



Southern Africa Association for the Advancement of Science
Suider-Afrika Genootskap vir die Bevordering van die Wetenskap

Rudolf Marloth Brochure - Brosjure

Annual award ceremony: November 2003

Merit Certificates

The award of the following merit certificates should be seen in the light of our centenary heritage project. They are nevertheless within the ambit of all our previous awards, recognising the advancement of science in general.

Mohammed Valli Moosa



Minister Valli Moosa accepts his merit certificate from Dr Ian Raper, President of S2A3

In his capacity as Minister of Environmental Affairs and Tourism, Mohammed Valli Moosa has achieved what none of his predecessors was able to. For example and specifically, with two strokes of his legislative pen he has on the one hand put an effective end to the most serious plastic pollution and poison in the country, and on the other hand provided a reprieve for our sensitive beaches from the damage

and pollution caused by 4 x 4 and other leisure vehicles. These seemed ineradicable symptoms of our unconcern with the living legacy we owe to future generations; in fact, an unconcern which has long been shooting our local and tourism endeavours in the foot. It helps that Mr Moosa is an accessible, unaffected and genuine environmentalist, trudging with a smile and a backpack along the reaches of the Drakensberg. His attitude and actions have been truly encouraging to scientists, environmental associations and the public at large.

The legislation referred to is clearly based on ecological research, and should inspire more scientists and associations to become actively engaged in projects to preserve and rehabilitate our natural heritage. With so much public attention being given to the condition of our living situation, it is inevitable that young scientists will realize the urgency of applying their disciplines to our collective benefit. Our survival is at stake, after all, and is in the hands of scientists, legislators, and ordinary citizens at large. It is felicitous that the Department couples environmental affairs and tourism, as the latter industry has become crucial to our economy, and can provide the financial incentives needed to care, for example, to members of the hospitality fraternity.

Prof Gideon Smith



Prof Gideon Smith receives his certificate

An eminent and extremely active botanist, Prof Smith, who is Research Director of the National Botanical Institute, excelled for many years as a rigorous scientific editor of the South African Journal of Botany. He is President of the International

Organisation for Succulent Plant Study and author of numerous specialist papers and several books. In addition to his scientific ardour and achievements, he is a co-editor of *Towards Gondwana Alive* (1999) and the major environmental work in progress: *Gondwana Alive*. It is in the light of the latter internationally and historically significant activity, given added impetus and power by reason of his and the other editors' stature as scientists, that Prof Smith is a most deserving candidate for this award. Endorsements by Nelson Mandela, Kofi Annan, Jane Goodall, David Attenborough, the Prince of Wales, the Dalai Lama, Richard Leakey and other international as well as local luminaries attest to the value of this work.

Prof. Smith's expertise and overriding passion for the preservation of biodiversity single him out among the many committed South Africans whom he represents as a pillar of nation building through national responsibility, which can provide a model for the world of caring human beings.

The Wildlife and Environmental Society of South Africa



The merit certificate awarded to the Wildlife and Environmental Society of South Africa was received by its representative, Mr Stuart Baartman

This society has for a considerable period played a leading part in confronting challenges facing nature conservation. They have not been daunted by opposition, but have followed their conscience, as we all must, in the service of so many projects and lawsuits that only their best synoptic historian can possibly do them justice. To complement the scientific teamwork of Prof Smith's inspired individual scientific caring, and the wielding of political might by the Minister on the side of the angels of earth, WESSA as a collective provides an example to all heritage associations and all citizens, including the youth. Their activities are surely constructive and reconstructive science in action. Work such as theirs constantly reveals more about nature, its vulnerability and its resilience. The advancement of science is inevitable, whether incentives are provided for career paths or the work of dedicated researchers producing their findings with excitement.

Mrs Shirley Korsman

S2A3 sometimes honours its own. A merit certificate was presented to Mrs Korsman in recognition of her outstanding service as a member of Council and Honorary Secretary of the Association for the last eight years. As all office bearers of voluntary organisations know, most of the work of any society is done by its secretary, often with little recognition. The

contributions of S2A3 to the advancement of science in South Africa in late years were in large measure made possible by Mrs Korsman's efficient management of the Association's affairs. Her academic field of expertise is archaeology, in which she was awarded an M.A. degree by the University of Pretoria in 1990 for an analysis of Late Stone Age remains from sites in Mpumalanga.



Mrs Shirley Korsman, Honorary Secretary of S2A3, and Dr Ian Raper



Prof Smith, Dr Raper and Minister Valli Moosa at the function after the award ceremony

Annual report of the National President, Dr Ian Raper, for 2003

I am once again honoured to be reporting to the council and members on the activities of the Association for the Annual General Meeting of 2003. It is year one following our centenary in 2002. I trust we are furiously making new century resolutions to ensure that the Association remains important as a national asset, and that we are all aware of the work to be done in the coming years.

I would once again refer to the words of Jawaharlal Nehru which we quoted at last year's meeting, and which are printed on the invitations to the 2003 awards ceremony:

It is science alone that can solve the problems of hunger and poverty, of insanitation and illiteracy, of superstition and deadening custom and tradition, of vast resources running to waste, or a rich country inhabited by starving people. Who indeed could afford to ignore science today? At every turn we have to seek its aid. The future belongs to science and those who make friends with science.

A practice of science which did not concern itself with addressing the social and environmental problems and quality of life of people would have to be very irresponsible indeed. Often one hears objections to spending and efforts devoted to space programmes, invasive wars, or arms deals, while there is pestilence and famine.

Without beating our own drum too loudly, I think S2A3 can be proud of its achievements to date. In a country and region in which scientists are both scarce and old, we have encouraged and paid tribute to endeavours and achievements in scientific fields at various levels and ranges of expertise. In 1980 our Association was one of the initiators of EXPO, marking our ongoing concern that young people

in this country should be encouraged to pursue scientific careers. Since 1981 the Bronze Medal has been awarded annually to the best student at masters level in the sciences at each of the South African universities, in 1998 extended to include technikon students at masters level. The current and impending mergers of institutions for higher learning will no doubt cause us to restructure the Bronze Medal Awards.

The important omnibus research journal, South African Journal of Science, though no longer published by S2A3, is still preferentially made available to members of the Association. It has a record of significance within the Association dating back to 1903, when it was known as the Report of the South African Association for the Advancement of Science. Since 1984, thanks to a trust fund received from the estate of Rudolph Marloth, the annual Marloth Commemorative Lecture and the Marloth Brochure have been sponsored, disseminating further the activities of the Association and achievements of scientists in South Africa, who are of course not confined to members of the Association. Past presidents and medallists of our Association have been leading figures in the development of science across a broad spectrum. They include Raymond Dart, Robert Broom, Philip Tobias, Bob Brain, Arnold Theiler, Rudolph Marloth, Arthur Bleksley, Eric Holm, Austin Roberts, S. Meiring-Naude, Simon Biesheuvel, David Woods and Kanti Bhoola.

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process. In 1907 the recipient of the first South Africa Medal was Sir Arnold Theiler. Since then it has been awarded more than 80 times. A subsequent visit by a delegation of the British Association marked the introduction of the British Association Medal (Silver), specifically to give recognition to younger scientists. After the first award, in 1932, to Nellie Paterson, it has since been awarded more than 40 times.

1991 saw the founding of the International Federation of Associations for the Advancement of Science and Technology (IFAAST) with S2A3 as a founder member. In 1992 the Craib Trust was the result of a bequest. The interest from the trust is made available annually for mammal research.

In 2002 the S2A3 Biographical Database of Southern African Science was initiated by Cornelis Plug, Council member of S2A3, to coincide with the centennial celebrations that year. Another centenary project initiated by the Council is the new category of corporate membership, to drive environmental rehabilitation through business involvement.

Monthly public lectures held by the Pretoria branch at the Transvaal Museum are testimony to the very active nature of this branch. We intend developing our website to provide a repository of significant achievements, lectures, articles and as an interactive platform for debate. We can certainly be increasingly pro-active in S2A3; and try to picture what levels of nation-building in South Africa, development on the continent and international peace and prosperity can be reached if we can continue our heritage related and recognition activities and increasingly play our part in the growth of science in South Africa towards truly sustainable development.

Activities during 2003

Bronze Medals

The Association's Bronze Medals were awarded by 16 South African universities and technikons this year. The names of the candidates and the titles of their masters dissertations are listed under a separate heading below.

Membership

The current S2A3 membership stands at 102:

Ordinary members	84
Life members	5
Honorary members	7
Student members	4
Corporate members	2

Those members who have not paid their 2003 membership fees have been removed from the list. We invite any interested and willing paid-up members to volunteer to be co-opted onto the S2A3 Council. The Pretoria Branch would also welcome volunteers

who are prepared to offer some of their time and services to the association.

Pretoria Branch lectures

I would like to thank the Pretoria Branch Committee for organizing the following extremely interesting and well received Pretoria Branch lectures during 2003.

3 March 2003: Conserving genetic heritage in endemic species of southern Africa, by Dr Paulette Bloomer, Department of Genetics, University of Pretoria.

7 April 2003: Discovering paleolithic mathematics: A journey into the past, by Prof CJH Schutte, Department of Chemistry at UP and UNISA, and National Bioinformatics Network.

5 May 2003: Climate change and the return of Hurst's Ghost, by Prof WJR Alexander, Professor Emeritus, Department of Civil and Biosystems Engineering, University of Pretoria.

2 June 2003: Are all computer scientists computer literate?, by Prof Lucas Venter, Department of Computer Science, UNISA.

4 August 2003: Complex systems, pattern recognition and evidence based medicine, by Prof Paul Swart.

1 September 2003: Nanotechnology - the next big wave, by Mr Manfred Scriba, Manufacturing and Materials Technology, CSIR.

6 October 2003: Early detection of tuberculosis, by Dr Gilbert Siko, Department of Biochemistry, University of Pretoria.

Pretoria Branch Committee

Chairman: Rotating. Secretary: Ms Bridgit Davis. Treasurer: Dr Elise Venter. Members: Mrs Rejaene van Dyk, Mr Walter Meyer, Mr Quintin Odendaal.

S2A3 remembers

The following Life Members passed away during 2003:

Professor Govert Cornelis van Drimmelen, on 17 September. He was a member for 57 years, served as President in 1964, was awarded the South Africa Medal (Gold) in 1965, received a Centenary Award in 2002, and was an active Council member to the end.

Mr Joseph Michael Lawless, on 23 December 2002 at Nazareth House, Johannesburg.

New members of Council

Two persons have been elected as new members of the Association's National Council:

Professor Casper Schutte, Honorary Professor of Chemistry at the University of Pretoria and Emeritus Professor of Chemistry at the University of South Africa (Unisa), retired in 1998 as Chief Executive Director: Science, Technology and Informatics at Unisa. In 2003 he was appointed Executive Chairman of the newly created National Bioinformatics Network, as part of the government's Biotechnology Strategy. His main research interest centres on quantum theory and the structure of matter. He has published over 70 research papers in international journals, as well as two textbooks on quantum chemistry.

Mr Braam Smit has always had a keen interest in

natural science and was awarded the B.Sc (Hons) degree in Geology by the University of Pretoria in 1993. He started his career as an exploration geologist, working mainly on the evaluation of platinum and base metal deposits in the Bushveld area. After gaining mining experience as a gold mining geologist on the far West Rand for two years, he joined the Anglo-American Research Laboratory as a Kimberlite geologist. In 1998 he was transferred to the De Beers GeoScience Centre in Johannesburg where he is currently employed in its geochemistry facility.

Dr Elize Venter has resigned as a member of Council owing to pressure of other duties, but will remain active in the Pretoria Branch. Council adopted a resolution at its meeting in May 2004 thanking her for her valuable services.

S₂A₃ Bronze Medals awarded during 2003

The Association's Bronze Medals serve to commend outstanding South African science students graduating at the masters level in a particular year. One candidate may be nominated by each South African university and technikon. During 2003 medals were awarded to the following students:

University of Stellenbosch: Thomas Jens Scriba, MSc (Virology): Accessory gene components for an HIV-1 subtype C Vaccine: Functional analysis of mutated Tat, Rev and Nef antigens. Supervisor: Prof Estrelita Janse van Rensburg.

Potchefstroom University: Ilse Maria Röntgen, MSc (Mathematics): Applications of p-summing multipliers in Banach space theory. Supervisor: Prof JH Fourie.

Rhodes University: Hester Elizabeth Williams (nee Sparks), MSc (Entomology): The suitability of *Alagoasa extreme* Jacoby (Coleoptera: Chrysamelide: Alticinae), as a biological control agent for *Lantana Camara* L. in South Africa. Supervisor: Prof MP Hill.

Rand Afrikaans University: JA Olivier, MEng (Mechanical Engineering): Pressure drop during condensation inside smooth, helical micro-fin, and herringbone micro-fin tubes. Supervisor: Dr Leon Liebenberg; Co-Supervisor: Prof Josua P Meyer.

Port Elizabeth Technikon: Martin Konz, MTech (Mechanical Engineering): A generic simulation of energy consumption of automobile air conditioning systems. Supervisors: Prof Hinrick Holdack-Janssen and Mr Jozsef Maczek.

Technikon Pretoria: Cheila Martins Canario, MTech (Chemistry): Chemical and mass spectra of the vapours of gallium, indium and thallium nitrates and chlorides in a graphite furnace. Supervisor: Prof DA Katskov.

Technikon Free State: Pierre Ferreira, MTech (Agriculture): The influence of row width and seed treatment on soybeans (*Glycine max* L. Merr.) in different environments. Supervisor: Dr MA Smit; Co-supervisor: Dr C van der Westhuizen.

Durban Institute of Technology: CW Klusener, MTech (Biotechnology): The formation of diacetyl in high pressure sugarcane bagasse reactors. Supervisors: Prof PM Middleton and Mrs D Macdonald.

University of the Witwatersrand: Simona Svoboda (no further details received).

Medunsa: Angeline Thilakelle Mhlongo, MSc (Med) (Microbiology): The characterization of *Streptococcus pneumoniae* strains prevalent at Ga-Rankuwa Hospital. Supervisor: Prof AA Hoosen.

University of Port Elizabeth: Deon Walter Viljoen, MSc (Computer Science and Information Systems): The specification and design of a prototype 2-D MPEG-4 authoring tool. Supervisors: Prof AP Calitz and Mr NLO Cowley.

University of Natal, Durban Campus: Subhas Karan Venayagamoorthy, MSc (Engineering): Turbulent mixing and dispersion in environmental flows. Supervisor: Prof Derek Stretch.

University of Natal, Pietermaritzburg Campus: Olwen Megan Grace, MSc (Botany): Bark in traditional healthcare in KwaZulu-Natal, South Africa - usage, authentication and sustainability. Supervisor: Prof M van Staden.

University of Pretoria: Augustinus Johannes van Zyl, MSc (Mathematics): A general discrete-time arbitrage theorem. Supervisor: Prof Johan Swart.

University of Cape Town: Ashley Muller, MSc (Eng) (Civil Engineering): Measurement of ordinary heterotroph organism anoxic yield in anoxic-aerobic activated sludge systems. Supervisor: Prof Mark Wentzel.

University of Durban-Westville: Algasan Govender, M Sc (Microbiology): Mobilisation and sequence analysis of a plasmid indigenous to *Xanthomonas albilineans*. Supervisors: Proff D Pillay and DE Rawlings.



Dr Eugen Hanau, member of Council, hands over the S2A3 Bronze Medal to Cheila Canario at the Pretoria Technikon

News of previous gold medallists

Many of the eminent South African scientists who were awarded the South Africa Medal (gold) by S2A3 in recognition of their exceptional contributions to the advancement of science have remained at the forefront of their disciplines and achieved international recognition for their work. The following five have recently been in the news:

Prof Frank Nabarro (SA Medal 1972), regarded by the Royal Society of South Africa as their most famous living physicist, will be presented with a "Festschrift" in his honour later this year.

Prof George Ellis (SA Medal 1993), Department of Applied Mathematics, University of Cape Town, was awarded the R10 million Templeton Prize - the world's largest annual monetary award to an individual (March 2004).

Dr David Woods (SA Medal 1996), Vice-Chancellor of Rhodes University. The honorary degree Doctor of Civil Law was conferred on him by Oxford University (July 2003). His research on micro-organisms is currently being applied in the extraction of gold in Ghana by Anglogold/Ashanti.

Dr C.K. (Bob) Brain (SA Medal 1997), recently attended a conference in Bloomington, Indiana, US, held specifically to honour his contribution to and influence on palaeontology and prehistory (April 2004).

Prof Jan van der Merwe (SA Medal 1998), was reported to be one of two physicists leading world research in his field (April 2004).



Dr David Woods



Prof Jan van der Merwe



Looking back 50 years. Delegates attending the 51st Annual Congress of the South African Association for the Advancement of Science, held in Bulawayo, Zimbabwe, in 1953. The President that year was Professor Raymond A. Dart (1893-1988), well-known anatomist and physical anthropologist, sitting in the front row immediately to the right of the Mayor of Bulawayo.

The S₂A₃ National Council

President

Dr Ian Raper

Vice-Presidents

Prof W Ellery (Kwazulu-Natal)

Mr Case Rijdsdijk (Western Cape)

Prof B L Robertson (Eastern Cape)

Treasurer

Mr Hermann Ortner

Secretary

Mrs Shirley Korsman

Council members

Mrs Esme den Dulk, Mr Eugen Hanau

Dr Freek Kok Dr Frans Korb

Mr Walter Meyer, Prof Cornelis Plug

Prof Casper Schutte, Mr Braam Smit

Prof Michael Wingfield

Past Presidents serving on Council

Prof P Smit, Prof Johan Wolfaardt

Corporate membership

In 2001 the Council of S₂A₃ decided to institute a new category of membership, to give recognition to business concerns who demonstrate a willingness to undertake environmental conservation and enhancement practices.

Sparkling Waters Hotel, Rustenburg
is currently a corporate member.

Contact us

Persons who support the advancement of science are invited to become members of S₂A₃ at an annual individual membership fee of R60 per person (R30 for students). Corporate membership is available at R500 p.a. Please contact the Secretary, Mrs SA Korsman, at:

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Visit our website at <http://s2a3.up.ac.za>

Consult the S₂A₃ Biographical database of southern African science at
<http://s2a3.up.ac.za/biblio/Main.php>