

# S<sub>2</sub>A<sub>3</sub>

## JAARLIKSE MEDALJETOEKENNINGSEREMONIE

6 November, 1992

## ANNUAL MEDAL AWARD CEREMONY

6 November, 1992

**SOUTHERN AFRICA ASSOCIATION FOR THE  
ADVANCEMENT OF SCIENCE  
SUIDER-AFRIKA GENOOTSKAP VIR DIE  
BEVORDERING VAN DIE WETENSKAP**

### DIE SUID-AFRIKA MEDALJE GOUD



#### REINHARD RICHARD ARNDT

is in Bloemfontein gebore. Hy gaan skool aan die Grey Kollege en tot en met sy doktersgraad studeer hy aan die Universiteit van die Oranje Vrystaat. Tussendeur kry hy kans om sy M.B.A. aan die Universiteit van Pretoria te verwerf.

Dr. Arndt se loopbaan neem 'n aanvang op die gebied van Chemie. Later brei dit uit tot die ontwikkeling van mannekrag op die gebied van natuurwetenskappe en ingenieurswese. Hy werk vir 'n jaar lank – 1959-1960 by die National Research Council in Kanada en in die middel sestigerjare as navorsingsgenoot by die Stanford Universiteit in Kalifornië.

Met hierdie rype ervaring ploeg hy sy kennis terug en bring die Departement Chemie by RAU tot stand. Hy volg sy vorige buitelandse besoeke op met 'n jaar in Zürich en 'n jaar as besoekende Professor aan die Universiteit van Cambridge.

In 1981 dien Dr Arndt as Adjunk-President van die WNNR en in 1990 word hy as die eerste President van die Stigting vir Navorsingsontwikkeling aangestel. Navorsing, gekoppel aan die polslag van die land se industriële vooruitgang het Dr Arndt 'n noue verbintenis met die SA Brouerye, die AECL en die firma Adcock Ingram besorg. Maar die toekoms van die Chemiese ingenieurswese staan nog altyd hoog op sy lys, vandaar sy daadwerklike betrokkenheid by plaaslike- en internasionale en onderwysverenigings.

Gedurende 1987-1989 word Dr Arndt voorsitter van die SA Akademie vir Kuns en Wetenskap. Die Claude Harris Leon-Stigting toekenning is aan hom in 1990 gegee en die Potchefstroomse Universiteit vir CHO bied hom in 1992 'n ere Doktersgraad aan vir sy uitmuntende bydrae tot die ontwikkeling van menslike hulpbronne in die wetenskap en tegnologie.

Die S<sub>2</sub>A<sub>3</sub> is trots om die Suid-Afrika Medalje – Goud met erkentlikheid vir sy vele dienste aan die wetenskap aan Dr Reinhard Richard Arndt aan te bied.

### “SCIENCE, TECHNOLOGY AND THE COMMUNITY – A REVOLUTION”

by Dr Reinhard Richard Arndt

### A BRIEF SUMMARY OF THE MARLOTH MEMORIAL LECTURE:

6 November 1992

The development of science through the ages can be traced from the concept that Knowledge is a Virtue as expounded by Socrates to the precept of Francis Bacon that Knowledge is Power. Without science and its twin brother technology the human race could not have progressed beyond the Stone Age. Before scientific discovery can be useful it has to go through a phase where appropriate technology must be developed to make it work, as much as useful products must go through a design and engineering phase before the needs of ordinary citizens are satisfied.

Science, technology and engineering are in a symbiotic relationship with each other. Science for the sake of science was boosted in 1944 in a report by Vennevar Bush to the President of the United States – the “Science – the endless frontier” document. He said that a nation which depended upon others for its new basic scientific knowledge, would be slow in its competitive positioning in world trade, regardless of its mechanical skills. The United States through strong Government commitment at that time became world leaders in science and new technologies. A leadership which was, however, later taken for granted. Leadership passed to the Pacific Rim countries due to total commitment of Government, industry and the education system to technological progress that led to Japan's predominant position.

A Revolutionary change is facing the relationship between the broad community and science and technology. In the past the scientist and engineer assumed that their activities would automatically receive moral and financial support from the community. Society, as co-director in the development of science, will see to it that these considerations are kept in mind:

Not everything that is thought up, is scientifically viable;  
Not everything that is viable, is accountable towards the community;  
Not everything that is accountable, is affordable.

For science and technology to serve society optimally, we will have to seriously review our existing fragmented science and technology structures and operations in the government, private and educational sectors. Science is part of the community culture just like music and the arts. Continuous interaction and communication with the public will develop an understanding of this. The responsibility ultimately lies with the individual, who must be conscious of his moral sense of responsibility. Without this consciousness no individual should engage himself in scientific research.

# THE BRITISH ASSOCIATION MEDAL SILVER



**JAN STEPHANUS JAKOB VAN DEVENTER** was born in Laingsburg on the 18th of May, 1955. He attended school in Swellendam, studied Chemical Engineering at the University of Stellenbosch and gained a Business Economics degree from UNISA.

Since 1984 Professor van Deventer has been a member of various professional societies. The S.A. Institute of Mining and Metallurgy, S.A. Institute of Chemical Engineers, Co-organiser of the annual UCT-US Mineral Symposium, Session Chairman atACHEMA '91 in Frankfurt-am-Main in Germany and in 1992 he chaired the AUS. IMM International Conference in Kalgoorlie, Australia. As Industrial consultant he has advised Anglo American Corporation, the AMIRA Gold Project in Australia, Intora S A SUG in Switzerland, Samancor and Sonchem to name a few.

He is a member of the Editorial board of the International journal – Minerals Engineering and also a reviewer for several other national and international journals.

In 1990 Jan van Deventer was appointed Professor and Head of the Department of Metallurgical Engineering at the University of Stellenbosch. In 1991 he became a Member of the Foundation for Research Development in S.A. (FRD) Collegium, and member of the FRD Scientific Committee for Engineering.

Professor van Deventer has acted as supervisor for the Doctoral and Master Thesis of 20 students so far and is at present supervising the work of 14 Research students.

Professor van Deventer proved himself an achiever already at school when he attended the International Youth Conference in Germany in 1972 and in 1973 he received the S.A. Workroom (London) Award for the highest marks in mathematics in the Cape Province. In 1974 he received the AECI prize for Chemical Engineering, in 1978 the Silver Medal from the SA Institute for Chemical Engineering and in 1984 he was the first recipient of the P.E. Rousseau Award. In 1990 followed the President's Award as well as the Researcher of the Year award from the Faculty of Engineering, Stellenbosch University and in 1992 the National Award from the Foundation Research Development to gain Industrial Experience overseas.

Together with collaborators Jan van Deventer has published 51 papers and presented 38 papers at International and National symposia. This highly gifted and hardworking young scientist is a worthy recipient of the British Association Medal – Silver.

# Merietoekennings

**M**et 'n M.Sc.-graad en 'n onderwys-kwalifikasie is **CARL HEINRICH AHLERS** primêr 'n oordraer van sy kunde, gerugsteun deur ervaring wat oor 'n wye veld in die natuurwetenskap strek.



Aanvanklik was hy landbou-chemikus, water- en kwaliteitsbeheerder in die laboratorium-toestand, projekteer in boumateriaaltoetsing en ontwikkeling by die WNNR. Tans is hy Departementshoof, Natuur- en Skeikunde by die Hoërskool Menlo Park in Pretoria.

Mnr Ahlers sweis sy kennis van sy vak en sy voorliefde om dié vak op so 'n wyse aan te bied dat leerlinge die geleentheid kry om self kreatief in die fisika, chemie en elektronika betrokke te raak. In 1990 neem hy die betrokkenheid 'n stap verder deur sy Experilab-stelle op die mark te bring. Vanaf 1993 gaan mnr Ahlers 'n kursus bemark om veral die plattelandse kind in staat te stel om sy tegnologiese ervaring met 'n goeie mengsel van entrepreneurskap en self-aktiwiteit te meng deur sy projekte self te beplan, deur te voer en te analiseer, om sodoende 'n ondersoekende gees by die chemici van die toekoms aan te wakker.

Hy is onder-voorsitter van Expo (N-Tv) en neem jaarliks 'n aantal leerlinge onder sy vleuel om Expo projekte aan te pak.

Dit is met groot genoeë dat Professor Wolfaardt die Merietoekening aan mnr Carl Heinrich Ahlers oorhandig het.

**A**t the start of his career **LAWRENCE GRAHAM ROBERTSON** was

a Geography teacher at the Pretoria Boys High School, where he remained for many years. Over the years he realised the need for quality private education for a vast number of our black school children.



Initially, in the early sixties, he founded the Capital College to bridge the gap. By the eighties Mr Robertson came to believe that the quality of teaching had to be improved to fully encompass the potential for better education.

To advance the education of teachers in the field of English, Mathematics and Science, the Promat Schools were established in Pretoria, Springs, Modderfontein near Johannesburg and in Durban.

The Merit Certificate was awarded to Mr Lawrence Graham Robertson, Executive Director of the Promat Schools for his vital contribution to the advancement of science.

# Merit Award Certificate

**FRANS AUGUST KORB** matriculated in Klerksdorp in 1971. He attended the University of the Orange Free State, where he obtained a B.Sc. Honours degree. This was followed up with a M.A. in Clinical Psychology at the University of the Witwatersrand. In 1985 he graduated with a M.B. Ch.B from the University of Cape Town and in 1992 he completed his Master of Medicine in the Department of Psychiatry at the University of the Witwatersrand.

During his years of study he attended major workshops such as the Psychodrama, Multimodal Psychotherapy, Frontline Psychiatry for Family Physicians, to mention only a few.

He has been actively involved on the formal and social levels of student activities. In 1980 Frans Korb became a member of the S<sub>2</sub>A<sub>3</sub> and has contributed a great deal of energy to this Association. The Psychiatry Registrar's Association has also claimed his participation through the ranks to executive level. Since 1989 he has not missed attending and participating in conferences and symposia pertaining to his field of scientific endeavour.



Dr Korb is responsible for six Research and four Lay publications.

In 1981 and 1982 Dr Korb received recognition from the University of Cape Town for his Medical Biochemistry and Human Behaviour

Essays. In 1989 the S<sub>2</sub>A<sub>3</sub> awarded Dr Korb a Merit Award Certificate and in 1990 he received the 50th William Harvey Medal.

It is again a privilege for the S<sub>2</sub>A<sub>3</sub> to award Dr FRANS AUGUST KORB a Merit Award Certificate for his outstanding work and concerted involvement in promoting his particular field of science.

**WILLIAM MACDONALD SMITH** obtained his Science degree at the Rhodes University and the University of Natal, Pietermaritzburg. He joined the Work Study Department at the AC&EI and later became Technical Manager for Afrox Ltd. He moved through several other companies in the Chemical Industry, but eventually returned to his first love – teaching. After a stint at helping university students he established the Star Schools, now running for all of twenty years. Mr Smith pioneered the SABC broadcast education programmes and a unique TV studio has been developed by him to produce educational video-tapes.

William SMith is the author of several text books. He has lectured in Japan and the United States and in Europe. Like his parents, the late Professors L.B.J. and Margaret Smith, he has a passion for the outdoors and spends much of his free time building up the Knysna Featherbed Nature Reserve, a beauty spot which has been in his family for almost 50 years. In advancing Science in his own, unique manner, Mr William Smith is a deserving recipient of the Merit Award Certificate.



Dr Korb is responsible for six Research and four Lay publications.

# GENCOR DEVELOPMENT TRUST

The Gencor Development Trust has as its objective to contribute to the fulfillment of Gencor's mission. In particular the Trust strives to enhance real growth by gaining the esteem of the communities in which Gencor operates and through achieving commonality of interests with the Group's employees.

In order to facilitate these aims certain critical issues, as identified by Gencor, are addressed by way of selected, pro-active development programmes and projects. The critical issues include external relations, employee relations, employee participation and skills shortages. Each of these critical issues are contained in the objectives which have been formulated for the Trust. A telling example is the annual award of the bronze medal, sponsored by Gencor, for the best Master's Thesis in any of the scientific disciplines at the 22 Universities country-wide.

Four students were not mentioned in our 1992 brochure. They were:

## 1. Vista University

Mr L.R. Maake. M.Ed. "Management and Leadership Roles of a Secondary School Principal".

## 2. University of Durban-Westville

Miss V. Pillay. M.Sc. Zoology. "An Investigation Into Some Aspects of the Relationship Between Diabetes Mellitus and Male Sexual Dysfunction".

## 3. University of Natal (Pietermaritzburg)

Mr G.R. Maltby. M.Sc. Mathematics. "Filter Characterisations of the Extendibility of Continuous Functions".

## 4. University of Natal (Durban)

Mr M.T. Wishart. M.Sc. Engineering (Electrical) "Field Orientated Control of AC Machines with Particular Reference to Permanent Magnet Machines".

# THE GENCOR-S<sub>2</sub>A<sub>3</sub> BRONZE MEDAL WINNERS FOR 1992

## 1. Universiteit van Stellenbosch

Mevrou R. Prins. M.Sc. Agric. (Cum Laude) Genetika. "The Cytogenetics of the Telosomic Series in the Semi-Dwarf Bread Wheat Cultivar 'Pavon 76'".

## 2. University of Cape Town

Mr Christiaan le Roux. M.Sc. Applied Mathematics. "Mixed Variational Problems Associated with Stationary Viscous Incompressible Free Boundary Flows".

## 3. Potchefstroomse Universiteit vir CHO

Mnr M.A. Coetzee. M.Sc. "Meetkundige Kontinuiteit en Bezierkromes".

## 4. Rhodes University

Miss J.B. Lang. M.Sc. Ichthyology and Fisheries Science (with distinction) "The Growth Characteristics of Sparid Otoliths".

## 5. University of Natal (Durban)

Mr N.P. Rubin. M.Sc. Engineering (Electrical) (Cum Laude). "Slip Estimation for Induction Motors in Speed Control Applications with Particular Reference to Sensorless Field Oriented Controlled Drive".

## 6. University of Natal (Pietermaritzburg)

Ms A.A. Tothill. M.A. Political Studies (Cum Laude) "Educational Values in a Divided South Africa: 'People's Education' and the 'Needs of Society'".

## 7. Randse Afrikaanse Universiteit

Mevrou A.E. Loots. M.Com. (Cum Laude) Ekonomie. "Die Belangrikheid van die Informele Sektor in die Suid-Afrikaanse Ekonomie".

## 8. University of Port Elizabeth

Mr J.R. Botha. M.Sc. (Cum Laude) Physics. "A Study of GaAs/AlGaAs Quantum Well Structures Grown by Metalorganic Vapour Phase Epitaxy".

## 9. University of the Witwatersrand

Ms Glynis Cron. M.Sc.

## 10. Universiteit van Pretoria

Mnr J. van Rooy. M.Sc. (Cum Laude) "A Taxonomic Revision of the Macromitrioideae (orthotricaceae: musci) in Southern Africa".

**DIE ALGEMENE  
JAARVERGADERING WAS OP  
VRYDAG 6 NOVEMBER, 1992**  
*in die Museum vir  
Wetenskap en Tegnologie,  
Didactagebou, Pretoria gehou.*  
*Die sakelys is afgehandel  
en die Raad  
is eenparig vir 'n ampstermyn –  
1992 - 1994.*

## **THE NATIONAL PRESIDENT'S REPORT**

In his address Professor Johan Wolfaardt, incumbent President, said that people think the main function of this Association is to award medals and certificates. These are bestowed on people who have excelled in scientific endeavour. And to encourage students in any one of the scientific disciplines by awarding the bronze medal for the best Master's thesis at their University.

Science in it's most universal terms touches society as a whole and that is why the S<sub>2</sub>A<sub>3</sub> should continue to recognise the best, but also generate a climate conducive to producing the best. For that very reason, the National President continued, we acknowledge the fine work done by Expo, Promat and the Star Schools. He also referred to the fact that now, in 1992, we are celebrating the contribution made in South Africa by the German Community, and that three of the award winners for 1992 are descendants from German stock.

Professor Wolfaardt mentioned too, that the Marloth Memorial Lecture will be published in the magazine "Spectrum".

**Mrs Esmé den Dulk**  
**Pretoria, November, 1992**  
**Tel. (012) 343-8217**

## **PRETORIA BRANCH REPORT**

**Dr Bertha van Drimmelen, Chairperson of the Pretoria Branch of S<sub>2</sub>A<sub>3</sub> reported as follows:**

This year we had the good fortune to have many meetings with fascinating and illuminating discussions on a wide range of currently interesting topics, namely The Neurotransmitter Serotonin, Metal Unions for Improving Instruments, Demographics of coming Tertiary Education Shocks, Deconstruction in Science, The Come-Alive of the Sentker Collection of Later Stone Age Artefacts of UNISA, Unemployment – Reasonable New Thinking, Chaos in Nature and a wonderful visit to the Exploratorium and the Camera Obscura.

## **S<sub>2</sub>A<sub>3</sub> RAAD/COUNCIL: 1992 - 1994**

<b>President</b>	Prof. Johan Wolfaardt	
<b>Vise-presidente:</b>	Dr C. Albrech	(Suid-Wes Kaap)
	Prof. J.A.J. Meester	(Natal)
	Prof. W. Oelofsen	(Oos-Kaap)
	Dr F.A. Korb	(Witwatersrand en Voorsitter van die Medalje-komitee)
	Mnr Eugen Hanau	(Noord-Transvaal)
	Dr Bertha van Drimmelen	(Transvaal en Voorsitter Pretoriatak)
<b>Ere-Tesourier:</b>	Mnr Gerard den Dulk	
<b>Sekretaris:</b>	Mevrou Ann Bentum	
<b>Addisionele lid:</b>	Mevrou Esmé den Dulk	(Marloth gedenkuitgawe en skakeling met die pers)
<b>Oud-presidente:</b>	Prof. Paul Smit, Professor Eric Holm	
<b>Pretoriatak verteenwoordigers:</b>	Professor G. Erens, Mevrou Ursula Ortner, Mnr Herman Ortner, Professor J. Geerthsen en Dr E. Fourie.	

**Mrs Ann Bentum**  
**S<sub>2</sub>A<sub>3</sub> P.O. Box 31226, Totiusdal 0134**  
**Tel. (012) 73-5978**