

Annual Report for 2011

Officers and Council for 2011/2012

President: Don Cowan

Vice Presidents: Jane Carruthers & Edward Sturrock

General Secretary: Ansie Dippenaar-Schoeman

Treasurer: Pierre Janssens

Editor: Margaret Avery

News Bulletin Editor: Soorya Sasidharan

General Members of Council:

Graham Avery, Guy Bate, Brendon Billings, Manoj Chiba,
Edith Elliott, Jill Farrant, Jannie Hofmeyr, Tony Ribbink,

Co-opted Members:

Doug Rawlings

Report of the General Secretary for 2011

Special Events

Broom Colloquium, Maropeng

The Northern Branch of the Society arranged a full-day colloquium on Saturday, 26 November 2011. The event, which commemorated the 60th anniversary of the death of Robert Broom, the renowned South African palaeo-anthropologist and describer of 'Mrs Ples', was held at Maropeng in the Cradle of Humankind. This was the second such Colloquium, the first held in the Eastern Cape in April 2011. An exhibition on Bolt's Farm, presented by the Ditsong National Museum of Natural History (DNMNH), was on display at Maropeng. The colloquium was open to the public. We are very grateful to the Claude Leon Foundation for the generous sponsorship of the event.

These colloquia, the idea of John Skinner, aimed to commemorate Robert Broom (born 30 November, 1866 in Paisley in Scotland; died in Pretoria on 6 April 1951 – thus 60 years ago) was trained as a medical doctor but spent most of his life in South Africa as a palaeontologist. Initially he worked on mammal-like reptiles from the Karoo. From 1936 until his death, he worked on fossils from Sterkfontein, Swartkrans, Kromdraai, Bolt's Farm, Minnaar's Site as well as many other localities. He was elected a Fellow of the Royal Society.

The colloquium at Maropeng was a great success. Beautifully and efficiently arranged by Lindsay Marshall of Maropeng with its very good conference facilities and catering in the tumulus, about 80 people attended. The programme and abstracts are attached for the formal record. It went very smoothly, with speakers generally keeping to time and having interesting powerpoint presentations. This was a truly historic occasion – two participants, Phillip Tobias and Bob Brain, had actually met Broom and had reminiscences. Francis Thackeray located a recording of Broom's voice which was fascinating. To hear Broom's clipped Scottish accent describing his finds was a real glimpse into the past! There were many historical photographs in the presentations that added atmosphere and interest. In addition, to have every one of South Africa's most outstanding palaeontologists present on one day in the same venue – Bruce Rubidge attended, his paper was presented at the first Broom Colloquium in Grahamstown – was a feat that could only have been pulled off by Francis Thackeray and it will never occur again. We are extremely grateful to Francis for arranging this function.

After the formal public proceedings, the Northern Branch held a private Royal Society (Fellows, Members and guests only) champagne toasting ceremony (catered for by Maropeng) at Robert Broom's bust at the exit of Sterkfontein Caves. There were about 30 of us to pay tribute to Robert Broom and to toast his memory and contributions. There were two toasts: one to the memory of John Skinner, whose idea these colloquia had been, the second, proposed by Francis Thackeray, to Robert Broom. Phillip Tobias suggested that we arrange to have a commemorative plaque erected at this site. Our ceremony was held on exactly the same date (26 November) as the first commemorative ceremony (1951) to occur at Sterkfontein in honour of Broom who had died on 6 April 1951. Submitted by Northern Branch Chair : Jane Carruthers

Broom Colloquium - Fossil Hunters Descend on Grahamstown

The Eastern Cape Branch of the Royal Society of South Africa, together with Rhodes University, hosted the April 2011 Robert Broom Colloquium. The colloquium brought South Africa's leading palaeontologists to Grahamstown for a series of lectures celebrating the rich diversity this country's unique paleontological resources and highlighting the lifework of Dr Robert Broom (1856-1951). Broom is widely regarded as South Africa's pre-eminent palaeontologist, credited with the discovery of the early hominid fossil 'Mrs Ples' and widely renowned for his seminal work on the mammal-like reptiles of the Karoo basin. Professor Bruce Rubidge, Director of the Bernard Price Institute of Palaeontology at Wits University, opened the Colloquium by eloquently summarizing Broom's pioneering and extensive contribution to the knowledge of our reptilian ancestors which stalked the Karoo 250 million years ago long before the age of the dinosaurs. Dr Rose Prevec, a palaeo-botanist based at the Albany Museum, then provided a glimpse of the fossil record of the *Glossopteris* plants that were once widespread across Gondwanaland 299-251 million years ago. Interestingly, these plants ultimately decayed to produce the extensive coalfields stretching across Southern Africa today. Following on from Dr Prevec, Dr Adam Yates, of the Bernard Price Institute of Palaeontology, showed the importance of South Africa's fossil record in shining light on the emergence of the world's first dinosaurs about 230 million years ago. Dinosaurs went on to dominate the world for another 165 million years and the South African fossil record is crucial in our understanding of why they became so successful.

Bringing the audience closer to the present time, Dr James Brink from the National Museum in Bloemfontein described how the effects of global glaciations over the last 100 000 years led to the isolation of South Africa's endemic black wildebeest, bontebok and springbok populations.

The colloquium ended with the 2011 Amy Jacot-Guillarmod lecture delivered by Professor Francis Thackeray, the Director of the Institute for Human Evolution, Wits University. The lecture was a *tour de force* of human evolution in which Professor Thackeray provided convincing evidence to suggest that the present boundaries between Australopithecine species and our direct human ancestors is statistically blurred and not clear cut. Given our current concerns about global warming Professor Thackeray also showed, from fossil evidence, how climate change may have been one of the main drivers of hominid evolution and extinction over the last three million years. Interest in the colloquium was widespread with people travelling from as far afield as Johannesburg, Port Alfred, Kenton, Hofmeyr and Graaff Reinet to attend the colloquium.

Submitted by Professor M Davies-Coleman

Special Projects

2011 Science Essay Competition

In December 2010, the entry forms were posted to about 600 schools across the country. The closing date for entries was 29th April 2011. 140 essays were received. Two essays were selected for publication in Volume 66(3) of the *Transactions of the Royal Society of South Africa* and the Royal Society of SA Trophy was awarded to two schools. For the first time trophies were awarded to the

schools producing the top two essays. The trophies were sponsored by the Claude Leon Foundation. Professor Edward Sturrock, the convener of the Essay Competition, arranged for markers. They were Professor Raoul Viollier, Drs Clive Oliver, Digby Warner and Ross Douglas. The following results were announced :

Topic : *Is the Square Kilometre Array (SKA) telescope project justified?*

1. *Olivia Gardy, Grade 9, Oakhill School, Knysna
2. Celso Zuccollo, Grade 12, St David's Marist Inanda
3. Matthew Marcus, Grade 12, Deutsche Internationale Schule, Cape Town

Merit Prizes :

Matthew Savadier, Grade 10, St David's Marist Inanda

Kyle Saunders, Grade 12, St David's Marist Inanda

Paul Broome, Grade 11, St Stithians Boys College

Topic : *Is green chemistry sustainable in South Africa?*

1. *Abigail Janisch, Grade 12, The King's School
2. Sansara Naidoo, Grade 11, St Stithian's Girls College, Randburg
3. Deidre Basson, Grade 12, Eunice High School, Bloemfontein

Merit Prizes :

Michael Gustavo, Grade 12, St David's Marist Inanda

Alexandra Hendricks, Grade 12, Wynberg Girls High School, Cape Town

Christine Forbes, Grade 12, Wynberg Girls High School

Topic : *How would you promote a culture of science in the country as Minister for Education in SA?*

1. Shassie Janisch, Grade 8, The King's School
2. Makhadze Baloyi, Grade 11, St Mary's DSG, Kloof
3. Brandon Davoren, Grade 12, Stirling High School, East London

Merit Prizes :

Raphaela van Embden, Grade 11, Deutsche Internationale Schule, Cape Town

Kimaya Reddy, Grade 11, St Mary's DSG, Kloof

Ross Jakins, Grade 11, Hilton College, Hilton

Primary School

Topic : *How environmental degradation has affected my community and what can we do about it?*

1. Kavir Bodha, Grade 7, Lotusville Primary School, Verulam
2. Angel Mboso, Grade 6, Sentinel Primary School, Witsieshoek
3. Azraa Khan, Al-Azhar School, Durban

Merit prize: Mokganya Mofokeng . Sentinel Primary School, Witsieshoek

* published in the *Transactions of the Royal Society of South Africa*

Two essays were selected for publication in Volume 66(3) of the *Transactions of the Royal Society of South Africa* later in 2011 and two new trophies were presented – one to The Kings School in Gauteng and the other to Oakhill School in Knysna. Fifteen prize-winners were presented with their prizes and certificates by a member of the Royal Society, namely Professors Andrea Fuller and Dean Goldring and Drs Graham Avery, Carola Niessler, and Paula Sommer as well as RSSA Councillors Brendon Billings and Manoj Chiba. Printed certificates were posted to the other prize-winners.

Interesting features of this year's competition:

For the first time a trophy for the Schools of the top prize-winners was included in the awards.

These were presented by Professor Andrea Fuller and Hon. Member Case Rijdsdijk. The Janisch

sisters, Abigail and Shassie won first prize yet again and in Abigail's case it will be the second time her essay is published in the *Transactions*. Category winners Olivia Gardy and Shassie Janisch are in Grade 9 and 8 respectively – these girls are competing against pupils four years their senior.

Cash prizes were awarded to all prize-winners of each essay category. 1st Prize – R 2 000, 2nd Prize – R1 250 and 3rd prize – R750, Merit Prizes – R250.00

The Society once again thanks the Claude Leon Foundation for its ongoing support as well as its increased sponsorship to include the trophies.

Claude Leon Foundation Scholarships

Doug Rawlings reported that 266 applications for Claude Leon Foundation Fellowships had been received – nearly double from 2010. 70 Fellowships were awarded but not all were taken up. The provincial breakdown for Fellowships taken up : 1 Free state ; 8 Eastern Cape ; 13 Gauteng ; 6 KwaZulu Natal; 1 North West ; 40 Western Cape. The countries of origin of the applicants were, amongst others and in order of number : South Africa, India, Zimbabwe, France, Nigeria, United Kingdom & Cameroon.

2011 Annual Dinner

The Society's Annual Dinner, Induction of New Fellows and Medal Awards was held on the evening of Tuesday, 27th September at the historic Kelvin Grove in Rondebosch. It was attended by 66 people including a number of Fellows of long standing, amongst others, Brian Warner (1976), Lionel Opie (1993), Nick van der Merwe (1984), Raoul Viollier (1988), Ray Haines (1990), James Bull (1991) and Daya Reddy (1992). President Professor Don Cowan warmly welcomed those present including NRF CEO Dr Albert van Jaarsveld and UCT's Dean of Science Professor Anton le Roex; and paid tribute to past president Professor John Skinner who died in August 2011. He also thanked Jennifer Thomson for 'hosting' the evening at Kelvin and the Chiba Family Trust for their donation.

The following Fellows were inducted: Hoosen Coovadia (2003); Kelly Chibale (2009); Louis Scott (2009); Marcelo Loewe Lobo (2010); Allen Rodgers (2010). Professor Jannie Hofmeyr read the citation for new Fellow Paul Cilliers, a close friend and colleague of Hofmeyr's, who had died just two months before he was due to be inducted.

After the first course of dinner, Dr Margaret Avery, Editor of the RSSA Transactions, presented the John Herschel Medal to Professor Keith Klugman FRSSAf in recognition of his multidisciplinary contribution to science in South Africa and to the reduction in childhood mortality through the development of conjugate pneumococcal vaccination in developing countries. Council Member Professor Jill Farrant then presented the Meiring Naude Medal to physicist and cosmologist Dr Amanda Weltman of the University of Cape Town for her outstanding research in theoretical cosmology. This was followed by Vice-President Professor Jane Carruthers introducing the newly established award of Honorary Membership. This was bestowed on Mark Read, Case Rijdsdijk and, *in absentia*, on Richard Rubidge.

Professor Lionel Opie FRSSAf, Co-director of the Hatter Institute for Cardiovascular Research at the University of Cape Town, delivered his address entitled 'Molecules that protect the brain' that, in a perfect post-prandial talk, was both informative and a little light-hearted in explaining how human physiology had developed melatonin and other hormones and chemicals that ensured the optimum functioning of the human brain.

The evening ended with Toasts to the Society and the Country by Council Members Edith Elliott and Jannie Hofmeyr respectively.

Thanks to Maciej Soltynski for taking photographs and to Denise, the Catering Manager at Kelvin Grove, and her superb staff for a fabulous evening.

Branch Activities

Western Cape Report 2011

The following talks were hosted by the Society in conjunction with the Academy of Science of South Africa. All the talks were held at the S A Observatory in Observatory except the talk in October which was held at the Lung Institute of the University of Cape Town.

PUBLIC TALKS

- Feb 16th : Professor Paul Cilliers FRSSAf, Professor of Complexity & Philosophy at Stellenbosch University on 'Confronting a Complex Reality: Why a non-reductive approach has to be ethical.' The meeting was chaired by Professor Jannie Hofmeyr.
- Mar 16th : Dr Darragh O'Donoghue FRSSAf of the SAAO on 'Saving SALT' (Southern African Large Telescope) The meeting was chaired by Professor Don Cowan who also announced the Council for the 2011/2012 session.
- April 20th : Professor Eugene Cloete, Dean of Science at Stellenbosch University on 'Innovation – the key to sustainable water supply and sanitation.' Professor Wieland Gevers of ASSAf chaired the meeting.
- May 25th : Dr Wolf-Dieter Schubert, Professor of Structural Biology, Department of Biotechnology at the University of the Western Cape. His talk was entitled 'Molecular Infection - Understanding bacterial infections at organismal, cellular, molecular and atomic scales.' The meeting was chaired by Don Cowan.
- Jun 7th : Baroness Susan Greenfield, Director of the Royal Institution of Great Britain, Fullerian Professor of Physiology on 'Can neuroscience throw light on consciousness?' The extremely well-attended meeting was chaired by Don Cowan.
Aug 17th : Dr Richard G. Klein Hon. FRSSAf, Professor of Human Biology at Stanford University, on 'Modern Human Origins—Neanderthals and Us'. The meeting was chaired by Dr Margaret Avery .
- Sept 21st : Physicist and Cosmologist Dr Amanda Weltman of the University of Cape Town and winner of the Meiring Naude Medal for 2011, presented the pre-dinner public lecture entitled 'Dark Energy and where to find it'. The meeting was chaired by Don Cowan.
- Oct 19th : Professor Ben Burger, Department of Chemistry & Polymer Science at the University of Stellenbosch on 'Unravelling the code of chemical communication between living organisms'. Professor James Bull FRSSAf chaired the meeting.
- Nov 16th : Professor Ben Cousins, DST/NRF Chair in Poverty, Land & Agrarian Studies (PLAAS), School of Government at the University of the Western Cape on 'Small-scale irrigation farming, land reform and poverty reduction in SA'. The meeting was chaired by Don Cowan. The new Fellows for 2011 were announced at this meeting.

Northern Branch Report 2011

Committee Members 2010/2011: Jane Carruthers (Chair) ; Andrea Fuller (Vice-Chair) ; Nigel Bennett (Treasurer) ; Rudolph Bigalke ; Ansie Dippenaar-Schoeman ; Ivan May (died 31 December 2010) ; Francis Thackeray ; Rudi van Aarde ; Brenda Wingfield

Committee meetings: 15 June 2011 and regular email contact throughout the period under review.

Branch activities:

- Bob Scholes, 'Summer in Antarctica: Thoughts on South Africa's Polar Research programme', Pretoria, 17 February 2011.
- Mervyn Mansell, 'Forensic entomology: Insects in the service of criminal justice', Pretoria, 5 April 2011.
- Francis Thackeray, 'Shakespeare, compounds and chemistry: What was he smoking?', Johannesburg, University of the Witwatersrand, 18 May 2011.

- Shane Maloney, 'What will climate change mean for human activity: Can I still play golf?', Johannesburg (lunchtime lecture), University of the Witwatersrand, 29 June 2011.
- Astronomy: Joint evening with South African Agency for Science and Technology Advancement. Speaker: Marion West, 'A voyage through the universe', 13 August 2011, Johannesburg Observatory.
- Don Cowan, President's Lecture, University of Johannesburg, 'Life in extreme environments: Metagenomics as a tool for extremophile ecology and biotechnology', 24 November 2011.
- Broom Colloquium, Sterkfontein and Maropeng, 26 November 2011.
- Essay prizes presented to winners by Andrea Fuller, Brendon Billings and Manoj Chiba.
- Progress on the formation of Young Royals in the Northern Area (Council members: Brendon Billings and Manoj Chiba)

KwaZulu-Natal Branch Report for 2011 – Pietermaritzburg & Durban

1. KwaZulu-Natal PMB branch committee

Dr Edith Elliott (Chair and representative)	Professor Dean Goldring (Publicity/newsletter)
Professor Guy Bate (Co-Chair)	Prof Theresa Coetzer (Newsletter)
Mrs Robyn Hillebrand (Treasurer)	Dr Carola Niesler (Awards)
Mrs Charmaine Ahrens (Secretary)	Professor Stefan Schmidt (Liaison/program)
Prof Trevor Hill (Young Royals)	Prof Fanie van Heerden (Program) (new for 2011)

2. KwaZulu-Natal Durban branch committee

Dr Paula Sommer (Co-Chair)
 Prof Mike Perrin (Co Chair)
 Dr Judy Mann-Lang (Director of uShaka Sea World/SAAMBR) uShaka/ORI-based lectures
 Dr Dalelne Vosloo (Westville events)

Talks in 2011: Pietermaritzburg

- 7th April : Prof Dave Ward (Botany, UKZN) on 'Why are trees threatening our grassy plains?'
- 14th March : Prof Stefan Kienzle (Univ. Lethbridge, Canada) on 'Impact of global warming on snow and glacier dynamics.'
- 12th May : Prof Bill Bishai (JHU Center for Tuberculosis Research Co-Director, JHU Professor of Medicine and International Health, Howard Hughes MI Investigator) on 'Drug-resistant TB: Fitness, Frailty, and the Future.'
- 18th Aug. : Dr M Corrie Schoeman (Zoology, UKZN) on 'Why be afraid of bats?'
- 15th Sept. : Prof Denis Brothers (Entomology, UKZN) on 'Life at Orapa, Botswana 135-65 million years ago.'

Talks in 2011: Durban

- 17 February : Professor Mike Perrin (Emeritus Professor, UKZN, FRSSAf) ' Polly gone? The extinction of some parrot species.'
- 10 May : Professor Mike Whatkeys (Professor UKZN) on ' 2011, 2012. Are the earth's poles about to switch?'

Eastern Cape Branch Report 2011

During the year under review (1st January – 31st December, 2011), the activities of the Eastern Cape Branch of the Society have been coordinated by the following committee elected at the Annual General Meeting held on Monday 30th May 2011 : Prof. Davies-Coleman (Chairman), Dr Edkins (Secretary), Prof Whitfield/alternate* (Treasurer), Dr Ribbink (Council), Dr Adams/Dr Plon (PE

liaison), Prof Kaye, Prof Pletschke, Ms C Slater (Young Royals). The incoming committee reserved the right to co-opt RSSAf members to the committee if necessary. * Subsequent to the AGM Prof W Froneman agreed to join the committee as Treasurer.

The Branch cost-centre has been controlled by Mrs Benita Tarr, the Chemistry Departmental Administrator, and we are grateful for her ever efficient assistance. We also acknowledge with gratitude the very positive financial and moral support which Rhodes University has provided during 2011.

Activities for the year have included the following.

- The Robert Broom Colloquium held on 18 April, 2011. The colloquium brought South Africa's leading palaeontologists to Grahamstown (see Appendix 1) and drew an audience of over a 100 from as far afield as Graaff Reinet and Port Alfred. The enormous contribution of Dr Billy de Klerk of the Albany Museum, who pulled this colloquium together, is gratefully acknowledged. The annual Amy Jacot Guillarmod Memorial lecture was incorporated into the colloquium and was presented by Professor Francis Thackeray. The Jacot Guillarmod lecture was followed by a dinner hosted by the University for the invited speakers. Professor Thackeray also presented his Jacot Guillarmod lecture entitled: 'Human evolution, climate and statistics' at NMMU in Port Elizabeth on 19th April, 2011.
 - Professor Justin Jonas of the Department of Physics and Electronics at Rhodes University presented the annual Schonland Memorial lecture entitled 'Radioastronomy for Africa. Africa for Radioastronomy' in Grahamstown on 31 October, 2011.
 - Young Royal activities: See Appendix 2
-

We warmly congratulate the following Fellows and Members of the Society on their recent achievements.

- Professor Tebello Nyokong (FRSSAf) who was awarded the Distinguished Professorship at Rhodes University 2011, the RSC (Royal Society in Chemistry)/ PACN (Pan African Chemistry Network) Distinguished Women in Chemistry: 2011 and was invited by Irina Bokova, Director-General of UNESCO, to be a member of the UNESCO High-level panel on Science, Technology and Innovation for sustainable Development. She was also awarded the International Conference on Frontiers of Polymers and Advanced Materiel (ICFPAM) award in memory of the centenary of the first Nobel Prize in Chemistry awarded to a woman: Marie Curie- a notable achievement in the year of Chemistry.
- Professors Janine Adams, Stephanie Burton and William Froneman who were elected as Fellows of the Society.
- Professor Christopher McQuaid (FRSSAf) who received an A-rating from the NRF and was awarded the Gilchrist Medal from the South African marine community.

MEMBERSHIP REPORT FOR 2011

FELLOWS

Total Ordinary Fellows: 212; Total Hon Fellows: 35 ; New Honorary Fellows: nil

New Fellows 2011: 10 (see full details below)

Resignations: C O'Connor ; Fellowship Withdrawn: V Shannon

Deceased Fellows: J T Fourie, J R E Lutjeharms, P Cilliers, J D Skinner

MEMBERS

Total Members: 223

Members who became Fellows : J Adams, S Bourne, S Burton, M Coetzee, P W Froneman

New Members welcomed in 2011:

Ms J Berning, Prof. M Coetzee, Ms J-L De Fontaine, Dr R C Foster, Ms N Glanville, M Herron, Dr A J Lambrechts, Ms V C Malherbe, Ms J B Mann, Mr D Mitchell, Mrs L Moss, Dr V Naranbhai, Dr A T Nchinda, Mr D R C Philip, Prof A E Schutte, Prof D E Shallcross, Dr S Van Noort, Dr D Vosloo, Prof S Wagner, Dr M Williams.

Students who became Full Members in 2011: Dr S van Sittert.

Members Resigned: K Ferguson, U Algar, A Georgeson, C A Lewis, D C Skinner, C MacVicar, M Villet

Membership Withdrawn: G Vawda, L Sibali; Members Deceased: none reported

STUDENT MEMBERS

Total Student Members: 25

New Student Members welcomed in 2011 : Mr M J Burke, Mr J R E Davies, Ms Jarishma Gokul, Ms Ramona Hurdayal, Mrs H O Ibrahim, Mr Trevor T Nyakudya, Ms Agata Ogonowski, Mr Mieszko Ogonowski ; Resigned : nil

MEDALS AWARDED

John F. W. Herschel Medal

Professor Keith Paul Klugman FRSSAf, Director of Medical Research Council / University of the Witwatersrand, National Institute for Communicable Diseases, Respiratory and Meningeal Pathogens Research Unit, Johannesburg

Meiring Naude Medal

Dr Amanda Weltman, Physicist and Cosmologist, Department of Mathematics & Applied Mathematics, University of Cape Town

New Fellows 2011

JANINE BARBARA ADAMS

Professor, Department of Botany, Nelson Mandela Metropolitan University

Professor Adams is the only full teaching Professor in the Botany Department at the Nelson Mandela Metropolitan University on the South Campus. She has been the recipient of a number of awards during her career and is a member of the Water Institute of South Africa, the South African Society of Aquatic Scientists (SASAQS), the Phycological Society of Southern Africa, the International Association for Impact Assessments (IAIA), the Estuarine Coastal Shelf Sciences Association (ECSA, International) and she is registered as a Professional Scientist (Pr. Sci. Nat.) in the category Botanical Scientist. She is an active member of: FETwater (Further Education & Training in the water sector), SANCOR (South African Network for Coastal and Oceanographic Research) and the Consortium for Estuarine Research & Management (CERM).

Professor Adams's PhD was in the ecophysiology of estuarine macrophytes and she has extended the knowledge gained in that subject to water and coastal management, the freshwater requirements of estuaries, estuarine ecology in general and the importance of freshwater in the management of South Africa's coastal zone. Her research in this field has been strongly supported by funds from numerous sources.

Professor Adams has an enviable record of attracting black, white, Indian and coloured students into water research. This is the result of her open and friendly attitude but also to the huge effort, enthusiasm and hands-on approach she brings to their research activities. Students see her as a clear role-model.

In research, Professor Adams is part of a most important team of estuary scientists from UCT, CSIR and the Department of Water Affairs (DWA) who have been responsible for the design and implementation of the Resource Directed Measures (RDM) programme of DWA in the

determination of the ecological integrity of South Africa's estuaries and the amount of freshwater essential to maintain that integrity. The result of her important role in water research and management resulted in her appointment as Chair of the Water Research Commission from 2008 to the present.

Professor Adams is a long-standing member of the Eastern Cape branch of the Royal Society of South Africa. She is personally known to three of the proponents of this submission who attest to her fine personality, integrity and character and we strongly recommend her election to Fellowship of the Royal Society.

LEE ROGERS BERGER

Professor, Reader in the Institute for Human Evolution, University of the Witwatersrand.

Professor Berger has made outstanding contributions in the field of palaeoanthropology, most recently through the discovery of two skeletons of a new hominid species, *Australopithecus sediba*, from the site of Malapa in the Cradle of Humankind World Heritage Site. Professor Berger and his team have described the new species and its geological and chronological context in two papers in *Science* in April, 2010, and an additional five papers will be published in *Science* in September 2011. The discoveries have attracted tremendous interest locally and internationally.

Professor Berger and his team have contributed substantially to an understanding of the transition from *Australopithecus* to *Homo*, about 2 million years ago. Whereas previous discoveries of hominid fossils have often been fragmentary, the new specimens of *A. sediba* include almost complete skeletons, more complete than fossils such as the celebrated 'Lucy' from Ethiopia. Professor Berger has undertaken fieldwork and research at numerous sites in South Africa. Since arriving from the United States in 1990, he has been based at the University of the Witwatersrand, and is now a South African citizen. He obtained a PhD degree on australopithecine postcrania through Wits. Since then, his goals have been five-fold: 1) to contribute to an understanding of the taphonomy and geological context of the South African Plio-Pleistocene fossil record; 2) to examine the morphology and variation in Plio-Pleistocene aged hominins; 3) to explore the possibility of new fossil bearing localities that might contribute to our understanding of hominin evolution on the continent; 4) to foster multi-disciplinary studies in the context of the South African Plio-Pleistocene fossil record; and 5) to bring about an increased public awareness around human evolution in Africa. In 1996 he was appointed Leader of the Palaeo-Anthropology Research Group at Wits University. In 1997 he was awarded the National Geographic Society's Prize for Research and Exploration. He has published numerous research articles and two books. He is recognized locally and internationally as a leading palaeoanthropologist.

SUSAN ANN BOURNE

Professor of Chemistry, University of Cape Town

Professor Bourne obtained a PhD in Physical Organic Chemistry at the University of Cape Town in 1971 with her thesis entitled 'Inclusion Properties of Hydroxy Host Compounds'.

She joined the academic staff of the Chemistry Department at the University of Cape Town as a Lecturer in 1994 and progressed rapidly via a series of ad hominem promotions to full Professor in 2008.

Professor Bourne has had considerable international experience. In 1993 she was a Robert A Welch Postdoctoral Fellow at the Texas Christian University, Fort Worth, Texas, USA. She was a visiting Professor (July – Dec 2000) at the University of South Florida, Tampa, Florida, USA. In 2001 she held a Royal Society of Chemistry international authors grant at Monash University, Australia. In 2005 (Jul – Aug) she held the post of visiting scholar, Institute of Structural Chemistry, Hungarian Academy of Sciences, Budapest. This was followed by a second RSC international authors grant at the University of Bristol, UK from September to November 2005.

Professor Susan Bourne's research is in the field of Structural Chemistry and deals with the structure and reactivity of organic inclusion as well as the properties of metal-organic frameworks. Her studies are important, both in the pharmaceutical and the catalysis fields.

In particular, she has carried out seminal research in the field of solid-solid reactions, coordination polymers, macro properties of chiral assemblies and reversible hydration. This has resulted in 110 papers in high impact international journal publications and 2 book chapters. Professor Bourne is a valued teacher at both the undergraduate and post-graduate level. She has trained 9 PhD and 7 MSc students and is currently supervising seven post graduates.

Professor Bourne serves on several university and international committees. She was president of the SA Crystallographic Society (2004 – 2005). She Chairs the National Committee for the International Union of Crystallography (IUCr) and serves on the IUCr Commission on Structural Chemistry. She is on the editorial board of three important journals, viz: *J.Chem. Crystallography*, *CrystEngComm* and *Crystal Growth and Design*.

Professor Susan Bourne is active in various outreach activities and has spoken at schools on various chemical topics. She has been a guest speaker at a Graduation Ceremony at the Cape Peninsula University of Technology and has addressed the University of the 3rd Age.

It is noteworthy that since Paul Daniel Hahn, after whom the Chemistry building at UCT is named, persuaded the College Senate to admit women students in 1887, Susan Anne Bourne is the first woman to have been elected to a full chair in Chemistry in 2008. It has taken us 121 years! Recently she was elected as the next Head of Department to follow Professor Allen Rodgers, from January 2012.

In conclusion, Professor Susan Bourne is an outstanding individual who has distinguished herself in teaching, research and various management and outreach activities in the field of Structural Chemistry.

STEPHANIE GAIL BURTON

Professor, Vice-Principal: Research and Postgraduate Education, University of Pretoria.

Professor Burton has an outstanding record in teaching, research and administration. From a start as a high-school science teacher she has progressed through a variety of significant appointments to her present influential position. Her CV is impressive and documents her many and varied contributions in all three academic directions. She obtained her MSc in Organic Chemistry with distinction at a relatively mature stage of her life, but this was only the start of a career that overcame many obstacles as she conquered new fields of biotechnology and chemical engineering. Awards for and international recognition of her work have accumulated exponentially. She has, to date, supervised 13 Masters and 14 Doctoral students, 9 Postdoctoral fellows, published over 70 papers in refereed international journals, 7 book chapters, 10 Technical Reports for the SA Water Research Commission, and is the holder of 6 patents in biotechnology.

Professor Burton has presented her work (often on invitation) at international (54 papers) and national (125 papers) conferences. Her current B3 rating from the NRF (2006) is under re-evaluation. She is a reviewer for 18 international journals and is on the editorial boards of three. Professor Burton's talent for administration, leading to her present position, is evidenced by the positions that she has held and committees upon which she has served at Rhodes University initially and successively at the University of Cape Town and the Cape Peninsula University of Technology. Relatively few scientists excel so well in both research and administration and we consider Professor Burton to be an outstanding candidate for a Fellowship of the Royal Society of SA.

MAUREEN COETZEE

Professor, Director: Malaria Entomology Research Unit and SARChI in Medical Entomology & Vector Control, University of the Witwatersrand

Malaria remains the biggest killer of children under 5 years in Africa and is a major contributor to poverty in developing countries. The following contributions have been made by Professor Maureen

Coetzee towards unravelling some of the complexities in the Anopheles mosquitoes and to controlling these insects in various parts of Africa.

Research publications : Over 140 scientific articles have been published in peer-reviewed journals or as chapters in books since 1977 and several more are awaiting publication this year. She has published in high impact journals such as PNAS, Genome Research, Molecular Ecology, PLoS One, BMC Genomics and Genetics, all with Impact Factors of over 4.0.

International Recognition and Awards : Professor Coetzee has recently been awarded the ultimate honour that can be bestowed on a biologist – the naming of a subgenus of mosquito after her. Scientists at the Smithsonian Institution in Washington DC, USA, named *Aedes (Coetzeemyia) fryeri* in her honour for contributions to mosquito research. In the mosquito field it is extremely rare these days to find new, undescribed species or to have major revisions published of the existing classifications. It is thus a huge honour to have entomologists from the world-renowned Smithsonian Institution naming a subgenus after her.

Professor Coetzee has been invited to contribute a chapter to the 2013 edition of *the Annual Review of Entomology*, the top journal in her field that publishes articles by invitation only. She has been nominated for an award in 2012 from the American Mosquito Control Association. She won the NSTF 2009-2010 award for outstanding contribution to science in the past 10 years. She is co-principal investigator on the International Centre of Excellence in Malaria Research grant awarded to the Johns Hopkins University Malaria Institute by the NIH and based in Zambia. She is a member of several World Health Organization committees and scientific advisory committees for Gates Foundation projects that are working towards the global elimination of malaria.

PIERRE WILLIAM FRONEMAN

Professor & Head of Department, Department of Zoology & Entomology, Rhodes University.

Pierre William Froneman is a mid-career academic who has shown exceptional breadth and depth in the service of science. His record speaks for itself in demonstrating his commitment to the propagation of science at many levels. This includes delivering public lectures on numerous occasions and many years of very dedicated undergraduate teaching at all levels as well as the fostering of over 20 postgraduate students who have successfully completed their degrees, in addition to those who are still engaged in their research. Prof Froneman and his students have presented a very large number of presentations, both talks and posters, at many conferences in this and other countries and Froneman has received personal invitations to give guest talks at institutions in South Africa and overseas. A measure of Prof Froneman's standing lies in the fact that he has acted as external examiner at several South African universities and has acted as an examiner for postgraduate theses from both national and overseas universities. The position of external examiner is a critical one in terms of quality control and such invitations are not made lightly. Equally impressive is the fact that Froneman has acted as an external reviewer for project proposals from some five other countries. This has enormous implications for both the allocation of funding and for the careers of individuals who put forward projects and again, delegating responsibility for evaluations on which such serious decisions will be made is not something undertaken lightly. In a similar vein, Froneman has acted as referee for over 30 journals, mostly international.

But Froneman's most impressive achievements involve his own research. He has an extraordinarily impressive list of peer-reviewed publications for a man of his age and this augurs very well for the future. He was well over 100 papers already published, with the great majority in high impact international journals. This is in addition to some 6 book chapters and his editing of a book on the Prince Edward Islands. This book received an extremely favourable review by a highly placed member of the British Antarctic Survey, who proposed that it should serve as a model for the Antarctic research of both the British and the French. This is a remarkable comment from a disinterested party. Froneman is a central figure in Southern Ocean research in both this country

and internationally. Indeed we would go so far as to say that within South Africa country he has no peer. He also works extensively on estuaries and his overall achievements have been recognised by a B rating from the National Research Foundation.

Froneman has already received the Royal Society's Meiring Naude medal and we have no doubt at all that his elevation to Fellowship would bring credit to the Society.

MARGIT HARTING

Associate Professor, Department of Physics, University of Cape Town;

Since coming to South Africa from Germany, via a sojourn at the ETH Zurich, in 1995 Margit Harting has built a world leading research and innovation group which has had many notable successes in materials research and applied physics. She holds a B1 rating from the NRF, making her the highest rated female physicist in the country. Her research interests range from: fundamental studies of stress driven defect processes, through characterisation of nanoscale structures, to the development of electronic systems. The highest impact of her work has been in the development of an award winning printed silicon technology, which could only be achieved because the applied aspects of her research are strongly grounded in building an understanding of the underlying basic physics of the material system.

Professor Harting is Research and Development Director in the NanoSciences Innovation Centre and Associate Professor in the Physics Department at UCT. Besides being an active researcher and educator, who has supervised 20 MSc and 13 PhD students, she has played a significant role in the African Science community. She was the founder of the Cape Initiative on Materials and Manufacturing, contributed to the Provincial Manufacturing Strategy, is a former member of the South African Nanotechnology Initiative (SANi) executive and serves as a non-executive board member of the National Metrology Institute of South Africa (NMISA). She is also a principal in Nano Power Africa, a network with UCT as its hub, which uses physics and nanosciences research to build research capacity and entrepreneurship in other African countries.

STEPHANUS PETRUS HENZI

Professor, Chair of Psychology, University of Lethbridge, Alberta, Canada ; Honorary Professorial Research Fellow, Universities of KwaZulu-Natal; Registered Supervisor, University of South Africa.

Professor Henzi trained as a psychologist in South Africa and, following postdoctoral studies at the University of St. Andrews, Scotland, was employed at the University of KwaZulu-Natal from 1984-2001. Thereafter, he was appointed as Research Professor at the University of Bolton, UK (2002-2003) and Professor at the University of Central Lancashire, UK (2003-2006), before accepting a position at the University of Lethbridge in 2007. Peter Henzi maintains his ties with this country through appointment as an Honorary Professorial Research Fellow at the University of KwaZulu-Natal, and as a supervisor of postgraduate students registered at the University of South Africa. He visits South Africa for at least three months of each year to maintain his research interests here.

Peter Henzi's research interests are in the fields of comparative evolutionary psychology and primatology. Comparative primatology arguably has its origins in South Africa through Eugene Marais, and the country has participated in the discipline ever since. Peter Henzi's most substantive contribution has been the empirical development, elaboration, and application of Biological Markets theory to the cross-population patterning of primate sociality and the extension of this framework to cognitive evolution and brain structure. A coherent suite of over 100 publications, spanning 25 years, in high-impact journals has shown that important components of baboon strategic social behaviour are circumscribed as a consequence of local evolutionary ecology and biogeography. These analyses have been crucial to broader theoretical concerns with sexual selection and conflict and have explained long known differences in sexual behaviour across the baboon clade, while also recently providing the first empirical example of selectively advantageous sexual concession in a mammal.

Peter Henzi holds a B-rating from the National Research Foundation. He is regularly invited to give plenary or symposia lectures at international conferences, and to speak at research institutions around the world. He has been supervisor for nine completed PhD and 15 completed Masters students, most of whom have been registered in South Africa, and he is supervising eight Masters students currently. He also has hosted seven postdoctoral fellows, including Professor Louise Barrett, who undertakes research jointly with him now. Peter Henzi has been consulting editor for the journal *Animal Behaviour* (2001-2003) and has served on the editorial boards of *ISRN Zoology* (2010 onwards) and *African Primates* (1997-2000). In 1986, he was a founder committee member of the Ethology Group of Southern Africa. His standing as a leading primatologist has been recognized not only by his peers but also through consultations for several television and film companies, including the BBC, Icon Films, and Richard Brock Films in the UK, the Human Nature Television Series in Australia, and 50/50 television series in South Africa. We are proud to propose him for Fellowship of the Royal Society of South Africa.

SUNIL DUTT MAHARAJ

Professor, South African Research Chair in Gravitating Systems, School of Mathematical Sciences, University of KwaZulu Natal

Professor Sunil Maharaj was awarded the BSc Honours degree from the University of Durban-Westville in 1983 and then undertook research in general relativity at the University of the Witwatersrand where he was awarded the M.Sc. degree in 1984 and the PhD degree in 1987 under the supervision of Professor Roy Maartens. He joined the staff of the University of Natal, Durban, as a lecturer in 1988 and rapidly rose through the ranks to become a Professor in 1977 and then a Senior Professor in 2001. Since 2007 he has held a South African Research Chair in Gravitating Systems.

He has made significant contributions to relativistic kinetic theory, stellar models, radiating stars, inhomogeneous cosmologies and symmetries on manifolds. Together with his collaborators he has derived important new solutions in general relativity using the methods of Lie group analysis for differential equations. He is regarded as one of the leading researchers in general relativity in South Africa. He has already published 91 papers in peer-reviewed journals, one chapter in a book and 11 papers in refereed conference proceedings. He has been editor or co-editor of the Proceedings of one international and three national conferences. He has an outstanding track record as a supervisor. He has successfully supervised 7 Postdoctoral Fellows, from India, England and South Africa, 17 PhD students and 18 MSc students. He has made over sixty presentations at national and international conferences. He has been Director of the highly productive Astrophysics and Cosmology Research Unit since 2005 which has established the University of KwaZulu-Natal as an international centre for general relativity. He is B-rated by the NRF.

Professor Maharaj is highly committed to promoting scientific contacts between South Africa and India. He was a member of the delegation of the Department of Arts, Culture, Science and Technology to New Delhi in 1996 and of the NRF delegation to Pune in 1998 to attend a meeting of South African and Indian scientists in cosmology with the objective of creating and extending scientific collaboration. He has made presentations at eleven workshop and conferences in India and he has funded the visits of many Indian scientists to South Africa. He is a Life Member of the Indian Association for General Relativity and Gravitation. He was joint organizer of the Special Session at the Congress of the South African Mathematical Society in 2010 to honour the centenary of Chandrasekhar and he was a co-editor of the special issue of *Pramana*, the journal of the Indian Physical Society, which published the Proceedings.

He has made a significant contribution to the growth of general relativity, both nationally and internationally. He is a Founder Member of the Southern African Relativity Society. In 1997 he presented the bid to the Council of the International Society of General Relativity and Gravitation for hosting the next international conference in Durban 2001 and was Secretary of the Organising

Committee of the conference. Since 1997 he has been a member of the International Coordinating Committee of the Marcel Grossman Meeting which is held every four years.

He is held in the highest regard by his colleagues in South Africa and internationally. His appointment to a South African Research Chair affirms his distinction as a researcher. His election to a Fellowship of the Royal Society of South Africa would recognize his role in the development of general relativity in South Africa and his research contributions.

NORMAN WILLIAM PAMMENTER

Professor Emeritus & Senior Research Associate, School of Biological and Conservation Sciences, University of KwaZulu-Natal

Professor Pammenter has had a long and distinguished career since 1973 as a Lecturer, Senior Lecturer, Associate Professor, and Professor at the Universities of Natal, and KwaZulu-Natal, where he is now Professor Emeritus and Senior Research Associate. His experience is very broad: his honours degree at the University of Natal was in Chemistry and he worked as an industrial chemist and then a lecturer at the Natal Technical College for several years before undertaking a Masters degree in Plant Biology at the University of Natal followed by a PhD in Plant Sciences at Leeds University in 1973.

His research interests are broad. He has made contributions to biochemical, physiological and ecological research. His current interests are (i) The influence of hydraulic characteristics on growth, drought response and distribution of trees, (ii) Desiccation sensitivity and tolerance, with particular respect to recalcitrant (desiccation-sensitive) seeds, (iii) The ecophysiology of coastal dune flora. He has also undertaken studies on the influence of elevated atmospheric CO₂ on temperate grasslands and invasive alien species.

Professor Pammenter has published extensively with about 120 papers in the international literature and numerous chapters in books and conference proceedings. These have had considerable impact with more than 2000 citations in the literature, an h-index of 27, and, during the last five years, an average of 55 citations per year to his publications.

He makes many contributions to his field. He is the African representative to the International Society for Seed Science, a member of the Academy of Science of South Africa and a number of other professional societies. He has supervised more than 50 higher degrees. His proposers consider him an outstanding candidate for Fellowship of the Royal Society of South Africa.

Publications

TRANSACTIONS OF THE ROYAL SOCIETY OF SOUTH AFRICA

Dr Margaret Avery continued as Editor of the Society's journal. Volume 66, issues 1 – 3 were published by Taylor & Francis. Members continue to receive hard copies and have free access to all *TRSSAf* online volumes.

NEWS BULLETIN

Dr Sasi Sasidharan continued as Editor of the Society's newsletter until his departure for Scotland. We are grateful to Dr Sasidharan for his time and effort and wish him well for the future.

Sponsorships and Donations

The Society continues to receive generous sponsorship from the Claude Leon Foundation for the School Essay Competition and in 2011 for the Broom Colloquia.

Rhodes and Wits University also assisted with the Broom Colloquia expenses

The TBM Foundation generously donated towards the Annual Dinner

Donations from Fellows & Members

Received from : Lionel Opie, Nick Starke, J D Comins and Gill Scott

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
- Academy of Science of South Africa
- South African Agency for Science and Technology Advancement

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 thanks at lectures as well as the Director of 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 facilities.

E J CARRUTHERS
GENERAL SECRETARY