

Annual report

FOR THE YEAR ENDED 30TH JUNE, 1999

Council for 1999/2000

President

J.R. Dixon

President Elect

M.H. Rogers

Vice Presidents

Senior

Dr L.A. Cramer

Junior

A.A.B. Douglas

Immediate Past President

R.P. Mohring

Honorary Treasurer

J.A. Cruise

Members of Council

B.C. Alberts	J.P. Hoffman
Dr N.A. Barcza	H.E. James
N.J. Barkhuysen	P.J. Knottenbelt
R.D. Beck	R.P. Mohring
M.J.P. Bierman	H.G. Mosenthal
Prof. A.N. Brown	G.Y. Nisbet
D. Cockcroft	N.M. O'Brien
Dr M.B. Cortie	R.G.B. Pickering
Dr L.A. Cramer	Prof. R.P. Plewman
J.A. Cruise	S.J. Ramokgopa
E.G. de Villiers	Prof. R.E. Robinson
J.R. Dixon	M.H. Rogers
A.A.B. Douglas	D.A.J. Ross-Watt
F.M.G. Egerton	Prof. R.F. Sandenbergh
J.P.W. Fisher	Dr H. Scott-Russell
C.E. Fivaz	C.B. Sheppard
K.J.R. Ford	D.A.A. Smith
Prof. G.A. Fourie	Dr T.R. Stacey
R. Graham	Dr O.K.H. Steffen
Dr R.G. Görtunca	D.J. van Niekerk
Dr R.V.R. Handfield-Jones*	J.C. Viljoen
M.C. Harris	J.N. Wallington

Branch Chairmen

Johannesburg Branch	D. Cockcroft
Free State Branch	C.B. Sheppard
Pretoria Branch	Prof. G.A. Fourie
Western Cape Branch	M.C. Harris
Mpumalanga Branch	D.A.A. Smith
Bushveld Branch	M.J.P. Bierman
Zululand Branch	N.J. Barkhuysen

Past Presidents Serving on Council

B.C. Alberts	H.G. Mosenthal
Dr N.A. Barcza	G.Y. Nisbet
R.D. Beck	Prof. R.P. Plewman
Prof. A.N. Brown	Prof. R.E. Robinson
J.A. Cruise	D.A.J. Ross-Watt
C.E. Fivaz	Dr H. Scott-Russell
H.E. James	Dr O.K.H. Steffen
R.P. Mohring	

Key Objective of the Institute

To initiate and give effect to the means whereby the requirement for technology and scientific knowledge of the minerals and metals section of the South African economy is satisfied; and to represent and promote the interests of its members.

Arrangement of this Report

In accordance with the current management policy, this report on the activities of the Institute is presented under eight main headings:

1. Interests of Individual Members
2. Technical Meetings
3. Publications
4. Regional Development
5. Engineering Science and Technology in South Africa
6. International Liaison
7. State Liaison
8. Management and Administration.

1. Interests of Individual Members

Portfolio Holder: J.R. Dixon

Key Performance Areas

In the interests of individual members, the SAIMM

- ▶ *undertakes to assess the qualifications, experience, and the level of responsibility of applicants for membership, and allocates a membership certificate in an appropriate grade as a means of granting appropriate professional and technical status to individuals who practice in the minerals and metals sector;*
- ▶ *arranges conferences, colloquia, schools and seminars where technical information on mining, metallurgical and allied issues is disseminated. Both members and the general industry benefit from these inter-changes;*
- ▶ *undertakes to prepare and publish career-guidance brochures, bursary handbooks, audio-visual and video programmes, optional school-curricula material, etc., and participates in the activities of the RADMASTE Centre to stimulate scholars and students to select careers in the minerals and metals sector of the South African economy;*

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- ▶ *guards the professional interests of engineers, scientists, technologists, and technicians by providing a corporate voice and by representing their interests on bodies such as the Engineering Council of South Africa;*
- ▶ *through representation on ECSA, assists with the evaluation of curricula at universities and technikons with a view to improve the level of education of graduates and diplomates and ensures that the courses are relevant to the needs of the minerals and metals sector;*
- ▶ *makes awards, in the form of medals, prizes and certificates, in order to recognise technical excellence, to stimulate a sense of pride in high standards of performance, and to encourage individuals involved in the minerals and metals sector to share the results of their work through publication. The following are eligible for SAIMM awards: individuals for the very highest achievements in the South African mining and metallurgical industry, SAIMM members and non-members for papers of the highest standard published in the Journal or other SAIMM publications, and students from universities and technikons for exceptional academic performance;*
- ▶ *arranges technical excursions, banquets, and other social events to create opportunities for professional association and fellowship for its members.*

1.1 Membership Committee

M.H. Rogers, Chairman

Dr L.A. Cramer, Vice-Chairman

Dr N.A. Barcza

R.D. Beck

Prof. A.N. Brown

J.A. Cruise

J.R. Dixon

A.A.B. Douglas

F.M.G. Egerton

C.E. Fivaz

H.E. James

**resigned during the year*

H.G. Mosenthal

G.Y. Nisbet

Prof. R.P. Plewman

Prof. R.E. Robinson

D.A.J. Ross-Watt

Prof. R.F. Sandenbergh

Dr T.R. Stacey

Dr O.K.H. Steffen

D.J. van Niekerk

Membership

Members of the SAIMM comprise engineers, metallurgists, chemists, physicists, geologists, certificated managers, and technikon diplomates, all of whom have an interest in the fields of mining, extractive metallurgy, metals technology, and other related areas.

Corporate Members are classified as follows.

HONORARY LIFE FELLOW: must have rendered services to the Institute, science, or industry.

FELLOW: (Minimum age 30 years.) A person eligible for election or transfer into the class of Fellow shall be any minerals professional employed for a minimum of five years in a senior technical position of responsibility provided that the candidate has had ten years combined technical tertiary education and appropriate experience, or experience only.

MEMBER: (Minimum age 25 years.) A person eligible for election or transfer into the class of Member shall be employed for a minimum of two years in a technical position of responsi-

bility provided that the candidate has had five years combined technical tertiary education and appropriate experience, or experience only.

Non-Corporate Members are classified as follows.

COMPANY AFFILIATE: companies associated with mining or metallurgical industries are eligible for membership.

HONORARY FELLOW: persons of distinction in public service, science, or the arts.

ASSOCIATE: a person eligible for election or transfer into the class of Associate shall be any person with a recognized industry qualification, within the disciplines of mining, extractive metallurgy, or metals technology.

STUDENT: a full-time student or post-graduate student at a university, technikon, or any other educational institution approved by Council, who is being trained to occupy a technical position in the mining or metallurgical industry or associated organizations.

Membership Roll

Members of the Institute are divided into CORPORATE and NON-CORPORATE members all of whom are entitled to attend and speak at meetings. Only corporate members are entitled to vote. All applications for membership or transfer require **one** Proposer and **one** Seconder.

RESIGNATION: A member may resign from the Institute by sending his written resignation to the Secretary together with payment of any monies due.

RETIRED MEMBERSHIP: A Fellow or Member who has *bona fide* retired from active business may retain membership at a reduced subscription providing he has been a member for 20 years. Members can contact the Secretary to establish the number of years of service prior to submitting a written request for Retired Membership to the Institute.

STUDENTS: A candidate may remain a Student member only while he is being educated or trained in a manner approved by the Council.

When he no longer qualifies as a Student member, he shall automatically be transferred to the category of Associate. Students are reminded to forward a copy of their degree certificates to the Institute on graduation.

A candidate may not remain a Student member after the end of the Institute's financial year in which he attains the age of twenty-eight years, unless the Institute receives written confirmation from the university or technikon that the Student member is still a full-time student.

CHANGE OF DETAILS: It is essential that members contact the Institute without delay with regard to change in designation, change in employer, payment address or change in postal address. Without this the communication link to members is broken. Also members must ensure that where subscriptions are paid by a company that the Institute has on record the correct payment address.

Benefits of Membership

Individuals derive various benefits from membership of the Institute:

- ▶ contact with fellow members;
- ▶ special reduced fees when attending congresses, symposia, colloquia, conferences, schools, discussion groups, etc.;
- ▶ notices of events promoting technology transfer, which also satisfies the need for continuing education;

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Table 1

Summary of new applications and membership movements for 1998/99 and comparison of membership grades and total membership 1998/99

Membership grade	Members July 98	New members	Transfers in	Transfers out	Reinstatements	Resignations	Deceased	Struck-off	Computer adjustment	Net gain/(loss)	Members June 99
Honorary Life Fellow	30		1				1				30
Honorary Fellow	4										4
Life Fellow	32						2			-2	30
Fellow	377	15	15	5		15	1	8		1	378
Retired Fellow	163		3	1		4	4	1		-7	156
Life Member	1										1
Member	780	29	13	12	1	18	2	23		-12	768
Retired Member	74		7			4	1	1		1	75
Associate	991	33	28	17	5	30		80		-56	930
Retired Associate	11						1			-1	10
Student	259	76	1	33		5		54		-15	244
Company Affiliate	141	4				5		3	-1	-4	136
Total	2863	157	68	68	6	81	12	170	-1	-95	2762

- ▶ a bi-monthly *Journal* with a balanced content and of high technical standard, which serves as a communication medium to keep members informed on matters relating to their professional interests;
- ▶ participation in technical excursions, banquets, and other social events, which create further opportunities for professional association and fellowship;
- ▶ tax deduction of membership fees in most cases;
- ▶ reduced registration fees for professional registration through the Engineering Council of South Africa.

Companies that become Members of the Institute

- ▶ benefit from the opportunities to exchange knowledge, particularly regarding new developments and research;
- ▶ receive the Institute's publications of international conferences held in South Africa, as well as monographs on a variety of subjects and regular copies of the bi-monthly *Journal*;
- ▶ are entitled to send two non-member employees to mining and metallurgical schools, colloquia, congresses, visits, and excursions at member rates;
- ▶ receive newsletters and notices regarding all Institute activities;
- ▶ benefit from the fact that Company Affiliateship is tax-deductible;
- ▶ have ample opportunity to send delegates to attend technical meetings to obtain information and to benefit from the experience of others.

1.2 Career Guidance and Education

F.M.G. Egerton, Chairman

P.J. Knottenbelt, Vice chairman

Dr R.M.S. Falcon*

Prof. R.F. Sandenbergh

Prof. G. Gerrans*

R. Tait*

S.J. Ramokgopa*

*Co-opted members

The Committee met regularly during the 1998–1999 council year. Efforts were concentrated on career guidance and publicising careers and opportunities in the metals and minerals industries. The 'Career Guidance and Information

Package' was distributed widely and continues to be well accepted. To date nearly 400 replies have been received from people interested in taking up a career in the mining industry. The committee continues to be active in various expositions throughout the country.

The computer game 'Minerals and Metals' has been received. It is an excellent programme for school leavers to use. After a few minor modifications it will be distributed to schools throughout South Africa.

A workshop was held with interested parties to determine future changes in the roles and qualities that would be required of engineering teams in the mining and metallurgical industries in the short, medium and long term as a result of the changing business scenario in the industry.

The workshop was intended to produce a means to encourage the correct response from mining and metallurgical companies and government and participation was invited accordingly.

Five topics were derived from the major human resources processes involved with skills acquisition, development, deployment and retention.

Topic 1: Recruitment and Selection

Topic 2: Further or Higher Education

Topic 3: Socialization and Initial Training

Topic 4: Deployment and Retention

Topic 5: Continuing Education and Training

The above key topics are in the process of being developed in the form of action steps which will be addressed during the ensuing year. Much progress has been made to date.

The outgoing chairman of the committee wishes to thank the members of the committee and the secretariat without whose dedicated efforts the above-mentioned activities would not have been possible.

1.3 Awards and Adjudication Committees

Awards and Adjudication Committee—Mining

M.H. Rogers, Chairman

A.A.B. Douglas

F.M.G. Egerton

Dr R.G. Gürtunca

R.G.B. Pickering

Dr T.R. Stacey

J.C. Viljoen

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Awards and Adjudication Committee—Extractive Metallurgy

R. Graham, Chairman

Dr L.A. Cramer N. Schoeman*

Dr R.L. Paul*

*Co-opted members

Awards and Adjudication Committee—Metals Technology

Dr M.B. Cortie, Chairman

J.P.W. Bennie* Dr W.H. van Niekerk*

Dr A. Garbers-Craig* J.C. Vreugdenburg*

*Co-opted members

Brigadier Stokes Memorial Award

The Brigadier Stokes Memorial Award, which takes the form of a platinum medal, is awarded to an individual for the very highest achievement in the South African mining and metallurgical industry, and is not necessarily based on technical expertise.

The Award was established in 1980, and the previous recipients were as follows:

1980	Dr H.F. Oppenheimer
1981	Dr W. Bleloch
1982	Dr F.G. Hill
1983	Dr A.W. Whillier (posthumously)
1984	Prof. D.G. Krige
1985	Dr R.E. Robinson
1986	Prof. M.D.G. Salamon
1987	Dr T.F. Muller
1988	Dr W.J. (Wim) de Villiers
1989	Dr R.A. Plumbridge
1990	Dr W.G. Boustred
1991	Mr P. du P. Kruger
1992	Mr E. Pavitt
1993	Prof. D.A. Pretorius
1994	Dr H. Wagner
1995	Dr Oskar Steffen
1996	Mr B.E. Hersov
1997	Prof. D.W. Horsfall (posthumously)
1998	B.P. Gilbertson

This year the award is being made to Les Boyd for his outstanding contribution to the industry over many years.

SAIMM 50 Year Club

The Institute established the 50 year club in 1989 to recognize the faithful and loyal support of its senior members with 50 years' unbroken membership. They become members of the club on the 50th anniversary of joining the Institute. Their names are published each year in the annual report and they are presented with a gold lapel badge on a suitable occasion. There are no fees, and the only obligation of members is to wear their lapel badges with pride and affection at all meetings of the Institute. The present members of the club are as follows:

Year to

June

Member

1924	E.C. Polkinghorne*
1926	R.M. Martin
1927	W. Allen*
1930	E.T. Dunstan* (posthumously)
	P.L. Ward*
1931	F. Bowdler
1932	J.E. Laschinger*
1933	F.D. Cartwright
	E.R.C. O'Connor
	B.M. Roberts
	C.H. Coxon

1934	J. Levin	A.A. von Maltitz
	D.D. McWilliam*	T. Waterman
	A.C.M. Cornish-Bowden*	J.W.V. Mortleman*
	H.E. Cross*	K. Rood*
	E.F. Laschinger*	A. Siff*
	E. Margo	O. Weiss*
1935	O.B. Swallow*	
1936	O. Deane*	A.H. Mokken
	T.L. Gibbs	H.L. Monro*
	R.C.J. Goode*	R.M.F. Seawright
	F.G. Hill*	A.C. Pigott*
	D.M. Jamieson*	J.S. van Zijl*
1937	D.J. Rogers	L. Walter*
	W. Bleloch*	J.J. Klein*
	L.A. Bushell*	C.D. Storrar
	K.W. Findlay	
1938	V.C. Barnes	C.A. McKechnie*
	E.T.S. Brown*	J.A. Nixon
	R.S. Cooke*	E. Popplewell
	J.K.E. Douglas	C.G. Sowry
	A.L.A. Forder*	E.W. Thiel*
1939	G. Armstrong-Smith	T.A. Newman
	D.E.R. Ayres	R.S. Pearson
	L.D.C. Bok	D.C.J. Squirrel*
	A.W.L. Brereton	G.G. Stanley
	E.H.D. Carman	R.F.J. Teichmann*
	G.D. Gettliffe*	I.S. van Eyssen*
	W.G.H. Jackson*	S.J. Venning
1941	A.H.H. Davison*	D. de V. Oxford*
	D.J. Forder	E. Pavitt
	A.R.C. Fowler	A.C. Petersen*
	H.F.W. Ketelbey	E.R. Rudolph
	J.D. McNamara	P.W.J. van Rensburg*
	T.F. Muller*	
1942	R.E. Burnton	O.L. Papendorf
	R.C. Espley-Jones	V.O. Steed
	N.M. Hayne*	J.E. van Leeuwen*
	R.T. Naudé	W.C. Walmsley*
1943	A.F. Dick	R.P. Plewman
	R.B. MacGillivray	J.F. Reid
	D.J. Molony*	P.B. Weehuizen
	J.D. McMorrin	
1944	J.L. Curtis*	K.E. Steele*
	E.T. Pinkney	A.S. Swartz
	L.J. Prince	A.H. Taute
	V.M. Reinecke*	
1945	V.C. Robinson*	W.I. Spence
1946	G.H. Grange	C.J. Parr*
	M.H. Grusd	J.D. Pollard
	W.B. Howe	J. Pope*
	P.A. Laxen	A.N. Shand*
	J. Marr-Levin	G.R. Still
	G.Y. Nisbet	
1947	D.F. Foster	N.A. Stacey
	J.P. Hugo	J.A. Tyser
1948	G.P. Bennett	D.F. Grieve
	J.F. Curtis	D.A. Immelman
	O. Davel	V.C. Ward

• Deceased since becoming members of club

Gold and Silver Medals

Papers published in the *Journal* from March 1998 to February 1999 by members of the Institute were considered for medals.

Gold Medals

No awards were made.

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Silver Medals

Silver medals were awarded to the following:

M.D.G. Salamon, M.U. Ozbay and B.J. Madden for their paper published in the May/June issue of the *Journal* entitled 'Life and design of bord-and-pillar workings affected by pillar scaling'.

F. Sawyer, D.A. Deglon and C.T. O'Connor for their paper published in the July/August issue of the *Journal* entitled 'Prediction of bubble size distribution in mechanical flotation cells'.

D.J. Greef and C. Aldrich for their paper published in the July/August issue of the *Journal* entitled 'Developments of an empirical model of a nickeliferous chromite leaching system by means of genetic programming'.

January/February 1999

Transaction papers.

J.M.A. Geldenhuis and P.C. Pistorius for their paper published in the January/February issues of the *Journal* entitled 'The use of commercial oxygen probes during the production of high titania slags'.

Honorary Life Fellows

Honorary Life Fellowship is awarded by Council to Corporate Members of the Institute who have rendered outstanding service to the industry or to the Institute over a considerable period of time. Council has conferred Honorary Life Fellowship on the following persons:

Pre-		
1923	Dr A. Aiken	S.H. Pearce
	A.F. Crosse	J.P. Williams
	J. Littleton	
1923	Dr J. Moir	
1930	H.A. White	
1931	P. Cazalet	Prof. J.A. Wilkenson
	A. Whitby	
1932	J.R. Thurlow	
1934	Dr Wm. Cullen	A. McArthur Johnston
	W.R. Feldtmann	Prof. G.H. Stanley
	E.H. Johnson	
1938	G. Melvill	F.W. Watson
	S. Newton	
1941	J. Henderson	
1943	Sir R.N. Kotzé	
1946	Dr J. van N. Door	T.K. Prentice
	C.J. Gray	R.S.G. Stokes
	Jas Gray	Prof. S.J. Truscott
	J.V. Muller	Prof. G.A. Watermeyer
	Prof. John Orr	J.A. Woodburn
1951	W.W. Mein	
1953	Dr P.E. Hall	Prof. B. St. J. van der Riet
1954	Prof. C. Biccard Jeppe	
1955	Dr P.N. Lategan	
1958	R.A.H. Flugge-de-Smidt	
1960	G. Hildick-Smith	A.J. Walton
	Dr A.J. Orenstein	F. Wartenweiler
	Dr H.J. van Eck	
1961	Dr C.S. McLean	
1966	Dr F.G. Hill	Dr F. Meyer
1970	H.E. Cross	D.M. Jamieson
	R.C.J. Goode	

1974	R.J. Adamson	C.J. Irving
	Dr W. Bleloch	J.F. Reid
	H. Britten	
1975	Dr M. Barcza	Dr J.T. McIntyre
	Prof. J. de V. Lambrechts	
1976	D.G. Maxwell	Lt Col. A.R.O. Williams
1978	J.K.E. Douglas	V.C. Robinson
	Prof. D.D. Howat	
1979	Dr J.P. Hugo	P.W.J. van Rensburg
1980	Hon. S.P. Botha	Prof. R.P. Plewman
	Hon. P.G.J. Koornhof	Dr R.E. Robinson
	A. Louw	
1982	Dr M.G. Atmore	
1983	C.S. MacPhail	
1985	Dr P.R. Jochens	Dr M.D.G. Salamon
	D.G. Malan	
1986	Prof. D.J. Krige	G.Y. Nisbet
1987	Prof. A.N. Brown	
1988	J.D. Austin	D.A. Viljoen
	Prof. R.P. King	
1989	P.A. von Wielligh	
1990	Prof. S. Budavari	Prof. G.T. van Rooyen
	L.W.P. van den Bosch	
1991	Dr H. Wagner	
1992	Dr J. Lurie	
1993	No award	
1994	B.C. Alberts	
1995	R.D. Beck	H.E. James
	P.R. Janisch	
1996	Prof. R.J. Dippenaar	
	J.S. Freer	
	H.G. Mosenthal	
1997	J.A. Cruise	
1998	D.A.J. Ross-Watt	

No award was made this year.

Student Prizes

Prizes were awarded to the following students for the best student dissertations in part fulfilment of the B.Sc. (Eng.) degree:

Mining

J.S. van Heerden, University of Pretoria
'The impact of ventilation control on mine revenue'.

Extractive Metallurgy

No award was made.

Metals Technology

No award was made.

Other Prizes

Other prizes, made to students at the Universities of the Witwatersrand and Pretoria, were presented at faculty prize-giving ceremonies held at the respective Universities.

The prize winners were as follows.

University of the Witwatersrand

Prestige Prize

Mining	D.G. Thompson
Metallurgy	A. Reid

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Book Prize

Mining	J. Deysel
Metallurgy	S. Broccardo

University of Pretoria

Prestige Prize

Mining	R. van Staden
Metallurgy	D.P. McManus

Book Prize

Mining	O. Richter
Metallurgy	H. Schwarzer

Technikon Prizes

Prestige Prize

Metalliferous Mining	D.F. Kangleas and R.J. Gerber
Coal	No award

University of Cape Town

Prestige Prize

Chemical Engineering	C. Erasmus
Materials Engineering	T. Naidu

University of Stellenbosch

Prestige Prize

Chemical Engineering	M. van der Berg
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Cape Technikon

Prestige Prize

Chemical Engineering	D. Lamb
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The prizes for the Universities of Cape Town and Stellenbosch, and the Cape Technikon were awarded at the

Western Cape Branch Annual General Meeting on 5th August, 1999.

Atlas Copco Travel Grant

No award was made in 1999.

Outokumpu Travel Grant

No award was made in 1999.

1.4 Banquet Committee

J.A. Cruise, Chairman

Dr N.A. Barcza	A.A.B. Douglas
L.A. Cramer	R.P. Mohring
J.R. Dixon	M.H. Rogers

This was the second year that the banquet was held at the Sand Sun and Towers Intercontinental Hotel, and as has become the norm, it was fully subscribed.

The committee agreed not to have any guest speakers, and felt that Ballroom Dancing demonstrations would be well received by guests. To this end, they agreed to change the name of the function, to a Grand Ball, and this theme was carried through the proceedings.

Brian Schmidt and Merrill Williams, the undefeated Professional Ballroom Champions of all champions co-ordinated the demonstrations. Oleg and Assia Dimitriov, five times holders of the Ballroom Champions of Bulgaria, and currently Gold Medal Champions gave the dancing demonstrations, which were superb. Guests were also invited to participate by learning a few basic dances.

The rest of the evening proceeded well and everyone who attended seemed to have enjoyed themselves.

Table II

Schedule of Mining Technical Conferences, 1998/99

Type of Event	Date	Title	Convenor	Venue	Attendance	Profit
Colloquium	29 July 1998	Explosives—What's New	D.R. Fleming	Wits University	337	22,227.80
International Conference	14–15 September 1998	Mining in Africa '98	J.R. Dixon	Eskom Conference Centre—Midrand	155	147,213.57
Colloquium	19 November 1998	National Water Act: Implications in the Mining Industry	Dr T.R. Stacey	Randfontein Estates Sports Club	128	17,542.02
Symposium	19 November 1998	SIMRAC: Coal	J. Viljoen/ D.J. van Niekerk	Witbank Civic Centre	134	2,056.00
Symposium	24 November 1998	SIMRAC: Gold	A.A.B. Douglas/ P.H. Willis	Goldfields Training Centre Kloof Gold Mine	131	1,693.00
Colloquium	24–25 February 1999	Leaner and Smarter Outsourcing in the Mining Industry	A.A.B. Douglas	Mintek	125	71,698.57
Colloquium	19 March 1999	Bankable Feasibility Studies and Project Financing for Mining Projects	Dr W. Assibey-Bonsu	Mintek	102	10,211.84
Colloquium	27 May 1999	Successful Support Systems for Safe and Efficient Mining	P.S. Piper	Mintek	155	72,504.02
Colloquium	10 June 1999	Fiduciary Duties and Corporate Governance	J.C. Viljoen	Mintek	72	10,000.00
					1339	355,146.82

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2. Technical Meetings

Portfolio Holder: Dr L.A. Cramer

2.1 Technical Programme Committee—Mining

R.G.B. Pickering, Chairman

Dr W. Assibey-Bonsu*	P. Mwasinga*
D. Cockcroft	P.S. Piper*
E.G. de Villiers*	M.H. Rogers
D. Diering	G.L. Smith*
A.A.B. Douglas	Dr T.R. Stacey
F.M.G. Egerton	J.F. van der Colff*
D.R. Fleming*	D.J. van Niekerk
G. Landman*	J.C. Viljoen*
M. Mullins*	R.P.H. Willis*

*Co-opted members

The technical Programme Committee—Mining arranged a number of events for the 1998/9 SAIMM year. There was one international event, two symposia and six colloquia. The topics were selected to achieve the overall objective of the SAIMM of disseminating relevant and up-to-date technology to its members and to the mining industry in general. None of this could have been achieved without the hard work and commitment of the committee members and the SAIMM secretariat.

The following events were organized in the past year and special mention must be made of the convenors of these events. The colloquium *Explosives—What's New*, convenor Dave Flemming in July '98. The international conference, *Mining in Africa '98*, convenor Roger Dixon in September '98. The colloquium, *National Water Act: Implications in the mining industry*, convenor Dick Stacey in November '98. The two-day colloquium, *Leaner and Smarter: Outsourcing in the mining industry*, convenor Alistair Douglas in February '99. The colloquium, *Bankable feasibility studies and project financing for mining projects*, convenor Winfred Assibey-Bonsu in March '99. The colloquium, *Successful support systems for safe and efficient mining*, convenor Phil Piper in May '99. The colloquium, *Fiduciary duties and corporate governance*, convenor Jan Viljoen in June '99. The committee also contributed to the two Simrac symposia held in November '98. A wide ranging selection of topics attended by some 1339 delegates and supported by 36 sponsors. These events contributed to the dissemination of information to our members and to the considerable numbers of non-members who attended. They also provide a substantial contribution to the financial well-being of the Institute.

The Special Interest Groups, 'Computer Applications' and 'Surface Mining' did not convene for any meetings due to changes in the chairmen.

As well as the events mentioned above the committee provided representatives to assist with the organization of seven international events due to be held over the next three years. Special mention must be made of *Fragblast 6*, The 6th International Symposium for Rock Fragmentation by Blasting. This event will be held from the 8th to 12th August and promises to be a truly exceptional event.

None of these events would have been possible without the willing contribution of all members of the Mining Committee and their assistance is sincerely appreciated. The secretariat are to be commended on their efficiency which ensures that all events are professionally organized and take place with the

International Event Involvement

Date	Title	SAIMM Representative
8-12 August 1999	6th International Symposium for Rock Fragmentation by Blasting (Fragblast 6)	C.V.B. Cunningham
13-18 May 2000	Tunnels under Pressure (ITA Tuncon 2000)	Dr T.R. Stacey
11-13 September 2000	Mine Hoisting	R.G.B. Pickering
12-15 September 2000	Coal—the future	D.J. van Niekerk
17-19 September 2001	RaSiM 5	Dr T.R. Stacey
24-27 September 2001	6th International Symposium on Mine Mechanization and Automation	R.P.H. Willis
September 2003	International Rock Mechanics Symposium	P.S. Piper

minimum of fuss. Mr Wallington resigned from the committee during the last year and his contribution to the committee is gratefully acknowledged. Members co-opted onto the committee during the year were Gys Landman, Paul Mwasinga, Dave Diering and Matt Mullins and we look forward to their contribution in what looks like an exciting programme for the 1999–2000 SAIMM year.

2.2 Technical Programme Committee — Extractive Metallurgy

R. Graham, Chairman

Dr G. Akdogan	N.M. O'Brien
G.F. Bainbridge*	T.V. Owen
Dr A.J. Burger* (resigned)	Dr R.L. Paul*
Dr L.A. Cramer	A. Ramsey* (resigned)
J.P.W. Fisher* (resigned)	Prof. R.F. Sandenbergh
K.J.R. Ford*	N. Schoeman (resigned)
C. Horsley	Dr M. Scurrall
Ms C. McInnes	

*Co-opted members

In the twelve-month period beginning June 1998, the committee's efforts as in previous years have been directed along specific lines to disseminate information to either specific audiences on a specialised topic, or more general audiences as appropriate on a wider range of issues.

A significant finding in the current year has been the difficulty encountered in obtaining abstracts and papers. Problems are now most frequently related to potential authors having no time to set aside for preparation of papers due to extra business commitments; this applies particularly to industry and the operations. It is cause for concern, since the experiences of others in the field of extractive metallurgy, especially examples of innovative thinking put into practice, are precisely what needs to be related to our members. The pressure on committee members has, therefore, been intense,

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and caused a re-doubling of effort for which they are applauded.

Notwithstanding these problems, three valuable events have been organized in the last twelve months, with three more planned for the remainder of this calendar year.

A colloquium was held at Mintek on 'The Treatment and Re-use of Water in Extractive Metallurgy' on 15th July 1998, convened by Dr J. Burger. Ten papers were presented covering all aspects of the colloquium theme to an audience of 62 delegates. Modern techniques of water treatment were discussed in detail and environmental issues were addressed. It is hoped that the future will bring about more research presentations in the water treatment field as there is a strong need for continued research in this area in Africa.

A Minerals Processing Design School was held on 3rd and 4th September 1998 at the Technikon SA, covering comminution, flotation and gold circuit design. Attendance was mixed and included young metallurgists with limited practical experience as well as older professionals. Some 110 delegates enrolled for the School and the various presenters had prepared adequate material in most cases. Dr I.A. Cramer convened the event and he and his team are to be congratulated on its success. The principle of presenting a School covering specific topics is a good one and will be repeated next year, with the format geared in favour of a junior audience.

Our International conference was held on 5th and 6th November 1998, when 'Extraction Metallurgy Africa '98' was presented to 125 delegates at the Indaba Conference Centre. An excellent opening address followed by some 30 high quality papers made for an absorbing and successful conference. The programme covered the full range of unit operations with a balanced spread of speakers from industry and research. It was gratifying to see more presentations from other African countries, and regrettable that a Ghanaian contingent could not attend at the last minute, although three papers had been submitted and accepted from this source. Due to lack of interest from delegates, the conference dinner had to be cancelled. However, the planned cocktail party was upgraded, well-attended and was considered a success. Technical visits which had been planned were cancelled due to lack of interest. This is food for thought, as delegates' needs appear to be changing. Delegates were permitted to register each day individually, which affected daily attendance, as did business appointments at odd times during each day. Only 42 delegates were Institute members, and a recruitment drive was held during the conference.

The organization and implementation was a true team effort by all members of the TPC and great effort was expended under sometimes trying circumstances, for which we are grateful. It remains to be seen if this event to be held in 1999 will be as successful using the same format, or whether a different approach will be required in future. In an attempt to swell the ranks of delegates and give an even more all-embracing metallurgical programme, the conference in November 1999 will be 'Metallurgy Africa '99', and include papers from a Metals Technology source as well as Extractive metallurgy. For this purpose the efforts of both TPCs will be required for what promises to be an exciting event.

At the time of writing, three events have been planned for the remainder of 1999, including 'Metallurgy Africa '99'. On

15th September Mr K. Ford will convene a seminar on Gravity Separation at the Randfontein Sports Club. This venue has proved ideal for one-day events in which vendors will give presentations on their products. On 13th/14th October Mr T.V. Owen and his team will stage a School on Solvent Extraction and Electrowinning. An audience of around 80 delegates is anticipated.

We regret that Dr A. Burger, Mr N. Schoeman, Mr J. Fisher and Mr A. Ramsey had to resign from the committee this year. We are grateful indeed for all their input. In their places we warmly welcome Ms C. McInnes, Mr T.V. Owen, Dr M. Scurrell, Mr C. Horsley and Mr N. O'Brien.

The committee, so ably supported by the Institute Secretariat, has worked hard this year to disseminate metallurgical information using a tried and trusted approach. The issue of potential delegates available to attend events or present papers is likely to continue to affect attendances, but will be actively addressed.

2.3 Technical Programme Committee — Metals Technology

Dr M.B. Cortie, Chairman

J.P.W. Bennie

S.J. Ramokgopa

Dr A. Garbers-Craig

Dr W.H. van Niekerk*

Prof. J.M.A. Geldenhuis

J.C. Vreugdenburg*

N.M. O'Brien

**Co-opted members*

The fortunes of the Committee were somewhat mixed this year. Mr Kobus Vreugdenburg resigned from the Committee during the course of the year due to external factors. The Committee wish to thank him for the effort put in respect of the proposed New Technologies colloquium. The Refractories Colloquium organized by Dr Garbers-Craig was the most visible product of our efforts, and appeared to serve a great need in industry. However, the proposed Physical Metallurgy School did not attract much interest, even after it was postponed and moved to an allegedly more congenial venue. However, plans were made to hold a Clean Steel Technology and Thin Slab Casting Seminar next year which ought to compensate for this shortcoming. In addition, the Metals Technology Committee collaborated with the Extractive Metallurgy Committee in respect of a proposed Metallurgy Africa '99 conference to be held at the end of 1999.

2.4 Committee for the Environment

Dr T.R. Stacey, Chairman

F. Egerton

N. O'Brien

J.S. Freer*

A.A. Smithen*

D. Limpitlaw*

**Co-opted members*

The Committee continues to participate actively in environmental affairs, including the following:

- ▶ Environmental Planning Professions Interdisciplinary Committee (EPPIC)
- ▶ Ensuring that environmental matters are included in SAIMM colloquia whenever appropriate
- ▶ organising SAIMM colloquia on environmental issues. During the year a successful colloquium on the impact of

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- the new Water Act on the mining industry was held
- ▶ monitoring and commenting on environmental legislation, and on other environmental and topical issues
- ▶ providing copy for 'Green Topics' in the *Journal*.

2.5 Special Interest Group—Surface Mining (SIGSM)

F. van der Colff, Chairman
R.J. Thompson, Secretary

The Surface Mining Interest Group did not arrange any activities during the 1998/99 period. A clash of dates and events prevented the half-day seminar from being held whilst in respect of technical visits, the poor attendance at the Kalahari Goldridge Mine visit prompted a re-assessment of the role of technical visits in the Group's annual programme of events. The Group has embarked upon a re-evaluation of its strategic function within the industry to better define its role in the future.

3. Publications

Portfolio Holder: A.A.B. Douglas

Key Performance Areas

Prof. R.E. Robinson, Chairman

F.M.G. Egerton

Dr T.R. Stacey

Dr R.G. Gürtunca

3.1 Journal

The decision to divide the *Journal* into two components, the Transactions (refereed research papers) and the *Journal* (contributions of general and technical interest) appears to have been successful in making the publication more attractive, readable and valuable to contributors and members. There is a substantial list of transaction papers being refereed, and scheduling indicates that sufficient material is available until next year, March/April issue. The acceptable *Journal* papers available from colloquia and other sources are more than adequate to fill the publication up to the limits of our binding system. In addition, the task of obtaining advertisements has become easier with the more substantial issues and advertising revenue has increased.

In terms of editorial and advertising material available, it would be feasible to revert to a monthly issue of the same size, but of course this would mean a profound increase in the subsidy required from the Institute.

Several feature issues were produced during the year, and the acknowledged competence and dedication of the DTP and administrative team is such that the publication committee believes that it should be possible to make the SAIMM *Journal* a leading publication in the mining and minerals field in the world.

WEB SITE

The SAIMM Web Site has been maintained in an up-to-date manner. However, the call rate on the site is not high (approximately 100 per month) and a survey of what attracts web-site browsers and our members may be necessary to redefine the objectives and nature of the site.

4. Regional Development

Portfolio Holder: M.H. Rogers

Key Performance Areas

To promote the interests of members based in different regions, the SAIMM

- ▶ supports the establishment and maintenance of branches to satisfy the local needs of its members for professional association and the exchange of technical information;
- ▶ co-operates with other member societies of AS&TS and with associations and interest groups that have close ties with operating mines and metallurgical plants by holding joint technical meetings and collaborating in the field of publication.

4.1 Regional Development Committee

Although no formal meetings were held by the Committee feedback and updates were received from the Branches.

Branch Chairmen were encouraged to attend at least one Council meeting per annum, to report on the progress within their Branches.

4.2 SAIMM Branches

4.2.1 Johannesburg Branch

D.C. Cockcroft, Chairman

F. Crundwell (Secretary)

D.R. Fleming

M. Daniel

G.L. Smith

D. Deiring

P.E. Smith

This report covers the period from July 1998, to June 1999.

Despite the continued rationalization within the industry, and particularly the downsizing of mining company head office structures, interest within the Johannesburg branch remains strong. However, the branch and committee have to adapt to the challenges resulting from rapid change, and the changing needs of the members.

The focus of the committee has once again been on arranging technical presentations and visits which can contribute to the advancement of technology within the industry, and all the related benefits.

To this end a total of nine technical presentations were arranged for the year. Attendance varied from 143 to 25, with a total number of 706 persons attending. Topics covered were varied and included research projects such as Deepmine, major projects like Sadiola, two topics on Ore Resource estimation, bioleaching, slag granulation, the impact of explosives fragmentation on an operation, computer applications, and hedging and options.

Seven technical visits were arranged for the year, with 93 persons attending. Three visits were to gold mines, two to refineries, a diamond mine, and a logistics company.

I would like to thank the committee members and secretary for their contribution during the year.

4.2.2 Free State Branch

C.B. Sheppard, Chairman

J.J.H. Bester

N. Schwab

R. Bryla (Secretary)

S.S. Smit

F.P. Guilherme

M.J. Steyn

R.E.L. Pobe

G.V. Thompson

The Free State Branch had an eventful year through

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1998/1999. Unfortunately, the year's success was once again overshadowed by the decline of membership numbers due to the downscaling of the Free State gold operations and the associated transfers.

A number of events were scheduled during the 1998/1999 period for the SAIMM Free State Branch. The events included general meetings, various visits as well as committee meetings.

The calendar of events for 1998/1999 were as shown below.

General Meetings

The general branch meeting, held on the 18th of March 1999 at the Loraine Recreation Club in Allenridge, was hosted by Avgold.

An informative and entertaining presentation was delivered by Norman Schwab on aspects of his technical visit to Europe as a recipient of the Atlas Copco travel grant. This was an interesting overview of the operations and facilities visited and included some breathtaking slides of places visited as part of the tour.

Another general meeting was held at Oppenheimer Park Golf Club on the 6th of May 1999. This meeting was well attended by members and guests. A presentation was done by J.J. Bester, Mineral Processing Engineer at Free State Business Services (AngloGold), which outlined the processes followed in the development of the Smart Rail System project. This project entails the commissioning of hardware and infrastructure to track the movement of rail-bound ore trains from multiple sources to a common processing plant.

Technical visits

A visit was arranged to the Tshepong Mine Organizational Development transformation facility on the 5th of November 1998. This visit was not supported well and resulted in a limited number of members attending. However, the visitors were afforded an insight into the methods adopted within the Tshepong training philosophy which has seen productivity double since the start of the transformation process.

A further visit was arranged to Harmony Gold Mine's new refinery and gold factory. The visit was well attended and the presentation was followed by a brief tour of the facility.

Event	Date
Committee Meeting	1st October 1998
Tshepong Mine Organizational Development facility visit	5th November 1998
Committee Meeting	3rd December 1998
Committee Meeting	4th February 1999
Harmony Refinery and Jewellery factory visit	4th March 1999
General Meeting—Atlas Copco travel grant presentation	18th March 1999
General Meeting—Smart Rail System (OPGC)	6th May 1999
Committee Meeting	6th May 1999
Committee Meeting	3rd June 1999
Joel Mine trackbound mechanized development visit	24th June 1999
Annual General Meeting—Welkom Club	17th August 1999

A very interesting technical visit was arranged to Joel Mine on the 24th June 1999 to the trackbound mechanized development drill rig, as well as the newly commissioned training facility for the training of work teams for the 21st century.

I would like to express my appreciation to the committee members for their valuable contributions throughout the year. Furthermore I would like to thank the managers in office who supported the Institute and contributed their time to its activities.

I wish the incoming committee members a successful and eventful year.

4.2.3 Pretoria Branch

Prof. G.A. Fourie, Chairman

Dr T. von Moltke, Vice Chairman

Prof. G.S. Esterhuizen

S. van Heerden*

Prof. J.M.A. Geldenhuys

T. Vermaak*

Prof. R.F. Sandenbergh

* Student representatives

The Pretoria Branch can look back on a fairly successful year, with a number of meetings that were generally well attended.

The Annual General Meeting of the Branch was held on 6 August 1998 in the Minerals Sciences Building at the University of Pretoria. Mr Roger Dixon, President Elect, gave an overview of the design principles to be followed at the new Target Project of Avmin.

The main activity of the Branch is to organize a series of lectures, in conjunction with the Department of Material Science and Metallurgical Engineering and the Department of Mining Engineering. The speakers and topics are selected to be of interest to both students and other Institute members. To achieve this, speakers from a broad range of mining and metallurgical industries are invited. Ample time is allowed for discussion and the formal lecture is invariably followed by a cocktail party. During the latter event, younger members have the opportunity to make contact, in a more informal manner, with senior people from industry.

On 18 September 1998 the Annual Research Seminar was organized in conjunction with the School of Mining and Minerals Science. At this event Professor H. Theart, Chief Exploration Geologist, AVMIN, gave an overview of the exploration principles and techniques used by his company. Mr Dave Diering of Anglo American Corporation presented an excellent paper on the challenges that face the mining industry when mining at ultra-depths during the 21st century. Various University staff members presented papers on their respective field of research.

Every year the Vanadium International Technical Committee (Vanitec) awards the Vanadium Medal for the best published research paper on vanadium bearing materials. As part of the award each winner is invited to visit South Africa during which time he/she is introduced to academic and scientific personnel and companies interested in the use of vanadium. The intention is to facilitate the exchange of ideas between different academics, students and industry. The Pretoria Branch was privileged to host the winners of this prestigious award at a special function on 14 October 1998 at the University of Pretoria. During their presentation, the

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winners, Dr W.B. Morrison, Prof. Subramanian, Dr Siwecki and Dr Engberg, gave an overview of progress made in the field of vanadium research.

The new academic year began in February 1999 with a presentation by Prof. Hans Smith, Executive Chairman of Iscor Ltd and Honorary Professor of the Department of Materials Science and Metallurgy Engineering. His talk on the role of the metallurgical engineer in a cyclical commodity market was well received by all.

Another remarkable event organized during February 1999 was a mini-colloquium on the topic of steel making. During this occasion Prof. R.J. Fruehan from the Centre of Iron and Steel making Research at the Carnegie Mellon University in Pittsburgh, presented papers on the effect of scrap alternatives on Refining in the EAF and the future of iron making in North America.

On 12 May 1999, Mr Clem Sunter of Anglo American Corporation was the guest speaker at the annual Hendrik van der Bijl memorial lecture. With well over 400 people attending, Mr Sunter managed to keep the audience's attention with his very interesting speech entitled 'Never mind the millennium, what about the next 24 hours'.

The Committee is largely satisfied with the format of the events hosted during the year under review. We were always encouraged by the willingness of senior people from the mining and metallurgical industry to give presentations at our meetings. Finally, we should acknowledge the contributions of our sponsors who made it possible to host these meetings and to end a pleasant gathering on a more social note.

4.2.4 Western Cape Branch

M. Harris (Chairman)

Prof. P. Gaylard (Vice-chairman)

J. Eksteen (Secretary/Treasurer)

Prof. C. Aldrich

Dr D. Bradshaw

Dr D. Deglon

Dr R. Knutsen

Dr C. Lang

Prof. L. Lorenzen

A. Nesbitt

Prof. C. O'Connor

Prof. F. Petersen

M. Winter (Branch Secretary)

The Western Cape Branch of the South African Institute of Mining and Metallurgy enjoyed yet another successful year, starting with the Mineral Processing '98 Conference which took place at the Karos Arthur's Seat Hotel in Cape Town from 6-7 August 1998. The conference was preceded by a Workshop on Mineralogy for Mineral Processing Engineers, on 5 August, in the same venue. The conference proved to be an outstanding success, attracting about 200 delegates, including about 15 foreign visitors. The plenary lectures were presented by Prof. John Ralston, Director of the Ian Wark Research Institute, University of South Australia, and by Dr Victor Ross, Innovation Manager of DebTech. Prof. Ralston presented a paper on the prediction and manipulation of bubble-particle capture in flotation, while Dr Ross presented a paper on technical innovation. Apart from these lectures, 38 papers, 15 snapshot presentations and 20 posters were also presented at this highly successful event. The workshop that preceded the conference also proved to be very successful, with various internationally recognised speakers from South Africa and

abroad. The Branch wishes to extend its sincere thanks to all those who contributed to the success of these events by their participation as invited speakers, authors or delegates. In addition, the committee would like to thank the sponsors of the conference: Hatch Africa, Bateman Process Equipment, Crusader Systems, Outokumpu Mintec and Senmin. This sponsorship is used to subsidise post-graduate student attendance at the conference. As in previous years, the Branch owes a considerable debt of thanks to our secretary, Mrs Meg Winter, for her outstanding organization of these events.

The July/August issue of the SAIMM *Journal* presented a showcase of the research activities of the tertiary institutions in the Western Cape involved in running the Branch. The Branch would like to extend sincere thanks to Council, and, in particular, *Journal* Editorial Consultant Prof. Robbie Robinson for his efforts and support in this regard. The Branch considers the new format of the *Journal* a great success, and will endeavour to encourage the support of local members involved in minerals and minerals-related activities.

The annual student evening of the Branch, organized in collaboration with the local branch of the South African Institute of Chemical Engineers, took place at the Cape Technikon on 23 March. After a short presentation on the role and activities of the two institutions, comedienne Magriet Meyer Roodenburg entertained an appreciative audience.

As in previous years, the Branch participated actively in the schools days held at the local tertiary institutions, distributing information on career and study opportunities in the fields of minerals and materials engineering.

The annual student tour took place from 26 March to 1 April 1999. This year's tour was organized by Mr Paul van der Plas of the Cape Technikon, and 34 students and 6 staff members participated. The tour visited three operations in Namibia: Rossing Uranium, Caribib Gold Mine and Kleinsee. The tour was a great success, and the Branch wishes to extend its thanks to Mr van der Plas and his team (Dave Deglon, Andre van der Westhuizen, Emile Scheepers, Marsha Solomons and Eugene Johannes) for their efforts, and to the mines who hosted the tour for their co-operation and hospitality. The financial support of this event by the SAIMM Council and the Chamber of Mines, through the Western Cape Mineral Processing Facility, is gratefully acknowledged.

In 1998, the Branch, on behalf of the SAIMM, was successful in their bid for the XXII International Minerals Processing Congress. This will be held in Cape Town, on the 5-10 October, 2003. The organization of this very important event has already commenced, led by a local committee consisting of Prof. Cyril O'Connor of the University of Cape Town, Prof. Leon Lorenzen of the University of Stellenbosch, and Prof. Francis Petersen of the Cape Technikon.

Finally, the chairman wishes to express his sincere thanks to the outgoing committee for their support. In addition, the Branch would like to thank Council and the President, Mr J.R. Dixon, as well as the SAIMM secretariat for their support during the year.

4.2.5 Mpumalanga Branch

D.A.A. Smith (Chairman)

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Table 1

Mpumalanga Branch Schedule of Events, 1998/99

Month	Subject	Venue	Attendance
July '98	AGM	Secunda	48
June '99	Transformation in the SAPS	Witbank	23

K.T. Bladwell
B. Bell
P. Gericke

A.M.P. Henderson
R. Jennings
J. Raath

The branch had a slow year as 4 members of the previous year's committee resigned due to relocation and work commitments.

Only one function was held during the year which attracted an attendance of 23 at Reyno Ridge, Witbank. The presentation was given by Captain R. van Lingen and A. Chrissopoulos from the South African Police Service on transformation within the police force. The presentation was well given and well received prompting a lot of debate from the floor.

There have been changes in the local Protec organization and all liaison with Protec has been put on hold for the time being.

There is a drive by the committee to look for more members to serve on the committee.

4.2.6 Bushveld Branch

T. Bierman, Chairman

The past year has been very inactive for the Bushveld Branch of the SAIMM.

A Branch committee meeting has been arranged early in July 1999 in order to agree on a strategy to improve participation in this Branch.

4.2.7 Zululand Branch

N. Barkhuysen, Chairman

Branch Objectives

It is important that each year the Branch is reminded of its objectives and for this reason they are repeated here.

- ▶ To encourage and develop interest in all technical disciplines involved in the practice of mining and metallurgy in the Zululand area.
- ▶ To encourage the exchange of technical information between the various disciplines involved in mining and metallurgy.
- ▶ To encourage interest in the technical disciplines amongst scholars and students, with the aim of developing more potential scientists and engineers.

Membership

Membership, quoted as attendees to our monthly meetings, numbered 42 for the year. Membership numbers of the National Institute decreased to nine. We lost two to Australia during the year.

At year-end we have only 8 paid-up members of the Zululand branch, which us cause for some concern. The annual fee of R60 will not be increased this year.

Financial Status

Our competent treasurer, Elana Williams managed the financial affairs this year. The branch continues to have a sound financial balance.

Meetings

We had a number of very successful monthly meetings during the past year. This is the essence of the local branch and we would like to call upon all members and interested parties to actively promote these evenings and encourage attendance.

Seven presentations were given throughout the year by Columbus Stainless Steel, Outokumtu Mintec, Stalcor, FLIR, Hatch Africa, CSIR Mattek and Crusader Systems. We had two late cancellations during the early part of 1999, however, both agreed to reschedule at a later date. We were also fortunate that all of the presenters sponsored snacks and drinks for the evening.

Our planned technical visit during November 1998 to TOYOTA SA in Prospecton, Durban was cancelled due to lack of support. The incoming committee should perhaps reschedule future technical visits for a different time of the year.

Projects and Social Events

Two fund-raising events were held during the year.

We had a successful Bingo evening late last year in place of the Spring Dance. It was our first attempt at a Bingo function and it turned into a most enjoyable and profitable evening.

The popular annual golf day was as usual well attended and supported. Our special thanks again to Ian Walton and Kevin Webster for organizing this day. We had a full field of around 100 players and the event has become a fixture on the Country Club's calendar.

Education

The Branch once again participated in the Zululand careers exhibition in March. Models of a spiral concentrator, sievebend screen, dry mineral elevator and dry magnetic separator were donated to the Science Centre with the help of Richards Bay Minerals and Magnapower. These exhibitions now form part of the permanent industry exhibition at the Centre.

A 2 x 2 metre-display exhibition depicting local industry was developed from the National Institute's advertising brochure. A local artist was commissioned for the work at a nominal cost of R500, and this exhibition forms part of the permanent display for the Zululand Career and Lifeskills Learning Centre.

Part sponsorship of the Science Centre's teacher training schedule is still being addressed. Deon will have the honour of presenting the proposal to the National Institute at one of their monthly meetings later this year.

Two book prizes are being offered to two local secondary schools for their top science student of 1999 and a further two sets of Somerset Science Kits for grades 8 and 9 have been allocated to interested schools.

Heavy Minerals Conference

The Heavy Minerals Conference, HMC99, scheduled for mid-November 1999 in Durban is well on track. All sponsorship slots have been taken and only a few exhibition spaces are still available. If there is any interest in the audience tonight, please talk to either John Selby or myself after our Proceedings.

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Approximately 34 papers will be presented, grouped under the following categories:

Mining, Geology, Mineralogy, New Projects, Beneficiation, Upgrading of Ilmenite, Radioactivity, Automation, Smelting and General.

The next HMC conference will be held in Australia around 2001, only people attending HMC99 will be allowed to go! Please show your support in November.

Conclusion

The Branch had another successful year with a sound financial and membership base and I would like to thank my committee members, Deon, Ian, Elana and Past Chairman, John for their help and support. I would also like to thank all the members, especially the core of 'faithfuls' that attend our meetings religiously, your support is invaluable, please pass it around! Also a big thank you to all our sponsors. We tend to abuse a few willing sponsors throughout the year for functions and meetings—your willingness to contribute make the Branch viable and allows us to contribute to science and technology in the greater Zululand area.

All the best to Deon and his committee for the upcoming year. It promises to be a busy one and I would like to offer my support wherever necessary.

5. Engineering Science and Technology in South Africa

Portfolio Holder: R.P. Mohring

5.1 Engineering Council of South Africa (ECSA)

	<i>Mining</i>	<i>Metallurgy</i>
<i>Representative</i>	R.P. Mohring	Prof. R.F. Sandenbergh
<i>Alternates</i>	H.G. Mosenthal J.A. Cruise	Dr N.A. Barcza P.J. Venter

The Institute nominates members on the Council of ECSA, and also nominates members to the registration and professional advisory committees for mining and metallurgy.

During the past year, these committees continued their important work of screening the qualifications and practical experience of applicants for registration as Professional Engineers.

Assistance continues to be provided by nominees of the Institute in the accreditation of courses offered by universities and technikons in the disciplines of mining and metallurgy.

Professional Advisory Committees

PAC Mining

Prof. A.N. Brown	M.H. Rogers
J.A. Cruise	D.A.J. Ross-Watt
R.P. Mohring	Dr O.K.H. Steffen
H.G. Mosenthal	D.J. van Niekerk
Prof. R.P. Plewman	

PAC Metallurgy

Prof. R.F. Sandenbergh	
Dr N.A. Barcza	Dr A.K. Haines
R.D. Beck	H.E. James
Dr L.A. Cramer	Dr W.H. van Niekerk
Prof. R.H. Eric	R. de Pretto
K.J.R. Ford	D.I. Watson

ECSA Activities

The new training requirements as set out under Policy Statement R1/1, with companies registering a commitment and undertaking to train their Engineers-in-Training is progressing satisfactorily, however, it is disappointing to note the relatively few companies who have registered such an undertaking.

Satisfactory progress was made during the year by the task team who are developing outcomes based standards for education and training within the Engineering Profession.

During 1998/99 ECSA continued to carry out the following activities relating to the engineering profession in South Africa.

- ▶ Setting standards for registration
- ▶ Registering applicants who comply with the standards
- ▶ Accrediting qualifications
- ▶ Prescribing and enforcing a code of conduct
- ▶ Publishing a tariff of recommended fees for consulting work
- ▶ Recognizing engineering institutes
- ▶ Liaising with other engineering bodies
- ▶ Seeking international recognition for ECSA registered engineers.

The initiative regarding the change in administration of Certificates of Competency is making progress. Negotiations with the Department of Labour are well advanced but progress with the Mining Certificates has been rather slow due to a need to consider the views of the many interested and affected parties.

Further progress has been made towards the international recognition of registered engineers. Signatories to the Washington Accord (mutual recognition of academic qualifications) have met on a number of occasions to consider mutual recognition for experienced engineers. They have agreed on the broad principles of a framework which might enable progress to be made towards removing artificial barriers to the free movement and practice of Professional Engineers between their countries.

Agreement has been reached and a Memorandum of Understanding drafted between the parties collectively termed the 'Engineering Mobility Forum' on a process through which their substantial equivalence in competence of experienced engineers wishing to practice internationally could be established.

The Founding members of the Engineering Mobility Forum are:

- The Canadian Council of Professional Engineers
- The Engineering Council of South Africa
- The Engineering Council, United Kingdom
- The Hong Kong Institution of Engineers
- The Institution of Engineers, Australia
- The Institution of Engineers, Ireland
- The Institution of Professional Engineers, New Zealand
- The United States Council for International Engineering Practice
- The Federation of European National Engineering Associations
- The Japan Consulting Engineers Association have been admitted as Provisional Members.

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ECSA Council have decided that in order to be in line with international norms, applicants seeking registration as Professional Engineers will, in future, need to undergo an interview as part of the professional review process. In this process the SAImm and its branches will be called upon to set up interview panels to conduct these interviews. The new review process should be in place by early next year.

It has been recommended that the format of the qualification (11.3b examination) for 'alternate route candidates' i.e. those engineers without the prescribed engineering qualification, but more than 20 years experience, be changed. It is proposed that the current system of an oral examination by a panel of experts be changed to a written examination comprising 4 Engineering subjects at university final year level.

The Department of Public Work in consultation with the different professions in the built environment, (engineers, architects, landscape architects, valuers, quantity surveyors and construction managers) compiled a Policy Document for the Professions in the Built Environment.

The Policy Document contains the structure and proposed contents of a Bill to establish a Council for the Built Environment, as well as a Bill for each profession.

The Engineering Profession Bill provides for the establishment of a Council for the Engineering Profession, for the registration of professionals, candidates and specified categories and for the regulation of the relationship between ECSA and the Council for the Built Environment.

The Council for the Built Environment Bill provides for the establishment of a Council for the Built Environment and sets out the Council's functions.

These Bills have gone through a number of drafts with ECSA having made comments at the appropriate stages and will be passed into law shortly.

5.2 The Institute of Professional Engineering Technologists (IPET)

Representative Dr R.V.R. Handfield-Jones

The Institution continues to be active in the representation of its members. Special activity in the year under review has been focused on the lack of recognition from the engineering sector of the Public Service. Strong support for the Professional Technologist has been elicited from the South African Association of Consulting Engineers (SAACE) who fully recognize the status of the Professional Technologist and make no distinction between PrEng and PrTech(Eng). Similar support has been received from the Committee of Technikon Principals (CTP) and from the Engineering Council of South Africa (ECSA). This has been transmitted to administrators in the Public Service and some more positive responses and opportunities for discussion are being received by IPET. There is however, still much networking to be done to overcome much unwarranted residual resistance.

The 4th World Conference on Technology Education in Cape Town was most successful and was opened by Dr Adam from the Department of Arts, Culture, Science and Technology (DACST). Opportunities for the continued discussion of reciprocity agreements at the technologist level between Canada and SA took place.

IPET continues to take an active interest in the changes taking place in the engineering fields and to this end has

contributed to the debate to change the Engineering Association to the Engineering Society of South Africa and in providing informed comment on the content of the Engineering Profession Bill 1999.

The IPET award for the best BTech student went to Alison Lloyd, a Chemical Engineering student at Cape Technikon.

5.3 Engineers' Liaison Committee

Representative Prof. G.A. Fourie

The Pretoria Engineers Liaison Committee is the rallying point for the Pretoria branches of the ten learned engineering societies.

The 36th Annual Hendrik van der Bijl Memorial Lecture was held at the University of Pretoria on 12 May 1999. On this occasion, hosted by the S.A. Institute of Mining and Metallurgy, Mr Clen Sunter of Anglo American Corporation, delivered a lecture entitled 'Don't mind the next millennium, watch the next 24 hours'. This lecture was well attended and more than 400 delegates were present.

5.4 South African National Council on Tunnelling (SANCOT)

Representative Dr T.R. Stacey

Alternate J.A. Cruise

SANCOT continues to be an active member of the International Tunnelling Association, and has a member on its Executive Committee. It provides input to various ITA Working Groups, and operates its own committees on Shotcrete specifications, hydraulic roughness in tunnels, exploratory works, legal requirements and contractual practices.

Organization of the World Tunnel Congress, to be held at the same time as the ITA Council meetings in Durban in 2000, is well in hand. The SAImm Secretariat is responsible for the administration, and SANCOT, the SAImm, SANIRE and the LTS are all participating in the organization.

5.5 The Environmental Planning Professions Interdisciplinary Committee (EPPIC)

Representative Dr T.R. Stacey

Alternate J.S. Freer

The members of EPPIC, which has been operating for more than 20 years, are professional institutes committed to the promotion of integrated environmental management (IEM). EPPIC's mission is to achieve a situation where all activities are planned and managed to bring about the sustained maximum net benefit to man and his environment.

Each year awards for excellence in the implementation of IEM are made by EPPIC. Companies from the mining and metallurgical industries have often been successful in winning the National Premium Award or obtaining commendations. The past year was no exception, Nkomati Mine being awarded a highly commended certificate.

6. State Liaison

Portfolio Holder: J.R. Dixon

Dr N.A. Barcza, Chairman

Dr N.A. Barcza was appointed chairperson of the Working

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Group for the Mining and Metallurgy Sector for the Department of Arts, Culture and Science and Technology Foresight project.

The Sector Co-ordinator is Mr B.E. Protheroe. The South African Institute of Mining and Metallurgy is well represented on the Working Group which comprises close to thirty members from the various stakeholders. A survey has been carried out using a detailed questionnaire that the Working Group prepared based on several interactive Workshops. The outcome of the survey will be announced during August and will be featured in the SAIMM *Journal*.

The object of Foresight is to provide guidance to DACST regarding the priorities for future research funding.

6.1 Mining Qualifications Authority (MQA)

Representatives D.J. van Niekerk J.C. Viljoen

The MQA's application to the SA Qualifications Authority (SAQA) to be registered as a Standards Generation Body (SGB) as well as to be accredited as an Education and Training Quality Assurer (ETQA) is presently being considered by SAQA. The major issue to be resolved is whether or not the MQA will be allowed to register both as an SGB and ETQA for the Industry. The Mine Health and Safety Act, 1996 (Act No. 29/1996) specifically assigns both these two functions to the MQA.

The tripartite stakeholders in the MQA agree that it should be established as a Sector Education and Training Authority (SETA) for the Industry in terms of the Skills Development Act, 1998 (Act No. 97/1998). Three separate tripartite task teams will be established to develop appropriate implementation plans for the MQA to give effect to the following aspects of a SETA for the Industry which are not covered by the MQA Implementation Plan nl. a Skills Development Plan, Learnerships in the Industry (sector) and the Skills Development Levy (0,5% of cost of human resources) which will come into effect on 1 April 2000.

The MQA has concluded a 'Memorandum of Understanding' between the MQA and Professional Associations with 22 of the Professional Associations active in the Industry during July 1998. This breakthrough initiative has received country-wide acclaim as a major step forward in the process of the generation of competency standards and the design of qualifications which will be registered on the National Qualifications Framework (NQF).

1999 is the year of delivery for the MQA in respect of standards generation and qualifications design. To this end the Policy Implementation Guideline on the generation of Standards and the design of Qualifications have been finalised. 13 Tripartite Standards Generation and Quality Design Groups (SGGs) have been established since January 1999. Facilitators and the members of these SGGs have been trained in the art of standard writing. A tripartite MQA Steering Committee has been established to steer, coordinate and monitor the standards generation process through the following Standards and Qualifications Coordinating Groups (SQCGs):

- Engineering
- Occupational Health and Safety
- Survey, Geology and Rock Engineering
- Ingquokela ('Basket of miscellany').

What is of specific interest for members of the SAIMM are the technical and engineering competencies which will be required in terms of the core business process(es) of the

Industry. The Institute should ensure effective participation in those initiatives dealing with the levels 5 to 8 standards and qualifications.

The Executive Officer, Dr Menzi Mthwecu and the 12 other core MQA office staff have been appointed. The move to the new offices in Braampark, Braamfontein are in progress.

7. International Liaison

Portfolio Holder: M.H. Rogers

Key Performance Areas

To achieve its objectives, the SAIMM

- *participates in and represents South Africa on bodies such as the Council of Mining and Metallurgical Institutions (CMMI), the Iron and Steel Society Inc (ISS), the Mining, Metals & Minerals Society (TMS), and together with Mintek on Infacon*
- *appoints Corresponding Members in areas such as Australasia, Botswana, Brazil, Canada, Chile, Europe, Far East, Ghana, New Zealand, United Kingdom, and the United States of America, and interacts with sister institutes in other countries to promote international exchange of scientific and technical information.*

7.1 Council of Mining and Metallurgical Institutions (CMMI)

National Representatives
Alternates

J.R. Dixon
Dr O.K.H. Steffen
Prof. C.T. Shaw
Prof. D. Buchanan

The Institute has been instrumental, and successful in resurrecting the compilation of a South African Code for Mineral Resources and Reserves. It is envisaged that this code will be officially published and recognized by the end of 1999. The drawing up of the South African code has been done in conjunction with the other members of CMMI to arrive at an internationally acceptable code. This initiative has illustrated the need for the Institute to become recognized internationally and play its part in the global game.

7.2 APCOM

National Representative

Dr F.A. Camisani-Calzolari

APCOM '98 was held at the Imperial College, in London, from 19 April to 23 April '98. A total of 126 people attended the proceedings of which 9 were from South Africa. 26 Countries were represented, including China, Russia, India and Vietnam. The papers were 67 and were presented in two parallel sections.

Subject	No. of papers
Mine Design (CAD)	10
Environment	3
Geological Modelling	5
Geostats	16
Geotechnics	3
Mine Planning	4
Mineral Processing	7
Mine Transport	4
Production Scheduling	9
Safety	6
TOTAL	67

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The Geostats papers broadly focused on two aspects, namely the evaluation of mineral deposits, which constituted the bulk of the presentations, and the more theoretical aspects of new developments in Geostats.

In the former, evaluation techniques used in gold deposits in South Africa, Papua New Guinea and for the Loula Deposit (Mali) were presented. In addition, the salient aspects of the evaluation techniques used in the following deposits were outlined. Radomiro Tomic Copper Project (Chile), Alentejo Primary Copper Deposit (Portugal), Duruamanwadi Bauxite Deposits (India) and an unnamed iron ore mine (Venezuela).

For the latter, worthy of note were general grade modelling papers presented by delegates from Canada and France, and papers on the future developments in Geostatistics and on general guidelines for the evaluation of diamond deposits.

Concerning the application of CAD systems in mine design, the delegates were informed at the presentation of a paper from China that that country is now purchasing commercially available systems from the western world (CAD, DATAMINE, VULKAN etc.) and implementing them at a considerable pace.

The International APCOM council meeting was held on the 21st of April and was chaired by Prof. Tim Shaw.

The most relevant decisions of the Council were as follows:

- ▶ Dr F.A. Camisani-Calzolari, nominated by the SAIMM to replace Prof. Danie Krige, was accepted as a permanent member of the Council to represent South Africa and the SAIMM.
- ▶ The permanent members are 9, representing the following institutions:
 - The University of Arizona, The Colorado School of Mines, Penn. State University, Society of Mining Engineers (SME in USA), The Canadian Institute of Mining and Metallurgy, SAIMM, The Technical University of Berlin, The Royal School of Mines (London), and the Australian Institute of Mining and Metallurgy.
- ▶ The third regional APCOM conference will be held in KALGOORLIE, Australia, from 7 to 9 December 1998. As it turned out, that conference was cancelled due to lack of support.
- ▶ The 28th International Symposium (APCOM '99) will be held in Denver, at the Colorado School of Mines, from 20 to 22 October 1999.
- ▶ APCOM 2001 will be held in Beijing (China) in March–April that year. Prof. S. Shkundin, on behalf of Prof. Xim who could not attend the meeting, confirmed that the Chinese Government will sponsor the Symposium and provide the adequate venues and security.
- ▶ APCOM 2002 will be held in Phoenix, Arizona, from 11 to 13 March and will be combined with SME 2002.
- ▶ APCOM 2003 could possibly be held in Chile. The Chilean delegate, Dr P. Carrasco, confirmed that his government has approved it. The APCOM Council did not finalize the matter. Should Chile be accepted, APCOM 2004, already scheduled to take place in South Africa, will have to be postponed to 2005.
- ▶ Prof. F. Muge from Portugal requested that a regional APCOM Symposium be held in that country before 2005. No finalization on the matter was reached.
- ▶ The Council confirmed its willingness to hold APCOM 2004 in South Africa.

7.3 INFACON

National Representative Dr N.A. Barcza

The Ferroalloys Association of North America has announced that the Ninth International Ferroalloys Congress (INFACON 9) will take place in Quebec City, Canada, from June 3–6, 2001. This follows the holding of INFACON 8 in Beijing, China, last year.

Mr Hans Johansson is the new INFACON 9 Technical Chairman. Dr A.M. Edwards has retired as the Chairman of the International Committee on Ferroalloys (ICFA) and Dr N.A. Barcza has been appointed to this position. Mr T.R. Curr replaces Dr Barcza as Secretary General. ICFA ensures that Infacon continues to meet the objective of assisting with the promotion of advances in technology by holding the Congress every three years in locations on a rotational basis.

The Call for Papers has been issued and INFACON 9 expects to attract several papers from southern Africa to address their four topic areas which are customer focus, technology, environment/health and safety, and energy/electricity.

The Infacon bursary fund generated from INFACON 6 held in Cape Town in 1992 continues to support research on ferroalloys at the University of the Witwatersrand. Projects supported during the past year covered the following topic: 'Physical modelling of ferroalloy refining reactors'.

8. Management and Administration

Portfolio Holder: A.A.B. Douglas

The Secretariat consist of:

Mrs Sam Moodley (Manager)
Mrs Ginette Oliver (Membership Secretary)
Ms Marshane Perez (Conference Co-ordinator)
Miss Karen Norman (Conference Co-ordinator)
Mrs Dawn van der Walt (DTP Operator)
Miss Zuliakha Mohamed (DTP Operator)
Mrs Pam Bester (Publications Co-ordinator)
Mrs Anna Panana (Junior Secretary)
Mrs Apathia Sello (Junior Clerk)

The SAIMM, Office Bearers and Council records their appreciation to the above for their service.

8.1 Finance

J.A. Cruise, Honorary Treasurer

Subscriptions received showed an increase on the previous year, being Company Affiliates R175 751 (R164 473) and individual membership R452 111 (R411 758). Income from colloquia and schools decreased from the previous year R428 579 (R916 227). A surplus on the sale of investments of R292 638 (R 391 019) was recorded for the year and was required to supplement the day-to-day running of the Institute. Interest and dividends received were lower than the previous year R32 997 (R59 730). The result of the above saw the total income decrease markedly R1 243 183 (R1 784 072). To assist with the cash flow a larger overdraft facility was arranged and utilised to avoid the selling of shares under unfavourable conditions. The market value of our investments decreased R1 626 681 (R2 381 052).

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Expenditure for the year decreased to R1 511 421 (R1 796 911) mainly due to last year's write-off of the non-recurring loss of R175 980 for Stonehurst and a decrease in the provision for debts over six months to R35 000 (R142 600).

The Journal expenses increased to R676 296 (R394 609) which was partially off-set by sales and advertising revenue which increased to R227 771 (R52 072). Subscriptions written-off almost doubled R50 926 (R25 981). The increase in the *Journal* is due in the main to a larger Journal with more pages, issues in full colour and increases in printing and postage.

The Institute has suffered a substantial loss for the year being R268 238 (R12 839). In the past we have relied upon excess income from colloquia and schools to supplement our expenses and have therefore kept our annual subscriptions at a level far below our sister institutions. It is a sign of the times that we can no longer depend on this source of income to the extent that we have in the past and so, to make ends meet, subscriptions can be expected to double in the next two years.

Our thanks go to Quyn Martin our investment adviser, our new accountants VIA Strategic Partners Trust who took over from Hanlie Smith on her untimely and tragic death and to our auditor for financial services rendered during the year.

Addendum

New Members

Fellow

F.B.J.M. Burks, A.N. Clay, A.M. Clegg, A.G. Du Plessis, R.J. Durrheim, J.L. Fourie, A. Joubert, R.P. Menell, M.P. Mullins, A.F. Newall, D.M. Peatfield, F.R.P. Pienaar, J.L. Pretorius, R.D.C. Prior, S.S. Willmott.

Member

J.A. Barnard, F.C. Berndt, M.S. Bilen, J.D. Bosman, R.S. Buchan, A.M.T. Bullock, N.J. Chittenden, C.S. Cowie, M.J.M. Da Silva, F. Essrich, E. Gwarisa, E.F. Heymann, A.R. Jarvis, S.S. Jooste, H. Kolama, L. Mabiza, O.H. Matlhola, J.B. Mkandawire, H. Mphusu, J. Mungoshi, P.L. Odell, A.G. Pavlides, C. Sevume, P.E. Smith, D.A. Spencer, M. Sturgeon, J.J. Sutherland, F. Vermeulen, R.V. Von Varendorff, R.C.W. Webber.

Associate

E. Acheampong, C. Adamson, F. Benedetti, D. Chetty, A.D. Coetzee, M.A. Cunney, T.H. Dietrich, J.G. Fourie, M. Goosen, R.W. Herwig, P.J. Hill, S.S. Jooste, H.J. Louw, S.M. Maher, L.D.J. Malan, M.N. Mintoor, W.D. Moolman, M.L. Mothoa, L. Msimange, C. Mthombeni, W.A. Mulder, M. Musonda, S.M. Naik, E. Nel, C.J. Pearson, W.H. Pretorius, S. Ramoolla, J.J. Steyn, P.H. Strydom, R. Suss, H.H. Thiele, M.D. Thomas, A.A. van Niekerk.

Student

F.L. Alberts, J.P. Boersma, G.C.K. Breet, B. Brink, D.E. Changwa, F.P. Coetzee, C.J. Combrink, O.P.J. Douglas, P.D.F. Du Preez, A.C. Durant, A. Ferreira, J. Fouche, J.A. Fourie, J.H. Gerber, R.J. Gerber, V. Hlumgwane, C.J. Horn, M.J.K. Jarvis, D.F. Kangleas, M.B. Kgotlagomang, T.M. Khandela, G.A. Khonkhobe, T. Khunou, W. Kotze, J. Kruger, W.C. Kuys, J.-H. Le Roux, I.L. Lister, J.A. Louw, B.E. Mabunda,

N. Mabunda, S.N. Machaka, P.J.N. Makgato, W. Manala, S. Manne, R.-C. Martin, P.K. Masia, S. Mazibuko, J.M.F.H. Mchive, M. Mkhwanazi, R.T. Mmola, E. Mnisi, S.S. Mohlala, C.P. Moleki, L.D. Mtshali, I.P. Ncube, Z.M. Ndese, B.B. Nel, V.E. Netshivhangoni, B.N. Ngesi, B.R. Ngqulunga, C.W. Niehaus, B.M. Ntuli, P.D. Oberholzer, G.G. Olivier, N. Rossouw, P.P. Segalo, H.S. Segotsane, S.J. Sekhukhune, K. Seleka, M. Sithole, J.L. Sloane, P.J. Smith, C. Staegemann, G.J. Steyn, B.J.J. Swanepoel, J.D. van Aswegen, F.M. van Daalen, G.J.J. van der Bank, G.J. van der Merwe, S.J.J. van Heerden, A.A. van Jaarsveld, H.J. van Rooyen, A.B. Wessels, T.P. Zulu.

Company Affiliate

Atomaer RSA (Pty) Ltd
Kimberley Mines—A Division of Central Mines
Price Forbes Metals and Minerals
Sappi Mining Timber (Pty) Ltd.

Resignations

Fellow

C.O. Beale, J.J. Bodenstern, N.C. Gay, I.S. Henderson, I.A. Lever, O.J. Marini, A.P. Prinsloo, K. Reim, E. Robertson, I.C. Roselman, N.K. Savage, D. Smith, J.D. Stone, H.N.S. Wiechers, P.H. Williams.

Retired Fellow

W.R.A. Donald, R.O. Lazar, P.D. Toens, H.J. Wright.

Member

C.F. Brugman, J.L. Dinsdale, M.N. Dix, P.G. Dunn, J.H. Ferreira, D. Grobler, C.G. Knobbs, A.G. Langley, B.F. Lubbe, R.J.R. Meade, R.E. Moncrieff, J.E. Rennie, E. Reynolds, J. Theobald, E. van Greunen, M.C.W. Viljoen, D.B. Wait, D.A. Williams.

Retired Member

F.H. De Groot, E. Levin, D. Loubser, J.M. Wotherspoon.

Associate

R.A.L. Atkinson, I. Billingsley, A.J. Botes, A.D.S. Buchan, R. S. Burns, F.P. Cloete, B.R. Du Plessis, A.G. Fair, C.K. Grassmann, R.J. Hattingh, T. Heinze, D. Hope, J.S. Joubert, R.F.C. Kotze, D. Lombard, J.A. Lotriet, H.C. Moen, G.P. Muller, S. Pillay, R.A. Pollhammer, B.A. Richardson, G. Richardson, A.M. Saayman, J.F.O. Scholtz, S.M. Simmonds, A.F. Stark, J. van der Merwe, S.F.W. Village, W.J.M. Welding, M. Wilsenach

Student

R.S. Abrahams, S.C. Cele, C.M. Lotz, J.J. van der Merwe, H.J. Wiese.

Company Affiliate

Detonator Technologies (Pty) Limited
Evander Gold Mines Limited
Knights Gold Mining Company Limited
Main Industries (Pty) Ltd
Tsume Corporation Limited

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Members Transferred to Higher Grade

Transfer from Member to Fellow

H.D.R. Browner, M.B. Cortie, E.J. Da Silva, D.H. Diering, J.S.J. Dudas, G. Huckle, K.B.K. Jones, K.G. Kartun, C.G. Kubank, R.A. Macaulay, B.J. Madden, G.L. Smith.

Transfer from Associate to Fellow

K.C. Sole, H.J.W. van Heerden, J.H. Vorster.

Transfer from Associate to Member

M.J. Daniel, G. Dellas, J.J.L. Du Plessis, H.P. Galloway, N.A. Herrick, W.C. Joughin, A.J. King, D. Limpitlaw, D.F. Malan, C.A. McInnes, G.B. Quaye, W.W. Stange, A.H. Swart, R.J. West.

Automatic Transfer to Associate

E.T. Ashong, J.H. Buchebner, J.O. Claassen, P.H. Coetzee, A.J. Deale, R.H. Ehlers, I.P. Greager, C. Hodgkiss, H.C. Jennings, J.J.C. Jooste, W. Joubert, T.O. Khoza, S.B. Khumalo, R.M. Lebatla, B.A. Lilford, D. Lincoln, P.F. Lötter, J. Malan, A. Marx, J.I. Mlangeni, W.J. Morrell, L. Nyandeni, R.C.D. Phillis, C.M.F. Reis, G.R. Sheppard, D.J. Smith, M.E. Sumner, R.C. Thomas, J.V.Z. Visser, M.J. Vorster, A.P. Van der Westhuizen, D.R. Van Eck.

Deceased

Honorary Life Fellow

D.D. Howat.

Life Fellow

O. Deane, J.S. Van Zijl.

Fellow

A.A. Hejja.

Retired Fellow

A.L.A. Forder, C.B. Parker, A.C. Petersen, F.W.J. Ross.

Member

D.H. Gray, J.S. Stanko.

Retired Member

P.K. Bredell.

Retired Associate

I.S. Van Eyssen

Retired Fellow

L.H.C. Andresen, P.B. Columbine, R. Pendreigh.

Retired Membership

L.H.C. Andresen, E.A. Cole, P.B. Columbine, M.F. Dawson, E.E. Eichenberger, C.R. Harrison, L. Hewitt, A.V.S. Meyer, S.B. Middleton, R. Pendreigh.

Members who were Reinstated

Reinstated as Member

M.B. Akyuzlu.

Reinstated as Associate

F.P. Guilherme, W. Lamb, R.M. Lamy, O.Y. Ntrama, K.D. Smith, E.H.D. Tucker. ♦