



RUDOLF MARLOTH

Brochure ~ Brosjure

**Southern African Association for the Advancement
of Science**

**Suider-Afrikaanse Genootskap vir die Bevordering
van die Wetenskap**

ANNUAL MEDAL AWARD CEREMONY

5 November 2001

JAARLIKSE MEDALJE TOEKENINGSEREMONIE

SOUTH AFRICA MEDAL (GOLD): RECIPIENT 2002 - PROF TREVOR LETCHER

Prof Letcher is honoured for his outstanding career as a researcher and lecturer and for popularising science.

He was on the academic permanent staff at the Universities of the Witwatersrand from 1961 to 1980, Professor of Physical Chemistry and Head of Department at Rhodes University from 1980 – 1991 and is currently Professor of Physical Chemistry and Head of Department at Natal University, Durban.

He had Post Doctoral and visiting Professorship appointments at Bristol University (1967, 1968), Exeter University (1972, 1991, 1993), Bath University (1982, 1985), University College, London (1975), Carnegie Mellon University (1988) and Oxford University (1997).

Prof Letcher received many awards for research and teaching, including the 1997 Senior Ernest Oppenheimer Memorial Trust Fellowship (R75000). He was appointed as Titular member of the IUPAC Commission on Chemical Thermodynamics 1.2 in 1997. He was President of the South African Chemical Institute (2000 members) from 1994 to 1996. In September 1996 he was awarded Fellowship of Natal University and in 1997 he was appointed Fellow of the Royal Society of South Africa.

He published over 200 papers in peer review international journals and over 80 papers in popular science journals. He also published over 40 research reports on consulting research for local and international industrial companies.



Prof Trevor Letcher (right) receiving the South Africa Medal (Gold) from Dr Raper.

Prof Letcher was Editor in Chief of IUPAC's "Chemical Thermodynamics" for the 21st Century", published by Blackwell's of Oxford in January 1999. He has been appointed to the editorial board of the Journal of Chemical Thermodynamics from 1994 to the-present. He was also Editor of a Special Issue of the Journal of Chemical Thermodynamics in memory of Professor Max McGlashan - October 2000 and is also Editor to McGraw-Hill on the subject of Chemical Thermodynamics for the Yearbooks on Science and Technology for the years 2001 and 2002.

He was Research Fellow in the Chemistry department and Visiting Fellow, Lincoln College, Oxford University, for six months in 1997 and President of the African Association of Pure and Applied Chemistry for the period 1998 -2001. Since 1995 to the present he is a Vice-President of the London International Youth Science Forum.

Prof Letcher was awarded the GOLD medal of the South African Chemical Institute - July 1999.

His research interests include Chemical Thermodynamics of Liquid Mixtures from an experimental, practical and theoretical point of

view, separation of organic mixtures using distillation and solvent extraction techniques and also energy from landfill.

He has a special interest in promoting public awareness of chemistry through writing and demonstration.

A BRIEF SUMMARY OF THE RUDOLF MARLOTH LECTURE "IT IS 'WANTING TO KNOW' THAT MAKES US HUMAN"

South African Medal Award Lecture to S₂A₃ by Professor Trevor M Letcher

Science originates from curiosity and without that curiosity we are nothing. As Tom Stoppard said in his play *Arcadia*, "It's wanting to know that makes us matter – otherwise we go out the way we came in".

Science has always been part of us and has contributed to our well-being, our development and our diverse culture. Unfortunately, human conflict has also led to our scientific advancement. Examples are many but include iron swords, gunpowder, atom bombs and nuclear power.

Science is the basis for understanding our society and things around us. We stand on the edge of a new world as a result of the explosive developments in science in recent times. We can expect new forms of energy, new drugs, gene technology, faster and faster computers, new materials and many others.

But the public attitude to science is not positive. Science seems to be too difficult and of course there have been just too many mistakes – Chernobyl, Phopal, Minamata, and Alaska, come to mind. On reflection however, science is not difficult if one is prepared to follow the logical steps in the arguments. Part of the problem is the way scientists sometimes present their results.

The public understanding of science is vital if the advantages of our new knowledge are to be useful. The more people understand a problem, the more chance we have of solving the problem. Today we have an urgent need to solve problems related to GM foods, foot and mouth disease, AIDS, malaria, dune mining in Zululand, to mention a few local problems.

We have more scientists working today than have ever lived. They **will** offer new ways of doing things and society needs to understand their findings. And we must all be on guard against the possibility of scientists and their companies offering us poisoned chalices!

We must make science more acceptable and improve the image of science by:

- encouraging scientists to present their work in a logical and coherent way and encourage the drive for the public understanding of science
- invest in the teaching of science at schools because the minds of children can accept new ideas
- encourage questions from all, especially children and don't forget, "It is wanting to know that makes us matter". Giving our young people opportunities to do so will strengthen us as South Africans and give us a greater purpose for future development.

BRITISH ASSOCIATION MEDAL (SILVER): RECIPIENT 2002 PROF DAN STEIN

Professor Dan J. Stein, M.D., Ph.D., is Director of the Medical Research Council (MRC) Research Unit on Anxiety Disorders and Associate Professor of Psychiatry at the University of Stellenbosch in Cape Town, South Africa. He did his undergraduate training at the University of Cape Town and his post-graduate training in psychiatry and psychiatric research at Columbia University and the New York State Psychiatric Institute. Prof. Stein has edited or authored several books on anxiety disorders, on compulsive and impulsive disorders, and on the intersection between cognitive science and clinical disorders. His most recent edited volume is the Textbook of Anxiety Disorders, published by the American Psychiatric Association Press. His professional articles include around 200 papers in peer-reviewed journals and 70 chapters. Current interests include psychiatric aspects of the Truth and Reconciliation Commission in South Africa, genetics of psychiatric disorders in South African populations, and consumer advocacy issues in psychiatry.



Prof Dan Stein, British Association Medal (Silver)

BRIEF SUMMARY OF PROF STEIN's PRESENTATION

The anxiety disorders are not only extremely important in the clinic (they are amongst the most prevalent and costly of the psychiatric disorders), but they also provide the scientist with a wonderful opportunity for integrating current advances in a range of fields (ranging from genetics and psychopharmacology through to brain imaging and evolutionary psychology).

In our laboratory, we have attempted to explore the hypothesis that each of the anxiety disorders is governed by a particular false alarm. Ultimately, these alarms derive from the evolutionary history of mankind, addressing important phenomena such as social status (in social anxiety disorder), disgust-evoking stimuli (in obsessive-compulsive disorder), and possible suffocation (in panic disorder).

More proximally, the false alarms that characterise different anxiety disorders may be underpinned by specific neuronal circuits, which are in turn mediated by neurogenetic, neurochemical, and neuro-immunological factors. There is a growing appreciation that certain anxiety disorders have important genetic influences, while others may result from pathological auto-immunity.

Integration of different areas has practical dividends. In the clinical setting, it is possible to use combinations of medication and behavioural techniques in order to achieve a maximal response.

In the research context, it is fascinating to note that the dysfunctional neuronal circuits that underpin anxiety disorders can be normalised by both these modalities - the brain-mind must be conceptualised as a unified entity.

MERIT CERTIFICATE:

Dr ANSIE DIPPENAAR-SCHOEMAN

Dr Ansie Dippenaar received a merit certificate from S₂A₃ for her outstanding research and contributions in respect of spiders (Arachnology).

Dr Dippenaar is a Specialist Scientist and Programme Manager of the Arachnology Unit at the Biosystematics Division of the Agricultural Research Council, Plant Protection Research Institute in Pretoria.

She obtained her Ph.D. in Zoology in 1980 from the Rand Afrikaans University. The title of her PhD thesis was: "A revision of some genera of the subfamily Misumeninae (Thomisidae: Araneae) of Southern Africa."

Her research responsibilities at ARC-Plant Protection Research Institute over the past 33 years included the following:

- Manager of the ARC-PPRI Spider Research Centre;
- Curator of the National Collection of Arachnida (non-Acari);
- Co-ordinator of the ARC-PPRI Spider Environ-Biodatabase;
- Systematic research on spiders of the Afrotropical Region (Ammoxenidae, Eresidae and Thomisidae);
- Involvement in biodiversity inventory projects on the spiders of the Afrotropical Region;
- Co-ordinator of SANSA (South African National Survey of Arachnida);
- Co-ordinator of AAD (African Arachnological Database);
- Bio-ecological studies on spiders in agro-ecosystems in Southern Africa;



Merit Certificate :
Dr Ansie Dippenaar-Schoeman

- Ecological surveys and conservation of the spiders of the National Parks and Nature Reserves of South Africa;
- Advisor at Poison Centres: scorpions and spiders of medical importance;
- Participation in multi-disciplinary projects within South Africa: University of Venda; University of Pretoria; University of the Free State; Natural History Museum of Durban; Gauteng Nature Conservation; Mpumalanga Parks Board; National Parks Board;
- Participation in multi-disciplinary projects outside South Africa: Lesotho (survey), Swaziland (survey), Kenya (survey), Botswana (ERA tsetse fly) and the African Museum (Tervuren);
- Co-ordinator of the ARC-PPRI Spider Educare Programme.

Dr Dippenaar is a member of several national and international scientific societies and has held positions in them. She is also Arachnology advisor for the WAT (Woordeboek van die Afrikaanse Taal), panel member of the radio programme "Hoe verklaar jy dit?" (Radio Sonder Grense), a member of the Advisory Board of the Northern Flagship Institutes (Transvaal Museum) and part-time lecturer.

She has produced 61 scientific publications, of which 3 are books, 6 are chapters in books, 2 are CD-ROMS and the rest are scientific papers. She has also presented a total of 52 papers and posters at congresses / symposia / colloquiums. She is also well known for her many radio talks.

Dr Dippenaar has received several other awards for her work.

MERIT CERTIFICATE:

DR J J TALJAARD

Dr J J Taljaard received a merit certificate for his life-long contribution to meteorology in South Africa.

Dr Taljaard is highly interested in clouds, rain and wind. This started in his childhood years, having been born on a farm in the semi-arid Karoo region, where every cloud, shower and puff of wind from whatever quarter were watched and discussed from the point of view of possible rain.

At university he persuaded his MSc Physics Professor to waive certain advance courses in physics and have them replaced by meteorology from textbooks like Humphrey's Physics of the Air and Schonland's Atmospheric Electricity. After joining the South African Meteorological Office in 1939 and serving for some time as forecaster in the Defence Force Meteorological Section when World War II broke out, he practised as a geophysicist in the Geological Survey of the Union of South Africa. He returned to his hobby in the Weather Bureau in 1947.



Merit Certificate :
Dr J J Taljaard

He became Assistant Director of Research in the South African Weather Bureau in 1972 and Director of the Bureau from 1976 until his retirement in 1978. He was still actively engaged in research for many years after official retirement.

His achievements, together with colleagues, include, amongst others, the Southern Hemisphere Project (SHAP), the atlas Climate of the Upper Atmosphere: Southern Hemisphere, contributions to the AMS Monograph on Meteorology of the Southern Hemisphere and to the World Survey of Climatology. He was also the South African member on the Scientific Committee for Antarctic Research.

MERIT CERTIFICATE:

MR MIKE LAWRIE



Merit Certificate :
Mr Mike Lawrie

Mr Mike Lawrie received a merit certificate from S₂A₃ for his outstanding contribution to the development of the Internet in South Africa. His

contributions, unknown to many today, not only opened up the Internet to scientists in Higher Education, but it also paved the way for the private Internet service providers (ISPs) to emerge as commercial entities in the middle nineties, i.e. seven years after he established the first permanent link into the Internet from Rhodes University in 1988.

At the time Mike Lawrie was Director of Computer Services at Rhodes University. He realised the opportunities of the Internet at a very early stage and the necessity for South African scientists to connect into this network. After confronting many obstacles he eventually succeeded in establishing an e-mail linkage into the Internet towards the end of 1988. Researchers linked in the LAN at Rhodes University were, therefore, the first in South Africa who could freely communicate with colleagues world-wide from February 1989 onwards.

Mike Lawrie was appointed Director of UNINET, the academic research network linking universities and science councils, in 1994 and steered and expanded the academic and research network successfully until his retirement in 2000. .

S2A3 NASIONAL RAAD 2000/2001

Dr Ian Raper
Mev Shirley Korsman
Mnr Hermann Ortner
Mev Esme den Dulk

Mnr Eugen Hanau
Dr Freek Kok
Dr Frans Korb

Dr Phil Minnaar

Dr Elise Venter
Prof Cornelis Plug
Prof Govert van Drimmelen
Prof Michael Wingfield
Prof W Ellery
Mr Case Rijdsdijk
Prof BL Robertson
Prof JPF Sellschop
Prof P Smit
Prof Johann Wolfaardt

President
Ere-Sekretaris
Tesourier
Verteenwoordiger, Pretoria-tak
Nuusbrief en Skakelwerk
Verteenwoordiger, Pretoria-tak
Verteenwoordiger, Pretoria-tak
Vise-President, Witwatersrand
Voorsitter, Medaljekomitee
Voorsitter, Pretoria-tak
Redakteur, Marloth Brosjure
Vise-Voorsitter, Medaljekomitee (Technikons)
Verteenwoordiger, Pretoria-tak
Biografiese Woordeboek
Oud-President (1964), (Ere-lid)

Vise-President: Kwazulu-Natal
Vise-President: Wes-Kaap
Vise-President: Oos-Kaap
Oud-President (1972)
Oud-President (1990/1991)
Oud-President (1991 – 1996)

REPORT OF THE NATIONAL PRESIDENT, DR IAN RAPER

I am happy to present my report for the year 2001, and can join all South Africans in taking pride in the Association on the eve of its centenary celebration.

Award of Bronze medals

During 2001 the following universities awarded S2A3 bronze medals: Stellenbosch, RAU, PU for CHE, Wits, Rhodes, Medunsa, University of Pretoria, University of Port Elizabeth, University of Natal (both Durban and Pietermaritzburg campuses).

Technikons which awarded bronze medals, were Pretoria Technikon and Technikon Natal.

We are indeed very pleased with the part played by these tertiary institutions in enhancing the status of the sciences and technology among young researchers.

Current Membership

Our current membership is 114. It is to be hoped that this number will increase in the near future, especially following publicity generated by the centenary activities. During 2000, Dr S S du Plessis, a member for 57 years, passed away. Professor Clement W Abbott, a life member of the Association with a membership term of 50 years, also passed away. Our thoughts go out to their loved ones as we pay tribute to their extraordinary loyalty to S2A3.

During 2002 a new category of membership, namely corporate membership, will enable companies to joint venture with the Association in proposed centenary and ongoing endeavours in environmental responsibility programmes. The cost to a company for such membership has been set at R500-00 p.a.

Donation

Mr Peter Power generously donated to S2A3 the 1903 - 1948 S2A3 records and documents which belonged to his late father, Mr J H Power, one of the early members of S2A3. These bound volumes consist of the proceedings of the first S2A3 Annual General meeting and Conference held in 1903, followed by the annual records up to and including 1948.

The Pretoria Branch Chair and Committee are congratulated for arranging the well-attended Pretoria Branch Lectures for 2001. By means of this truly excellent performance, this Branch keeps the public informed and entertained. We are fully aware of the amount of work that has gone into producing such a fine programme. We look forward to other Branches becoming active in similar ways!

Dr Ian Raper
National President



ANNUAL REPORT 2000: S2A3 PRETORIA BRANCH

The Pretoria Branch of S₂A₃ continued in 2001 to organise monthly meeting where researchers shared information on their research. The following lectures were presented:

5 March: Prof CJH Schutte, *Meeting our Ancestors*.

2 April: Prof J Odendaal, *Animal-assisted therapy - Magic or medicine?*

7 May: Dr A Dippenaar-Schoeman, *Spiders, a wealth of information still to be tapped*.

4 June: Dr I Plug, *Throwing the Bones. A glimpse of our past*.

6 August: Prof D Berger, *The DNA Microarrayer at the University of Pretoria. From genes to solutions*.

3 September: Dr L Combrink, *Benefits of space geodesy for the man in the street*.

1 October: Dr G Makuka, *Indigenous Knowledge Systems*.

The monthly newsletters contained interesting news items from the world of science. Lectures were also regularly advertised in the local press. The audience varies from some of the most prominent scientists in South Africa to young children with an interest in science. In this way the Pretoria Branch is fulfilling the aim of S₂A₃, namely to increase an awareness and understanding of Science, Engineering and Technology.

Membership is steadily increasing and recruitment of new members remains a priority.

The Pretoria Branch also developed a website on request of Prof Kerneels Plug which will contain a biographical dictionary of South African scientists. Prof Plug collected the biographies painstakingly over many years. The website will eventually contain about 7000 biographies.

The Committee of the Pretoria Branch meets on a monthly basis to plan events and activities. The members of the Committee for 2000/2001 are: Dr Phil Minnaar (Chairman), Bridgit Davis (Secretary), Dr Elise Venter (Treasurer), Walter Meyer, Quintin Odendaal, Bob Pullen and Rejaene van Dyk.

I wish to express my sincere appreciation to the members of the Committee for their enthusiasm, to the Council for their support and to all the members of the Branch for their attendance at our meetings.

Dr Phil Minnaar (Chairman)

S2A3 BRONZE MEDALS AWARDED DURING 2001

University of Stellenbosch

Winner: Mr RH Schumann

MSc [Physics] [*cum laude*]

Titel: "Quantum Information Theory"

RAU

Winner: Mr Yorick Hardy

MSc Applied Mathematics [*cum laude*]

Titel: Classical and Quantum Computing

PU vir CHO

Mev Y Combrink

M.Sc. Fisika [*cum laude*]

Titel: An investigation into the causes and consequences of North-South asymmetries in the heliosphere.

WITS

Winner: Miss Lucinda Ruth Blackwell

M.Sc. Anatomical Sciences with distinction

Titel: A critical assessment of Southern African "Early hominid bone tools".

RHODES

Winner: Ms Kimberley Jane Machin

M.Sc. Geology with distinction

Title: Processes and products in kimberlitic crater facies of the south lobe, Jwaneng mine, Botswana.

MEDUNSA

Winner: Ms Nicola Jane Page

M.Sc. Med

Title: Antigenic and Genetic Variation of DS-1 Genogroup (G2P1b[4]) Human Rotaviruses.

University of Pretoria

Winner: Ms Reinette Grobler

M.Sc. Computer Science [*cum laude*]

Title: Signalling and scheduling for efficient bulk data transfer in circuit-switched networks.

University of Port Elizabeth

Winner: Mr Frederick Jacobus Vorster

M.Sc. Physics [*cum laude*]

Title: On the evaluation of a photovoltaic concentrator system.

University of Natal

Durban Campus

Winner: Mr Marc Ashley Joseph

M.Sc. Engineering [*cum laude*]

Title: Computer-aided VLE Measurements in a Dynamic Still at Subatmospheric Pressures

University of Natal

Pietermaritzburg Campus

Winner: Mr Joseph Cyril Guillaume Maurel

M.Sc. Agriculture [Horticultural Science] [*cum laude*]

Title: Biosynthetic Origin of Abscisic Acid in Ripening Avocado Fruit.



Two former gold medal winners,
Dr Bob Brain and Prof Govert van Drimmelen

Saamgestel deur:

Dr Phil Minnaar, Tel 083 273 3593

Navrae:

Shirley Korsman, Tel (012) 667 2544