



Newsletter

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The NZ Geochemical Group web page (thanks to Elizabeth McKenzie and the Auckland University) is at:

<http://www2.auckland.ac.nz/glg/nzgg/index.htm>

"I see the Geochemical Group as part of the New Zealand scientific community, that is the scientists of the Universities, Government and private enterprise. The prime purpose of this newsletter is to foster communication between members of this community who have an interest in geochemical work in common.

Success of the Newsletter depends on all members being contributors. Let us hear, therefore, about your research and your views of the development and aims of the group. There should be plenty of material, as studies in applied, compositional, isotope, mineral phase equilibria, organic and solution geochemistry are in progress and New Zealand is an excellent natural laboratory for such investigations."

J. Rogers, first Chairman of the New Zealand Geochemical Group, in his Introduction to the first issue of the Newsletter, November 1965.



N.Z. Geochemical Group Newsletter is issued to members of the Group to keep them in touch with New Zealand geochemistry. Material in the Newsletter should not be referred to in scientific papers without the permission of the author.

‰ Lyon, P.O. Box 31 312, Lower Hutt, New Zealand.

NEW ZEALAND GEOCHEMICAL GROUP 2003 - 2005

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2003 – 2005 S U B S C R I P T I O N S

NOW DUE !!

The Group welcomes anyone with an interest in geochemistry.

Subscriptions for 2003-2005 are NOW DUE as follows

New Zealand members	NZ \$ 8.00 for 2 years
or	NZ \$60.00 life membership
Overseas members	NZ \$12.00 for 2 years
or	NZ \$90.00 life membership
New Zealand libraries	NZ \$10.00 for 2 years
Overseas libraries	NZ \$14.00 for 2 years

[Overseas payments should be in NEW ZEALAND DOLLARS by bank cheque, postal note or international money order.]

Subscriptions should be sent to **Dr R.B. Glover,**

**Hon. Treasurer, N Z Geochemical Group,
33c Brandon Road,
Glen Eden,
Auckland, NEW ZEALAND.**

Editors Comment:

A very successful and enjoyable conference was held in July. By all accounts the after conference field trip was also blessed with good weather and enjoyed by all. The pre-conference field trip unfortunately failed to occur due to bad weather and delays in crossing Cook Strait for a number of participants.

Note: From this issue members on the mailing list for the Mineralogical Society of New Zealand will receive the Newsletter and we invite them to join the Geochemical Group.

Subject to the MSNZ executive's agreement we will become a joint society at some stage (see page 9).

IMPORTANT:

Following the conference, all 2-yearly subscribing members now owe their subscriptions. Most of you should get an individual invoice later if needed.

Early payment would be appreciated. The amount and treasurer's address are listed on page 2.

**THE 18TH NEW ZEALAND GEOCHEMICAL GROUP
CONFERENCE
6TH - 9TH JULY, 2003**

The 18th NZGG conference was held on 6-9 July at the Edward Percival Field Station and Teaching Laboratory at Kaikoura.

From the Handout to attendees:

I warmly welcome you all to the 18th biennial New Zealand Geochemical Group Conference. I am grateful for the contribution of such interesting and diverse papers that, I believe, reflect the importance and strength of our discipline in New Zealand. I especially acknowledge the support and inspiration of teachers at Otago, Waikato and Auckland Universities who have encouraged such a large number of students to attend this year. I hope you all enjoy the conference and field trip and are motivated to continue to participate in the growth of the NZGG in the future.

The conference would not have been possible without the hard work of Chris Hendy, Annie Barker, Catherine Chague-Goff, Diane Tilyard and the sponsorship of Geological and Nuclear Sciences, The University of Waikato and Jack van Berkel, the Field Station Manager, University of Canterbury.

Ed Mroczek (President)



PROGRAMME

Note: Speaker's name is underlined.

Sunday 6 July

5:30pm *Registration and Social*

7:00pm *Dinner*

Monday 7 July

7:30am *Breakfast*

8:50am *Opening Remarks*

Session 1: Antarctic/Marine Geochemistry (Chair - Doug Sheppard)

9:00am A.J.W. (Anton) Barber, A. F.Cooper - *Changing magmatic styles across the margin of East Antarctica, southern Victoria Land, Antarctica*

9:20am Briar Wait, Kevin Brown, Jenny Webster-Brown, Ian Hawes - *The physical & geochemical properties of meltwater ponds near Bratina Island, Antarctica*

9:40am Kenichi Fukuda, Russell D.Frew, R.Ewan Fordyce - *Paleotemperature proxy from Mg/Ca ratios in New Zealand benthic foraminifera*

10:00am *Morning Tea*

Session 2: Environmental Geochemistry (I) (Chair – Kevin Brown)

10:30am Michelle Baker, Candace Martin, Dave Craw, Craig Evans - *Heavy metals and pH in ground and surface water and soils, and their effect on the restoration of the Wangaloa Coal Mine, Southeast Otago, New Zealand.*

10:50am Nigel Newman - *Boron in NZ coals: What we know, and what we need to know*

11:10am Doug Sheppard, James Goff - *Sediment contamination in the Waiwhetu Stream, Lower Hutt: what's there and what are the options?*

11:30am Kathleen Paterson, John Hadfield, Chris Hendy, Nick Kim - *Tracing septic tank effluent plumes*

12:00 noon *Lunch*

Session 3: Environmental Geochemistry (II) (Chair – Nigel Newman)

2:00pm Gabrielle T. Palmer, Alison Burgess, Ross Hector - *Phytoremediation of an ex-timber treatment site: Ecotoxicology and flux of bioavailable contaminants.*

2:20pm Lucy Hewlett, Dave Craw - *Arsenic rich discharge from the Globe-Progress Mine, Reefton, New Zealand*

2:40pm Jenny Webster-Brown, Kevin Brown, Craig Noble - *Natural attenuation of arsenic in selected West Coast streams*

3:00pm Glen Staiger, Reza Sangi, Jonathan Kim, Keith Hunter - *Barium, strontium and calcium in South Island New Zealand rivers.*

3:20pm *Afternoon Tea*

Session 4: Environmental Geochemistry (III) (Chair – Jonathan Kim)

3:50pm Chris Hendy, Adam Berry, Michelle Caird, Rachel Cooke, Jacaob Croall, Katrina Daysh, Sarah Milicich, Janine Sedgwick, Rossana Untara - *Eutrophication and early diagenesis - A geochemical timebomb in New Zealand Lakes*

4:10pm Shaun L.L. Barker, Jonathon P. Kim, Dave Craw, Keith A Hunter - *The geochemistry of an abandoned alluvial gold mine: Blue Lake, Central Otago, New Zealand*

4:30pm Rebecca Bibby, Jenny G. Webster - *Characterisation of urban suspended particulate matter in the Auckland Region*

4.50pm Catherine Chagué-Goff – *Metal speciation in treatment wetlands: urban and rural examples.*

7:00 pm *Dinner*

Tuesday 8 July

7:30am *Breakfast*

Session 5: Geochemical Earth Processes (Chair – Chris Hendy)

8:40am Travis Cross - *Geochemistry of speleothems and pool water in Bulmer Cavern, Northwest Nelson, New Zealand.*

9:00am Kevin Brown - *Geochemistry of the Lihir gold Deposit, PNG*

9:20am Chris Kautz, Candace Martin - *A geochemical and mineralogical study to determine the sources of sediment to the Bounty Submarine Fan*

9:40am Donna Falconer, Dave Craw - *Composition, geochemical signatures and authigenic gold textures from placer gold at Waimumu, Southland.*

10:00am *Morning Tea*

Session 6. Geothermal (Chair – Gabi Palmer)

10:30am Doug Sheppard, E.K. Mroczek - *CO₂ fluxes from geothermal systems: assessing the effects of exploitation*

10:50am Richard B Glover - *Ngawha geochemistry after five years of production*

11:10am Ed Mroczek, B.W. Christenson – *Oxidation rates of elemental Hg⁰ / Hg sampling from geothermal steam lines*

11:30am Kevin Brown, Stuart Simmons - *Precious metal analyses of downhole samples from geothermal systems*

12:00 noon *Lunch*

2:00pm **NZGG BGM**

3:00pm *Afternoon Tea*

Session 7 POSTERS (Chair – Jenny Webster-Brown)

Nicole Addison - *The geochemistry of stable isotopes of metallic elements*

Annie Barker, Chris Hendy – *Teaching of geochemistry at the University of Waikato*

Andrew Cook – *Gold and palladium as indicators of a meteoritic input in New*

Zealand K/T boundary sites

Jacob Croall – *OSL applied to NZ glacial record*

Donna Falconer, Dave Craw, Kevin Faure - *Sediment-hosted sulphide mineralisation from Belle-Brook, Southland.*

Michael Fitzgerald, Roger Briggs - *Hydrothermal mineralogy of the Ohui Prospect, Coromandel*

Amanda McCabe, - *Carbon dioxide and methane, changes in the atmosphere during the last Glacial-Interglacial event.*

Sarah Milicich, Chris Hendy, Peter Kamp – *Helium isotope dating*

Janine Sedgwick, Chris Hendy - *The geochemistry and environmental chemistry of the Waikato River*

Rachael Standish, G. Palmer, N.D. Kim - *Organochlorine contamination of soil around L. Taupo*

Roger Stratford - *How ^{13}C and ^{14}C measurements of the trace atmospheric gases carbon monoxide and methane have assisted in understanding their sources and fluxes.*

Rossana Untaru - *Distribution of arsenic, cadmium and germanium in marine environment*

Brad White - *Iron fertilization of nutrient rich surface waters*

7:00pm **Conference Dinner** (White Morph Restaurant)

Wednesday 9 July

7:30am *Breakfast*

Followed by NZGG Field Trip !

Abstracts will be printed in the following issues of the newsletter.

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**MINUTES OF THE 18TH NEW ZEALAND GEOCHEMICAL GROUP
BIENNIAL GENERAL MEETING**

8 July 2003, Edward Percival Station, Kaikoura

Started at 2:00pm

President: Ed Mroczek

Secretary: Catherine Chagué-Goff

Attendees: Ed Mroczek, Catherine Chagué-Goff, Doug Sheppard, Graeme Lyon, Jonathan Kim, Dick Glover, Nigel Newman, Kevin Brown, Jenny Webster-Brown, Chris Hendy, Donna Falconer, Rebecca Bibby, Andrew Cook, Kenichi Fukuda

Apologies: Kerry Webster

Minutes of the previous meeting were read but it was agreed that they would be accepted only after correction.

(ERRATA as noted in Newsletter #110:) We wish to apologise to Dr R. M. Carr for the error reported in the minutes of the 2001 B G M. The discussion on the Whakatane conference travel expenses should not have mentioned Mel Carr and did not relate in any way to his attendance. Subject to this correction, the minutes were accepted (Doug Sheppard/Graeme Lyon).

It should also be noted that Graeme's name was misspelt (as Graham) in the previous minutes (in the minutes book only), but he didn't make a big fuss about it. However, it should be corrected.

Matters arising from previous minutes:

1. Mineralogical Society: to be discussed under general business
2. No other matters arising

President's report (by Ed Mroczek)

The job of the President is very much a sleeping one till approximately 6 months out from the next conference when the job organising the next biennial conference begins. This job is however made easier by help from colleagues, which spreads the load. However, for the day to day operation of the society I would like to thank Graeme Lyon for regularly producing our newsletter, Richard Glover for diligently looking after the financial aspects and Liz McKenzie (*not Liz Kennedy as Ed reported –Ed*) for maintaining our website.

There is always one issue to consider, the need for all of us to be more proactive and support the Editor in his thankless task of producing the newsletter. Perhaps we could discuss a system for sharing the responsibility across a wider circle for writing the odd article or news on topical geochemical issues relevant to NZ and the wider world as was suggested by Jenny Webster-Brown in her report in 2001.

When reviewing the beginnings of the society it is clear that the reason for our “success” is an interest in each other's work and of course always choosing interesting places to hold our conference. In this time of decreasing interest but increasing suspicion of science we can show the relevance of our discipline to NZ (and increase our funding!). However we have to spread the word and how we do this is up to us. Another issue in this regard is our very small subscription fee. I would like this to be increased so that we can do more for the membership and in turn attract more members, who then see the benefit of being part of the Group.

(Comment from the floor to the effect that people choose to go to more prestigious conferences. Hint for the next conference: to have it at the Millbrook Resort, Queenstown, then we'll definitely have to increase the conference fees).

There was some suggestion about changing the time to October-November, as July is not a good time. Uproar from the floor, as this would mean no students would be able to attend. July is perfect for a field trip, since there is no teaching. After all that, it was decided that we couldn't decide on the date now and that it was left to the next president to sort that out.

President's report accepted (Graeme Lyon/Chris Hendy).

Treasurer's report

Dick Glover presented the accounts (see attached). There was a loss at the last conference in Leigh. The past president indicated that she would have liked the get

the balance a bit sooner (instead of finding out at this conference). Dick Glover noted that the financial statement is dated to the 28 February – this keeps this year's conference out of the balance sheet. Four newsletters were sent and it costs less because a number of them are now sent by email. Dick was thanked for his hard work. The adoption of the financial statement was moved by Doug Sheppard, and agreed to. Dick will organise a monthly automatic transfer to the Serious Saver account, as we can obtain higher interest rates.

There were some discussions about conference subscriptions, but it will be reported later under general business, so as not to disrupt the order of the reporting and confuse the secretary.

Elections

President:	Chris Hendy (nominated by Ed Mroczek, since Chris had suggested that he would organise the next conference) carried with tumultuous applause and relief from the audience
Secretary	Catherine Chagué-Goff (nominated by Ed Mroczek, seconded by Doug Sheppard)
Treasurer	Richard Glover (nominated by Ed Mroczek, seconded by Catherine Chagué-Goff)
Editor in chief	Graeme Lyon (nominated by Jenny Webster-Brown, seconded by Kevin Brown)
Assistant Chief editor	Doug Sheppard (volunteer) seconded by Graeme Lyon. Nigel Newman suggested there should be corresponding members to contribute to the newsletter.
Auditor	Mike Stewart (nominated by Dick Glover, seconded by all)
Committee members:	Nigel Newman (Christchurch) Jonathan Kim (Dunedin) Doug Sheppard and Graeme Lyon (Wellington) Ed Mroczek (Wairakei) Kevin Brown (Auckland South) Kerry Webster (Auckland North)
Signatories for the NZGG accounts:	Dick Glover, Ed Mroczek, Kerry Webster, Mike Crump

General business

Subscription rates

There was quite a long and heated discussion about whether to increase the rates or leave them as they are (I think I heard that story before), so I will spare you the details of the debate. The motion that the incoming committee could consider revising the subscription rates was passed despite considerable uproar from the floor (well, only three members, but they made as much noise as the rest).

Royal Society

There has been no response from the notice put in the Royal Society of New Zealand email about the conference. It was also advertised in the Globe (published by GNS). Chris Hendy will write a report about the conference and send it to the Royal Society. Catherine Chagué-Goff proposed to write a short report for Water & Atmosphere

(published by NIWA).

Amalgamation with the Mineralogical Society

Graeme Lyon read the letter from Warren Dickinson (on behalf of the Mineralogical Society), as Rodney Grapes left New Zealand some time ago. The Mineralogical Society has a very small membership (47) and very little money.

Moved: That Graeme Lyon should send an email to Warren Dickinson and suggest that the New Zealand Geochemical Group incorporates the members of the Mineralogical Society (instead of having both societies merging).

Moved by Kevin Brown, seconded by Doug Sheppard.

It was considered that a name change could be made in the future., but in the meantime the newsletter would have a subtitle referring to any inclusion of the Mineralogical society.

The members of the Mineralogical Society could join the NZGG (and of course pay subscriptions – Dick Glover who had remained quiet for a while suddenly showed great interest and got his calculator out).

The motion was agreed to by the meeting.

Graeme will send a copy of the next 2 newsletters to all members of the Mineralogical Society.

Next conference

To be held in about two years time, probably in Orakei Korako, to be organised by Chris Hendy (who will determine the exact details of the conference).

Meeting closed at 3:05 pm

Post meeting notes

Presentations made at the Conference Dinner (White Morph Restaurant) later that day

Student prizes: Shaun Barker (Otago University) received the best student talk prize for : “The Geochemistry of an abandoned alluvial gold mine: Blue Lake, Central Otago, New Zealand” and Donna Falconer (Otago University) received the best student poster (research) prize for : “Sediment-hosted sulphide mineralisation from Belle-Brook, Southland”. The best student poster (literature review) was won by Brad White for : “Iron fertilization of nutrient rich surface waters”.

Chocolate fish awards: *there were quite a few this time, and even an extra one, as Doug got confused.* The chocolate fish award for worst abstract was awarded to Nigel Newman for his abstract “Boron in NZ coals: what we know, and what we need to know”. His excuse was that he wrote it at 2:00am one day. Not a good enough excuse, apparently. Another chocolate fish award for worst abstract by a student was awarded to Donna Falconer; the third chocolate fish award was given to Rebecca Bibby. However, it was a mistake, as the third chocolate fish was to be given to Chris Hendy, but Doug couldn’t remember why he had a third chocolate fish. This was duly corrected on our return to the Percival Station. Nigel’s chocolate fish was recycled and awarded to Chris Hendy for the worst spelling in his presentation (no wonder students can’t spell, when they have teachers who can’t spell). Chris accepted the chocolate fish award with great pleasure and made sure it was not recycled (by anyone else).

[Editor’s note – please let the editor know if some of these prizes are listed incorrectly as our memories may have been confused.]

NEW ZEALAND GEOCHEMICAL GROUP CONFERENCE - LEIGH 2001**BALANCE SHEET**

<u>INCOME</u>		<u>EXPENDITURE</u>	
	\$		\$
Registration Fees	5,585.00	BBQ Drinks	144.42
		Dinner	840.00
		Vehicle Hire / Petrol / Taxi	666.04
		Accommodation / venue	3,645.00
		Refunds	400.00
		Field Trip Accommodation	516.00
Conference deficit	693.25	Name Tags	8.79
		Poster Prize	40.00
	<u>6,258.25</u>		<u>6,258.25</u>

R. B. Glover
R. B. Glover
 Hon. Treasurer

I have examined the accounts of the New Zealand Geochemical Group and consider that the above balance sheet shows correctly the income and expenditure for the Leigh Conference 2001.

M. K. Stewart
 20.6.03
M. K. Stewart
 Hon. Auditor

NEW ZEALAND GEOCHEMICAL GROUP

Financial Statement as at 28 February 2003

<u>INCOME</u>		<u>EXPENDITURE</u>	
	\$		\$
ANZ Cheque a/c 28/2/2001	2,903.64	ANZ Cheque a/c 28/2/2003	2,007.47
ANZ Serious Saver 3/11/2000	8,489.42	ANZ Serious Saver 4/11/2002	8,995.57
Interest Cheque a/c	54.28	Newsletters #109 to #112	807.70
Interest Serious Saver	506.15	Conference Deficit	693.25
Subscriptions	552.00	Cheque Book Duty	1.50
	<u>12,505.49</u>		<u>12,505.49</u>
Accumulated Funds at 28/2/2001	11,393.06		
Total Income 2001-2003	1,112.43		
Total Expenditure 2001-2003	1,502.45		
Accumulated Funds at 28/2/2003	<u>11,003.04</u>		
Decrease since Feb 2001	390.02		

R. B. Glover
R. B. Glover
 Hon. Treasurer

I have examined the accounts of the New Zealand Geochemical Group and consider that the above financial statement shows correctly the group's income and expenditure from 28th Feb 2001 to 28th Feb 2003.

M. K. Stewart
 20.6.03
M. K. Stewart
 Hon. Auditor

Award to Ross Taylor

Stewart Ross Taylor was awarded the 2002 Walter H. Bucher medal at the AGU Fall Meeting Honors Ceremony, which was held on 8 December 2002, in San Francisco, California. The medal is given for original contributions to the basic knowledge of the Earth's crust and lithosphere.

The following is extracted from the Citation by Albrecht W. Hofmann and Taylor's response published in EOS 84(7), 18 February 2003.

Citation: "I don't remember when I first met Ross Taylor, but I am almost certain it was in a noisy pub. I was young and eager and Ross was the elder statesman. Ross always mumbled a little, and I did not understand most of the things he said.

Ross was born and raised in New Zealand, and he received his bachelor's and master's degrees at the University of New Zealand. After that, he became a world traveler, spending virtually his entire adult life abroad. His travels took him to the United States, where he received his Ph.D. degree under the supervision of Brian Mason (another New Zealander-Ed). That was not enough; he went on to earn a Master of Arts, while working as a 'demonstrator' at Oxford. From there, he went on to become Senior Lecturer in Geochemistry at the University of Capetown, and he finally settled down, more or less, at the Australian National University as Professorial Fellow until he retired to become Emeritus Professor. He has published about 230 papers on the subjects of lunar geochemistry, meteorites, cosmochemistry, trace elements in volcanic and sedimentary rocks and minerals, analytical methods, and about continental composition and evolution. On the side, he has written nine books on subjects like solar system evolution, the Moon, and most important today, *The Continental Crust: Its Composition and Evolution.*"

Response: "Thank you Al. When I grew up in New Zealand, on a farm, there were so few people around that I never had to raise my voice except to call my sheepdog, so it became a habit.

As a graduate student in Indiana, where Brian Mason then was, I proofread the first edition of Brian's famous book, Principles of Geochemistry. There, I learned that Goldschmidt had worked out a crustal composition by analysing sediments from glacial lakes. So I realised that the solution to finding the composition of the crust was to let nature grind up the rocks for you, rather than trying to collect tens of thousands of samples. The crustal history is all there in the sedimentary rocks if only you can read it.

"It was Harold Urey who got me interested in the Moon, the other planets, and the great debate over whether tektites came from the Earth or the Moon. He gave me the useful advice to work always on important problems and not to admit that you are wrong too soon.

"So all this gave me a broader perspective. There doesn't seem to be anything like our useful continental crust, which is the product of plate tectonics, elsewhere in the solar system. Given the many chance events that have resulted in forming the crust on this planet, I wonder just how unique our crust is in the universe. This has particular significance, as such crusts are probably a necessary feature for any planet that intelligent creatures or little green men could live on.

Note – please send the editor your email address to receive this newsletter quickly and more efficiently.

Obituary:

Allan John Read

Sadly Allan John Read, a past member of the New Zealand Geochemical Group died of a heart attack on Friday 6 June 2003. He was aged 65.

Allan was born on 11 May 1938, in Wellington. He lived in Point Howard and Upper Hutt before moving to Nelson in 1946. He attended Nelson Boys College prior to moving to Christchurch to attend Canterbury University for his BSc which he completed in 1959. He also took up Hockey and went at it with the usual enthusiasm, making NZ University teams, and hammering for selection as a New Zealand rep. He must have still kept his nose to the grindstone because he took a MSc 1st class in 1960, and completed his PhD in 1963. He took the 1851 Exhibition Scholar bursary that year which helped fund his two year post doc at Reading with JE Prue at the Department of Prof EA Guggenheim. He was appointed to DSIR from Reading, following (in the vernacular of the times) "contact with a public servant". His first day at work was 12/4/66. Much of his early work was with Ian Walker on self combustion in wool, until in about 1970 when he joined the Geochemistry section.

This group was a very well respected group set up by Jim Ellis to look at the properties of water under conditions up to the critical point, and had thrusts towards rock water interactions, ore deposition, and electrolyte behaviour. Allan did quite a lot of work looking at ionization constants for weak electrolytes by a conductivity method, in some competition with Mesmer's group at Oak Ridge. He successfully completed carbonic acid, ammonia, and benzoic acid, before taking up work on ore formation studies. Calculation of equilibria in deep sea manganese nodules, and short excursions into solubility studies in silver, and some thallium compounds, as well as providing help for the multitudes of PhD candidates passing through the doors at that time led him into an interest in the (admittedly scarce) New Zealand mineral deposits. With his usual enthusiasm he collected minerals very seriously, collecting maybe 500kg of specimens ranging from nickel substituted chalcophyllite to modified phosphate from Browns Island. He traded these for other minerals until he had a very respectable collection of micromounts, but turned in this hobby when he decided that he could not match the enormous collection that his colleague Terry Seward had amassed over the last forty years. At this point, his research took a very dramatic change as he moved into looking at sub and supercritical oxidation, both as a cleanup technique and a commercial preparative technique. In June of 1992 he took a two year sabbatical at ETH in Switzerland, where he developed a very nice high temperature spectrophotometric cell for following reactions at temperatures around the critical point of water. We have Mark II here, but at the ETH, the original model is still in use churning out data. This work was pretty much his last fling, he left the newly formed Industrial Research Limited in late 1994, and we are the poorer for it.

Over his entire career, Allan was keen on development of new equipment, and on rigour in both measurement and data treatment. He was a man with a very keen sense of "right", in the old testament sense, and often bit off troubles that were too large for him. This characteristic of fighting for ones beliefs, although often not endearing is one that marks out men of character from the rest of the herd. For this loss too, we are the poorer.

David Grant-Taylor, June 2003