

ANNUAL REPORT FOR 2007

OFFICERS AND COUNCIL FOR 2007/8

President:	J.D. Skinner
Vice Presidents:	D.M.Avery, A.J.G.Ribbink
General Secretary:	vacant
Foreign Secretary:	K.R.Koch
Treasurer:	M.G. Soltynski
Editor:	J.D. Skinner
News Bulletin Editor:	S.P. Sasidharan (co-opted October)
General Members of Council:	S.A Bourne, E.J.Carruthers, I.S. Glass, J.R.Moss, B.G.A. Schaller, J.C.Sealy, P. Vale, R.J. van Aarde.
Co-opted Members:	L.R.Nassembeeni, D.G. Rawlings

Report of the General Secretary for 2007

SPECIAL PROJECTS

2008 CENTENARY OF THE SOCIETY

The Centenary of the granting of the Royal Charter to the Society will be celebrated at a congress entitled "The Value of Science: Looking Back and Looking Forward", to be held at the Breakwater Lodge, Cape Town, on 17 and 18 April 2008. Fourteen eminent invited speakers will present overviews of their disciplines.

The Centenary Banquet will be held at the Commodore Hotel on 17 April.

A Special Issue of the Centenary *Transactions* will be published for the Congress including a detailed history of the Society. Later it is hoped that papers read at the Congress will be published as and when received.

2007 NATIONAL SCHOOLS' SCIENCE ESSAY COMPETITION

In January, the entry forms for the 2007 Science Essay Competition were posted to 500 schools across the country. The closing date for entries was 15 April 2007 and the essay titles were:

For Secondary and Primary school entries:

- **Is culling conserving?**
- **Should SA worry about CO₂?**
- **How would you teach Maths to teenagers?**

For Primary School entries only:

- **What is the South Africa's most useful scientific invention or discovery?**

To make the quantity of marking more manageable schools were requested to pre-select the best essays and submit no more than three on a topic. A total of 124 essays were received. Two essays were selected for publishing in the Volume 63(2) of the *Transactions of the Royal Society* to be published online in 2008.

Professor Luigi Nassimbeni FRSSAf, the Council-nominated convener of the Essay Competition, arranged for markers in UCT's Chemistry Department. (Emeritus Prof. Peter Linder, Dr.Hong Su, Dr Gaelle Ramon, Dr Dawn Weber) to mark the essays. The following results were announced in June:

2007 RSSA Science Essay Competition Winners:

Topic : Should South Africa worry about CO₂?

1. *Emma Hartley St. Anne's Diocesan College, Hilton
2. Kyong-Che Kang Bishops, Rondebosch
3. Njongo Villo Centre for Science & Technology, False Bay College,
Mitchell's Plain

Topic : Is Culling Conserving?

1. Jessica Leaver Rustenberg Girls High School, Rondebosch
2. Fatima H Ragie Zinniaville Secondary School, Rustenburg
3. Nadine Smit Ligbron Akademie vir Tegnologie, Ermelo
4. Malaza M Innocent S.W. Nhlapo High School

Topic : How would you teach Maths to teenagers?

1. *Yonatan Sher Hirsch Lyons Boys High, Johannesburg
2. Nolonwabo Moyakhe Hector Peterson High School, Zwelitsha
3. Abigail October St. Georges's Grammar School, Mowbray

Primary School - What is SA's most useful scientific discovery

1. Elisabeth Rosling Roedean School, Houghton, Jhb

2. Catherine Byrne Roedean School, Houghton, Jhb
3. Megan de Vries Bryandale Primary School, Johannesburg

*Chosen for publication in *Transactions* Volume 63(2)

Ten out of the thirteen prize-winners were presented their prize and certificate by members of the Royal Society Council at a time arranged by the school. To the other three, the certificates were posted.

Cash prizes (which were increased over the previous years' amounts by R500 for 1st prizes and R250 for other prizes as a result of the much appreciated increased grant from the Claude Leon Foundation) were awarded to all prize-winners of each essay category. 1st Prize - R2 000, 2nd Prize - R1 250 and 3rd prize - R750. One merit prize (certificate only) was awarded with total prizes amounting to R16 000.

The essay markers received a stipend of R10 per essay marked, amounting to a total of R1 240. The Society's administration expenses which included postage, photocopying and certificates and the time of the Office Administrator amounted to R6 000. The total expense was thus R23 240 compared to the grant by the Claude Leon Foundation of R25 000. In 2006, the competition expenses had exceeded the Claude Leon Foundation grant by R3 940.

The prize-winners living near to a national facility were also invited to spend a day visiting that facility. Thus, the pupils from schools in Cape Town were invited to visit I'themba Labs at Stellenbosch, the SAAO in Observatory or the MTN Sciencentre at Century City; whilst pupils from Gauteng could visit HarTRAO in Vredefort or the National Zoological Gardens in Pretoria and the Hilton pupil could visit the MTN Sciencentre at Umhlanga Rocks.

Council has decided on the following titles for the 2008 competition and in December 2007, entry forms will be sent out to 500 schools, as well as to the press. Where feasible, the winners will be invited to receive their prizes at the Society's Centenary Congress in April 2008.

Senior School Essays:

How is **Global Warming** affecting our daily life in South Africa and what can we do about it?

How do **Dangerous Diseases** in South Africa affect us, and how can we better deal with them?

The **South African Economy** is booming. How can we best meet its future energy needs?

Junior School Essay:

Discuss some of the **Scientific Discoveries** of the past 100 years which have had a significant impact on South Africa

The Royal Society thanks the Claude Leon Foundation very much for its extremely kind and magnanimous donation towards the science essay competition, which helps to further the Society's aim of promoting science awareness amongst the young.

YOUNG ROYALS

Chair: A. Ankoma
Vice Chair: M. Javu
Treasurer: P. Watt-Pringle
Secretary: C. Clitheroe
Community Engagement: Q. Dikana
Marketing: Q. Mthembu
Web site Development: R. Mandiringana
Liaison with Royals: M. Villet

A very successful fundraising workshop was held in 2007.

January 15: The Young Royals became a Rhodes University Student Representative Council registered Society.

March 6 2008: A debate was held with the Rhodes Debating Society on: "Is science a danger to society or is society a danger to science".

Plans for the future include:

The Young Royals are dedicated to providing a vehicle for students to get involved in positive science driven community engagement. To achieve this a number of debates on the theme "Ethics & Science" and seminars will be organised throughout the course of 2008. Talks presented at the SciFest stands will be presented at local high schools in the second semester. A camp is planned with the Astrophysics Society for 20 Matric rewrite pupils interested in furthering a career in science and technology. The 3rd community engagement project is to initiate a Young Royals science and technology club in the local township. The last project planned for 2008 is a textbook, learning aids, study guides, calculators and stationary drive.

A Youth in Science Conference is planned for a week end in August followed by a Young Royals Women in Science Day to be held on Womens' Day.

CLAUDE LEON FOUNDATION SCHOLARSHIPS

Members of Council assisted the trustees of the Claude Harris Leon Foundation by coordinating the evaluating and grading 119 applications for post-doctoral fellowships. The applications were allocated nationally to reviewers. Over 60% of the applications were from outside South Africa. As in previous years, the quality of the successful applications was excellent. For 2008/2009, 41 post-doctoral fellowships were awarded, of which 34 were accepted, amounting to R2 125 000.00 million.

The Society and Foundation co-hosted the fourth annual lecture evening in the joint lecture series on the 22 August 2007 at the University of Cape Town. The first talk was on 'The Development of Genetically Modified Maize for Virus Resistance and Abiotic Stress Tolerance' and was delivered by Professor Jennifer Thomson

of the Department of Molecular and Cell Biology of the University of Cape Town. The second talk was entitled 'Biological alchemy: turning fat into bone' by Dr Hanél Sadie of the Department of Medicine, Medical School (Tygerberg), Stellenbosch University. The double lecture was well-attended.

PROGRESS OF THE SOCIETY IN 2007 - 08

There is a steady but slow increase in numbers and the Northern Areas and Kwazulu-Natal Branches are again fully active providing an interesting programme of lectures, while the Eastern Cape Branch not only did the same, but they also organized a successful colloquium on Game Ranching in Grahamstown which was very well attended by farmers throughout the region. The headquarters in Cape Town also continued the outstanding Western Cape Branch service in this regard.

The Society's Special Projects continued to flourish as indicated elsewhere in this Report.

The Administrative Officer, Mrs. Sandra de Villiers-Soltynski has successfully modernized all office administrative procedures which has resulted in an improved service to members.

The *Transactions* published on time thanks to an immaculate service from Isteg Scientific Publications and Sabinet have taken care of electronic online publication. The web site has been successfully moved to Rhodes University in Grahamstown where responsibility for administering the site has been assumed by the Young Royals. There have been teething problems but these are being sorted out.

Council have put in a huge amount of work, mainly via the Organizing Committee to ensure that the Royal Charter Centenary Congress being held on 17-18 April 2008 at the Breakwater Lodge in Cape Town is a great success.

Financially, the Society's reserve funds are well invested and have not been troubled by the recent global financial turbulence. Generous sponsorship was received for the School Essay Competition prizes and publication of the *Transactions* from the Claude Leon Foundation.

ANNUAL DINNER

The Annual Dinner of the Society was held on 20 August 2007.

The following new Fellows from 2006 were inducted:

Marion Kathleen Bamford

Judith Mary Bishop

Michael Stephen Scurrrell
Judith Clare Sealy
Edward David Sturrock

The following not previously inducted Fellows from previous years were also inducted on this occasion:

Perry Theodore Kaye (1998)
Michael John Wingfield (1998)
Robert Martin Adam (1999)
Salim Abdool-Karim (2003)
Donald Arthur Cowan (2005)
Alan Kenneth Whitfield (2005)

The diners assembled were addressed by Prof Salim Safurdeen Abdool-Karim on *Science and Society: Lessons from two decades of AIDS research in South Africa*. Prof Abdool-Karim is the Chairman, Department of Reproductive Health & Research WHO, Geneva, Director, Centre for the AIDS Programme of Research in South Africa (Caprisa), Durban, Director: HIV Prevention & Vaccine Research Unit, MRC and Pro Vice-Chancellor (Research), University of KwaZulu-Natal, Durban.

BRANCH ACTIVITIES

EASTERN CAPE

The Committee for 2007/2008 comprised:

Chair: Tony Ribbink
Vice-Chair: Peter Vale
Secretary: Mike Davies-Coleman
Treasurer: Derek Henderson

The Branch hosted or co-hosted several events this year usually in partnership with Rhodes University. Other partners included University of Fort Hare, Nelson Mandela Metropolitan University, SciFest., Wordfest, Academy of Science of SA, and the Sustainable Seas Trust.

A successful Eastern Cape Wildlife Management Colloquium was organised (25 June) by Professors Mike Davies-Coleman and Ric Bernard with the President of the Society Professor John Skinner providing encouragement and advice.

"The Changing Nature of Economic Thought" was the theme of the annual teach-in on Economic Thought (25-28 September), linked, as in the previous year, with Rhodes University's Department of Political and International Studies. The opening lecture was delivered by Mr. Tito Mboweni, Governor of the Reserve Bank. The new partnership with Wordfest has become an annual event in which scientific publications are presented to audiences.

Lectures

March 19: Prof Ric Bernard: *The biology and conservation of cheatahs in the Eastern Cape Province* (Amy Jaco-Guillarmod Memorial Lecture)

April 16: Dr. Mervyn Mansell: *Entomology and forensics* (Scifest lecture)

May 3: Dr. Conrsad Labandeira, Department of Paleobiology, Smithsonian Institution, USA, *An associational history of plants and insects on land*

October 22: Dr. John Rourke: *Carl Linnaeus and his involvement with the Cape flora*. (Schonland Memorial Lecture commemorating the 300th anniversary of the birth of Carl Linnaeus).

KWA-ZULU NATAL

The Committee of three for 2007/2008 comprised:

Chair: Brian G.A. Schaller
Siegfried E. Drewes
Edith Elliott

Meetings were held in the John Bews Lecture Theatre, Biological and Conservation Sciences Building, Pietermaritzburg

April 4: Prof. Rob Hart: *Dabbling in dams - seasons and life*

May 9: Prof Abdul Karim: *HIV/Aids in RSA*

June 6: Prof. Siegfried Drewes: *Searching / or the magical chemical bullet*

August 22: Prof. Hannes van Staden: *Smoke stimulated seed germination: an overview*.

October 24: Prof. Guy Bate: *Esturine research in RSA*.

NORTHERN AREAS

The Committee for 2007/08 was as follows:

Chair: Rudi van Aarde, Conservation Ecology Research Unit, U.P

Vice Chair: Jane Carruthers, Dept. of History UNISA.

Treasurer: Dr. Ansie Dippenaar-Schoeman, National Insect Collection

Ex Officio Outgoing Chair: Rob Veale School of Molecular and Cell Biology, Wits

Members:

Rudolph Bigalke, Former Chief Director, Dept. of Agriculture.
Nigel Bennett, Mammal Research Institute UP
Andrea Fuller, Brain Research Group, School of Physiology, Wits
Tim Partridge, Bernard Price Institute, Wits

Prof Rudi van Aarde has recovered well from the health setback he had earlier, and is touched by all the messages of goodwill he has received. Prof Nigel Bennet is also much better.

Lectures

June 20: Prof. Stuart Pimm, Duke University, North Carolina, USA: "The laws of biodiversity and how they lead to its better management" attendance over 50 people.

August 8: Prof. Rudi van Aarde CERU, University of Pretoria: *Managing an elephant metapopulation*.

September 26: Dr. Albert van Jaarsveld, National Research Foundation: *Investing in science as a society*.

October 17: Dr Bob Scholes, Council for Scientific and Industrial Research: *Climate change*.

November 2: Prof. Duncan Mitchell, Brain Research Group, Witwatersrand University: *Thermal physiology*.

The Branch lost the services of Secretary Ms Daleen Funston on her appointment at the Mammal Research Institute. The Committee would like to thank her for her efficient assistance and to wish her every success in her new position. We welcome Ms Lilian Scholtz as our new secretary.

Dr. S.P. Sasidharan has been co-opted onto the Committee in his position as The Society's News Bulletin Editor. We would like to thank him for accepting this position on Council and doing it so well.

Plans for the future include:

- A new series of public lectures in the 2nd half of 2008
- Identification of promising postgraduates and inviting them to join the Society
- Using the News Bulletin more actively to profile issues and people relevant to the Northern Branch

WESTERN CAPE

Meetings in the Western Cape were usually held at the Iziko Museums of Cape Town's S.A. Museum. These were co-hosted by the Academy of Science of South Africa. Attendances were in the range 25-80 people. The lecture of 20 February 2008 was held at the New

Learning Centre Lecture Theatre, Health Sciences Lecture theatre, UCT and attracted several hundred listeners, following wide advertising to other organisations.

The details of the **lectures** were as follows:

February 14: Prof Len Barbour *Understanding Molecular Lego: controlling the construction of new materials from the bottom up*

March 28: Prof John Bolton *The global aquaculture revolution: why so much seaweed?*

April 18: Prof Tim Egan *Malaria pigment: from the discolouration in an 18th century corpse to drug target*

May 16: Prof Kathy Driver *Hypergeometric Polynomials--where are their zeros and why does it matter?*

August 20: Prof Mike Wingfield *Global Forests increasingly threatened by Diseases*

September 19: Prof Bruce Bassett *The New Cosmos - New Mysteries for a New Millennium*

October 17: Prof W. Gevers, *HIV/AIDS, TB and Nutrition: The ASSAf Report*

November 21: Prof Mike Bruton *Sultans of Science: 1000 Years of Islamic Science Rediscovered*

MEMBERS AND FELLOWS

FELLOWS

The following new Fellows were elected during the year:

FELIX DAPARE DAKORA

(Professor - DST/NRF Chair, Tswane University of Technology)

Felix Dakora is an outstanding botanist who has made a significant impact in the field of biological nitrogen fixation in legumes.

After graduating with a BSc (Honours) in Agriculture at the University of Ghana in 1977, he obtained an MSc in Agricultural Biology at the University of Sydney, Australia, in 1981, which was followed by a PhD at the University of Western Australia, Perth, in 1989. His work experience includes research at Ghana's Crops Research Institute, the Smithsonian Institution in Washington D.C, the University of California, Davis, and the University of Cape Town, where he was an Associate Professor in the Department of

Botany. In 2002 he was appointed Professor and Executive Dean of Research and Technology Promotion at the Cape Peninsula University of Technology, and in 2007 he was appointed to a DST/NRF chair at Tshwane University of Technology.

Dakora's research has centred on the mechanism of nitrogen fixation in legumes, the problem of oxygen diffusion and mineral acquisition by plants, and the use of genetic approaches to enhance root exudation so as to access low nutrients. He has applied these studies to various plants including African Bambara groundnut (*Vigna subterranean* L.), Kersting's bean (*Macrotyloma geocarpum* L.), soybean (*Glycine max* L.) and symbiotic cowpea (*Vigna unguiculata* L.). This work is of direct interest to agriculture, especially in Africa, and this is evidenced by many and substantial grants that he has received from a number of agencies such as the NRF, the Protein Research Trust, Forestek (CSIR), the UK/SA Science and Technology Fund, the International Atomic Energy Agency (Vienna), the European Union INCO-DEV Programme and the McKnight Foundation (Minnesota, USA). Dakora has published over 50 papers in international scientific journals as well as 10 chapters in scientific books. He has supervised 8 Masters and 4 PhD students at UCT, the University of the North and at the Cape Peninsula University of Technology and he acts as a high level consultant to the NRF, the Ford Foundation and the Africa Rice Centre (WARDA).

BRENDA DIANE WINGFIELD

(Professor, Department of Genetics, University of Pretoria)

Brenda Wingfield completed a PhD on the genetics of yeasts, specifically on virus-like killer factors, establishing a research programme to promote the understanding of the phylogeography and molecular genetics of plant pathogenic fungi. In this regard, she was the first South African to produce DNA sequence data for mycelial fungi and was responsible for introducing this important technology into the plant pathology and mycological communities of the country. She and her students have published extensively (in excess of 200 peer-reviewed journal papers) on this topic and she is consequently listed in the essential science indicators list of the ISI Plant and Agricultural Sciences grouping.

Wingfield is a Professor in the Department of Genetics at the University of Pretoria, a post she has held for the last ten years. During this time, she has been the supervisor of 10 and co-supervisor of 16 PhD and a large number of MSc students. Many of these students have gone on to become well-known researchers in their own right. She has spent much of her career promoting the field of molecular genetics, especially as it relates to Agriculture and Forestry. In this regard, she established the first molecular genetics programme to serve the South African forestry industry (Forest Molecular Biology Co-operative) in 1999

and was appointed Programme Leader for the DST/NRF Centre of Excellence in Tree Health Biotechnology in 2004. In 2000, she was appointed as a member of Government Advisory Committee on the regulation of Genetically Modified Organisms. She was one of the team members appointed in 2001 to develop the Department of Science and Technology biotechnology strategy that led to the now well-established BRICS. She is the current chairperson of the National Science and Technology Forum (NSTF), and is a member of the board of trustees of PLANT BIO. She has been on the University of Pretoria's list of Exceptional Achiever's for seven years and was elected as a member of the Academy of Sciences of South Africa (ASSAf) in 2000.

While Wingfield has distinguished herself as an outstanding biological scientist and academic, she is passionate about and has played an active role in promoting the cause of women in South African science. In this regard, she has supported Third World Women in Science (TWOWS) and has been a long term member of SAWISE, representing the group on the NSTF since its establishment. She believes passionately that women in Science face exceptional challenges, and is deeply committed to nurturing and advising young female scientists, many of whom share the difficulties that she has experienced as a mother and a professional.

REPORT ON FELLOW AND MEMBERSHIP NUMBERS AS OF NOVEMBER 2007

FELLOWS

Total Fellows : 206
New Fellows: 2
Fellows deceased: 0
Fellows resigned : 2
Fellows removed for non-payment since 2004 : 3

MEMBERS

Total Members: 196
Member reinstated :1
Members resigned: 5
Members deceased : Prof. A H Jarrett, Dr C MacFarlane,
Prof E Ramstad.
Members removed for non-payment since 2004 : 5

New Members

Dr. Abul Khair Mohammad Alam, Chief Medical Officer & Consultant (Non-specialist), Dept of Internal Medicine, PE Health Complex;
Dawn Beerman of the Astronomical Society;
Markus Peter-Erik Janssens, Financial Manager of Softcraft Systems;
Terrence Omdutt Kommal, Military Officer (Tertiary Training and Development, School for Military Health Training) and independent researcher specialising in Integrative Medicines;
Walter John Ledgerwood, retired;
Sybrand Jacobus van Sittert, BVSc student, University of Pretoria.

MEDALS

Neither the JOHN HERSCHEL MEDAL nor THE MEIRING NAUDÉ MEDAL of the Society were awarded during the year just ended.

PUBLICATIONS

Volume 62 (1)

Volume 62 (2) October 2007 is available from
http://www.journals.co.za/ej/ejour_royalsa.html

Four *News Bulletins* were issued during 2007-2008. The first two were edited by Maciej Soltynski and John Skinner; the second two by the new editor, Sasi Sasidharan, who is currently researching his doctoral thesis on the genetics of cheetahs at the Veterinary Genetics Laboratory, University of Pretoria, Onderstepoort Campus.

LIBRARY

The librarian and staff of the University of Cape Town Library continue to maintain and catalogue the Society's Library. About 50 scientific institutions have an exchange agreement, whereby they send publications to the Society in exchange or as gifts.

COOPERATION WITH OTHER BODIES

The Society maintains contact and has representatives on the following bodies:

National Science and Technology Forum including the Scientific, Engineering and Technological Societies and Allied Professions Group of SA: Northern Branch Committee
Claude Leon Foundation - Prof. D.E. Rawlings FRSSAf
Frank Warren Memorial Trust - Prof. B. Warner FRSSAf.
South African Agency for Science and Technology Advancement - Prof. M.N. Bruton FRSSAf.

ACKNOWLEDGEMENTS

The Office Administrator, Sandra de Villiers-Soltynski is thanked for her efficient administrative services to the Council and membership. We wish to thank all the chairpersons and committee members of Branches for voluntarily giving of their skills and time, as well as organisers of lectures, speakers and those who delivered votes of thank at lectures as well as the South African Astronomical Observatory for lending the boardroom for Council meetings. The Dean and staff in the Science Faculty Office at the University of Cape Town are thanked for kindly accommodating the

national office and for sharing faxing and photocopying facilities.

I. S. Glass

(for General Secretary)