

Proceedings

MAY GENERAL MEETING

The May General Meeting of the Institute was held in Kelvin House, Johannesburg on 20th May, at 4.30 p.m.

Mr V. C. Robinson (Vice-President) was in the Chair in the absence, overseas, of the President, Mr J. K. E. Douglas.

There were also present 16 Fellows: Messrs J. A. Adamson, R. S. J. du Toit, J. A. Drummond, D. F. A. Grave, T. L. Gibbs, G. H. Grange, D. V. Howat, P. H. Kitto, Dr P. J. Lloyd, Messrs B. H. L. Leach, J. de V. Lambrechts, Dr J. T. McIntyre, Messrs C. S. MacPhail, P. W. van Rensburg, S. G. Taussig, W. S. Rapson.

Six Members: Messrs E. L. Atkinson, R. Hemp, Dr J. Martinson, Messrs A. H. Munro, G. J. van Jaarsveld and J. H. Qwilliam.

Two Associate Members: Messrs B. H. van Rensburg and H. Trüter.

Four Visitors: Prof J. E. Kerrich, Dr G. K. Sluis-Cremer, Messrs D. Kisbey-Green and L. W. Isserow.

For Secretariat: Mrs S. de Gersigny.

Total present: 27.

OBITUARY

The Vice-President: "It is my sad duty to announce the death of Stephen Ring, a member who joined the Institute in 1961, and passed away on the 31st of December, 1969. I would ask you all to rise and observe a moment's silence. Thank you."

MINUTES

The Vice-President: "May we confirm the minutes of the Special General Meeting and Monthly General Meeting, held on 20th February, 1970, as published in the April issue of the *Journal*?"

MEMBERSHIP

The Vice-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:

Fellows: Denis Ian Field, Arthur Cecil Walter Comyn, John Hall, Leon Vercueil.

Members: Jan McLellan Vosloo, Jan van Velze.

Graduates: Richard Darnley Beck, John Edward Andrews, Roderick Nowell Randell.

Associates: Alexander Duncan Ross, Ian James Terrill.

Students: Hendrik Jacobus Oostenwald Prins Smith, Graham Peter Gooding, Rudannes Raath Homan.

"I welcome the newly elected members to the Institute."

GENERAL BUSINESS

The Vice-President: "Are there any matters which you wish to raise under 'General'? There being no

matters to raise under 'General', we will proceed to the next item on the Agenda."

PAPER FOR PRESENTATION

The Vice-President: "It is my pleasant duty to call on Dr du Toit to deliver his paper, entitled, 'The functional relationship between dust hazard and the rate of collecting funds to pay compensation for pneumoconiosis'."

After the presentation of the paper (published in the *March Journal*) the Vice-President said: "This paper is a very important addition to the considerable volume of work applications on this subject of pneumoconiosis. The disease, in all its various forms, has received attention from many, many great men, both in the medical world, and engineers. The fact that there is this big volume of publications of literature on it still doesn't mean that we can get anywhere beyond the old, simple injunction, that the prevention of pneumoconiosis does not depend on compensation, levies or anything else. It simply depends on allaying dust as quickly as possible.

"This paper, however, is another scientific landmark and I think, in a cold and dispassionate way, it sets out some important points in this whole subject of the relationship of the levy — the money of compensation to the dust which causes it.

"I have, personally, very little to criticise in this paper but when I listened to Dr du Toit's final conclusions, I wondered whether the words, 'Within the data available', aren't the key to this whole situation. I agree that he has demonstrated a workable relationship between the current industries for levy and dustiness, but among the factors which he lists as being important, I know that there is one which is missing. This is extremely difficult to evaluate. It's a factor which has been destroyed, on so many occasions, the work which has been done by so many genuine, intent, honest people working in this field, and this is this unknown factor, this hidden factor of political opportunism, which has so often played a very important part in pneumoconiosis compensation.

"How many of us have seen the grubby, grasping fingers of power-mad demagogues, and I can name them for you — but I won't — and also the blatant vote-catching of certain politicians interfering in this field. How, at the end of all that, the poor scientist, the poor dedicated man in the Mines' Department, who has to write the law of compensation, can operate, I do not know.

"From this picture the ordinary layman recoils in horror. Among the casualties in this particular war, which has been fought over so many years, I am perfectly certain, are some of the criteria of certification, especially in '56/'57, when that extraordinary condition, known as 'pulmonary disability' was introduced. I am sure there were casualties then, in the criteria of certification.

"Nevertheless, this paper is a worthy addition to the long list of scientific work done on this so-important

subject. It adds considerably to the prestige of the Institute that it should be published and kept in our archives, and I only wish that some of those greedy demagogues, about whom I talked, would take the time off to study, as Dr du Toit has done, the scientific background to this subject.

“Ladies and Gentlemen, I want to thank Dr du Toit on your behalf, and ask you again, to signify your pleasure at receiving his paper.

“The time is getting late, and there are a large number of people itching to contribute to this paper. I am going to ask you, for very personal reasons, if you will excuse me and allow Dr Howat to take the Chair in a moment.”

Mr T. L. Gibbs, Government mining engineer; Dr J. K. Suis-Cremer, Director of the Pneumoconiosis Bureau; Professor J. de V. Lambrechts; Professor Kerrich; Mr Martinson; Dr W. S. Rapson and Mr G. J. van Jaarsveld then contributed to the paper and Dr du Toit replied. Contributions and the reply are published in this *Journal*.

CONCLUSION

The Vice-President: “Thank you very much, Dr du Toit, for your brilliant effort to reply. I am very grateful, Gentlemen, to these contributors who have devoted so much time and thought to their contributions, and I think our meeting this afternoon has shown that when a paper of this type is given to this Institute, it really does provide a very valuable forum for discussion. I am sure we are all indebted to the contributors for their work, to say nothing about the man who sparked it all off — Dr du Toit — with this monumental paper which he presented this afternoon, and which we are very glad to have.

“There is the usual invitation regarding contributions to the papers which are open for discussion, that these should be handed in, in writing.

“Now I wish to thank members and visitors for their attendance, and have pleasure in declaring the meeting closed.”

The meeting closed at 6.40 p.m.

JUNE GENERAL MEETING

The June General Meeting of the Institute was held in Kelvin House, Johannesburg, on 17th June, 1970, at 4.30 p.m.

Prof D. D. Howat (Vice-President) was in the chair.

There were also present 24 Fellows: Messrs R. J. Adamson, M. Atmore, D. G. Maxwell, Dr J. T. McIntyre, P. W. J. van Rensburg (Council Members), J. F. Bennett, J. P. Burls, I. R. M. Chaston, R. Daniel, M. E. E. Douglas, M. L. Fitzgerald, W. R. Flook, A. E. Gilfillan, S. D. Hill, J. Levin, S. S. K. Penny, C. B. Parker, F. O. Reid, W. T. Ruhmer, E. J. B. Sewel, H. S. Simpson, S. G. Taussig, D. A. Viljoen, L. W. P. van den Bosch.

Ten members: E. L. Atkinson, C. R. Bauristheme, H. M. Corbett, L. M. M. Falcon, A. F. Lee, G. S. Lee, R. J. MacGregor, A. H. Munro, G. R. Still, M. v. R. Steyn.

Six Associate Members: W. D. Jacobs, P. M. Johnston, C. J. Keogh, W. Lurie, M. MacKay, D. J. Tutt.

One Graduate Member: R. D. Beck.

One Student: G. P. Gooding.

Four Visitors including: B. J. R. Botha, E. T. Dunstan and S. de Gersigny (for Secretaries).

Total Present: 48.

ELECTION OF SCRUTINEERS FOR THE 1970—1971 BALLOT FOR COUNCIL

Messrs R. C. J. Goode, V. C. Robinson, J. K. E. Douglas, D. G. Maxwell, H. Britten, H. Simon and Prof D. D. Howat were elected in terms of By-Law 9.4.

MEMBERSHIP

The Vice-President: ‘I have much pleasure in announcing that the names of the undermentioned candidates have been published in accordance with By-Law 5.2.2. Council has elected them to Membership of the Institute in the following grades:

Fellows: Arthur Norman Turner, Hendrik Jan van der Wal.

Members: Terrence Armin.

Associate: Allan Basil Gould.

Student: Coenraad Peter Kramers.

MEMBERS TRANSFERRED TO A HIGHER GRADE

From Member to Fellow: Brian Moore.

From Associate to Fellow: Hugh Graham McLean Rose.

From Student to Graduate: Patrick James Delaney.

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

PAPER FOR PRESENTATION

The Vice-President: ‘Mr Simpson, may I call on you to deliver the paper entitled “Recovery plant practice at De Beers Consolidated Mines, Kimberley, with particular reference to improvements made for the sorting of final concentrates”?’

After the presentation of the paper the Vice President said:

‘Exactly a century ago the first diamonds were found on the farm, Dorstfontein, the site of the present city of

Kimberley. By 1872, as the authors of the paper show in Fig. 1, there was feverish activity on 30 ft × 30 ft claims at the Kimberley Mine.

The paper presented to us today is a comprehensive survey of the recovery processes used in the diamond industry, together with a brief but useful history of the development. The paper in fact brings up to date much of the material in the masterly survey made by Mr R. J. Adamson in his presidential address in 1959.

In an account of a recovery process which incorporates very sophisticated equipment such as high tension and X-ray separation it is intriguing to find the continued use of rotary washing pans first introduced in 1874. This is one of these very old fashioned yet very useful pieces of metallurgical equipment. I believe the De Beers research laboratories have carried out quite extensive work on the diamond pans and we will look forward to hearing about this some time soon I hope.

The authors of this paper show how the main effort in diamond recovery has been directed to the later stages of concentration. Of the two main factors governing developments in this field the first is the need to reduce the volume of concentrate that must be hand sorted. It is quite striking to think that every diamond which appears on the market has been finally picked out by hand. The second factor has been the phenomenal increase in the demand for industrial diamonds, these being mainly small in size and variable in colour. Much of the more modern research has been directed to the development of methods for recovering these small industrial diamonds. This is of particular significance at the new Finsch Mine where small industrial diamonds constitute a large proportion of the output.

In between the concentrate produced by the rotary washing pans and the final hand sorting there have been the major developments in the introduction of heavy media separation, grease tables of the various types mentioned in the paper and finally X-ray separa-

tion. Again we have another example of metallurgical irony in that the concentrates from the Finsch Mine are treated in a concrete mixer. Any more commonplace and down-to-earth piece of equipment would be hard to imagine for the recovery of these valuable stones.

The authors have gone to considerable effort to show the profound effect of these intermediate concentration steps on the problem and difficulties of hand sorting. Making a simple arithmetical calculation it would appear that without the introduction of the new methods of concentration and the streamlining of the processes the hand sorting staff instead of five would have to be about 250 compared with the present total staff (European and African) on the whole recovery plant of 25.

The last paragraph of the paper emphasises that the application of the X-ray sorter has constituted a major break-through in diamond recovery. I would make a very strong plea to the Research and Development section of De Beers to let us have a paper giving some account of the research and development work that must have preceded this industrial application and I am sure our Institute would never forgive these research laboratories if they do not give us a really full account of the work on the development of an X-ray machine capable of handling feed at the rate of 100 tons per hour—this intriguing possibility to which the authors refer briefly at the end.

May I thank the authors for preparing this valuable paper for our Institute and a special word of appreciation to Mr Simpson for his extremely interesting presentation.'

Messrs L. R. M. Chaston and J. Levin and Professor J. d. V. Lambrechts then contributed to the paper. (These contributions will appear in a later issue of the *Journal*.)

CONCLUSION

After the showing of the film entitled 'Arum' the Vice-President closed the meeting at 6.30 p.m.