

147th ANNUAL REPORT

of

SCIENCE WELLINGTON

Incorporated.

Year ended 31 August 1998

**Report for the 147th year of
SCIENCE WELLINGTON INC.**

Founded July 1851 as the New Zealand Society

Reconstituted November 1867

Renamed the Wellington Philosophical Society and
incorporated with the New Zealand Institute 1868

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

The Society was incorporated as
Science Wellington Incorporated in 1995.

**Report for the year ended 31 August 1998
to be presented at the
Annual General Meeting in
the Royal Society Science Centre
on Wednesday 28 October 1998 at 7:30pm.**

Science Wellington Inc.
P. O. Box 3085
Wellington
New Zealand

COUNCIL OFFICE BEARERS AND MEMBERS FOR 1998

PRESIDENT

Grant Williams

VICE-PRESIDENTS

George Jones

Warren Dickinson

TREASURER

Graeme Claridge

SECRETARY

Barbara Bibby

ASSISTANT TO SECRETARY

Phillip Alve

NEWSLETTER EDITOR

Euan Smith

AUDITOR

Otto Bauer

COUNCIL MEMBERS

Phillip Alve

Bruce Miller

Euan Smith

Tony Dodson (resigned 1998)

Helen Hughes

Mary Therese Sullivan

REPRESENTATIVES OF SECTIONS AND AFFILIATES

Pat Stodart (Archaeology)

Mike Clear (Astronomy)

Colin Basset (Biology)

Graeme Murray (Chemistry)

Warren Dickinson (Geology)

Mark Chadwick (Geophysics)

Grant Williams (Physics)

Carolyn English (Science Teaching)

Bart Provo (Technology - coopted 1998)

(Young Scientists: currently vacant)

RSNZ MEMBER BODIES REPRESENTATIVE

Bruce Miller

MEMBERSHIP

Total: 238 (256) (The numbers in brackets are last years)

Ordinary and family members 197 (217)

Associate members 9 (9)

Emeritus members 14 (11)

Life members 13 (14)

Honorary members 5 (5)

It is pleasing to note the slight increase in Emeritus members, representing the increasing interest in the society amongst the young scientists in 1947 and 1948. We welcome to the ranks of emeritus members P C Bull, R K Dell, R J Munster and E I Robertson, and note that N J Rumsey will achieve this status in 1999. We compliment these members for having taken an interest in and paid their subscriptions to the society for 50 years. We note with regret that Agnes Hutson died as she was awarded this status.

PRESIDENTS REPORT.

Science Wellington continues in its main objective to provide excellent monthly public talks and act as a focus for other Wellington Science based organisations. The speakers at general meetings have included Dr. James Buwalda, CEO, MORST and Prof. George Petersen, President, RSNZ Academy Council. Topics have included the Foresight Project, Rabbit Calicivirus Disease, "Mosquitoes as Vectors of Human Diseases, in Relation to Biosecurity" and "The Sleep Way to Equilibrium".

The 1998 Hudson lecture was given by Dr. J. L. Tallon FRSNZ MNZIP, IRL, in recognition of his outstanding international research. The Hudson Lecture is Science Wellington's premier annual lecture. The Hudson Lecturer is a prominent scientist who is invited to give a talk suitable for a general audience while still covering developments at the leading edge of science.

Like similar science organisations, Science Wellington faces a steady decline in membership. Each member should actively encourage their colleagues, students and friends to display altruistic behaviour and become part of an organisation that promotes science and technology via public talks. To alleviate the membership decline we are also negotiating with the RSNZ concerning the possibility of a small fee being paid in relation to Wellington

members of the RSNZ. This would also solve the current dilemma whereby Science Wellington is a Regional Constituent Organisation of the RSNZ but Wellington RSNZ members are not members of Science Wellington.

Science Wellington continues to receive strong support from the RSNZ. They have provided Science Wellington with a permanent world wide web site (<http://sci-wtn.rsnz.govt.nz/>) and an email distribution system. The long term aim is to move into electronic communication and thereby reduce costs and provide a better service to our members and the public.

Affiliation negotiations are continuing with the Wellington Astronomical Society, the Wellington Branch of the New Zealand Institute of Chemistry and other science organisations as part of Science Wellington's aim to be a focus for Science based activity in the Wellington region. An agreement has already been signed with the Wellington Branch of the New Zealand Institute of Physics. The object of the affiliation agreements is to discover and outline ways in which Science Wellington can assist other science based organisations in Wellington.

The notice of motion at the 1997 AGM by Dr V. Gray has been addressed. The motion read,

This meeting of Science Wellington deplores the absence of a national information service in New Zealand and calls on the Government to honour its commitment to the provision of access of information for assisting economic growth and education by extending the facilities of the national library in scientific and technical areas.

Dr. Helen Hughes has prepared a report on behalf of Science Wellington which can be obtained on request. This report was referred to the Royal Society of New Zealand for further action.

Dr. G. V. M. Williams, President, Science Wellington Inc.

Sesqui-centennial Celebrations

The history of Science Wellington goes back to the formation of the New Zealand Society on 2 July 1851. In the year 2001, it is intended to hold sesqui-centennial celebrations to commemorate 150 years of our history as well as to commemorate the change to the new millennium. We will be looking for ideas.

From the Wellington newspaper of the day:

On Wednesday last a meeting was held at the Athenæum for the purposes of establishing the "New Zealand Society" the constitution of which will be very similar to the Royal Society of Van Dieman's land, and is briefly explained in the resolutions that were passed. The meeting was very numerously attended, and its proceedings were marked by the general feeling of unanimity that prevailed. The Society already numbers eighty members and we doubt not will receive still further accessions to its numbers, as its objects become more generally known. The formation of the Society is in a great measure owing to the zealous exertions of its Secretary Mr. Mantell, which appeared to be duly appreciated by the Meeting. We believe the Society will receive assistance from the Government in the promotion of the objects it has in view, and these are sufficiently important to ensure the good wishes and hearty cooperation of every settler. Men of all opinions are included among its members, one of its chief objects being to collect and diffuse useful information on the natural productions of New Zealand. His Excellency Sir George Grey was elected the first President, not so much, as was appropriately observed by Mr. Mantell in proposing him to the Meeting, in his capacity as governor, as for the reputation he has deservedly acquired as a man of science and an explorer, and by which his name is very generally known in Europe....

An abstract of its objects proposed at the meeting: -

1. The development of the physical character of the New Zealand Group, its natural history, resources and capabilities.
2. The collection and preservation of the materials illustrative of the history of its native inhabitants, their language, customs, poetry and traditions.
3. The publication of such papers on these and other subjects as may be deemed by the Council of sufficient importance.
4. The formation of a library of standard works, and of a museum in illustration of the above subjects.
5. The establishment in the sister settlements of corresponding Societies in furtherance of the above objects.

Relationships with other Regional Branches

Little work has been required in this area this year as the Branches' representative on the Council of the Royal Society of New Zealand has been George Jones. He has personally kept us informed of national matters of interest to us.

The Council have been watching carefully as the other eight regional organisations develop their relationships with RSNZ. We have prepared a set of documents for discussion with RSNZ officers and, when we know their will, we will put proposals to a general meeting. The key issue is the same one we faced when we changed to "Science Wellington Inc", i.e. whether we remain independent as an Incorporated Society or whether we become a true Branch of RSNZ, in effect a committee of the RSNZ Council. We aim to have the process completed by early next year.

Bruce Miller

MINUTES OF THE 1997 ANNUAL GENERAL MEETING

The 146th Annual General Meeting was held at Science House, Thorndon, on Wednesday 22 October 1997, attended by Grant Williams (President) and 40 others.

The President welcomed members to the meeting. The minutes of the 1996 AGM were confirmed. The President then opened the Annual Report for discussion, noting the continuing work being done by the Council in clarifying the role of Science Wellington, and thanking the Past President, John Haines, who has now moved to Cambridge UK, for his part in this work.

The Treasurer tabled the financial statement in the Treasurer's Report and commented on the financial 'teething troubles' he has encountered in trying to set up the relationship with our 'affiliates' such as WAS. The aim is not to make money but to have sufficient income to cover the payment of meeting room hire and publication of our monthly newsletters and the Annual Report.

The Annual Report was approved.

The Council for 1996 - 1997 was then elected.

COUNCIL OFFICE BEARERS AND MEMBERS FOR 1998

PRESIDENT	Grant Williams
VICE-PRESIDENTS	George Jones, Warren Dickinson
TREASURER	Graeme Claridge
SECRETARY	Barbara Bibby
ASSISTANT TO SECRETARY	Phillip Alve
NEWSLETTER EDITOR	Euan Smith
AUDITOR	Otto Bauer
COUNCIL MEMBERS	Phillip Alve, Bruce Miller, Euan Smith, Tony Dodson, Helen Hughes, Mary Therese Sullivan, Colin Bassett

REPRESENTATIVES OF SECTIONS AND AFFILIATES

Pat Stodart (Archaeology)	John Field (Astronomy)
(Biology: currently vacant)	Graham Murrey (Chemistry)
Warren Dickinson (Geology)	Rachel Abercrombie (Geophysics)
Grant Williams (Physics)	Carolyn English (Science Teaching)
(Technology: currently vacant)	(Young Scientists: currently vacant)

RSNZ LIAISON

Bruce Miller

Vince Gray had tabled a request to present a motion to the assembled meeting as follows:

Motion PROPOSED by Dr. V Gray and PASSED UNANIMOUSLY:

This meeting of Science Wellington deplores the absence of a national scientific and technical information service in New Zealand and calls on the Government to honour its commitment to the provision of access of information for assisting economic growth and education by extending the facilities of the national library in scientific and technical areas.

The meeting referred the matter to Council .

After the AGM George Jones spoke of "Bicky - Scholar Errant":

“Bicky - Scholar Errant”

George Jones has studied the life and times of eccentric Prof. Alexander William Bickerton, first Professor of Chemistry and Physics at Canterbury College, Christchurch last century. George gave a detailed and entertaining lecture at our AGM in October 1997, including attempting to simulate the Prof's penchant for fireworks explosions in his lectures by using balloons. His ability to enthuse his students in his subject set the future careers of many of our early scientists, including his most famous pupil, Ernest Rutherford.

The Prof had novel and unpopular astronomical theories that he unsuccessfully attempted to have accepted by the scientific community. He also had social theories, relating to his view of marriage, and set up a commune at the end of last century at his place at Wainoni. After being dismissed from the academic staff of the university, he ran Wainoni as an entertainment park, including mock naval battles, Punch and Judy, a zoo, conservatory and tea and cakes. George now has on tape an interview with the Prof's only remaining grand-daughter, who remembered her grandfather when she was a small child very early this century.

GENERAL MEETINGS

25 March Dr Philippa Gandar Professorial Research Fellow Wellington School of Medicine *"The Sleep/Wake to Equilibrium"*. Dr Gandar discussed her research involving sleep including the implications of pressures to cut back on sleep and move to 24 hour operations for many activities.

"New Zealand Science Beyond 2000: Will We Lose the Plot?"

Professor George Petersen ONZM FRSNZ, President of the Academy Council of the RSNZ, gave a public talk entitled "New Zealand Science Beyond 2000: Will We Lose the Plot" on Wednesday 27 May, 1998, at the RSNZ Science House, Wellington.

Prof. Petersen discussed the Foresight programme of the Ministry of Research, Science and Technology and its implications for future Science and Technology research in New Zealand. He mentioned how New Zealand

showed foresight when he started his science career in providing assistance for overseas study. He discussed career development and said that we have to ensure that our tertiary educational institutions are able to provide the scientists that the CRIs and other employers need and that they, in turn, are able to meet the conditions that will encourage young New Zealanders to develop their careers in this country. The talk was followed by questions from the audience.

Professor George Petersen ONZM FRSNZ got his PhD at Oxford in 1956-59 before joining the DSIR Plant Chemistry Division in Palmerston North in 1959. He was appointed to the Chair of Biochemistry at Otago in 1968 and retires from that post at the end of this academic year. He has been an active researcher in the field of nucleic acid structure and function for the whole of his career and was awarded the D.Sc. by Oxford University in 1993.

An edited text of this talk can be found at:

<http://sci-wtn.rsnz.govt.nz/scital98.htm>

Science Wellington appreciates the financial assistance of the RSNZ.

Dr. G. V. M. Williams, President, Science Wellington.

On 28 May, Dr Richard Holdaway of Palaecol Research, Christchurch, gave a talk entitled *"The Beginning of the End: Dating the Arrival of the Pacific Rat in New Zealand"* to an audience of 75 people. He presented evidence for the involvement of the kiore (*Rattus exulans*) in the extinction of many species of New Zealand's small vertebrates and large invertebrates, and for its arrival about 1000 years prior to human settlement.

"The Foresight Project"

Dr. James Buwalda, Chief Executive Officer, Ministry of Research Science and Technology, gave a public talk entitled *"The Foresight Project"* on Wednesday, July 22 at the RSNZ Science House, Wellington.

Dr. Buwalda discussed the Foresight Project which was initiated in 1997, to stimulate strategic thinking about New Zealand's future in the knowledge age, requirements for new knowledge and technological change, and priorities for the Government's research, science and technology investments. He

mentioned that the Foresight Project is being carried out at a time when globalisation and rapid technological change are creating both opportunities and challenges for the way we achieve prosperity and well-being. He expressed concern that New Zealanders currently have a relatively poor understanding of how science and technology may contribute to this future, and that this is associated with low levels of R&D investment, particularly by the private sector. The talk was followed by questions from the audience. Details on the Foresight Project can be found at:

<http://www.morst.govt.nz/foresight/front.html>.

Dr. James Buwalda is the Chief Executive of the Ministry of Research, Science and technology. He has held this position since July 1996, and was formerly the Chief Policy adviser. The Ministry is the Government's primary adviser on science and technology policy. James has a B. Agr.Sc. (Hons) from Lincoln College and a PhD from the University of London. He was a research scientist with the Ministry of Agriculture and Fisheries and HortResearch for 17 years. While at HortResearch, he also spent time as a Science Manager, with responsibility for developing science strategy. In his current position, James is leading the Foresight Project, to motivate strategic thinking about innovation across diverse groups in New Zealand and to review priorities for the Government's research, science and technology investments.

A note on the general meeting for 23rd September:

HISTORY AND WEATHER FORECASTING *Erik Brenstrum, MetService*

From the defeat of the Persians by the Greeks at the battle of Salamis over 2000 years ago to the invasion of France by the allied armies in 1944, accurate weather forecasts played a crucial role in some of history's turning points.

Erik is a lead forecaster with MetService who writes a monthly column in the New Zealand Geographic, and has a book on history and weather forecasting due out shortly.

THE HUDSON LECTURE

This year celebrates fifty years of this our most prestigious lecture.

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 New Zealand, he was on its Council from 1923-46. Hudson was President of this branch (then the Wellington Philosophical Society) in 1900-01 and 1911-12. A formal obituary and photograph appear in the Transactions and Proceedings of the Royal Society of New Zealand 76: 264-266.

The roll of Hudson Lectures for the first fifty years is:

1949	Dr Gilbert Archery	<i>The Place of Science.</i>
1950	Prof. Sir Charles Hercus	<i>New Zealand and Medical Research.</i>
1951	Dr H. H. Allan	<i>Botany in the Service of the State.</i>
1952	Prof. F. G. Soper	<i>Advances in Chemistry.</i>
1953	Dr C. P. McMeekan	<i>The Utilization of Grassland: A New Zealand Philosophy.</i>
1954	Prof. C. A. Cotton	<i>Notocenozoic: the New Zealand Cretaceous-Tertiary Era.</i>
1955	Dr R. A. Falla	<i>Antarctic Adventure and Research.</i>
1956	Dr R. S. Duff	<i>Moa Hunters, Maoris and Morioris.</i>
1957	Dr R. E. Matthews	<i>Contributions to Biology from Studies on Viruses.</i>
1958	Dr C. A. Fleming	<i>Darwin and New Zealand: Some examples, Influences and Developments.</i>
1959	Dr C. D. Ellyett	<i>The Past and Future Role of the University in Research in New Zealand.</i>
1960	Sir Lawrence Bragg	<i>Biological Molecules.</i>
1961	Prof. Sir Alister Hardy	<i>Some Developments in Plankton Research.</i>
1962	Prof. H. B. Fell	<i>Saint Cuthbert's Beads and Thunderstones: Sidelights in the Search for Living Fossils.</i>
1963	Mr N. H. Taylor	<i>The Nature of Soil.</i>
1964	Prof. E. Beaglehole	<i>The Third Culture in New Zealand: Human Nature and Conduct.</i>
1965	Mr R. W. Willet	<i>A Hundred Years of Geology in New Zealand.</i>
1966	Prof. N. F. Barber	<i>Is There Only One Element?</i>
1967	Mr B. G. Barratt-Boyes	<i>Cardiac Surgery, Past, Present and Future.</i>
1968	Prof. L. Kay	<i>Influence of Electronics on Society.</i>
1969	Dr. E. G. Bollard	<i>Progress in our Understanding of Plant Science.</i>
1970	Dr. W. M. Hamilton	<i>New Zealand Agriculture in a Changing World.</i>
1971	Dr T. A. Rafter	<i>Sulphur Isotope Geochemistry, the Evolution of a Scientific Discipline.</i>
1972	Prof. A. M. O. Veale	<i>Genetic Counselling.</i>
1973	Prof. H. W. Wellman	<i>Sea-floor Spreading and the Changing Shape of New Zealand.</i>

- 1974 Mr N. J. Rumsey *Astronomy in New Zealand*
- 1975 Prof. G. P. Barton *Law and the Environment.*
- 1976 Dr R. K. Dell *The Marine Fauna of Antarctica - Composition and Relationship.*
- 1977 Prof. R. Green *Polynesian Ancestors.*
- 1978 Prof. R. Bates *Aspects of Imaging.*
- 1979 Dr R. L. Bieleski *Back to Basics: A Look at the three R's of Science.*
- 1980 Dr J. M. Hoy *The Past, and Future Prospects for Entomology.*
- 1981 Dr R. H. Thornton *Would Thomas Cawthron Approve?*
- 1982 Dr C Stubbs *Our Aging Society.*
- 1983 Dr N. P. Kristensen *The Ascent of Moths - Some Aspects of the Evolution of the Lower Lepidoptera.*
- 1984 Prof D. E. Fisher *Science and Law - An Unbridgeable Gap?*
- 1985 Dr Beverley Bell *Science Education Research in New Zealand*
- 1986 Dr F. B. Shorland *Is Our Knowledge of Human Nutrition Soundly Based?*
- 1987 Dr. J. F. Harper *Continental Drift, Oceanic Plates, and the World's Largest Heat Engine.*
- 1988 Dr G. W. Gibbs *G. V. Hudson - Pioneer Naturalist*
- 1989 Mr Alan Gilmore, Mt John Observatory *Interrelations of Comets and Asteroids.*
- 1990 Dr John Andrews, Reader in Zoology - Academic Dean of Science
VUW *Capital Science: 150 years of science in Wellington.*
- 1991 Dr Russell Robinson, DSIR Geology and Geophysics
Chaos in Seismology.
- 1992 Dennis Romain, Charge Cytogeneticist, Wellington Hospital *Clinical Cytogenetics in the past three Decades.*
- 1993 Mrs/Dr Joan Wiffen, Amateur Geologist
Discovering New Zealand Dinosaurs.
- 1994 Dr Bill Robinson, Materials Engineering Laboratory, IRL *Recent Research and Applications for Seismic Isolation.*
- 1995 Prof John Lekner, Prof of Theoretical Physics VUW *Molecules and Quanta with a Twist: Chirality in Nature.*
- 1996 Dr Max Kennedy, IRL *Bringing the Past to Life - Reviving Micro-organisms from Ancient Materials.*
- 1997 Dr Ian W. M. Brown, IRL *Advanced Ceramics - Applications and Opportunities for New Zealand.*
- 1998 Dr Jeff Tallon, IRL *High Temperature Superconductors - Daybreak on a Sunrise Technology?*

The Hudson Lecture for 1998, *High Temperature Superconductors - Daybreak on a Sunrise Technology?*, was a particularly interesting event because it was our 50th Hudson lecture, given by Dr Jeff Tallon, FRSNZ, James Cook Fellow, of Industrial Research Limited (IRL). Dr Tallon heads the team at IRL which has been working on "High-TC" superconductors since their discovery ten years ago, and which has achieved both academic and commercial success for New Zealand.

"High-TC" superconductors are single crystals composed of elements such as copper, bismuth, calcium, rare elements and selected amounts of oxygen. They are synthesised in the perovskite structure and become superconducting at temperatures of around 80 degrees absolute, easily attainable with liquid-nitrogen coolants. Dr Tallon said that even after working on this for ten years he still finds it exciting to see the electrical resistance drop to zero as the temperature drops below TC. There are also associated magnetic and levitation effects, as for the more traditional superconducting materials.

There are a huge variety of variables in the structure and composition of the materials, and one of these has been patented by Jeff's team and developed into superconducting wire as a joint venture with American Superconductor Corporation (ASC). This wire comprises micron-sized strands and filaments of superconductor in a silver matrix. The potential applications are very exciting, and the first of these was the beam-switching magnet now installed at IGNS, manufactured by Alphatech and officially opened last year.

Jeff also spoke of a new material he is currently working on, which simultaneously incorporates both superconducting and ferromagnetic properties. In the words of our Vice-President, George Jones, who summed up and thanked the speaker, it was "a fantastic lecture".

The 34th Wellington Science Fair

Chairman:	<i>Mr Saty Candasamy</i>
Science Fair Consultant:	<i>Mr Phillip Alve</i>
Entries:	<i>Mr Gren Higgs</i>
Programme:	<i>Mr Michael Pallin</i>
Treasurer:	<i>Mr Mac Allcock</i>
Judging Convenor:	<i>Mr Trevor Langley</i>
Sponsors and Special Prizes:	<i>Mr David Pegram</i>
School Liaison:	<i>Mr David Marrison</i>
Minutes Secretary:	<i>Mrs. Lorraine Warriner</i>

The 34th Wellington Science Fair was held from Wednesday 12th August to Saturday 15th August again in the Hutt Valley High School hall. The Fair Committee is indebted to the Headmaster and Board of Trustees for this use of the hall, especially as it was in term time. The number of entries was restricted to 340, with entries displayed on the stage and two adjoining rooms. There were 136 entries in Class 2 (Form II) but modest numbers in Classes 3, 4 and 5 (Seniors). The Fair was set up on the Wednesday, judged on the Thursday and open to visitors on Friday and Saturday.

The Chief Judge was Mr Mike Collins, one time Director of the former Physics and Engineering Laboratory and Director of the former Department of Scientific and Industrial Research. He was assisted by a panel of 20 judges, which included Dr. Peter Ellis, a scientific consultant with the IRL and a former chairman of the Science Fair Committee.

The Prize-giving was held in the Sacred Heart College Hall on the Saturday afternoon - and we thank the College for making their hall available to the Committee.

The Guest speaker was Mr John Terris, Mayor of Hutt City, and Dr Murray Poulter of NIWA also addressed the audience. Both Mr Terris and Dr Poulter shared the presentation of prizes. NIWA (National Institute of Water and Atmospheric Research) was the main sponsor, and the Fair Committee is grateful to them for their support and interest.

Main prize

This is a prize of \$500 for the Best Exhibit in the Fair and is donated by Science Wellington. This was awarded to Forum Patel, Form VII of Newlands

College, for his entry "*Worms Galore*". This entry was also selected to represent Wellington at the ECNZ National Science and Technology Fair, being held at Te Papa on December 13th and 14th.

Special prizes

Of the 46 Special Prizes one of particular interest, the University of Otago all expenses trip to the "Hands on Science" summer school for the entry displaying the best application of scientific method. This was awarded to Jingging Huang, Form IV of Samuel Marsden College, for her entry "*Piling up the bridges*".

First prizes winners in each class were:

- Class 1: Form I entrants: Alice Mason, of Seatoun School: for her entry: "*Hands up who knows the answer*".
- Class 2: Form II entrants: Morgan Sissons of Muritai School: for his entry: "*Submarine Drive*".
- Class 3: Form II entrants: Victoria Glover, Chilton St James: "*A computer simulation*".
- Class 4: Form IV entrants: Jingging Huang, Samuel Marsden College: "*Piling up the bridges*".
- Class 5: Forms V, VI, VII: Megan Harteveltdt, Chilton St Jame: "*Using Chicken Feathers*".

The Science Fair Committee invites offers from members to serve on the Fair Committee and/or to assist in setting up the Fair and supervising at the Fair. We would welcome financial assistance from new supporters.

Any enquires or offers should be addressed to *Phillip Alve*
52 Raroa Rd
Kelburn
Wellington 5
Telephone (04) 475 9496

NEWSLETTER

Producing the monthly newsletter and distributing to our members and affiliates is one of our prime functions. We thank those who have provided the material and in particular Phil Alve for collating and distributing the Newsletter.

Euan Smith

TREASURER'S REPORT

Membership has decreased slightly this year and consequently income is down a little. However expenses are also down slightly, probably because of a smaller number of meetings being held and a consequent lower cost of hire of the meeting room. Since our core business, to use a newspeak phrase, is holding meetings so that our members can discuss their scientific interests, we would prefer to see the amount spent on room rent to increase, not from increased charges, but from more frequent use of the rooms.

We have received contributions from the Geophysical Society and from Wellington Astronomical Society, partly to cover costs of the newsletter. This may be the start of arrangements which we hope to have in place with other associated societies.

Science Wellington has again managed to achieve a slight surplus in its accounts, indicating that we will not need to raise subscriptions in the immediate future.

Every year members are asked to pay an additional \$2.00 (optional) with their subscription as a contribution to the Royal Society Award Scheme. This year, contributions amounted to \$248, which has been passed on to the Royal Society.

Graeme Claridge

THANKS

The financial statements required by the constitution are presented on the next two pages. The Council thanks those who have prepared them, and thanks the auditor for examining them.

The reports of the Sections are given after the financial pages. The Council thanks those who have contributed to the success of this year's activities, especially our speakers and the Section Chairs and their committees who have arranged monthly meetings.

President Grant Williams
Secretaries Barbara Bibby, Phillip Alve

AUDITORS REPORT

I have obtained all the books, records and information I required from Science Wellington, and from Archaeology Section, and the Science Fair. In my opinion, based on the examination of these records, and the independent verification of the bank balances and records, the books and accounts for the year ended 31 August 1998 and the balance sheets as at this date give a true and fair view of the financial affairs of the Society.

Otto Bauer, ACA

SCIENCE WELLINGTON (INCORPORATED)

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31 AUGUST 1998

<u>EXPENDITURE</u>		<u>INCOME</u>	
Meetings		Subscriptions	
Rent	1985.94	Ordinary	4992.00
Dinner	675.60	Associate	1053.00
Lecture fees	200.00	Family	80.00
Meeting expenses	-		
			6125.00
	2861.54	RSNZ Award Scheme	248.00
Grants			
RSNZ sections	445.00	Interest	
Science Fair	300.00	Current account	126.54
		Term deposits	447.52
	3050.00		574.06
RSNZ			
Affiliation fees	-	Dinner takings	690.00
Award Scheme	248.00		
		WAS Contribution	150.00
	248.00	Geophysical Society	185.00
Postage		Donations	2.00
Newsletter	945.70		
Box rental	105.00		
Secretarial	40.00		
			1090.70
Stationery			56.93
Reimbursements			700.00
Printing			
	976.94		
Annual Report	727.04		1703.98
Sundry			
Petty Cash	21.60		
Cheque Book	1.50		23.10
Income less expenditure			
	543.81		
	7974.06		7974.06

BALANCE SHEET AS AT 31 AUGUST 1998

<u>LIABILITIES</u>		<u>ASSETS</u>	
General funds 31-8-97	10516.23	Books	50.00
Add income less expenditure	543.81	National Bank of NZ	
		Current account	3485.72
		Term deposits	7524.32
	11060.04		11060.04

ARCHAEOLOGY SECTION

GENERAL INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31 AUGUST 1998

<u>EXPENDITURE</u>			<u>INCOME</u>	
NZAA Subscription	50.00	Interest		198.65
Excess income	148.65			
	198.65			198.65

BALANCE SHEET AS AT 31 AUGUST 1998

<u>LIABILITIES</u>			<u>ASSETS</u>	
Reserve for equipment purchase		Cash		
Balance as at 31-8-98	367.59	Current Account		1066.37
General fund		Term Deposits		1337.17
Balance as at 31-8-97	1887.30			
plus excess income	148.65			
	2035.95			
	2403.54			2403.54

A. Walton
Hon. Secretary/Treasurer
7 September 1998

NIWA WELLINGTON REGIONAL SCIENCE FAIR 1997

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31 MARCH 1998

<u>EXPENDITURE</u>			<u>INCOME</u>	
Prize (1995 Fair)	50.00	NIWA Sponsorship		7500.00
Prizes (1997 Fair)	6815.00	Other donations		6755.00
Printing	1110.92	Bank Interest		318.70
Hire of hall and equipment	2598.00	Term Deposit Interest		192.33
Postages, secretarial, social	3415.19	H D Gordon Memorial Fund		30.50
Excess income over expenditure	807.42			
	14796.53			14796.53

BALANCE SHEET AS AT 31 MARCH 1998

<u>LIABILITIES</u>			<u>ASSETS</u>	
General Fund balance 31/3/97	10411.55	Bank Account: National Bank		1753.82
Excess income over expenditure	807.42	Term deposit: BNZ Finance		500.00
Attributable from H D Gordon prize fund	9.50	Term deposit: National Bank		10000.00
	11228.47			
H D Gordon Memorial Prize Fund				
Balance 31-3-97	784.85			
Term deposit interest	30.50			
	815.35			
less prize	40.00			
	775.35			
Revenue received in advance	250.00			
	12253.82			12253.82

ARCHAEOLOGY SECTION

Chair: *Pat Stodart* Secretary: *Tony Walton*

The 1997/8 programme consisted of a series of evening meetings. Our speakers and their topics were:

- May *New Zealand Coastal Defences from the 1880s to the 1940s* by Peter Cooke.
- June Short talks with a U.K. heritage focus by Tony Walton and John Daniels and on early dates for the Pacific rat by Janet Davidson.
- July *Ruapuke Visited* by Sheila Natusch.
- August *The New Zealand Wars: Panel and Audience Discussion*. The panel consisted of Janet Davidson, Gavin Maclean and Tim Ryan.
- September *Cartographic Evidence of a Voyage by Europeans to New Zealand before Tasman* by Robin Watt.
-

ASTRONOMY SECTION

The Wellington Astronomical Society, WAS, has about 110 full members. It meets first Wednesday of the Month in Science House. Meetings for the current membership year have included speakers; Frank Andrews, Paul Schuch, Mark Chamberlain, Glen Mackie, Ed Budding, Tony Dodson, Brian Carter and Graham Blow. Denis Sullivan and Grant Christie are speakers for October and November respectively. Additionally Brian Cottrell gave the Carter Observatory lecture on the SALT project.

The August meeting was occupied with discussion of the strategic plan, a concept developed by the committee for the advancement of amateur astronomy in the region and one meeting was a panel discussion on topics astronomical. Topics covered were: potential for extraterrestrial life, occultations, the moon, radio astronomy, SETI, the professional astronomer, and new astronomical entities.

The amended strategic plan is to be presented at the AGM for ratification.

Attendances have ranged from 30-60 members/evening

Mike Clear

BIOLOGY SECTION

Chairperson/Secretary: *Dr. Colin Bassett*

The Biology Section was inactive from November, 1996 until April, 1998.

In the 1998 programme our speakers and their topics were:

April: Dr Joseph O'Keefe (Agresearch), "*Rabbit Haemorrhagic Disease (RCD) in New Zealand*". Attendance: 25.

May: Dr Richard Holdaway (Palaecol Research), "*The Beginning of the End: Dating the Arrival of the Pacific Rat in New Zealand*". This was also listed as a General Meeting. Attendance: 75.

June: Dr Philip Weinstein (Wellington School of Medicine), "*Ecology, Health and Mosquitoes in New Zealand*". Attendance: 30

July: Helmut Lubbers (Ecology Discovery Foundation), "*Ecoglobe: a Concept for Ecological Education and Information*". Attendance: 11.

August: No August meeting.

September: The scheduled meeting has been postponed to October 1st, and will be addressed by Anton van Helden of Te Papa on whale strandings in New Zealand.

October: The scheduled meeting will be addressed by Paul Jansen of the Department of Conservation on kakapo research.

November: Meeting still to be arranged.

CHEMISTRY SECTION

Summary of NZIC events for 1998

In March, Post Grad Students Philip Aitchison and Antony Fake opened the programme. They spoke on their PhD topics - lithium cathodes and marine sponges as a source of pharmacologically beneficial compounds.

Lester Stonyer was next, speaking on 50 years of working with petrol. BRANZ hosted us in May with a dinner following a tour of their site, along the way giving some indications of current Building research topics. Cryptosporidium is "the organism from Hell" - ask Sydney people who are expecting to boil drinking water through the summer if you have forgotten that pools were closed here. In June Ian Couling of OPUS gave a superb summary of this pest, with just enough humour to soften its grim realities.

A month after Ian we were fascinated by Alastair McGibbon from Palmerston North, the National NZIC president, who told tales of butter and other milk products. Who would have guessed that chocolates made for the New Zealand market are often kept out of Australia, since their warmer climate demands higher melting point components.

The branch chairman, *Graham Murray*, presented Chemicals for Fun and Fascination, targeting a younger audience in the way of the Faraday Christmas Lecture tradition in London. There was a message that Science is about establishing certainty through experiment and it would appear that an annual lecture of this sort would be welcome in Wellington. A star of the show was a system for using flames from a 2 metre tube to show sound waves as standing waves, loaned by the Science Technology Roadshow.

Dr David Officer from Massey University presented the Mellor Lecture on 16 September, entitled "*Artificial Photosynthesis: Shedding Light on Porphyrin Arrays*". He linked the fundamental science of porphyrin chemistry with the development of alternative energy sources based on novel and innovative solar cells. By linking the fundamental chemistry and physics of the conversion of photons to electrons he showed that porphyrin, similar to chlorophyll and haemoglobin, could be used to convert sunlight to electricity. This is the chemistry that could replace fossil fuel based power stations with non-greenhouse gas producing power sources.

In early November Dr Paul Anastas from the American EPA will address us.

An absorbing and enjoyable year.

Graham Murray for NZIC

GEOLOGY SECTION

Meetings and Activities 1998.

- 9 October 1997: Beanland - Thornley Prize Night; The 1997 prize of \$100 was awarded to KATE MCHAFFIE (VUW) for her BSc honours work on *"Metamorphism of the Alpine Schist, Southeast Nelson"*. This annual prize is given in honour of Sarah Beanland and Steve Thornley to encourage students to present their thesis work. The other students who presented their work that night included: Vanessa Bowman, *"Facies and vegetation succession of a high palaeolatitude forest in the New Zealand Jurassic"*; Christiane Singer, *"Pollen records for the last deglaciation from the Cobb Valley (NW Nelson) with specific reference to the Younger Dryas event"* (this work will be published in Science); and Peter Webb, *"Late Pleistocene Holocene glacial history of the Scott Coast, western McMurdo Sound"* (work to be published in Geology). Attendance: 53
- 13 November 1997: TRIVIA NIGHT held at the Eastside Bar on the Victoria University campus to raise money for the branch. The P.G Morgan Hammer award for the best talk of the year was awarded to Drs JOHN BEGG and COLIN MAZENGARB (IGNS) for their computer presentation of the Wellington area geologic map. Attendance: 64
- 5 March 1998: Dr Fred Davey (IGNS) and Prof Peter Barrett (VUW), *"Cape Roberts Drilling: Report on leg 1"*. Attendance: 35
- 6-8 March 1998: HECTOR DAY TRIP. The field trip was led by Joan Wiffen and Jo McKee to view the dinosaur bones in Mangahouanga Stream, Hawkes Bay. Joan and Jo also produced a guidebook for this locality which appeared a GSNZ Miscellaneous Publication 96.
Attendance: 14
- 15 April 1998: Prof PETER MOLNAR (MIT, USA) *"The surface rupture of the 1957 Gobi-Altay earthquake: a microcosm of intracontinental tectonics"*.
Attendance: 53

7 May 1998: Dr SHANE CRONIN (Massey University) "What will happen when the volcano erupts? Volcanic hazards research at Ruapehu and in Fiji". Hochstetter Lecture. Attendance: 81

4 June 1998: Dr Tim Naish (IGNS) *"The astronomical calibration of sedimentary cycles: What's it all about? What does Wanganui Basin have to offer?"*. Attendance: 48

30 July: Dr Warren Dickinson (VUW) *"From sand to sandstone with stops along the way"*. Attendance: 58

29 September 1998: Dr Jarg Pettinga (Canterbury University) *"The tectonic landscape of North Canterbury: structural styles in the plate boundary transfer zone"*. GSNZ presidential address.

And finally, Sarah Robson, (Form 1, Raroa Normal Intermediate) won a \$50 prize from the section in the Wellington Science Fair for her project *"Pebble Distribution On Petone Beach"*.

The runner-up prize (jointly from Geol Soc and Geophys Soc) was awarded to Antoinette Jones (Form 1, Viard College) for her project *"How are most hills in Porirua made?"*.

1997-1998 COMMITTEE

President: Warren Dickinson

Secretary: Rhyl Singleton

Treasurer: Beatrice Mare

Committee: Aasha Pancha, Tony Harrison, Scott Nodder

1998-1999 COMMITTEE (elected July 30, 1998)

President: James Crampton

Secretary: Aasha Pancha

Treasurer: Beatrice Mare

Committee: Ursula Cochran (VUW), Warren Dickinson (VUW),
Helen Neil (NIWA), Rupert Sutherland (IGNS)

Thanks to all the speakers, and to all who helped make another successful year for the Wellington Branch.

GEOPHYSICS SECTION

Report of Activities for 1998

Mark Chadwick, Chairman.

Monthly meetings for the Geophysics Section consisted of the following lecture series:

March 19 meeting: Martin Reyners, *"The seismogenic zone of the subduction thrust - insights from the Hikurangi Margin Seismic Experiment"*

April 16 meeting: Martha Savage & Ken Gledhill, *"Seismic anisotropy and mantle deformation in New Zealand"*

May 21 meeting: John Beavan, *"Continental deformation across the central South Island - implications for earthquake recurrence on the Alpine fault"*

June 18 meeting: Jurgen Neuberg, *"Listening to the heartbeat of volcanoes"*

July 16 meeting: Tim Stern & Grant Caldwell, *"Seismic and electrical exploration of the Alpine Fault Zone: Some first results from the SIGHT programme"*

August 20 meeting: John Haines, *"Wavefield modelling of amplification of earthquake ground motions by local site conditions"*

September 17 meeting: John Louie, *"Seismic imaging of faults in southern California"*

October 15 meeting: Don McKnight, *"A century of geomagnetic observing in New Zealand"*

Science Wellington PHYSICS SECTION, NZIP Wellington Branch

The joint committee has organised eight public talks for this year. The talk details are:

April: *"200 Years Of Measurement Of The Newtonian Gravitational Constant"*, Dr. Tim Armstrong, IRL.

May: *"New Zealand Science Beyond 2000: Will We Lose the Plot?"*, Prof. George Petersen ONZM FRSNZ, President, RSNZ, Academy Council. This was a Science Wellington General Meeting.

June: *"Silver Clouds of Platonic Solids?! Welcome to the World of Nanoparticles!"*, Dr. Blair Hall, IRL.

July: *"The Foresight Project"*, Dr. James Buwalda, CEO, MORST. This was a Science Wellington General Meeting.

July: *"Paradox and Praxis in the Quantum World"*, Prof. Crispin Gardiner FRSNZ FNZIP FAPS, VUW.

September: *"The Greenhouse Effect: An Historical Perspective from Mythology to Satellites"*, Dr. Martin Manning, NIWA.

October: *"Centennial: Marie Curie and the discovery of Radium and Polonium"*, Dr. Peter Englert, Dean of Science, VUW.

November: Talk by Richard Templair (IRL, Akld) and Tom Nichole (IRL, Wgtn) AGM. Title to be announced.

The joint committee thanks Components and Instrumentation Limited for their financial assistance.

Dr. G. V. M. Williams, Chairperson, Joint Committee.

WELLINGTON SCIENCE TEACHERS' ASSOCIATION

1997 Report

At last year's AGM we spoke of people working together for special projects rather than have a committee organising each event. The projects undertaken in 1997 were BIOLIVE and two teacher days. Each of these drew people who have not always been actively involved with the WSTA committee but instead were interested in the particular project.

BIOLIVE was a whole year project with the conference happening during the first week of October. One of the most satisfying things about the project was the way everyone became very involved and contributed all sorts of wonderful ideas and lots of time so that when the conference actually happened it ran very smoothly and appeared very professionally organised. Because of the sponsorship we were able to find we have sent a copy of the proceedings to all participants and to most secondary schools in New Zealand. As a committee we were very proud of these proceedings as a summary of the conference. Auckland Science Teachers' Association have taken the challenge of BIOLIVE for 1999.

In term four Brett Clark worked with a group of primary teachers to produce an evening of workshops and Katherine Hicks and I worked with a group of secondary teachers to produce a day of workshops. Both events were enjoyed by those who attended and the overall response was that they would like more of the same. Having events such as these allow teachers to present their ideas to small groups. Teachers need to share and celebrate what we do well and these days allow this to happen in a low key but safe way.

To start the year off Peter Spratt organised a Technology Challenge for us - and we certainly were challenged especially when trying to separate rice from sand. Another good example of how mixtures work. Now we know why the kids have so much fun with these events.

I would like to thank this year's committee. In particular Rosemary Hipkins for her secretarial work - especially the work that went into the promotion and proceedings of BIOLIVE, and Rex Batholemew for his financial wizardry. Rex has quietly and effectively managed the finances for the association for a few years now. With his knowledge of computers and systems he then took on the finances of BIOLIVE and made us feel confident about spending the money.

Carolyn English

Ordinary Members

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Dr W Allan	Mr J Daniels	Dr J Hickman
Mr W M Arnold	Dr D J Darby	Mr J S Holloway
Mr Mike Baird	Dr S J Davenport	Ms L M Horwood
Mr J J Bartlett	Dr J M Davidson	Dr J R Hulston
Mr P L Barton	Dr E W Dawson	Dr D E Hurley
Dr R Basher	Dr J W Dawson	Mr C E Ingham
Dr C M Bassett	Dr J F de Lisle	Dr M Ingham
Mr R J Beavan	Dr R R Dibble	Mr D R Jackett
Cdr G M Beere	Dr W W Dickinson	Mr G L Jones
Mrs M J P Bell	Mr A W Dodson	Dr F M Kell
Dr A G Beu	Prof R G Downey	Dr P R Kettle
Dr H M Bibby	Mr D J Dowrick	Mr I W Keyes
Dr B D Bibby	Prof J F Duncan	Dr J R Keys
Mr M T Birks	Dr J R Duncan	Dr J W Kidson
Ms M Bobbett	Dr B H Easton	Mr P King
Ms C Bobbett	Mr A R Edwards	Mr W M Kissling
Mr B J Bradburn	Mr D C Elliot	Mr F B Knox
Dr E Bradford	Cmdr D P Fairfax	Dr J H Latter
Miss G Brown	Ms K A Fairweather	Mr B J Lett
Mr J W Brodie	Mr B D Field	Mr M H Lehner
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Miss D M Chambers	Mr D J M Gibson	Miss M E Malcolm
Ms P Chester	Dr M E Gordon	Hon C R Marshall
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Mr P Cotton	Dr MA Harper	Mr D C Mildenhall
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