

**The President:** "It is my sad duty to announce the death of Henrik Johannes Van Eck, Honorary Life Member, who joined the Institute in 1929 and passed away on 18th February, 1970.

Dr van Eck started life as a chemist and chemical engineer and, as we all know, he rose to become one of our most distinguished leaders of industry in the country. On many important occasions we, in this Institute, have been privileged to have him address us on subjects which were always of great importance and relevance to the developments in this country. He was a man of great vision and imagination and could put across his ideas in a most eloquent and convincing manner. In his important position as chairman of the Industrial Development Corporation and of Iscor, whatever he said carried great weight. Busy as he was he always found time to participate not only in the affairs of this Institute but in many other technical and public bodies. His passing is a great loss to South Africa and we in this Institute wish to associate ourselves with the many other tributes which have been paid to this great man. We extend our sympathy to his wife and family and as a mark of respect I would ask you to rise and observe a few moments silence."

### MEMBERSHIP

**The President:** "I have much pleasure in announcing that the names of the undermentioned candidates, having been published in accordance with By-Law 5.2.2, Council has elected them to membership of the Institute in the following grades:

*Fellow:* Ian Douglas Bruce Corner, Joachim Bernhard Rolfes.

*Member:* Michael Vernon Nolan.

*Associate:* Karl Franz Wilhelm Eick.

### MEMBERS TRANSFERRED TO A HIGHER GRADE

*From Member to Fellow:* Nilo Zolezzi.

*From Graduate to Member:* Roger Billingham.

I welcome the newly elected members to the Institute and congratulate the members who have been transferred to a higher grade."

### PAPERS FOR PRESENTATION

**The President:** (i) "Mr Lee, may I call on you to deliver your paper entitled 'A new bubble pick-up technique as a rapid flotation test method'."

After the presentation of the paper the President said:

"The paper which Mr Lee introduced this afternoon was a short one but was nonetheless important in that it described a new tool for use in flotation test work. Those of us who have experienced the frustration of trying to solve flotation problems by trial and error methods know what this means. I well remember 25 years ago at T.G.M.E. trying to improve the recovery from the flotation plant there by trying various combinations of reagents and then having to wait a couple of days for the assay office to give results. Even then, on the small scale laboratory tests which had to precede full scale tests one could never be sure that the results obtained were reproducible on the full scale. Here it seems we have a relatively simple apparatus which can measure instantly the effectiveness of various reagents under different concentrations and pH values, etc. It is most important, I believe, that developments of this kind be reported in our journal for the benefit of all involved in such work, not only so that we know about it but also in order to provoke constructive discussion which might lead to further developments. I would like to invite members, therefore, to submit papers or notes on important

developments of this nature and stress that there is no need to be concerned as to whether the report only fills half a page of our *Journal*.

Thank you Mr Lee for an interesting paper and for your able presentation."

Mr N. Kooij, Dr N. P. Finkelstein and Dr A. Granville then contributed to the paper. (These contributions will appear in a later issue of the *Journal*.)

**The President:** "Dr Brittan, may I call on you to deliver your paper entitled 'Kinetics of copper segregation by the Torco Process'."

After the paper had been introduced the President said: "Mr Pinkney, Chief Consulting Metallurgist of Anglo American, expressed his regrets to me on his inability to attend this afternoon's meeting as he is in the U.S.A. on business. He, as you know, was the author of the original paper on Torco which first introduced this important new process to this Institute. This paper was widely acclaimed and earned for the author the Institute's gold medal. This afternoon we have listened to another outstanding paper on this process. Following the pattern of so many metallurgical developments, a

process has been made to work successfully and a full technical study of it has followed to explain the chemistry. This is all perfectly logical as seldom can new processes wait for the time-consuming research needed to fully explain what happens. With this fuller knowledge, however, there is no doubt that the process will be improved both technically and economically.

I am sure we have all been impressed by the meticulous scientific approach adopted by the author in researching the various aspects of this problem and I am sure it is important that this research has been reported through the medium of our Institute.

Thank you Dr Brittan."

Dr R. E. Robinson then contributed to the paper. (This contribution will appear in a later issue of the *Journal*.)

#### CONCLUSION

**The President:** "I wish to thank members and visitors for their attendance, and now declare the meeting closed."

The meeting closed at 6.40 p.m.