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2009 Academy Annual Report

The 2009 Academy Annual Report details the accomplishments of the Academy of the Royal Society of New Zealand throughout the year.

Chair's foreword

2009 was a momentous one for the Academy and in January 2010 the final act of "embracing the Humanities" within the Royal Society took place with the signing of an MOU between Te Whaingā Aronui The Council for the Humanities and Te Apārangi the Royal Society of New Zealand.

Welcoming this move, the President Dr Garth Carnaby described this as landmark decision for both organisations: "For the first time there will be an organisation in New Zealand that promotes excellence in research and scholarship across all the disciplines and areas of knowledge."

This change is one of the most significant decisions for the Academy and the Royal Society in its history. An enhanced and extended Academy at the centre of the Royal Society aligns us with many of the world's leading academies and Royal Societies.

The Academy has looked to strengthen its capacity to provide "information pieces" and forward-looking contributions on present and emerging debates and so encourage wider discussion of the pressing issues that face the sciences, technology and the humanities.

During 2009 we published pieces on *Ocean Acidification*, *Virtual Water*, *Geoengineering*, *Genetically Modified Forages and Science*, *Climate Change and Integrity*. These information pieces have generated lively debate which has been valuable in raising the profile of the Academy. Further "think pieces" are in preparation and we see this as a way of raising the visibility of the Academy and strengthening its leadership in research informed debate around national and global issues.

2009 also saw changes to the Research Science and Technology Sector and recognition from Government that science has a major role to play in economic development. The appointment of Sir Peter Gluckman, a member of the Academy, as the Prime Minister's Science Advisor was welcomed, as a further sign of a greater valuing of science and research.

The year also witnessed the increased recognition at international and national levels of the need for greater cross disciplinary dialogue to address the global problems that now occupy much of the research agenda. We see the expansion of the Academy as a significant step towards stimulating and encouraging this wider engagement and enabling the Academy to offer leadership in research and scholarship across its expanded range of disciplines.

Major Changes have taken place in the organisation of the Royal Society over the past 2 years beginning with the decision to move to a single President and Council. The new Council comprises six Vice Presidents, a Constituent Organisation representative, a Regional Organisation (Branch) representative, and up to three co-opted members.

The changed structure led to a Governance review in 2009 and the development of a Governance Charter to guide our activities and establish good understanding of the respective roles of the Council and the Management within the organisation. In these discussions the Academy was affirmed as the intellectual heart of the Society acknowledging the mana it reflects on the Society, and the part it plays in celebrating and rewarding excellence in our leading researchers and scholars across the Sciences, Technology and the Humanities'

It has been a privilege to Chair the Academy through this year and I have greatly appreciated the support of the President Garth Carnaby, and members of the Academy Executive. The professionalism advice and enthusiasm of the Chief Executive Di McCarthy and Academy Manager Mrs Gill Sutherland and her assistant Mrs Judy Lyons have been greatly appreciated and have been vital to the work of the Academy.

– David Thorns
Chair, Academy of the Royal Society of New Zealand

2009 Academy Annual Report

Academy Executive Committee

Until 30 June 2009

Chair: Dr Brent Clothier FRSNZ

Councillors:

- Professor Marston Conder FRSNZ
- Professor Keith Hunter FRSNZ
- Professor David Thorns ONZM FRSNZ

After 30 June 2009

Chair: Professor David Thorns ONZM FRSNZ

Councillors:

- Professor Keith Hunter FRSNZ
- Professor Ken Strongman FRSNZ
- Dr Garth Carnaby MNZM FRSNZ
- Dr Stephen Goldson FRSNZ

Fellowship and Honorary Fellowship

There were 370 Fellows and 56 Honorary Fellows as at 31 December 2009.

Deaths

It was noted with regret that

- **Dr Ian Prior** ONZM FRSNZ, former Director of the Epidemiology Unit, Wellington School of Medicine;
- **Mr Jim Brodie** OBE FRSNZ, former Director of the NZ Oceanographic Institute;

- **Professor Hew McLeod** FRSNZ, former Professor of History, University of Otago;
- **Professor Tom Paulay** FRSNZ, former Professor of Civil Engineering, University of Canterbury;
- **Dame Patricia Bergquist** FRSNZ, former Professor of Zoology, University of Auckland;
- **Professor Roger Green** ONZM FRSNZ, former Professor of Prehistory, University of Auckland;
- **Dr Gordon Fergusson** FRSNZ, California, United States;
- **Professor Al Rae** CNZM OBE FRSNZ, Professor Emeritus in Animal Science, Massey University;
- **Professor Josu Arrillaga** MNZM FRSNZ, former Emeritus Professor in the Department of Electrical Engineering, University of Canterbury;
- **Professor Keith Worsley** Hon FRSNZ, Professor of Mathematics at McGill University, and
- **Dr Brian Mason** Hon FRSNZ, formerly of the Smithsonian Institute, Washington

passed away during 2009. Their Obituaries are being lodged on the Royal Society website as they are received and edited.

Public Honours

New Years Honours 2009

Distinguished Companion of the New Zealand Order of Merit (DCNZM)

- **Professor David Christopher Graham Skegg**, OBE FRSNZ of Dunedin, for services to medicine.

Companion of the New Zealand Order of Merit (CNZM)

- **Professor Roberta Lee Farrell** FRSNZ of Hamilton, for services to biochemical research.

Officer of the New Zealand Order of Merit (ONZM)

- **Professor Vada Harlene Hayne FRSNZ**, of Mosgiel, for services to scientific and medical research.

- **Professor Michael Donald Hendy FRSNZ**, of Palmerston North, for services to mathematical biology.
- **Professor David Christopher Thorns FRSNZ**, of Christchurch, for services to urban sociology.
- **Professor Kenneth Geoffrey White FRSNZ**, of Dunedin, for services to science, in particular psychology.

Queen's Birthday Honours 2009

Companion of the New Zealand Order of Merit (CNZM)

- **Dr Jeffery Lewis Tallon FRSNZ**, of Lower Hutt, for services to science.

Officer of the New Zealand Order of Merit (ONZM)

- **Professor Michael Mathew Walker FRSNZ**, of Auckland, for services to science.

Member of the New Zealand Order of Merit (MNZM)

- **Emeritus Professor David George Elms FRSNZ**, of Christchurch, for services to civil engineering.

Redesignation

The Queen has made the following re-designations in the New Zealand Order of Merit:

Knight Grand Companion of the New Zealand Order of Merit (GNZM)

- **Professor Paul Terence Callaghan FRS FRSNZ** of Wellington

Dame Companion of the New Zealand order of Merit (DNZM)

- **Emeritus Professor Judith Mary Caroline Binney FRSNZ**, of Auckland

Knight Companion of the New Zealand Order of Merit (KNZM)

- **Professor Peter David Gluckman FRS FRSNZ**, of Auckland

- **Professor Vaughan Frederick Randal Jones** Hon FRSNZ, of Piedmont, California, United States of America
- **Professor Alan Francis Mark**, CBE FRSNZ, of Dunedin
- **Emeritus Professor Arthur Harold Marshall** FRSNZ, of Auckland
- **Professor Sidney Moko Mead** FRSNZ, of Wellington
- **Professor David Christopher Graham Skegg**, OBE FRSNZ, of Dunedin

National Appointments and Awards

Chief Science Advisor appointed

Professor Sir Peter Gluckman KNZM FRS FRSNZ was appointed by John Key as the first Prime Minister's Chief Science Advisor and took up his appointment in July.

Professor Gluckman is a Distinguished Professor of Paediatric and Perinatal Biology, and was Director of the Liggins Institute for Medical Research and the National Research Centre for Growth and Development at The University of Auckland until he took up this appointment.

KEA Awards

Professor Peter Hunter FRSNZ won the 2008 awards for Research, Science & Technology and for Biotechnology respectively at the "World Class New Zealander" awards event in February organised by the Kiwi Expats Association and New Zealand Trade and Enterprise.

Peter took over as the new Chair of the Marsden Fund Council early in 2009 and was awarded Honorary Doctorate by University of Nottingham in July.

Deputy Vice-Chancellors appointed at University of Otago and Massey University

Professor Vernon Squire FRSNZ was appointed to the position of Deputy Vice-Chancellor (Academic & International) at the University of Otago starting February 2010. Professor Squire, an applied mathematician, is currently Pro Vice-Chancellor of the university's Division of Sciences. Current research interests of Professor Squire relate to modelling environmental phenomena, especially processes that occur in the polar regions.

Professor Keith Hunter FRSNZ, Vice-President (Physical Sciences, mathematics, Technology and Engineering) on the Royal Society Council, was appointed to the position vacated by Professor Squire. Professor Hunter is a chemist, whose research interests include chemical equilibria in marine and fresh waters, particularly involving CO₂; measurement techniques for the CO₂ equilibrium system in seawater.

Professor Mason Durie CNZM FRSNZ (Rangitane, Ngati Kauwhata and Ngati Raukawa), formerly Assistant Vice-Chancellor (Maori and Pasifika), was appointed Massey University's Deputy Vice-Chancellor in late 2009. Professor Durie graduated from the University of Otago with a Bachelor of Medicine and Bachelor of Surgery in 1963. He has a postgraduate Diploma in Psychiatry from McGill University, Canada, and was Director of Psychiatry at Palmerston North Hospital then a member of the Royal Commission on Social Policy from 1986 to 1988. In 1988 he was appointed to the Chair in Maori Studies at Massey, where he graduated as a Doctor of Literature in 2003. In 2008 the University of Otago awarded him an Honorary Doctor of Laws degree.

JC Andrews Award

Dr Andrew Cleland FRSNZ, Chief Executive of IPENZ, received the JC Andrews Award, the premier award of NZIFST for contribution to food science and technology in 2009. This award is presented annually in memory of Massey University's first Chancellor, Dr John Clark Andrews, who proposed that a food technology degree course be established at Massey University. The award recognises Institute members who have made a substantial contribution to science and technology and leadership in the food industry.

Top Research Medals

Two Fellows of the Royal Society of New Zealand were awarded top research medals.

The University of Otago awarded its highest distinction, the Distinguished Research Medal to **Professor Wickliffe Abraham** FRSNZ for his work in advancing knowledge of how the brain stores memories.

Professor Peter Schwerdtfeger FRSNZ, from the Institute of Advanced Study, was awarded Massey University's highest award for research—the Massey University Research Medal. His research includes experimental and theoretical investigations of the nanostructures of gold for a better understanding of the quantum size effects in nano-structured materials, and understanding and modeling the behaviour of dynamic clusters of atoms and molecules in heavy metal clusters.

Maurice Wilkins Centre Prize for Academic Research

Professor Sally Brooker FRSNZ was the 2009 recipient of the Maurice Wilkins Centre Prize for academic research. The Maurice Wilkins Centre for Biomolecular Discovery combines biology, chemistry, medical science and bioengineering to create a programme of multidisciplinary research aimed at developing new drugs for the treatment of serious human disease, including cancer, diabetes, cardiovascular disease and infectious disease. The Wilkins Centre is a New Zealand government-funded Centre of Research Excellence, named for New Zealand-born Nobel Prize winner Maurice Wilkins.

Distinguished New Zealand Geographer Award

Professor Richard Le Heron FRSNZ received a Distinguished New Zealand Geographer Medal from the New Zealand Geographical Society, which was presented at the Society's AGM in Auckland on 21 September.

Campbell Award

This year **Professor David Vere-Jones** FRSNZ was awarded the Campbell Award by the New Zealand Statistical Association, for services to statistical education in New Zealand.

Dean's Award of Excellence in Research

Professor X. Dong Chen FRSNZ was the recipient of the 2009 Dean's Award of Excellence in Research in the Monash University Engineering Faculty in Melbourne.

President of NZ Plant Breeding and Research Association

Dr John Caradus FRSNZ, Grasslanz Technology Ltd, was appointed President of the NZ Plant Breeding and Research Association for 2 years.

Bayer Innovators Award 2009

Professor Jim Johnston FRSNZ, Victoria University of Wellington, was awarded the "Bayer Innovators Award 2009" in the Research and Development Category, in August.

Emeritus Professor

Derek Holton FRSNZ was made an Emeritus Professor at the University of Otago, and an Honorary Professor at the University of Melbourne.

Elsdon Best Medal

Emeritus Professor Dame Judith Binney DNZM FRSNZ received the Elsdon Best Medal from the Polynesian Society in July 2009.

Tribute in Horticultural Reviews

Horticultural Reviews (35 (2009): xii–xvi) was dedicated to **Dr Ross Fergusson** ONZM FRSNZ, Plant & Food Research; the tribute written by **Dr Rod Bielecki** FRSNZ.

International Awards and Appointments

Foreign Associate of National Academy of Sciences

University of Auckland's **Distinguished Professor Dame Anne Salmond** DBE CBE FRSNZ FNZAH was elected a Foreign Associate of National Academy of Sciences.

Taft Lecture

Distinguished Professor Gaven Martin FRSNZ gave Taft Lectures entitled *The Revolution in Modern Geometry: PDEs, Conformal Geometry, and the Hilbert Smith Conjecture* at the University of Cincinnati in October and was given a Van Vleck Distinguished visiting Professorship at Wesleyan University. The Charles P. Taft Memorial Fund sponsors a programme of public lectures each year, including one or more in mathematics. These lectures feature prominent mathematicians speaking on recent important developments in their field.

2009 Distinguished Alumni Award

Professor Roberta Farrell CNZM FRSNZ, University of Waikato, was awarded the 2009 Distinguished Alumni Award, University of Missouri-St Louis.

Fellow of the Institute of Australian Geographers

Professor Richard Le Heron FRSNZ became a Fellow of the Institute of Australian Geographers (FIAG) which was announced at the recent

Institute of Australian Geographers annual meeting in Cairns in September.

Marion Langer Award

Professor Anne Smith FRSNZ, formerly of the University of Otago, was awarded the Marion Langer Award by the American Orthopsychiatric Association in April, for her research and advocacy to ensure that the voices of children are heard. Working both in New Zealand, and in international contexts, Professor Smith has striven to increase knowledge about children's experience in both exceptional and everyday contexts. Showing due respect for the dignity of both children themselves and the adults who care for them, Professor Smith has devoted much of her career to making schools and child care centers more humane.

Association for Behavior Analysis International Award

The Experimental Analysis of Behaviour Research Unit at Auckland University, headed by **Professor Michael Davison** FRSNZ, was awarded the Association for Behavior Analysis International Award for Sustained Programmatic Contributions to Behavior Analysis—the first time a laboratory outside the United States has been awarded this honour.

Visiting Fellowships

Professor Graeme Wake FRSNZ was awarded Visiting Fellowships to Oxford (UK) Centre for Collaborative Applied Mathematics (OCCAM) June–July 2009; Visiting Professor to Department of Mathematical Sciences, Universiti Teknologi Malaysia, Johor Bahru, 1–10 June 2009; Team leader (appointed by MoRST) at the NZ-China meeting in Shanghai, Partnership Institute in Computational Sciences, April–May 2009; and Team leader of the International Visiting Foreign Professors of Applied Mathematics, in Korea Advanced Institute of Science and Technology, Daejeon, South Korea.

Fellowship of the Royal Institute of Navigation

Professor Michael Walker ONZM FRSNZ was awarded Fellowship of the Royal Institute of Navigation (London) in July.

Honorary Life Membership of the Australasian Epidemiological Association

Professor Neil Pearce FRSNZ was awarded an Honorary Life Membership of the Australasian Epidemiological Association in September 2009, and he is currently serving a 3-year term as President of the International Epidemiological Association.

International Neural Network Society

Professor Nik Kasabov FRSNZ, Auckland University of Technology, took on a 2-year term as President of the International Neural Network Society beginning January 2010.

2009 Kesteven Medal

Professor Roger Morris FRSNZ was awarded the 2009 Kesteven Medal, awarded for scientific and technical contributions to international agricultural development. The award honours Dr K V L Kesteven, first Chief of Animal Health and Production of the United Nations Food and Agriculture Organization.

China Distinguished Materials Scientist

Professor Wei Gao FRSNZ was awarded "China Distinguished Materials Scientist" and gave a special talk to ~500 academic staff and PG students on 20 October 2009 at the University of Science and Technology Beijing. This award is established and co-supported by Natural Science Foundation of China, Science and Technology Ministry of China, and Education Ministry of China.

Royal Society Awards

In 2009, the Academy awarded the following Medals and Prizes on behalf of the Royal Society of New Zealand.

The **2009 Hamilton Memorial Prize** was awarded to **Dr Noam Greenberg**, of the Mathematics Department at Victoria University of Wellington. This award is for new researchers in the first five years of their careers since completing their PhD degrees. Dr Greenberg has a BSc in mathematics from Hebrew University in Jerusalem, Israel, and a PhD from Cornell University in New York, USA. He came to New Zealand as a post-doctoral fellow under Professor Rod Downey at Victoria University in 2005, and now holds an appointment there as a Senior Lecturer.

Dr Greenberg's interests lie in a somewhat obscure and technical field relating to mathematical logic and computation theory and to the development of algorithms in computation theory. Greenberg's fertile imagination and great technical power have contributed to an international revival of interest in his field, regarded by many mathematicians as too daunting, owing to its conceptual and practical difficulties. His work has been described as some of the most impressive among researchers of all ages in his field and is thoroughly outstanding.

The Selection Committee was impressed by his achievements, and by his productivity and look forward to reading of his continuing contribution to mathematical research and education in New Zealand.

The **2009 Hatherton Award** for the best scientific paper by a PhD student at any New Zealand university in physical sciences, earth sciences, and mathematical and information sciences was awarded to **Andreas Hermann**, of The New Zealand Institute for Advanced Study, Massey University – Albany, for his innovative paper which demonstrated how certain physical properties of ice can be predicted with unprecedented precision from basic principles of quantum theory by using sophisticated computational techniques.

His paper 'Ground-State Properties of Crystalline Ice from Periodic Hartree-Fock Calculations and a Coupled-Cluster-Based Many-Body Decomposition of the Correlation Energy' (with second author P. Schwerdtfeger) was published in *Physical Review Letters* 101, 183005 (2008).

Andreas utilised in an original way highly precise methods known from quantum chemistry to achieve previously unattainable agreement with experimental solid-state data.

Four **New Zealand Science & Technology Medals** were awarded on behalf of Government to the following recipients:

- **Dr Mark Goodwin**, Plant & Food Research, Hamilton, for his work on honey bees and crop pollination practices. He is a world leader in crop pollination and honey bee research and is passionate about sharing his knowledge, presenting at conferences worldwide, visiting schools and local groups, delivering education programmes to growers and beekeepers, and is the lead author of several books.
- **Dr Heather Meikle**, Palmerston North Girls' High School, Palmerston North. Her teaching at Palmerston North Girls' High School and contributions to regional and national science programmes have increased awareness and appreciation of science among pupils and the public and have stimulated many young people to follow science-based studies.

- **Professor Tim Naish**, Antarctic Research Centre, Victoria University of Wellington, for his scientific leadership and contributions of fundamental new knowledge on how the Antarctic ice sheets have influenced global sea-level change and climate, with implications for our warming world.
- **Professor Paul Spoonley**, College of Humanities and Social Sciences, Massey University, Albany, for his outstanding contributions to academic scholarship, informed public debate and committed leadership in the development of an inclusive, just, non-discriminatory and fair multicultural New Zealand society that is rooted firmly in its bicultural heritage.

Academy Representation on Royal Society of New Zealand Council

The Academy Executive Committee representatives on the Royal Society of New Zealand Council until 30 June 2009 were the Chair, **Dr Brent Clothier** FRSNZ (VP Biological and Life Sciences), **Professor Keith Hunter** FRSNZ (VP Physical Sciences, Mathematics, Engineering and Technology) **Professor David Thorns** FRSNZ (VP Social Sciences) and **Professor Marston Conder** FRSNZ (VP International).

From 1 July 2009, **Professor David Thorns** FRSNZ; **Professor Keith Hunter** FRSNZ; **Professor Ken Strongman** FRSNZ (VP International); **Dr Garth Carnaby** FRSNZ (RSNZ President); and **Dr Stephen Goldson** FRSNZ (VP Biological and Life Sciences) were the Academy Executive Committee representatives on Council.

Academy Activities

Fellowship

The confirmed panels in 2009 were:

- Animal and Plant Sciences;
- Applied and Technological Sciences;
- Biochemical and Molecular Biological Sciences;
- Chemical and Physical Sciences;
- Earth Sciences;
- Ecological and Environmental Sciences;
- Engineering;
- Human and Behavioural Sciences;

- Mathematical and Information Sciences;
- Medical and Health Sciences;
- President's Panel;
- Social Sciences.

Most panels had at least five members covering both pure and applied science and panels were required to consider equally nominations in pure and applied science.

In 2009, the President's Panel considered nominations which did not fit into any of the traditional panels. The Panel consisted of **Professor David Thorns; Professor Carolyn Burns, Dr Garth Carnaby; and Dr Brent Clothier**. This Panel considered 3 nominations, and referred 1 nominee to the Fellowship Selection Committee.

In 2009 there were 73 nominations, including 14 women scientists, 16 from CRIs, and 25 new nominations.

The breakdown of nominations considered (Honorary Fellowship in brackets) in 2009 was:

- Animal and Plant Sciences 12 (1)
- Applied & Technological Sciences 6
- Biochemical and Molecular Biological Sciences 9 (3)
- Chemical and Physical Sciences 7 (1)
- Earth Sciences 8
- Ecological and Environmental Sciences 3
- Engineering 5
- Human and Behavioural Sciences 3
- Mathematical and Information Sciences 6
- Medical and Health Sciences 6
- President's Panel 3 (1)
- Social Sciences 8 (1)

Nominations for Fellowship remain eligible for election for five years.

Nine panels met by teleconference call and recommended candidates, in priority order, in both traditional and applied areas of science. Three panels agreed on their top candidates without a conference call. As well as providing a supporting statement on behalf of each highly recommended candidate, each panel was asked to supply the names of independent referees for each candidate as a quality control measure. The independent referee was sent the candidate's curriculum vitae, publications list, background information about the Academy and the criteria for election to Fellowship, and asked to provide an evaluation of the quality of the scientific career, the excellence of research and international reputation.

The Fellowship Selection Committee, which was an expanded Council of 20 to ensure that all areas of science and technology are appropriately represented, received the following information on each candidate highly recommended by the 11 discipline-based Panels and the President's Panel (a total of 27 highly recommended):

- nomination form;
- curriculum vitae;
- publication list;
- references from referees noted in nomination;
- panel supporting statement outlining the reason why the candidate is highly recommended;
- independent reference(s);

as well as a copy of the minutes of the Fellowship Selection Panel teleconference meetings where such meetings were held.

At the 2009 Fellows' Annual General Meeting, 10 new Fellows in Science and technology were elected:

- **Dr Philip Boyd** FRSNZ, Centre for Chemical & Physical Oceanography, Dept of Chemistry, University of Otago
- **Professor Philippa Gander** FRSNZ, Research School of Public Health, Massey University
- **Dr Alistair Gunn** FRSNZ, Dept of Physiology, University of Auckland
- **Professor Andrew Mercer** FRSNZ, Dept of Microbiology and Immunology, University of Otago

- **Professor Edwin Mitchell** FRSNZ, Dept of Paediatrics, University of Auckland
- **Professor Eamonn O'Brien** FRSNZ, Dept of Mathematics, University of Auckland
- **Professor Andrew Pullan** FRSNZ, Dept of Engineering Science, University of Auckland
- **Professor Allan Rodrigo** FRSNZ, School of Biological Sciences, University of Auckland
- **Professor Hamish Spencer** FRSNZ, Dept of Zoology, University of Otago
- **Professor David Williams** FRSNZ, Dept of Chemistry, University of Auckland

Honorary Fellowship

In 2009 there were six nominations for Honorary Fellowship of the Royal Society of New Zealand and four were highly recommended to the Fellowship Selection Committee. Four Honorary Fellows were elected by the Academy Executive Committee on recommendation from the Fellowship Selection Committee and these will be announced at the Fellows' Annual General Meeting.

The new Honorary Fellows were:

- **Professor Sir Patrick Bateson** FRS Hon FRSNZ, an internationally respected behavioural biologist at the University of Cambridge in the United Kingdom.
- **Professor Gordon Burstein** Hon FRSNZ- a graduate of the University of Auckland, who works in the field of electrochemistry and corrosion science and is now at the University of Cambridge.
- **Professor Donald Cowan** Hon FRSNZ- a New Zealander who is now Director of the Institute for Microbial Biotechnology and Metagenomics at the University of Western Cape in Cape Town, South Africa.
- **Professor Wendy Larner** Hon FRSNZ- a graduate from the University of Canterbury in New Zealand, who works in the field of international human geography and sociology, and is now at the University of Bristol in the United Kingdom.

Humanities

In 2008 the Royal Society Council and the Council for the Humanities began to explore developing closer links with the Royal Society. At the March 2009 Council Meeting the Royal Society agreed to embrace the Humanities. The move was seen to be in line with the trends in many

other comparable academies (for example the Royal Society of Edinburgh) and was seen to be a way of extending and strengthening the Royal Society as the organisation that is focussed on excellence in science and scholarship.

Closer links between the Royal Society and the Humanities and an amalgamation of the two academies was seen as presenting opportunities to enhance the changes already made by the Royal Society. Embracing the Humanities would provide a significant opportunity to render better service to Government and the wider community and enable the relevance and promotion of scholarship and research in New Zealand to both national and global concerns be more effectively rendered. Placing the Humanities Council within the ambit of the Royal Society would complete the coordination of the promotion of excellence in scholarship and research which is a core strategic objective of the Royal Society.

The Academy Executive Committee was asked to look at a process whereby this could be achieved. A subcommittee of the RSNZ Academy was formed to consider recommending for election to the RSNZ Academy existing members and those recommended for election in 2009. The subcommittee reviewed the process of selection used by the Humanities Council and found that it mirrored that of the Royal Society—in fact it had been modelled on our processes. The subcommittee also reviewed the nomination statements and associated material for the existing and 2009 recommended Fellows and on that basis recommended to the 2009 Fellowship Selection Committee a list of 26 to become members of the RSNZ Academy (names to be presented to the Fellows at the Fellows' AGM) and 3 as Honorary Fellows as they are currently living outside of New Zealand. To enable this addition the Royal Society Council agreed to raise the number on Fellows to 380 at its September Council Meeting.

The recommendation from the 2009 Fellowship Selection Committee was that the listed 26 Humanities Scholars be made Fellows of the RSNZ Academy and the 3 Fellows living outside New Zealand be made Honorary Fellows. This recommendation was agreed unanimously.

The Fellows were as follows:

- **Professor Maureen Baker** FNZAH FRSNZ Dept of Sociology, University of Auckland
- **Professor Sekhar Bandyopadhyay** FNZAH FRSNZ Dept of History, Victoria University of Wellington
- **Emeritus Professor John Barsby** FNZAH FRSNZ Dunedin
- **Professor James Belich** ONZM FNZAH FRSNZ Stout Research Centre, Victoria University of Wellington

- **Professor Linda Bryder** FNZAH FRSNZ Dept of History, University of Auckland
- **Professor Dame Judith Binney** DNZM FNZAH FRSNZ Auckland
- **Distinguished Professor Brian Boyd** FNZAH FRSNZ Dept of English, University of Auckland
- **Professor John Burrows** FNZAH FRSNZ Law Commission, Wellington
- **Professor David Carnegie** FNZAH FRSNZ School of English, Film, Theatre and Media Studies, Victoria University of Wellington
- **Professor Emeritus Brian Coote** CBE FNZAH FRSNZ, Auckland
- **Professor Stephen Davies** FNZAH FRSNZ Dept of Philosophy, University of Auckland
- **Professor Terence Dennis** MNZM FNZAH FRSNZ School of Music, University of Otago
- **Professor Emeritus John Dunmore** FNZAH FRSNZ Paraparaumu
- **Professor Sir Mason Durie** FNZM FNZAH FRSNZ Vice-Chancellor's Office, Massey University
- **Professor Charles Higham** FNZAH FRSNZ Dept of Anthropology, University of Otago
- **Professor Manying Ip** FNZAH FRSNZ School of Asian Studies, University of Auckland
- **Professor Geoff Irwin** FNZAH FRSNZ Dept of Anthropology, University of Auckland
- **Professor Emeritus Mac Jackson** FNZAH FRSNZ Auckland
- **Professor Emeritus Lawrence Jones** FNZAH FRSNZ Dunedin
- **Professor Henrietta Mondry** FNZAH FRSNZ School of Languages, Cultures and Linguistics, University of Canterbury
- **Professor Alan Musgrave** FNZAH FRSNZ Dept of Philosophy, University of Otago
- **Professor Emeritus Michael Neill** FNZAH FRSNZ Auckland
- **Professor Robert Nola** FNZAH FRSNZ Dept of Philosophy, University of Auckland

- **Professor David Norton** FNZAH FRSNZ School of English, Film, Theatre & Media Studies, Victoria University of Wellington
- **Professor Emeritus William Oliver** FNZAH FRSNZ, Wellington
- **Professor Emeritus Erik Olssen** ONZM FNZAH FRSNZ Dunedin
- **Professor Nicholas Perry** FNZAH FRSNZ Dept of Film, Television and Media Studies, University of Auckland
- **Professor Michael Peters** FNZAH Hon FRSNZ College of Education, University of Illinois
- **Professor Russell Poole** FNZAH Hon FRSNZ Dept of English, University of Western Ontario
- **Professor Raylene Ramsay** FNZAH FRSNZ School of European Languages & Literatures, University of Auckland
- **Distinguished Professor Dame Anne Salmond** FNZAH FRSNZ Dept of Social Anthropology & Maori Studies, University of Auckland
- **Professor John Smillie** FNZAH FRSNZ Faculty of Law, University of Otago
- **Professor Kim Sterelny** FNZAH Hon FRSNZ Research School of Social Sciences, Australian National University
- **Professor Mike Taggart** FNZAH FRSNZ (deceased)
- **Professor Margaret Tennant** FNZAH FRSNZ Graduate Research School, Massey University

Donations

The Royal Society has a designated endowment fund into which non-specific donations to the Academy are placed. The Academy Executive Committee gratefully acknowledges the donations made by Fellows and Honorary Fellows to the Academy's activities.

Functions

Fellowship certificates were presented during the year at various ceremonies around the country.

The following medals and awards were presented at the 2009 Science Honours Dinner in Auckland on 18 November:

- New Zealand's top science honour, the **Rutherford Medal**, was awarded to internationally renowned biomedical engineer **Professor Peter Hunter** FRS,

FRSNZ, of The University of Auckland. Professor Hunter is probably best known for his mathematical model of the human heart. He initiated and led the development of mathematical modeling techniques that are providing the computational basis for a virtual human and made these freely available for academic research around the world.

- The top award for achievement in technology, the **Pickering Medal**, was awarded to **Professor Kenneth McNatty** FRSNZ from Victoria University of Wellington for his contribution to the field of reproductive biology, with products having been commercialised from his work.
- The **Thomson Medal** was awarded to **Dr Richard Garland**, managing director of New Zealand Pharmaceuticals Ltd, for his outstanding leadership in the development and application of science and technology to New Zealand business development.
- The **Hutton Medal** for earth sciences was awarded to **Professor Colin Wilson** FRSNZ from Victoria University of Wellington for his outstanding work on volcanism. Professor Wilson's research aims to better understand volcanic activity so adequate warnings eruptions can be given.
- The **Te Rangi Hiroa Medal** for excellence in social sciences was awarded to **Professor Ian Pool** FRSNZ of the University of Waikato for his demographic research on Māori fertility and family formation, the theory of age-structural transition, the measurement of mortality and morbidity, and the relationship between population and development.
- **Professor Peter Steel** FRSNZ from the University of Canterbury was honoured with the **Hector Medal** for the advancement of chemical sciences, for his world renowned work in the field of metallocene chemistry leading to potential applications in medicine and nanotechnology.
- The **RJ Scott Medal** for engineering sciences and technology was awarded to **Paul Harris** of Industrial Research Limited in Lower Hutt for his significant contributions to the development and application of electronic devices in New Zealand.

James Cook Research Fellowships

In mid October, five new James Cook Research Fellowships were announced by the Royal Society, which administers the fund on behalf of the New Zealand Government. No Fellowship was awarded this year in the Engineering Sciences. The five new Fellows are listed below. The Fellowships are for two years and are full-time positions. All Fellows start their Fellowships in 2010

The new Fellows are:

- Biological Sciences: **Professor Peter Lockhart** FRSNZ, Allan Wilson Centre, Massey University, for research entitled: "Adaptation of the new Zealand flora";
- Health Sciences: **Associate Professor Parry Guilford**, Cancer Genetics laboratory, University of Otago, for research entitled: "Epigenetic approaches to cancer prevention and therapy";
- Social Sciences: **Associate Professor Leanne Woodward**, University of Canterbury, for research entitled: "Neural and social pathways leading to neurodevelopmental risk";
- Physical Sciences: **Professor Tim Stern** FRSNZ, Victoria University of Wellington for research entitled "Crustal structure and tectonics of continental New Zealand" and **Professor Mike Steel** FRSNZ, University of Canterbury, for research entitled: "Mathematical foundations for inferring large evolutionary trees".

Fellows' Contribution to Society Activities

Many Fellows continue to actively contribute to Royal Society of New Zealand science and technology activities through:

- Fellowship Selection Panels and Fellowship Selection Committee;
- Selection Committees for Academy Medals/Awards;
- James Cook Research Fellowship Assessment Panels and Selection Committee;
- Marsden Assessment Panels and Council;
- Membership of standing and ad hoc RSNZ committees;
- Preparation of scientific reports;
- Review of scientific, technological and science education reports published by the Society;
- Membership, via the Society, of government and non-government advisory committees;
- Provision of expert advice sought informally.

The Society is grateful to all who contribute to these activities; collectively they provide a major input to the work of the Society and the science and technology advice given to Government and other agencies.

Chair's Activities

In addition to the activities mentioned earlier in this report, **Dr Brent Clothier**, (Chair of the Academy Council until 30 June) and **Professor David Thorns** (Chair of the current Academy Council [now called Academy Executive Committee], from 1 July) have been active in the following science and technology activities:

- assessing nominations for Fellowship as part of the President's Panel;
- assessing Humanities;
- reviewing nominations for Fellowship as part of the Fellowship Selection Committee;
- selecting and recommending James Cook Research Fellowships;
- reviewing James Cook Research Fellows' annual and final reports;
- providing feedback to Gill Sutherland on various issues;
- providing feedback to Joe Asghar on policy issues and initiatives;
- representing the Academy on the Site Development Working Group.