

**ANNUAL REPORT FOR THE 158th YEAR
OF THE
ROYAL SOCIETY OF NEW ZEALAND WELLINGTON
BRANCH INCORPORATED**

Founded in July 1851 as the New Zealand Society

Reconstituted in November 1867 and named the Wellington Philosophical Society

Incorporated in 1868 under the New Zealand Institute Act 1867

Renamed in 1938 as the Wellington Branch of the Royal Society of New Zealand

Incorporated in 1939 under the Incorporated Societies Act 1908 as the
Wellington Branch of the Royal Society of New Zealand Incorporated

Renamed in 1995 to Science Wellington Incorporated and renamed again in 2001 to the
Royal Society of New Zealand Wellington Branch Incorporated

The Branch was registered in 2009 as a Charitable Entity with the
Charities Commission (registration number CC42176)

The Branch is a Regional Constituent Organisation of the Royal Society
of New Zealand under the Royal Society of New Zealand Act 1997,
Section 14. It is a Committee under Sections 14(2) and 28(3).

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October 2009

COUNCIL OFFICE HOLDERS 2008-9

PRESIDENT	John Field
VICE-PRESIDENTS	David Lillis Frank Andrews
SECRETARY	David Lillis
TREASURER	Ross Moore
FINANCIAL REVIEWER	Otto Bauer
COUNCIL MEMBERS	Mike Arnold Graeme Claridge (Newsletter Editor*) Lucy Forde Helen Hughes (Assistance Secretary*) George Jones (Immediate Past President*) Terese McLeod Bruce Miller (Branch Representative*) *Council appointees
SECTIONS AND AFFILIATES	(under review)

PRESIDENT'S REPORT

It has been almost a year since I took up the role of President and firstly I would like to thank the members of the Council for all the hard work they have put in behind the scenes this year. A new President can be a shock to the system, especially after George's sterling efforts.

BRANCH ACTIVITIES

The Wellington Branch's single *Object* in its bylaws is "the promotion and advancement of science and technology in the Wellington region". The Branch achieves this in a variety of ways: through the production of a monthly newsletter listing lectures and activities of the Branch and a variety of affiliated groups involved in science and technology; George Jones continues to produce his daily batch of emails with advice and reminders of lectures, broadcasts and events. The Branch co-sponsors two *Café Scientifique* lectures each month, one in Lower Hutt and the other in Wellington. We also support the Branch's Science (non-fiction) Book Club which has monthly meetings in Wellington, Johnsonville and the Hutt Valley. The Branch also holds a number of key lectures during the year, some on its own behalf (*Hudson* and *Rutherford Medallist* lectures) and others held in cooperation with the Royal Society of

New Zealand (*Cockayne, Rutherford Memorial, Fleming* etc). The Branch Annual General Meeting Dinner and Lecture held each October is well supported. In this review we must not overlook the important contribution the Branch makes to the Wellington Regional Science and Technology Fair each year. We intend to review the oral history pilot project and if feasible get it back on track during 2010.

MEMBERSHIP

The Branch has suffered a consistent decline in its paying membership over recent years and we have seen very few new members joining. As our membership is aging we must recruit new financial members to secure the Branch's future. The Council has been looking at ways of improving the Branch's profile and in this way increase its membership. We are updating the website and preparing promotional material for use at Branch lectures and Café Scientifique meetings. It is through good promotion and energetic followup that we can increase the membership and invest more in pursuing the Branch's worthy object.

FINANCIAL

The Council has attempted to keep expenses to a minimum this financial year having faced a sharp increase in the cost of room hire at *Science House*. The increase meant that our annual subscriptions would no longer cover the new hire rates when added to our other commitments. Council is looking at a variety of options, and negotiations with the Royal Society of New Zealand and others are continuing. Our Honorary Treasurer will be reporting separately on Finance as is customary.

SUMMARY

It has been a good year for the Branch with a wide and varied range of lectures both given and promoted. The Branch although in a good current financial position faces challenges with the lack of increasing membership and the burden of increasing costs. It is the aim of the Council, with the help of the existing membership, to promote the Branch within the region and recruit new members. Only through a significant increase in membership numbers can the long term viability of the Branch be secured.

I wish you all the best for the coming year.

John Field
Branch President

Royal Society of New Zealand Wellington Branch Incorporated
INCOME AND EXPENDITURE ACCOUNT
For the year ended 31 August 2009

EXPENDITURE		INCOME
Meetings:		Branch Subscriptions 5,691.00
Room Rent	1,682.15	Room Rent Recoveries 270.00
Annual Meeting & Dinner	1,640.24	Dinner takings 1,200.00
President's exes	<u>131.56</u>	Donations 128.14
	1,771.80	
Administration:		
Newsletter & Ann. Reports	711.19	Bank Interest 1,319.11
PO Box Rental	150.00	
Treasurer's exes	<u>170.64</u>	
	1,031.83	
Accounts Reviewer	250.00	
Book Club Expenses	2,686.27	Book Club Subscriptions 1,030.00
Science Fair	700.00	
Excess Income	<u>1,516.20</u>	<u> </u>
	\$9,638.25	\$9,638.25

BALANCE SHEET
as at 31 August 2009

Liabilities		Assets
General Fund at 31 Aug 2008	19,461.03	National Bank of New Zealand:
		Current Account 5,977.23
		Term Deposit – 1015 10,000.00
<u>Plus</u> Excess Income	<u>1,516.20</u>	Term Deposit – 1014 <u>5,000.00</u>
	\$20,977.23	\$20,977.23

Financial Reviewer's Report

In my opinion, based on the examination of the books and records of the Royal Society of New Zealand Wellington Branch Incorporated, the financial statements of the Branch for the year ended 31st August 2009 show the correct operating results for the year and the true financial position as at that date.

Dr Otto Bauer
27th October 2009

TREASURER'S REPORT

for the year ended 31 August 2009

The Wellington Branch has now been registered by the Charities Commission for the purposes of the Income Tax Act. Donations to the Branch will continue to be deductible within the prescribed limits and we will be exempt from tax applying to interest earned on investment income. Qualifying investments must be derived as a result of activity undertaken within the circle of our membership in conformity with our bylaws.

The arrangement we had the previous year with the Royal Society of New Zealand for Pass-through membership has been terminated by the Society. The scheme, which the Branch administered for one year, provided for a discounted rate of ordinary membership to the National body for our members should they choose to belong to both organisations. Fourteen members took up the opportunity. An alternative membership arrangement was proposed by RSNZ in April last but this was not favoured by your Council as it appeared to be linked to another proposal, which was clearly unacceptable. We may hear more concerning this proposal in due course.

The 2008-09 cash surplus shown in the accompanying accounts is \$1,516.20. Changes in our accounting system will be necessary to better reflect the de facto situation as regards the oral history project and the book club if we are to achieve full transparency in the published accounts. Talks with the book club organisers are to be held shortly to clarify aspects of the club's relationship with the Branch. Council is making every effort to complete the oral history pilot scheme by retaining professional people to undertake the abstracting of the many interview tapes prior to their deposit in the Turnbull Library. Council has also decided to finalise a formal agreement with the Wellington Regional Science and Technology Fair on the basis of a discussion draft prepared some years ago.

We are also to review the status of and inter-action with sections and affiliates as a result of changes in our relationship that have occurred over time. As from this year the Branch is no longer required to take responsibility for the meeting venue expenses of some sections, and this will result in an improvement in our financial position. We will be seeking the views of regional professional societies as to what services they expect from our Branch.

As to the future, I can add little to what I have said in previous annual reports. We still need to place more emphasis on membership recruitment and retention and ensure that Branch activity remains relevant to the needs of our members. Our role in the region probably needs redefining and I have previously suggested that we conduct a survey of the local science community, including our members, to ascertain how we are currently perceived and what useful role we could perform in future.

I have recommended that Council maintain the same subscription rates for a further year.

Ross Moore, Honorary Treasurer
28 October 2009

TREASURER'S NOTE:

The annual accounts for the NIWA Wellington Regional Science and Technology Fair to 31 March 2009 are included in this report. The Wellington Branch has traditionally exercised an undefined oversight role in relation to this Fair. The precise status of the Fair within the Branch and the responsibilities of the Branch in relation to the Fair still need clarification and we merely follow past practice in publishing the Fair's accounts for the information of those interested.

The Reviewer's Report prepared by Dr Otto Bauer is appended to the Wellington Branch's Annual Accounts elsewhere in this report. Dr Bauer wishes me to make it clear that his comments relate solely to the Branch accounts and do not in any way relate to the NIWA Wellington Regional Science and Technology Fair accounts, for which he has no responsibility.

Ross Moore, Honorary Treasurer

MEMBERSHIP

as at 31st August 2009

Ordinary Members

Mr Frank Andrews	Mr N Challands	Mr Glyn Filer
Dr R A Arnold	Dr P Chester *	Dr Murray Forbes
Mr W M Arnold	Dr D A Christoffel	Dr Lucy C Forde
Dr S C Bannister	Mr Frank Cook	Mr Walter Freitag
Dr H Barr	Ms Kate Coolahan	Dr J Gardner
Mr Bernard Barry	Mr P R Crowley	Mr Ian Goodwin
Mr J J Bartlett	Mr J H J Crawford	Dr M E Gordon
Ms Claire Basham	Mr R S Cretney	Dr V R Gray
Dr C Bassett	Prof. M J Crozier	Mr J G Gregory
Mr E G Bassett	Prof. N F Curtis *	Dr P A Greet *
Mr John Bathurst	Mrs Y M Curtis *	Dr A J Haines *
Dr M V Berridge	Mr J Daniels	Dr E M Haines *
Dr A G Beu	Dr D J Darby	Mr B H Hamilton
Dr H M Bibby	Prof. C H Daugherty	Prof. J F Harper *
Dr B D Bibby	Dr Rose G Davies	Dr M A Harper *
Mr Barry N Blackett	Dr J F de Lisle	Dr Sally Hasell
Ms C Bobbett *	Ms Sarah Dewes	Ms Marilyn Head
Ms M Bobbett *	Dr W W Dickinson	Dr D D Heath
Dr E Bradford	Prof. R G Downey	Dr Jim Hefford
Dr R L Braithwaite	Mr N Dowrick	Dr R H Herzer
Miss G L Brown	Dr J R Duncan	Dr J Hickman
Mr D C Calhoun	Dr B H Easton	Ms L M Horwood
Prof. Sir Paul T Callaghan	Cdr D P Fairfax	Ms Norma Hudson
Mr D S Capper	Ms K A Fairweather	Dr M Ingham
	Mr John Field	Dr J B Jones
	Dr J E C Flux	Mr G L Jones

Mr Max Kennedy
Mr F B Knox
Mr M H Lehner
Mr B J Lett *
Mrs E Lett *
Glenda Lewis
Dr David Lillis
Dr G L Lyon
Dr D V Madle
Dr A Malahoff
Mr E A Mason
Dr V H McCann
Donald S McDonald
Dr A D McEwen *
Dr W M McEwen *
Mrs B McFadgen *
Mr P McGavin
Prof. Don McGregor
Dr Mark McGuinness
Dr A H McIlraith
Dr W L McLea
Ms A Milburn
Dr D C Mildenhall
Dr I J Miller
Ms B Mitcalfe
Dr Alex Mitchell
Mr Owen M Moore
Dr Syd Moore
Mr V R Moore
Mr J C Nalder
Dr E I F Pearce
Ms Suzi Penny
Mr Chris Peterson
Dr E M Poulter *
Dr W L Power
Dr G F Preddey
Dr J I Raine *

Mr C B Rampton
Dr M E Reyners
Dr G F Risk
Mr C J R Robertson
Dr M Rudge
Prof. M K Savage
Dr R I Skinner
Mr Cam Smart
Ms J R Smith
Prof. E G C Smith
Dr W D Smith
Dr M J Smith
Mr R Soong
Dr David D Spurr
Dr M K Stewart
Mr C K Stone
Dr R P Suggate *
Mrs D Suggate *
Dr C M Sutton
Dr L D Swindale
Prof. J L Tallon
Dr S C Thompson
Mrs H M Tobin
Mr K H Tocker
Dr P Tortell
Prof. Matt Visser
Prof. R I Walcott
Dr G J Weir
Prof. J B J Wells
Mr Ian F West
Dr G V M Williams
Mr P R Wood
Dr David Wratt

Honorary Members

Mr P C Alve
Dr O Bauer

Dr G G Claridge
Dr R B Miller

Emeritus Members

Dr K R Allen
Dr P C Bull
Mr K W Cory-Wright
Mr Paul Cotton
Dr J W Dawson
Dr R R Dibble
Dr G W Gibbs
Dr G W Grindley
Dr J R Hulston
Dr D E Hurley
Mr C E Ingham
Mr J A Liversage
Mr D Lovatt
Mr W J P Macdonald
Miss M E Malcolm
Mr R J Munster
Mrs Sheila Natusch
Dr J J Reed
Dr E I Robertson
Mr L J Rollo
Dr T M Skerman
Dr I G Speden
Dr G R Stevens
Dr W A Watters

Life Members

Dr H R Hughes
Dr B G McFadgen
Dr D Spiller
Dr G W Yeates

Total members in all categories: 178

made up of:

Ordinary members: 146

of which retired members: 45

and family members (marked with an *): 19

Honorary: 4

Emeritus: 24

Life: 4

GEORGE JONES

George Jones stood down as President of the Branch a year ago, and has remained on the Council until now as Immediate Past President, as an advisor to the new President, John Feild. Over his nine years as President, out of the twelve years he has been on Council, he has been very actively involved in changing the profile of the Branch. The major innovation, started over ten years ago, was to communicate with the wider science and technology community via email. Initially promoting Branch meetings to members, it quickly escalated to sending promotions of regional events in science and technology to about a thousand email addresses, increasingly to the interested general public. Over several years the number of events that he promoted increased to about eight hundred per year, on the basis of a wide definition of science and technology.

There is a lot of appreciation from the community for this service, as even though they may not be able to attend, they get some detail from the promotion abstract. Others pick up the information to trigger articles and interviews, and so the information travels more widely.

He organised, hosted, and delivered lectures at the Branch and elsewhere, initiated a series of Café Scientifique discussion groups, now firmly established in Wellington and Lower Hutt. He triggered the addition of a Science and Technology category in the Wellingtonian of the Year competition, organised the Branch's sesquicentennial, assisted in the setting up of book clubs and an oral history project, and continued to support the Regional Science and Technology Fair. He assisted in the promotion of all three of NZ's Nobel Laureates, including being the link between the science community and the villagers at Pongaroa, Wairarapa, where Maurice Wilkinson was born. He copied the book "The Boy Chemist" for presentation to Alan MacDiarmid, the reading of which had started him in a career of science at the age of ten.

For eight of the last twelve years he served on the Council of the Royal Society of NZ, representing Branches, and later, Technology, and also has been involved at Council level with the NZ Association of Scientists and the Wellington Regional Science and Technology Fair.

It was for this work in promoting science and technology that George was awarded the honour of Companion of the Royal Society of New Zealand - CRSNZ.

From a farming background, and with a degree in physics, he worked for a decade in electronics design at DSIR. For a year he was seconded to Antarctic Division, and wintered over the "Year of the Quiet Sun" at Scott Base. He then started a business with a partner developing technological solutions to industrial and scientific problems. As part of this he developed NZ's first commercial computer, and dozens of practical applications of the new technology. So he became a businessman, entrepreneur, innovator, technologist and salesman, taking science to commercial reality. He continues this work in his own business, with a partner in USA, developing the next generation of tools required to mitigate corrosion in underground pipelines.

He became a family historian and organised a family reunion, re-enacting the 1841 landing on shore of his great great grandparents, with the help of a tall ship in Wellington Harbour. He became a science historian, studying in depth the life and times of a controversial Canterbury professor of chemistry and physics, a close colleague of his grand uncle. He sees his future in oral history, using his very broad knowledge of most sciences and most technologies, his knowledge of recording and his skills in conversation.

He will continue sending out emails in the meantime. His advice will be sought where appropriate, and he will continue to attend many of the events he promotes. The Council thanks him for the effort that he has put in over the years, and wishes him well in his new endeavours.

JOHN FIELD, PRESIDENT

John became interested in astronomy and geology as a young man, and has very recently completed a Graduate Diploma of Science (Astronomy) at Swinburne University of Technology, Melbourne. His areas of interest are astrophotography, planetary geology, variable stars and stellar evolution. After presenting classes at the Golden Bay Planetarium in central Wellington, he followed the machine when it was moved to the Carter Observatory, subsequently learning to be a lecturer and telescope operator. On the permanent staff, he eventually became Senior Education Officer, teaching all ages from pre-school to university level as well as the general public. He helped set up an outreach programme using a portable planetarium for touring to schools throughout NZ.

Over the last decade he has served the Wellington Astronomical Society in many roles, including three years as President. He has been Affiliated Society Representative on the Royal Astronomical Society of NZ Council for two terms, on the Phoenix Astronomical Society Council and the Aviation Historical Society of NZ Committee. He was involved in the organisation of several RASNZ conferences.

For one year he has been the President the Royal Society of NZ Wellington Branch, bringing to it a fresh enthusiasm and lots of ideas.

NEWSLETTER EDITOR'S REPORT

The newsletter continues to be compiled and sent out in an unformatted form by email every month to all those on George Jones's large circulation list. The newsletter promotes about a third of the total events in each month, being those events that we know about at the time of publication. More are promoted as we learn about them, with a reminder on the day for all events. A shortened form of the newsletter is printed and mailed to those who request it or are unable to receive the electronic version. Much

information is lost, as the printed version is limited to two pages, whereas the longer form may occupy up to 9 or 10 pages. This year an innovation has been the circulation of a formatted version to those members for which we have email addresses. The majority of those who have responded are in favour of receiving it in this form, although some others have expressed a preference for the unformatted version.

Graeme Claridge, Editor

GENERAL LECTURES

HUDSON LECTURE 2009

The Hudson Lecture is RSNZ Wellington Branch's premier annual lecture. It recognises the achievements of the lecturer in the advancement or promotion of science and technology. It honours George Vernon Hudson (1867 - 1946) who was a distinguished amateur naturalist and scientist. An original Fellow of what is now the Royal Society of NZ, he was on its Council from 1923 to 1946. He was President of this Branch (then Wellington Philosophical Society) in 1900-1 and 1911-2. A formal obituary and photograph appear in the Transactions and Proceedings of the RSNZ **76**: 264 - 266.

The lecture this year was given by Bill Stephenson of GNS Science, Lower Hutt, on Wednesday 22nd September 2009. His subject was: **Earthquake waves: Those behind cried 'Forward'. And those before cried 'Back'.**

Which in essence is why earthquake shaking is usually stronger on soft (slow) soils than it is on (fast) rock - the energy travelling fast through the rock piles up as it encounters and traverses the soft soil. Further, some layerings of soft soil can act to guide, or worse trap, earthquake motion. When this happens there is even more increased shaking and increased damage. So it is pertinent both to learn more about the mechanisms involved in the variation of shaking, and to devise ways of measuring shear-wave velocities in soil materials which for the most part are buried.

An array of seismographs in Parkway, Wainuiomata, has allowed some of the mechanisms to be clarified. Movies of the recorded ground motion show guided waves travelling down the valley, together with cells of trapped energy.

The seismic CPT test which was devised in 1986 made it feasible (at a cost) to obtain shear wave velocity profiles for soft soils. Nakamura's microtremor method which was devised in 1989 made it (sometimes) possible to obtain natural frequencies for soils. Although Aki outlined the SPAC (SPatial AutoCorrelation) microtremor method as early as 1957, it only began to be used in earnest to obtain shear wave velocity profiles in 1995. SPAC now shows great promise for quantifying the potential of a given soft-soil site to increase earthquake shaking. It is non-invasive and quick - provided that we

learn how to invert coherency curves correctly, and provided that we don't try to push the technique too far.

COCKAYNE MEMORIAL LECTURE 2009

The Cockayne memorial lecture is presented triennially by the Royal Society of New Zealand, and hosted in Wellington by the Wellington Branch. This year the lecture was given by Professor Peter Lockhart FRSNZ, of Massey University, on 24th June 2009. His subject was: **A DNA story of New Zealand plants.**

The fossil record of plants and their pollen has long been recognised as a kind of black box recorder or diary for the evolutionary history in New Zealand.

However, its interpretation has only recently been corroborated through reading the stories in DNA. This voice was unknown to Leonard Cockayne, who lamented when writing his famous story of New Zealand plants that "Perhaps, ... could they speak, we might learn ...". He would be amazed at what we can learn from studying the genes and genomes of living plants.

Professor Peter Lockhart's talk outlined some of the recent discoveries and described how new sequencing technologies are being used to further understanding of the nature and future of New Zealand plant species.

RUTHERFORD MEDALLIST LECTURE

The Rutherford Medallist Lecture is not to be confused with the Rutherford Memorial Lecture, which is sponsored by the Royal Society (London) and hosted in New Zealand by the Royal Society of New Zealand every three years. Our Branch takes care of local arrangements for the triennial visit.

RUTHERFORD MEDALLIST LECTURE 2009

The Branch once again took the initiative and invited last year's Royal Society of NZ Rutherford Medallist (Professor David Parry FRSNZ) to present a lecture at a Special General Meeting, hosted in Wellington by the Wellington Branch. Professor David Parry, of Massey University, reminisced on a lifetime spent working with **Fibrous Proteins.**

Most of the human body is made up of water so what keeps this medium in place and gives us our overall form and shape? Why does light enter our eyes and allow us to see what we are doing and where we are going? Why are we covered in hair? The answer to these questions, and many others, lies with the fibrous proteins.

Our skin, for instance, acts as the major barrier between our internal and external environments and keeps our water in and foreign bodies out. Bone and cartilage form an inner structural framework, thereby providing positions for our organs and other important components of the body. Hair provides animals with thermoregulatory and defence mechanisms, whilst arrays of muscle proteins and associated tendons allow us to move. The cornea, located at the outermost portion of the eye, refracts light on to the retina, thereby allowing vision. These various tissues are comprised largely of long and thin fibrous proteins. They have fascinating structures and functions.

This presentation revealed a selection of Professor Parry's personal highlights.

The presentation was framed in terms of the people and events that have shaped Professor Parry's personal life and scientific career. It provided an unusual insight into what makes a scientist "tick".

He was awarded the 2008 Rutherford Medal in recognition of his world-leading studies on fibrous proteins. His research has led to major advances in elucidating the structure of hair and the functioning of muscles and connective tissue.

2008 ANNUAL MEETING

At the Annual General Meeting, dinner and lecture on 22nd October, 2008, David McLennan presented an absorbing lecture on **The Search for Water on Mars**.

SECTION AND AFFILIATE REPORTS

GEOLOGY SECTION and WELLINGTON BRANCH of the GEOLOGICAL SOCIETY OF NEW ZEALAND

The Wellington Branch of the Geological Society of New Zealand and the Geology Section of the Royal Society of New Zealand Wellington Branch hosted regular monthly seminars. Due to financial pressures the Branch shifted venue to Turnbull House for the first meeting of 2009. Formerly room hire costs were carried by the Royal Society of NZ Wellington Branch, but a meeting held in October 2008 indicated that they were no longer in a financial position to subsidise our activities. The need for a neutral, central Wellington location motivated a request to the Geological Society National Council for help, partly to avoid a dependency upon Branch fundraising activities, particularly given the large reserves needed to maintain a booking commitment for meeting rooms. "Free" venues inevitably represent a cost to someone, and under the current economic climate providers are handing these costs onto users. The National Council supported our request and a welcome return to the Science House for subsequent meetings. We gratefully acknowledge their assistance.

Our monthly seminar series explored a wide range of themes including leading paleoclimatic studies from Antarctica and around New Zealand, tectonic reconstructions of the New Zealand continent, an overview of the most recent QMap initiatives, and petrological insights from the lower crust. The talk schedule included the Annual Hochstetter Lecture by Assoc. Prof. Kathy Campbell, which is always a highlight. The combination of topical subjects and high quality presentations generated healthy and active debate. The Society is very grateful for the time and effort put into presentations by invited speakers. The high level of attendance at meetings is testament to their talents and the interest generated by their work in the geoscience community.

The Wellington Branch of the Geological Society of NZ awarded two geoscience prizes at the annual NIWA Wellington Regional Science and Technology Fair. The Society's judges (Drs Cliff Atkins and Helen Bostock) noted the meritorious effort of the student entries. Michael Wilson, a Year 7 student from Evans Bay Intermediate, won \$75 with an exhibit called "Salty Seas". Issac Hermans, a Year 10 student from Taita College, won \$50 with an exhibit called "Earthquake Weather". Nicole Rennie, a Year 8 student from Wadestown School, won \$25 with an exhibit called "Antarctica - Melting Points"

The Beanland-Thornley Student Prize night in September saw six presentations from John Creech, Michael Guggenmos, Jess Johnson, Julene Marr, Dave Murphy, and Rebecca O'Donnell, all students from Victoria University of Wellington School of Geography Environment and Earth Sciences, and the Institute of Geophysics. Around 50 attendees were rewarded with talks covering diverse and technical subject matter. The judges commented that all the talks were of very high quality, suitable for presentation at a major conference. The prize of \$100 for first place was awarded to Julene Marr for her talk entitled "**Mg/Ca-temperature relationship of *Globigerina bulloides***".

Summary of seminars and Geological Society activities for 2009

- 4 March: "**Back to the future: the greenhouse climate and biota of the Paleogene**"
Dr Chris Hollis, GNS Science, Avalon.
- 14 May: The Hochstetter Lecture 2009 - "**Extreme Life: Terrestrial hot-springs and the search for early life on Earth (and Mars?)**", Assoc. Prof. Kathy Campbell, School of Geography, Geology and Environmental Science, University of Auckland.
- 11 June: "**West Antarctic Ice Sheet in a warmer world**", Prof. Tim Naish, Antarctic Research Centre, Victoria University of Wellington.
- 9 July: "**Reasons for the shape and elevation of the submerged New Zealand continent**", Dr Rupert Sutherland, GNS Science, Avalon.
- 13 August: "**New geological maps - observation, interpretation and perspiration**", Dr Mark Rattenbury, GNS Science, Avalon.

27 August: Geological Society Prize at the 2009 NIWA Wellington Regional Science and Technology Fair.

10 September: “**A lower crustal hot zone: fact or friction?**”, Prof. John Gamble, National University of Ireland, University College Cork

8 October: Beanland-Thornley Student Prize Night.

Chairperson: Alan Orpin; Treasurer: Kyle Bland; Committee: Cliff Atkins, Helen Bostock, Warren Dickinson, Gavin Dunbar, Liz Kennedy, Andrew Mackintosh, Lisa Northcote, Kate Wilson.

CAFÉ SCIENTIFIQUE

Two Café Scientifique series have been run this year, at Te Papa and TheNewDowse.

SCIENCE EXPRESS @ TE PAPA

The Science Express discussion group in the Café Scientifique format is held at the Espresso Cafe on level 4 at Te Papa on the first Thursday evening of the month, proudly supported by GNS Science and the Royal Society of New Zealand Wellington Branch.

There is room for about 160 attendees. Most sessions have 100 to 150 participants. With microphones for the chair, expert and all questioners, everybody can hear.

The topics of these meetings were:

4 September 2008: **Youth Crime - A Hot Election Issue**

Dr Fiona Beals, Victoria University

2 October: **A New Edge to New Zealand**

Gerard van Bohemen, Ministry of Foreign Affairs and Trade and Dr Bryan Davy, GNS Science

6 November: **Why Critical Thinking is Critical to Your Health and Happiness**

Vicki Hyde, NZ Skeptics and author

25 March 2009: **Less than a millionth of a metre - what harm can there be?**

Ben Ruck, MacDiarmid Institute, Victoria University of Wellington

2 April: **Is Science Just Mysticism in a Lab Coat?**

Bernard Beckett, teacher and author

4 June: **Dark energy**

Matt Visser, Professor of Mathematics at Victoria University of Wellington

2 July: **Rocket science**

Peter Beck, the head of local rocket science company Rocket Lab

6 August: **Collapse on Easter Island**

Dr Troy Baisden, GNS Science

CAFÉ SCIENTIFIQUE HUTT

Because of the success of the evenings at Te Papa a second Café Scientifique programme was established in 2008, meeting at Cafe Reka at TheNewDowse, Lower Hutt on the last Thursday evening of each month and supported by: GNS Science, Royal Society of New Zealand Wellington Branch, Cafe Reka, TheNewDowse, Capital E and Hutt City Council.

The cafe can accommodate over 70 attendees, and at times has reached this number.

The topics of these meetings were:

24 September 2008: **What is the real cost of mould in homes?**

Philippa Howden-Chapman, University of Otago

29 October: **Global Warming: what's to be done?**

Robert Holt, Industrial Research Limited

26 November: **World Financial Turmoil: could it strike New Zealand?**

Brendan O'Donovan, Chief Economist, Westpac

25 February 2009: **Science - is it just mysticism in a lab coat?**

Bernard Beckett, teacher and author

25 March: **Nanotechnology - what harm can there be?**

Ben Ruck, MacDiarmid Institute, Victoria University of Wellington

30 April: **The Rights of Embryonic Stem Cells**

Mike Berridge, Malaghan Institute of Medical Research

28th May: **Was collapse inevitable on Easter Island (Rapa Nui)?: reconstructing a civilisation's failure**

Dr Troy Baisden, GNS Science

25 June: **The significance of New Zealand dinosaurs**

Hamish Campbell, GNS Science

30 July: **H1N1 + 1 = ?**

Dr Anne LaFlamme, Victoria University's School of Biological Sciences

27 August: **High Temperature Superconductivity a 'cool' NZ industry**

Dr Rod Badcock, Industrial Research Limited

NON-FICTION BOOK CLUBS

There are three groups of up to twelve members, two in Wellington and one in Lower Hutt. Monthly meetings are held at a member's house. An annual fee covers the cost of purchasing books and DVD's for the club.

The list of books being studied so far is:

A Certain Ambiguity: A Mathematical Novel, by Gaurav Suri, Hartosh Singh Bal
A General Theory of Love, by Thomas Lewis, Fari Amini, Richard Lannon
Charlie Wilson's War, director Mike Nichols (DVD)
Collapse: How Societies Choose to Fail or Succeed, by Jared Diamond
Darwin's Nightmare: A documentary, by Hubert Sauper (DVD)
Digging Up Deep Time: Fossils, Dinosaurs and Megabeasts from Australia's Distant Past, by Paul Willis
Empire of the Ants, director Bert I. Gordon (DVD)
Flat Earth News: An Award-winning Reporter Exposes Falsehood, Distortion and Propaganda in the Global Media, by Nick Davies
Foundation Book 1, by Isaac Asimov
Gattaca, director Andrew Niccol (DVD)
Heat: How to Stop the Planet From Burning, by George Monbiot
How to Watch a Bird, by Steve Braunias
Longitude: The True Story of a Lone Genius Who Solved the Greatest Scientific Problem of His Time, by Dava Sobel
Making Globalization Work, by Joseph E Stiglitz
Samuel Pepys: The Unequalled Self, by Claire Tomalin
Sicko, director Michael Moore (DVD)
Six Easy Pieces: Essentials of Physics by its Most Brilliant Teacher, by Richard P. Feynmann
Stem Cells: Controversy at the Frontiers of Science, by Elizabeth Finkel
The Awa Book of New Zealand Science, edited by Rebecca Priestley
The Canon: A Whirligig Tour of the Beautiful Basics of Science, by Natalie Angier
The God Delusion, by Richard Dawkins
The Heart of Darfur, by Lisa French Blaker
The Periodic Table, by Primo Levi
The Song of the Dodo: Island Biogeography in an Age of Extinction, by David Quammen
This Piece of Earth: A Life in my New Zealand Garden, by Harvey McQueen
Tracks by Robyn Davidson
Transit of Venus: How a Rare Astronomical Alignment Changed the World, by Hamish Campbell, Richard Hall, Peter Adds, Duncan Steel, Anne Salmond, Paul Callaghan, Marilyn Head (Intro)
Uncle Tungsten: Memories of a Chemical Boyhood, by Oliver Sacks
Working on the Edge: Surviving in the World's Most Dangerous Profession: King Crab Fishing on Alaska's High Seas, by Spike Walker

THE 45th NIWA WELLINGTON REGIONAL SCIENCE AND TECHNOLOGY FAIR

Chairman	John Warriner
Royal Society of NZ Wellington Branch liaison	John Field
Entries	Gren Higgs
Programme	Michael Pallin
Accounts	Lesley Young, Ross Becker
Chief Judge	Dr Gillian Turner
Sponsors and special prizes	Sylvia Nichol, Nick Julian
NIWA Liaison	Sylvia Nichol
Website coordinator	John Warriner, Gren Higgs & Tim Price
Victoria University liaison	Dr Gordon Heeley & Dr Suzanne Boniface

The 2009 NIWA Wellington Regional Science and Technology Fair was again very successful with a large number of entries, but again a very small number from the last three years of high school. Entries again were of a very high standard. The top winners were:

Royal Society of NZ Wellington Branch Prize for best overall exhibit - Zofia Arthur from Queen Margaret College with the entry "Need a break? Get a windbreak".

Zofia tested various designs of fences, and eventually concluded that the energy-absorbing qualities of a good hedge made it the most effective windbreak.

VUW Faculty of Science Excellence Scholarship - Thang Tran from Wellington College with the entry "The effect of temperature on Vitamin C".

VUW Faculty of Science Prize for an outstanding Class 5 exhibit - Nika Thomson from Sacred Heart College with the entry "The effect of exercise on insulin requirements of Type 1 Diabetics".

First equal in Class 1 - Petra Bogle from Karori Normal School with the entry "What types of chicken food make the eggs yellow?", **Toby Heitland** from Wadestown School with the entry "What effects reaction time?", and **Josh Rippin** from Wellesley College with the entry "Children as eye witnesses".

First in Class 2 - Zofia Arthur from Queen Margaret College with the entry "Need a break? Get a windbreak".

First in Class 3 - Morgan Archer from Samuel Marsden with the entry "Peppermint Power".

First equal in Class 4 - Nimish Patel from Rongotai College with the entry "Which household material best insulates sound", and **Jono Wood & Jonty Sanders** from Wellington College with their entry "Tenacious tyres".

First in Class 5 - Thang Tran from Wellington College with the entry "The effect of temperature on Vitamin C".

Realise the Dream Nominations - Zofia Arthur from Queen Margaret College with the entry "Need a break? Get a windbreak", **Morgan Archer** from Samuel Marsden with the entry "Peppermint Power", and **Thang Tran** from Wellington College with the entry "The effect of temperature on Vitamin C".

A full schedule of Prize winners can be viewed at www.sciencefair.org.nz

EARLIER YEARS

RSNZWB: Royal Society of New Zealand Wellington Branch Prize

VUWS: Victoria University of Wellington Faculty of Science Prize

UO: University of Otago Prize

RDN: Realise The Dream Nomination

Classes:

1: year 7

2: year 8

3: year 9

4: year 10

5: years 11, 12, 13

2008:

Oliver Pooke, "Diode Discovery", RSNZWB, RDN, 1st Class 2

Nika Thomson, "What Hypo Treatment is Best for Type I Diabetics", VUWS Class 5, 1st = Class 5

Kathryn Hally, "Salty Lettuce Salad for the Third World", VUWS Class 5, UO, 1st = Class 5

Max Olson, "Buses and bricks", 1st Class 4

Harry Todd, "Sound waves", 1st = Class 3

Devlin Mahoney, "Still looking into it", 1st = Class 3

Sam Watson, Callum Sinclair, "The Nature of Light", RDN, 1st Class 1

2007:

Kate Burgess, "An Investigation of Cell Phone Interference With Radio Reception" RSNZWB, RDN, 1st Class 3

Jessie Bird, "Mushroom Medicine" RDN, VUWS 5, VUWS Classes 1-4, 1st Class 5

Nika Thomson, "Is Your Smoking Making Your Kids Unfit?", UO, 1st Class 4

Ali Sedgewick, "Subliminal Messages" 1st Class 2

Isabel Kelly, "Piano Depression" 1st Class 1

2006:

Georgia Rippin, "A picture is worth a thousand words" RSNZWB, 1st Class 1

Tony Zheng, "Oxygen Oxygen Everywhere but Not A Mole to Breathe" VUWS, 1st Class 5, RDN

Jessie Bird, "The antibacterial properties of native plants" UO

Oscar Olson, "Power at the anaerobic threshold", 1st Class 4

John Barkess, William Warren, "Wood moisture. Electrical resistance" 1st Class 3, RDN

Eleanor Day, Caleb Hilbron, Rakaitemanian Parata-Gardiner, "Surface Tension" 1st Class 2

Steven Chen, "Diurnal Variation of Oxygen in the Hutt River" RDN

2005:

Miro Jefferies-Nendick, "Gibbon watching at Wellington Zoo", RSNZWB, 1st Class 2, RDN

Hana Christenson, "Filter Feeding Bivalves in Wellington Harbour: Are Metals on the Menu?", VUWS, RDN

Petronella Watson, "Sleepy Teens - An Issue in the Classroom?" UO

Sophie Logan, Jessica Wake, "Why bananas go brown" 1st Class 1

Annelise Havill, "How clean is our stream?" 1st Class 3, RDN

Simon McVeagh, "Vitamin C - Cooking or Killing?" 1st Class 4

Anna Robinson, Samuel Marsden Collegiate, "Expose: Golf Balls" RDN

2004:

Emily Sutton, "Turn over a new leaf" RSNZWB

Simon McVeagh, "Why girls should not swim in Evans Bay" VUWS, RDN

Anna Garcia, Kacey Campbell, Katherine Robbins, "Experiment A Little - Calcium Drinks" 1st Class 5

Michael Dickson, "Small tides in the narrows" 1st Class 4, RDN

Kaijia Shum Yuk, "How clean is your chopping board?" 1st Class 3

Julia Thompson, Samantha Lee, "To Bleach or Not To Bleach" 1st Class 2

Devi Malhotra, "Diesel vs Petrol" 1st Class 1, RDN

Jaz Morris, Sam MacLean, "Shroud of Turin - Miracle or Mirage" RDN

NIWA WELLINGTON REGIONAL SCIENCE AND TECHNOLOGY FAIR

A section of the Royal Society of New Zealand Wellington Branch Inc
(A Regional Constituent Organisation of the Royal Society of New Zealand)

STATEMENT OF FINANCIAL PERFORMANCE FOR THE YEAR ENDED 31 MARCH 2009

INCOME		EXPENDITURE	
NIWA sponsorship	6,500.00	Prizes	11,673.28
Other donations	6,995.00	Printing	2,188.12
Rebate for display boards	0.00	Entertainment	1,120.00
<u>Interest</u>	<u>726.54</u>	Labour	550.00
		Stationery	123.05
		Photocopying	240.10
		Bank fees	5.00
		<u>Miscellaneous</u>	<u>176.34</u>
Total Income	\$14,221.54	Total Expenditure	\$16,084.89
Net Income (Loss)	(\$1,863.35)		

STATEMENT OF FINANCIAL POSITION AS AT 31 MARCH 2009

ASSETS

Bank account: general fund	1,386.12
Bank account HD Gordon Memorial Fund	2,400.65
Term Deposit	<u>12,767.67</u>

Total Assets **\$16,554.44**

LIABILITIES

Accounts payable	0.00
Accrued expenses – un-presented cheque	170.83

Total liabilities **\$170.83**

EQUITY

Retained earnings – general fund	15,846.31
Retained earnings HD Gordon Memorial Fund	2,400.65
Income for the year	<u>(1,863.35)</u>

Total equity **\$16,383.61**

TOTAL LIABILITIES AND EQUITY \$16,554.44

The financial accounts and corresponding work papers have not yet been checked by an independent Chartered Accountant and the verification to show that the records show a true and accurate account of transactions for the financial year ended 31st March 2009 is yet to be completed. This verification or audit is in progress.

John Warriner, Organising Committee Chairman