

# NEWSLETTER

GEOLOGICAL SOCIETY  
OF  
NEW ZEALAND



No. 20

APRIL 1966

NEWSLETTER

GEOLOGICAL SOCIETY OF NEW ZEALAND

Member Body of the Royal Society of New Zealand

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No. 20

April 1966

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GEOLOGICAL SOCIETY OF NEW ZEALAND

A NEW LOOK FOR THE ROYAL SOCIETY

by B.W. Collins

(G.S.N.Z. Representative on the Council of the R.S.N.Z)

The Royal Society of New Zealand Act 1965 came into force on 1 January this year. The passing of this act and the gazetting in December last of revised rules bring to fruition a quiet revolution that has been taking place (not without much argument and soul-searching) in non-governmental scientific circles in the last few years. It may well be that the reorganisation of the Royal Society will be as important for science in the future of New Zealand as the setting up of the new National Research Advisory Council which preceded it by only a couple of years.

The Royal Society was founded (as the New Zealand Institute) in 1867, with a geologist at its head (Hector). It was reconstituted under a new act in 1903, and immediately elected another geologist (Hutton) its first President. Now, under still another geologist (Charles Fleming, as President for the last four years with only a short break), it has succeeded in modernising itself to cope more effectively with its premier role in national and international scientific affairs.

The Society will still retain its federal structure in some ways. Our Geological Society will have a representative on a body to be known as the Member Bodies Committee; all members of affiliated societies (member bodies) will continue to be members of the Royal Society. The member bodies retain the right to nominate for the Fellowship and to nominate Fellows and Councillors. But the main control of Society affairs will now rest in a Council consisting largely of Fellows elected by the Fellows themselves (of whom there are about 100 - the most distinguished scientists in New Zealand). The Fellows' Councillors represent no organisations, are responsible only to the Annual Meeting of Fellows and are to be elected solely for their personal worth. Government, formerly represented by the Minister in charge of the Department of Scientific and Industrial Research and by four Government nominees, is no longer represented, so that the new Council is independent of the State. On the Fellows' Council, however, are to be also two representatives of the Member Bodies Committee - and these according to the Act, need not necessarily be Fellows: they may be Members or Fellows. Thus an element of democracy and federalism is preserved. Such a constitution must be unique in the world for what is, in effect, a National Academy of Science. There are, in New Zealand, strong historical and social reasons for maintaining this link with the past.

The old Council (officers, representatives of member bodies, and government representatives) met for the last time last November (and I would here like to thank Mr N. de B. Hornibrook for acting as my substitute at this meeting while I attended the Volcanology Symposium). The new Council cannot meet until it has been elected by the Annual Meeting of Fellows to be held on 18 May. The first meeting of the new Council will convene the Member Bodies Committee, which it is expected will meet some time in June. Member Bodies have already been asked to nominate their representatives, and the Committee of the GSNZ has named me in the meantime to preserve continuity.



Besides the constitutional changes, the Royal Society has continued its other activities, one of the most interesting being a project to obtain for itself (and for other national scientific societies) a headquarters building of its own. Money to purchase a site has been made available by the Kiwi Lottery Committee, but it has been an uphill struggle to find a suitable one, and there has been a series of frustrating set-backs. Now, however, there are signs of some success. Soon an appeal for funds for the building will be launched as a centenary project.

The Royal Society continues to grow. A defunct regional branch (Manawatu) has been revived, and several other national disciplinary societies have followed the lead of the Geological Society and become affiliated. The list of these is now as follows:-

Affiliated

Geological Society of N.Z.	1961
N.Z. Institute of Chemistry	1964
N.Z. Ecological Society	1964
N.Z. Society of Soil Science	1965
N.Z. Institute of Agricultural Science	1965

Increasing international as well as national responsibilities and activities have increased the work of officers and staff. In particular the President, Dr Fleming, has borne a heavy burden during the last few years. Recently Mr G.W. Markham (formerly Superintendent, Antarctic Division, D.S.I.R.) was appointed Executive Officer, and an office assistant has been appointed to help the General Secretary, Mrs M.E. Marsh. Great and steady progress has been made in catching up with arrears of binding in the Royal Society Library - again with assistance from the Kiwi Lottery funds.

As your representative I have felt privileged to be associated with the Royal Society during the last few years of increasing activity and reorganisation - the first major change since 1903, as the change in name in 1933 (from N.Z. Institute) was accomplished with little or no change in constitution. It is not without some regret that many, especially the representatives of smaller branches, see the change in character of the Society's Council. However, it is confidently expected that with ultimate control in the hands of its Fellows the Society will be able to act more effectively as a national academy of science, will carry more weight with the government, and is assured of a brighter future.

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From a recent Stage I paper:

"The dentition of one (brachiopod) species got so involved that it interfered with the animal's intestines."

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REMINISCENCES OF THE PAST

In "Long and Happy: An Autobiography" published late in 1965, Arnold Wall, Professor Emeritus of English of the University of Canterbury, who died at the age of 96 recently (March 1966), provides some interesting sidelights on early figures in New Zealand geology. Born in England in 1869 Professor Wall held the chair of English at Canterbury College from 1898 to 1931.

Sir James Hector

"As a member of the University of New Zealand Senate I saw a good deal of Hector and had many interesting talks with him on natural history topics ... When we talked of the notornis, which was then supposed to be extinct, he told me that he knew where there were plenty but would not say where: he meant to keep that a secret.

"He must have had a strong stomach for he mentioned once how they had cooked wekas .... I had found them quite palatable if you could get rid of the rich strong grease. He said they put a hot stone inside the body which caused the melted grease to accumulate there. 'Then', I said, 'you could throw it away'. 'Oh, no; oh, no', and cupping his hands to his mouth he showed how you could hold the bird's body upside down and then: shloop!

"He amused me very much by his outburst when, in the senate, we were discussing some proposal for a reform in the university. He was strongly opposed to any change which would require Parliamentary sanction, for if the charter of the university were ever submitted to the attentions of Parliament, nobody knew what might happen. 'If the members of Parliament get hold of it they will mangle it; monkeys do it, monkeys do it, anything they can't understand they pull to pieces!' "

Captain F.W. Hutton

"Hutton was the Curator of the Canterbury Museum and lecturer in geology at Canterbury College when I arrived there ... I had a great affection for Hutton; he was a gentle, courteous, and amiable character and I was attracted to him by my interest in natural history. [At the] Australasian Association for the Advancement of Science ... session at Hobart in 1902 or 1903 ... he gave what I thought was a very impressive presidential address on design in nature ...

"I was glad to be of small service to Hutton when I visited Milford Sound and caught and brought back to him an odd-looking fly which he found to be a new species and described as, I think, Exsul singularis."

Heinrich von Haast

"I saw a lot of von Haast on the University of New Zealand Senate and elsewhere ... He was a merry, light-hearted fellow in his youth and very fond of practical joking. He was on a visit to Mount Cook at the same time as the famous but rather eccentric botanist the Baron von Mueller, from Austria. The baron habitually wore a large scarf or muffler (as all Germans do in the mountains...). Von Haast chalked up on a cliff at the edge of the Mueller Glacier 'The Baron von Muffler, his glacier' ."

"Old Sir Julius von Haast was gone before my time so I never knew him. I was rather surprised, when visiting the Protestant cemetery in Rome in 1938, to come upon the grave of his widow, Lady von Haast, who had ended her days in Rome."

- B.V.C.

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INTERNATIONAL SYMPOSIUM ON VOLCANOLOGY

NEW ZEALAND 1965

The Symposium is over, and the many New Zealand Earth scientists concerned in the organization of the first truly international geological meeting to be held in this country, will be sharing with me a feeling of relief. The Symposium, held between 21 November and 3 December, was attended by 190 people including 130 from 22 overseas countries. It was a peripatetic conference moving by bus from Auckland to Rotorua, to Taupo, and concluding at Wellington. This southwards migration set problems for the organizing committee but these were satisfactorily solved. The smooth-running of the Symposium was achieved with no obtrusive organizing of the participants. The general pattern of the sessions was papers in the morning and an excursion in the afternoon; this worked well and the short excursions, which were excellently planned, gave a welcome relief from the formal sessions. The excellent organization of the Symposium was in the main due to the dedicated hard work of Mr. James Healy and Mrs. Elizabeth Rockell of the N.Z. Geological Survey, Rotorua.

The Symposium was sponsored by the International Association of Volcanology, a constituent association of the International Union of Geodesy and Geophysics. It was organized by the N.Z. Geological Survey, D.S.I.R., and the Sub-Committee for Volcanology of the National Committee for Geodesy and Geophysics of the Royal Society of New Zealand. The Organizing Committee received a grant from D.S.I.R. made through the Royal Society.

Exhibits of photographs, models and equipment were prepared by Geophysics Division and N.Z. Geological Survey, D.S.I.R., and by the Geology Department, Victoria University of Wellington. These displays were excellently designed and constructed and accompanied the Symposium on its travels from Auckland to Wellington.

Plenary sessions of the I.A.V. were held at Auckland and Wellington, and these were run in a curiously unparliamentary manner. The chairman, Professor Hisashi Kuno of the University of Tokyo and President of I.A.V., was handicapped by the fact that formal decisions can be made only at the General Assemblies of the I.U.G.G. The General Secretary of I.A.V., Dr F. Penta, died in October 1965, and he was replaced by Professor P.L. Evrard of Belgium, with Professor G. Marinelli of Pisa as Assistant Secretary. Professor Marinelli and Dr Francesca Cugusi of Rome have been appointed editors of the Bulletin Volcanologique. There were obvious undercurrents of resentment about lack of United States representation in I.A.V. affairs.

As is usual with such large general conferences, the great benefit was from meeting people and in the informal discussions. This was particularly the case in Rotorua where almost all the participants were staying at Brents Hotel. In



the other towns the participants were more widely scattered.

Highlights of the Symposium that will stick in my memory for a long time were: the dry humour of the Welsh-Californian Howel Williams; Mr Green of North American Aviation who hopes that if ignimbrite occurs on the moon, and if it contains water, astronauts will be able to squeeze out enough to drink; the mayoral reception at the Hob Nob Bar, Rotorua, which was so generously alcoholic; John Elder, a former New Zealander, now at University of California, relating penetrative convection in volcanism to Maori legend; the Mokoia Island barbecue at Rotorua where the more venturesome participants sampled Hinemoa's pool, and Dr H. Tazieff of Paris sent up sky-rockets; Francesca Cugusi of Rome, who with Mrs Krieger of Menlo Park and Dr Challis of New Zealand, introduced some femininity among the volcanologists; Frank Schairer of the Geophysical Laboratory, Washington, who collected orchids on field trips, and expounded the works of the Good Lord by means of tetrahedral diagrams.

Post-session tours took participants back through the North Island or on to the South Island. I was guide for part of the South Island tour and it seemed to me a highly successful one. I look back on the 6 days of Tour D as some of the most enjoyable I have experienced. Highlights of the tour were: the idyllic day on Quail Island in Lyttelton Harbour; the magnificent Canterbury nor-wester which nearly blew us off the Harper Hills; the Scotch mist which enveloped us on the Mount Cargill ridge; the strawberries and cream at Temuka; the pillow had been waiting 4 years to see; the incredible basalt dykes at Washington, stuffed with schist xenoliths; the enthusiasm of the petrologists, particularly those from the United Kingdom, as they charged from the bus with Moeraki hammers swinging; Dr C.A. Anderson of the U.S.G.S., Menlo Park, identifying birds for the benefit of the New Zealand guides; Professor Ken Yagi of Hokkaido University with his splendid gift for producing almost instant landscape sketches; and the pleasant farewell dinner at Glenfalloch overlooking Otago Harbour.

Detailed guide books were prepared for the tours, and a volume of abstracts was issued. The tour guides comprise numbers 49, 50, and 51 of the D.S.I.R. Information Series and were compiled by Messrs B.N. Thompson, L.O. Kermode, and Dr A. Ewart, of the New Zealand Geological Survey. These publications contain an abundance of information and will be useful for years to come.

- D.R.G.

From a recent Stage I paper:

"The Reptilia. In the following discussion generalisations only will be used, as it is rather meaningless to quote actual examples in a treatise such as this."

NOTES FROM THE INTERNATIONAL SUBCOMMISSION ON STRATIGRAPHIC TERMINOLOGY

The following three items from Circular 7, Commission on Stratigraphy, June 1965, prepared by the Secretary General, G. Henningsmoen, and the President, L. Størmer, are reproduced for the information of members of the Society.

a) It is proposed to establish four new sub-commissions, namely on Cambrian, Silurian, Devonian and Jurassic stratigraphy. Dr C.T. Stubblefield (Great Britain) has agreed to act as Chairman of the Subcommission on Cambrian Stratigraphy, and the following have been proposed as members: J.W. Cowie (G.B.), M.F. Glaessner (Australia), G. Henningsmoen (Norway), P. Hupé (France), T. Kobayashi (Japan), A.R. Palmer (U.S.A.), and N.V. Pokrowskaya (U.S.S.R.). Dr P.L. Maubeuge has consented to be President of the Subcommission on Jurassic Stratigraphy, and the following have been proposed as members: D.T. Donovan (G.B.), Dr H.W. Frebold (Canada), Prof. H. Hölder (Germany), Prof. G.Y. Krimholz (U.S.S.R.), Dr E.D. McKee (U.S.A.), Prof. Th. Sorgenfrei (Denmark), and Prof. T. Saito (Japan).

b) The Committee on Upper Cretaceous Stratigraphy recommends that:

- (1) Maastrichtian (not Maestrichtian) be accepted as the orthography of the Maastrichtian stage-name.
- (2) The section as indicated by a metal plate below the Lichtenberg farm in the E.N.C.I. quarry at St Pietersberg near Maastricht will be designated as type section of the Maastrichtian.

c) The Committee on Mediterranean Neogene Stratigraphy (Comité du Néogène Méditerranéen) made the following resolutions (translations from German by Dr C.A. Fleming).

- (1) The reports proposed on the occasion of the convention at Bern have led to a micropaleontological zonation which permits the relative positions of the stratotypes to be fixed tentatively as set out in the attached table (Table 1 - not reproduced here; available on request).
- (2) Despite these results, the committee recommends that the stage succession of the Neogene proposed in Vienna in 1959 be retained unaltered, i.e. :

Pliocene		Plaisancian
	{	Messinian
		Tortonian
Miocene		Helvetian
		Purdigalian
		Aquitainian
Oligocene		Chattian

Circular 1 (Sept., 1965) of the International Union of Geological Sciences, Commission on Stratigraphy, announced that the Commission on Stratigraphy (CS) has been accepted as a commission of the IUGS. It is now possible that the CS may get financial support for its activities (Subcommissions and Committees). The Union Commission on Stratigraphy is now reduced to 11 members: The Presi-



dent, Vice-Presidents, Presidents of the Subcommissions, and the Secretary-General.

- I.G. Speden  
GSNZ Representative on the  
Internat. Subcom. on Stratigraphic Terminology.

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#### PRESERVATION OF GEOLOGICAL FEATURES

The Department of Lands and Survey in conjunction with the New Zealand Forest Service is at present conducting a joint survey of scenic and historic reserves, and reserves for the preservation of flora and fauna. The prime object of this survey is to ensure that the areas are in fact reserved for the most appropriate purpose and the opportunity will be taken to change the purpose of reserves where this appears desirable. In making any changes, due regard will be given to the provision of scientific and nature reserves, and in these areas public entry will, where advisable, be strictly controlled.

The Director-General of Lands and Survey has invited the cooperation of the Society and stated that he would be pleased to receive and consider any proposals we may have for the reservation of sites of geological interest.

If members know of geological features sufficiently important to warrant preservation, would they send details to me? A good argument should be put forward for preservation, and details of the locality, including the area involved, land status, and ownership, should be submitted.

This appeal was included with Newsletter 16. No replies have been received. I hope members will consider this request seriously, as it is a good opportunity to have geological reserves established.

- D.R. Gregg,  
Honorary Secretary,  
C/- Canterbury Museum,  
Rolleston Avenue,  
CHRISTCHURCH 1.
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GEOLOGICAL SOCIETY OF NEW ZEALAND

Annual Report for the Year ended 31st March 1966, to be presented at the Eleventh Annual General Meeting at Oamaru on 17th May 1966.

Committee: The Officers and committee elected at the Tenth Annual General Meeting held in the Dominion Museum, Wellington, on 4th August 1965 were:

President:	Professor R.N. Brothers (Auckland)
Vice-President:	Mr N. de B. Hornibrook (Lower Hutt)
Secretary:	Mr D.E. Gregg (Canterbury Museum, Rolleston Avenue, Christchurch 1)
Treasurer:	Mr Guyon Warren (N.Z. Geological Survey, Box 2110, Chch)
Committee:	Professor J. Bradley (Wellington) Mr J.D. Campbell (Dunedin) Dr T. Hatherton (Wellington) Dr I.G. Speden (Lower Hutt) Dr G.R. Stevens (Lower Hutt)
Auditor:	Mr D.J. Daly

Additional Committee members were:

Past President:	Mr J. Healy (Rotorua)
Representative on RENZ Council:	Mr B.W. Collins (Wellington)
Editor:	Dr W.A. Watters (Lower Hutt)

The Committee met 4 times.

Membership: The number of members at 31st March 1966 was 297, a net loss of 1 during the year. In accordance with Rule 3(c) it has subsequently been necessary to remove 12 names from the list of members.

Finances: Compared with the previous year, a drop of £10 in subscription income (due chiefly to higher bad debts) was more than offset by the reduction in the amount the Society now pays to the reconstituted Royal Society of New Zealand. Overall, income exceeded expenditure by £140.8.

Newsletter: The Society is indebted to the Editor, Dr W.A. Watters, for Newsletter No. 17, distributed in June 1965, and Nos. 18 and 19, distributed in July 1965. No. 18 was a special issue devoted to the report of the Stratigraphic Code Subcommittee.

Sections: The Auckland Section (Chairman, Mr B.C. Waterhouse; Secretary, Mr M.R. Gregory) held 6 meetings:

"An Outline of the Geologic Structure of the Appalachian Mountains" by Professor Spencer, Lexington, Virginia.  
"Aspects of the Te Kuiti Group West of Pio Pio" by J.C. Hopkins  
"Speculations on the Geological History of Northland" by A.M. uennell  
"The Tangihua Volcanics" by J.S. Hughes  
"Geology of the Waipu area" by R.K. Tarvydas  
"Volcanic Features of Oregon" by Dr E. Lund, Oregon.

In addition, members attended an address by Professor P.N. Turner entitled "Training of a Geologist", delivered on the occasion of his receiving an honorary D.Sc. from the University of Auckland.

The Christchurch Section (Secretary, Mr H.S. Gair succeeded by Dr R.P. Suggate) held 4 meetings:

- "The Holocene Stratigraphy of Pyramid Valley" by D.R. Gregg
- "Recent Variations of Glaciers and Closed Lake Basins" by Dr D.B. Lawrence
- "Meteorites" by Dr M.J. Frost
- "The Dead Sea Strike-slip Fault" by Dr R. Freund

In Wellington, meetings of geologists are organised by the Geology Section of the Wellington Branch of the RSNZ.

Stratigraphic Code Subcommittee: The report of the Subcommittee was considered by the 1965 Annual Meeting and it was decided that consideration of a stratigraphic code be placed on the agenda for the 1966 Annual Meeting.

International Subcommittee on Stratigraphic Terminology: Dr I.G. Speden is acting as the Society's representative on this Subcommittee, and will keep members informed of its activities through the Newsletter.

Revision of Royal Society of New Zealand Act: The passing of the RSNZ Act 1965 has altered the Geological Society's commitments to the RSNZ, and consequent changes to the Society's Rules will be submitted to the 1966 Annual Meeting. The Society will no longer have a representative on the RSNZ Council, although we will have a representative on its Member Bodies' Committee. We will retain the right to make nominations for Fellowships of the RSNZ, and we have the new right to make nominations for the positions of Fellows' Councillors on the RSNZ Council.

Preservation of Geological Features: The Department of Lands and Survey is reviewing scenic, historic, and other reserves throughout New Zealand. The Society has been asked to make recommendations for the reservation of sites of geological interest. Members were asked for suggestions in a circular included with Newsletter No. 18, but the response has been disappointing. Submissions have been made to the Department concerning the faulted terraces of the Branch and Waiohine Rivers, and concerning Hutchinson's Quarry and Target Gully shell pit at Oamaru.

Stratigraphic Lexicon Addenda: With the approval of the Director, N.Z. Geological Survey, Drs G.R. Stevens and I.G. Speden and Mr I.W. Keyes are undertaking the compilation of addenda to the Lexicon.

McKay Hammer Award: The McKay Hammer for 1965 has been awarded to Dr A. Ewart for his paper "Mineralogy and Petrogenesis of the Whakamaru Ignimbrite in the Maraetai Area of the Taupo Volcanic Zone, New Zealand" (N.Z. J. Geol. Geophys. 8 (4): 611-77)

Thanks: The Society is grateful to the Director, N.Z. Geological Survey, for his invitation to members to attend the 1965 Centenary Staff Conference at Wellington.

R.N. Brothers, President  
D.R. Gregg, Secretary



# G E O L O G I C A L      S O C I E T Y

## RECEIPTS and PAYMENTS

RECEIPTS		1965
Balance 1/4/65 - Cash at Bank	182. 8.5	160
Subscriptions	138.13.1	150
Receipts for "Transactions"	37.19.6	14
Interest	5. 7.7	6

364. 8.7

## INCOME and EXPENDITURE

EXPENDITURE		
Royal Society - Annual Contribution	10. 0.0	25
- Travelling Quota	9.18.2	10
Audit Fee	2. 2.0	2
Stationery and Postages	23. 5.3	19
Printing	88.15.1	92
Cost of "Transactions"	2.18.4	1
Sundry Expenses	5. 2.6	8
	<u>1.10.8</u>	-3
<u>Excess of Income over Expenditure</u>	<u>143.12.0</u>	

## BALANCE S

LIABILITIES		
Subscriptions and "Trans." payments in advance	49.17.8	53
Provision for Newsletter 20	28. 0.0	27
"Transactions" payment due	2.15.0	-
<u>Accumulated Fund</u>		
Balance at 1/4/65	128.19.0	132
Add Excess of Income over Expenditure	<u>1.10.8</u>	-3
	<u>130. 9.8</u>	129
	<u>211. 2.4</u>	

## CERTIFICATE

I have audited the accounts and vouchers of the Geological Society of New Zealand (Inc.) for the year ended 31st March, 1966, and in my opinion the accounts and Balance Sheet show correctly the affairs of the Society as at that date.

Nelson, N.Z.  
15th April, 1966.

(Signed) D.J. Daly, A.R.A.N.Z.  
Auditor

NEW ZEALAND (INC.)

For Year ended 31/3/66

PAYMENTS		1965
Royal Society - Annual Contribution	10. 0.0	25
- Travelling Quota	9.18.2	10
- "Transactions"	<u>22.10.0</u>	14
	42. 8.2	49
Stationery and Postages	23. 5.3	19
Printing	87.15.1	65
Audit Fee	2. 2.0	2
"Transactions" Postage	7.18.4	4
Sundry Payments	5. 2.6	8
Balance 31/3/66 - Cash at Bank	<u>195.17.3</u>	182
	<u>364. 8.7</u>	

For Year ended 31/3/66

INCOME		
Subscriptions	148.10.0	149
Add Bad Debts Recovered	<u>2. 0.0</u>	6
	150.10.0	155
Deduct Bad Debts Written Off 31/3/66	<u>12. 5.7</u>	7
	138. 4.5	148
Interest	5. 7.7	6
	<u>143.12.0</u>	

31/3/66

ASSETS		
Cash at Bank of New South Wales, Christchurch	195.17.3	182
Subscriptions and "Trans." payments in arrears	15. 5.1	26
	<u>211. 2.4</u>	

Guyon Warren  
Honorary Treasurer

GEOLOGICAL SOCIETY OF NEW ZEALAND

NOTICE OF MEETING

The Eleventh Annual General Meeting of the Society will be held in the R.S.A. Hall, Oamaru, on Tuesday, 17th May 1966, at 8 p.m.

Agenda

1. Confirmation of Minutes of 1965 Annual Meeting.
2. Presentation and adoption of Annual Report and Balance Sheet.
3. Election of Officers and Committee.
4. Presentation of McKay Hammer for 1965.
5. Revision of Rules.
6. Stratigraphic Code.
7. General Business.

Notices of Motions

Revision of Rules. Notice is given that the following motions will be considered under Item 5. These are changes consequent upon the passing of the R.S.N.Z. Act 1965.

(1) That Rules 3(d) and 4(g) be deleted. Note: these both refer to R.S.N.Z. subscribing members, a category of membership which no longer exists.

(2) That Rule 3(e) be renumbered 3(d).

(3) That Rule 6(f)(1) be modified to read: "A representative to the Member Bodies' Committee of the Royal Society of New Zealand, who shall be appointed for a term of two years." Note: the Rule now reads "A representative to the Council of the Royal Society of New Zealand, who shall be appointed for a term of three years."

(4) That Rule 7(f) be replaced by: "The Society shall pay annually to the Royal Society of New Zealand a membership fee as prescribed by Rule A5 of the Royal Society of New Zealand, or such greater sum as the Committee may decide." Note: the Rule now reads "The Society shall devote not less than one-sixth of its revenue from annual subscriptions towards the extension and maintenance of the Royal Society of New Zealand." Rule A5 of the R.S.N.Z. reads: "Each member body shall pay the Society a membership fee not later than 1 May of each financial year. The fee shall be £10 (20 dollars (N.Z.)) or such greater sum as the member body may determine."

Stratigraphic Code. Notice is given that the following motions will be considered under Item 6. These will be moved by Mr N. de B. Hornibrook, Chairman of the Stratigraphic Code Subcommittee.

(1) That the Geological Society of New Zealand recommends the Statement of Principles of Stratigraphic Classification and Terminology, by the



International Subcommittee on Stratigraphic Terminology, 21st International Geological Congress 1961, as a guide to stratigraphic classification, subject to the following amendments and additions:

- (1) The inclusion of the words "Member" "Formation" and "Bed" or alternatively the dominant lithology, combined with a geographic name shall be optional in the nomenclature of lithostratigraphic units.
  - (2) The use of non-geographic names of formations members and beds is allowable but primarily for areas with insufficient geographic names.
  - (3) In the International Code definitions of "Formation" and "Stage" the words "based on a specifically designated and delimited type section or reference sections" should be amended to read "based on a specifically designated and delimited type section with or without standard sections".
  - (4) Group and Supergroup may include both vertically and laterally contiguous formations.
- (2) That in proposing new stratigraphic names, rock and stage names are not to be duplicated.
- (3) That the earliest adequately defined name for a stratigraphic unit is to have priority providing that it does not displace a well established name for the same unit. Existing names are to be retained where possible.
- (4) That the establishing of a new formal lithostratigraphic unit requires publication in some recognized scientific medium of an adequate definition which includes:
- (1) Statement of intention to designate a formal unit.
  - (2) Selection of a name.
  - (3) Definition of the unit in the type area with specific location and description of type section.
  - (4) Distinguishing characteristics including dominant lithologies.
  - (5) Definition of boundaries and contact relationships.
  - (6) Thickness in type area (where possible).
  - (7) Geologic age and correlation (where possible).
- (5) That the establishing of a new formal time-stratigraphic unit requires publication in some recognized scientific medium of an adequate definition which includes:
- (1) Statement of intention to designate a formal unit.
  - (2) Selection of a name.
  - (3) Definition of the boundaries of the unit.
  - (4) Selection of a type section (for Stages and Substages).
  - (5) Distinguishing characteristics, e.g. key fossils, if palaeontologically defined.
  - (6) Correlation and age relationships.
- (6) That the Committee of the Geological Society of New Zealand consider recommendations made to it by groups of geologists from time to time for changes or additions to any code which the Society may adopt.

D.R. Gregg (Hon. Secretary)

Sir Charles Cotton, Doyen of New Zealand Geologists

E. J. Collins

Last year when Sir Charles Cotton celebrated his 80th birthday the Royal Society of New Zealand sent him a congratulatory letter. Now over 81 (his birthday is 24 February), Cotton seems as active as ever. He has several papers in course of publication, and still attends meetings of the Geology Section of the Wellington Branch of the Royal Society - he was, by the way, the founder and first secretary of this section.

As a more tangible tribute to the man who has been called the greatest living New Zealand scientist, it is intended shortly to publish a special Cotton Issue of the New Zealand Journal of Geology and Geophysics. This could not be done last year owing to the need to publish special issues on the Antarctic, the International Association of Volcanology Symposium, and the Centenary of the New Zealand Geological Survey.

In this note are collected a few remarks that seem more appropriate here than in an official publication.

Cotton holds a unique position in New Zealand science, as he is the only man in this country to have been knighted solely for his scientific attainments: he has taken little or no part in public life, and has shunned rather than sought publicity in any form. The giants of the past - Hector, Haast, even Rutherford - were well known public figures; and others who have more recently been awarded honours or titles for their scientific work have also been known for their public activities, their popular works, or have worked in a scientific field of greater public or national interest and importance. A leading article in the Dominion of 5 March 1955, at the time Cotton was presented with the Dumont Medal of the Geological Society of Belgium by the Belgian Minister in New Zealand (M. Armand Nihotte), was headed "The Unfamiliar Great".

In 1964 the veteran New Zealand journalist Leo Fanning interviewed Sir Charles and wrote an article about him that was published in the Christchurch Star (6 June 1964), Auckland Star (13 June), and Dunedin Evening Star, but not, for some peculiar reason, in either of the Wellington papers. (A prophet is not without honour except ...). Mr Fanning is not a geologist, and Sir Charles is a modest man: the resulting article cannot be regarded as very successful in presenting the value and importance of Cotton's work. Much of the report of the interview is taken up with Cotton's sincere tribute to his friend Allan Thomson, "the most outstanding figure among New Zealand geologists of my generation", a "brilliant scientist" whose encouragement "gave me the confidence which otherwise I might have lacked", etc.

In fact, Mr Mont Ongley (retired Director of the Geological Survey) was so incensed that he put pen to paper with the intention of publicly correcting the impression left by the article. Mont's comments have not, however, seen the light of day (he never sent them to the paper), but he has given me permission to quote some of them here:

"In trying to write a newspaper article on Sir Charles Cotton's work in science, the reporter Leo Fanning, not aware of the nature of scientists, rather foolishly asked Sir Charles to tell of his work. It is true that New Zealand science has its own Cassius Clay, who would have relished such a chance;

but Sir Charles as a true scientist is correspondingly modest and used the occasion to hide behind Dr Allan Thomson. The published article accordingly is inadequate and misleading..."

Although Cotton has received the highest honours in New Zealand for his geological work (including the Fellowship and the Hector and Hutton medals of the Royal Society of New Zealand), and has also been honoured by the Royal Geographical Society and the Geological Society of Belgium, he has not been officially acknowledged to a corresponding degree by a highest geological or scientific bodies in Britain. This is no doubt because of the peculiar conservatism of the Geological Society of London (and it seems also of the Royal Society), which does not acknowledge geomorphology as a branch of geology (or, indeed, perhaps as a science at all). In Britain it seems to be regarded as part of geography. Nevertheless, the Edinburgh Geological Society belatedly elected him a Corresponding Fellow in 1958. Ten years before (in 1948) he had been given a similar honour by the Geological Society of America, a society that has always given geomorphology an honoured place in its activities.

Much has been written in praise of Cotton's style of writing - its precision, its logic, its orderly presentation of fact and hypothesis. Some, however, have criticised his frequent long involved sentences, his strings of conditional and dependent clauses, and his use of complicated (though no doubt precise) technical terms - such as cryoturbation, anteconsequent, Notocenozoic, feral relief. (On the other hand, I personally regret that some of his more expressive simpler terms, such as cicatrice, dell, shutter ridge, have not received a wider currency).

Professor D.W. McKenzie, in a sincere and well presented appreciation of Cotton, at the time of his award of the Victoria Medal of the Royal Geographical Society (Evening Post, 15 August 1951) has this to say of Cotton's lectures:

"Most of Professor Cotton's students will, I think, admit that his lectures demand a high standard of concentrated attention on the part of the listener. Though they are ably delivered and amply illustrated, they are argued so logically and precisely by a man who never wastes a word that the student who lets his mind wander wakes up to find that the exact thread of the sequence has escaped him."

There are stories, perhaps apocryphal, of efforts to relieve the tedium of these somewhat dry lectures - by the insertion of extraneous slides in his carefully prepared series, of bathing beauties or non-existent dinosaurs, even of the Professor himself. Many of these efforts, however, failed owing to the alertness of Cotton himself, who was a very difficult man to put anything across.

More authentic, perhaps, is the story of the occasion in 1926, when he quietly announced to his senior class "I won't be in the lab next Saturday morning". (Yes, there were Saturday lectures and labs in those days, and for some time after). He was back on the job as usual on the Monday and it was not until some time later that the students learnt he had been married that Saturday.

There is recorded in J.C. Teaglehole's Victoria University: an essay towards a history (1949), an intriguing story of a dog reputed to belong to Cotton. Professor H.F. Kirk was carrying out experiments on the restoration of heart-beat after stoppage, and working on dogs. Teaglehole adds the following footnote:



"There is almost a whole saga about Kirk and a dog, possibly fabulous, that was alleged to belong to Cotton. It began with a newspaper advertisement for a lost dog, over Cotton's initials, and with that stimulus the wits did not easily let go."

Sir Charles assures me that this was merely "a students' prank - pure fiction. I have never owned a dog."

This was not the only occasion on which material has been published over Cotton's name that was not entirely written by him. His article in the Revue de Géomorphologie dynamique in 1959 on "Fossilisation d'un Relief de Micro-dissection sous le Head en Nouvelle Zélande", stated to have been translated into French by J. Tricart, was in fact, according to Cotton, composed almost entirely by him (Tricart) as the MS Cotton had sent over had been lost (these editors!). "He just made it all up", says Sir Charles, "and published it without further reference to me. Still, as it appears over my name, I suppose I must acknowledge it." The two blocks Cotton also sent (photographs of Wellington outcrops presumably) were also printed - but without any captions (these had also been lost) and without any references to them in the text of the article - all very enlightening.

Further pieces of Cottoniana, collected with the assistance of Jack Marwick, Norman Taylor, Don McKenzie, and Bill Watters, and confirmed as to essentials by Cotton himself, are as follows.

During the first World War, Benson and Cotton, out on a field trip, were walking round the coast west of Island Bay (Wellington) when at the place known as The Run-ground, they stepped on to a worn outcrop of greywacke on the beach. At the same moment both recognised at their feet a piece of black bone, a reptilian vertebra, embedded in the rock. Next day Allan Thomson (then Director of the Dominion Museum) sent Harold Hamilton (son of Augustus Hamilton, the first Director) to extract this notable find from the outcrop. This was done successfully and the specimen (and adhering matrix) sent to an expert at Berkeley (California) who confirmed the identification as a vertebra of an ichthyosaur. The paleontologist was soon transferred to Washington, and the specimen was presumably lost at Berkeley. Benson records briefly in his "Recent Advances" paper (1921): "Cotton and the writer found also near Wellington an amphicoelous vertebra".

During an expedition with Professor Speight of Canterbury and the visiting American Douglas W. Johnson to Motunau in North Canterbury, presumably to look at raised beaches, Cotton after some time longed for a rest and a good cup of tea. The stop to brew up was a long time in coming as Speight was a tireless walker (long an honoured member of the Canterbury Mountaineering and Tramping Club), there was much to see, and North Canterbury is a big district. However, eventually a brew was made, of tea supplied by Speight's assistant Sam (S.J.R.) Sylvester. Now Sam kept a sort of boarding house for students, and bought his supplies cheaply and in bulk, keeping the tea for years in an open chest. According to Cotton, Bobbie Speight "watched our faces while we tasted it. Johnson, being an American, did not know the difference; but I registered amazement when I discovered that the brew, though tea-coloured, had no taste whatever". There is a further rumour that Cotton's disappointment was recorded by Sam Sylvester in a somewhat rude drawing showing Cotton in a state of more or less complete collapse. Sam, a promising geologist, was soon after lost, presumed drowned, during a trip he was persuaded to make with a student friend in a small open boat between New Plymouth and Lyttelton (1931).

But even if Cotton, since his early days, has not been noted for arduous

foot-slogging, he certainly has got about New Zealand - as witness his numerous field sketches and the photographs of landscape features from North Cape to Bluff that embellish his publications. One trip that must have been rotatable in many ways - and arduous too - was when he undertook to take the newly arrived Professor W.H. Benson of Otago on a conducted tour of the country in 1917. This was accomplished on motor cycles - Cotton had an A.J.S. and Benson a Buntick. Cotton says that Benson, having had much experience as a push-cyclist in New South Wales (where he did much of his extensive field work per bicycle) "managed his machine much better than I mine". It could be added, however, that later Bennie was not noted for his expert handling of motor-cars.

Finally, Sir Charles tells the following story against himself (letter to E.M. Collins of 14 March 1966):

"Roughly 15 years ago, a lady (Gladys H. Wrigley) retired from the position of chief editorial assistant to the Director of the American Geographical Society and, as she had given long and conscientious service, was accorded the privilege of publishing an essay in the Geographical Review. She called it 'Adventures in Serendipity: Thirty Years of the Geographical Review' [Geogr. Rev. 42(4): 511-42; 1952]. It started with some gush about the gracious princes of Serendip, and what else she had to say I don't remember - except that she cited as an example of fine writing the introductory paragraphs of my paper 'Fault Coasts in New Zealand'. This is where the joke is on me, for those paragraphs were not part of my script. They were written in - 'perpetrated' - by Isaiah Bowman in order to dress up my paper for inclusion, not far from page 1, in No. 1 of Vol. 1 of the great new journal Geographical Review.

"Bowman was an eminent geomorphologist of that day [1916] - author of Forest Physiography and The Andes of Southern Peru. He was at that time Director of the American Geographic Society, and afterwards president of Johns Hopkins University. So I did not actually take it amiss that he helped me to produce a presentable paper. But the joke is on me!"

Sir Charles added: "As the joke is on me, I am afraid you cannot use it" (for the forthcoming Cotton Issue of the Journal). But I think it is quite appropriate here, and so I have.

## INTERNATIONAL GEOLOGICAL CONGRESS

### XXIII Session

The 23rd Session of the Congress will be held in Prague, Czechoslovakia, from August 19th to August 28th, 1968. There will be excursions to Austria, Czechoslovakia, Federal Republic of Germany, German Democratic Republic, Hungary, Poland, and Rumania.

The first circular was issued in November 1965, and copies can be obtained from

The Secretary-General,  
XXIII Session, International Geological Congress,  
Ústřední ústav geologický,  
Malostranské nám. 19,  
PRAGUE, 1, Czechoslovakia.

The organizing committee has decided to hold symposia on "Maglin deposits and their genesis" and "Genesis of mineral and thermal waters".

### RETIREMENT OF PROFESSOR R.S. ALLAN

Professor R.S. Allan, D.Sc., Ph.D., F.R.S.N.Z., recently retired from the Chair of Geology, University of Canterbury, which he had occupied since its establishment in 1945. Previously he had been Lecturer-in-Charge of the Department since 1931, from shortly after his return to New Zealand from Cambridge where he had completed a Ph.D. at the Sedgwick Museum on the fauna of the Reefton Devonian beds, work later published as N.Z. Geol. Surv. Pal. Bull. 14. On his retirement he was elected Professor-Emeritus by the Council of the University of Canterbury. Professor Allan has become over the years one of the most respected of New Zealand geologists, and he has published widely, particularly on the Tertiary brachiopods of many districts, including the Chatham Islands which he visited in 1924, with Dr J. Marwick, as a member of the Otago Institute expedition. Later this year it is intended to publish a special Allan issue of the N.Z. Journal of Geology & Geophysics as a tribute to him from New Zealand geologists.

He has also played an important part in University administration at Canterbury, and, in addition to other committee work, he was from 1946 to 1960 a member of the Academic Board of the University of New Zealand. He was President of the Royal Society of New Zealand in 1960. Much time has been given by him also on behalf of the Canterbury Museum which traditionally has always had close links with the University geology department. His ability as a speaker is well known, and members of the Geological Survey will long remember the excellent and witty speech he made at the Centennial Dinner in Wellington in July 1965.

One of his final acts before his retirement was to conclude an agreement whereby the Christchurch office of the N.Z. Geological Survey would be housed with the Geology Department of the University at its new site at Ilam.

On his retirement Professor Allan handed over a large and important library both of books and reprints to the Geology Department, as well as his magnificent collection of brachiopods, accumulated from many parts of the world over the past thirty years and more. He hopes to continue work on Tertiary brachiopods during his retirement and has some space reserved for him in the Departmental Museum.

Professor Allan's many friends among members of the Society will join in wishing him and Mrs Allan a long and happy retirement, with hopes that they will see him from time to time at conferences and other meetings.

Compiled by W.A.W.

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### NEW ZEALAND GEOCHEMICAL GROUP

At the University of Otago on 18th August, 1965 during the Annual Conference of the New Zealand Institute of Chemistry, a meeting attended by twenty-one interested persons unanimously approved a motion by Professor D.S. Coombs, seconded by Mr A.H. Horn, to form a New Zealand Geochemical Group. Officers elected were Dr J. Rogers, chairman, Mr S.H. Wilson, secretary, and Dr A. Ewart with power to co-opt. This motion crystallised a recommendation from a meeting chaired by Dr A.J. Ellis at Lower Hutt during the centenary of the New Zealand Geological Survey.

The New Zealand Geochemical group plans to promote discussion and cooperation in geochemical problems between scientists of different disciplines and backgrounds by a newsletter and symposia at conferences. Liaison is also proposed with Geochemical Societies overseas.

During the closing stages of the International Symposium on Volcanology a meeting of geochemists was held at the Geology Department, Victoria University of Wellington. Addresses at the meeting were given by Dr J.F. Schairer, Geophysical Laboratory, Washington, D.C., and Dr S.R. Taylor, Australian National University, Canberra.

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#### PERSONAL NOTES

Congratulations are extended from the Society to Dr R.W. WILLETT who was awarded an Honorary Doctorate in Science in December 1965 from the University of Otago.

Dr M. GAGE took up his appointment as Professor of Geology, University of Canterbury, on February 1 of this year in succession to Professor R.S. Allan (see elsewhere, this issue).

Mr N. MODRINIAK recently retired from the Geophysics Division, D.S.I.R., where he had been in charge of the N.Z. Geophysical Survey. The best wishes of the Society are extended to him for his retirement. Dr T. HATHERTON has succeeded him as officer-in-charge of the Geophysical Survey.

Professor G.J. WILLIAMS has been granted leave from the University of Otago to accept a United Nations assignment as Chief of the Mineral Resources Department, Teheran, Iran.

Dr J. ROGERS, N.Z. Geological Survey, Dunedin, has been appointed Research Director of the N.Z. Fertilizer Manufacturers' Research Association, Otago, Auckland, and will take up his appointment in August.

Mr M.F. RIDD, BP Exploration Company, is at present working for a London doctorate on the geology of the Whangara-Waimata area, near Gisborne.

Mr D.J. MCINTYRE, formerly of the Palynology Section, N.Z. Geological Survey, Lower Hutt, left New Zealand late in October 1965 to take up a position with the Chevron Standard Oil Co. in Calgary, Alberta.

Dr D.G. JENKINS left the Geological Survey, Lower Hutt, for Great Britain early in February of this year after spending three years in the micropalaeontology section. He will be returning to New Zealand in July to a senior lectureship at the University of Canterbury.

Mr W. PREBBLE recently joined the N.Z. Geological Survey. He will be based at Lower Hutt and is to work in engineering geology, particularly on geological investigations for the Tongariro Power Scheme.

Professor W.H. PARSONS, Department of Geology, Wayne State University, Detroit, U.S.A., has nearly completed a nine-month stay in New Zealand on a National Science Foundation fellowship, studying ash deposits in the Tongariro-Ngauruhoe area and in Northland. During his stay in this country he has been based at the Papatoetoe office of the Geological Survey.



Dr R. FREUND, Department of Geology, Hebrew University of Jerusalem, arrived in September for a year's work at the Christchurch office of the Geological Survey. He is making a detailed study of the Taramakau-Hope-Kaikoura fault and related branch faults, and is particularly interested in the small scale tectonic deformation that can be recognised near small changes in trend of the surface trace.

Mr G.D. MANSERGH has recently joined the Geological Survey and is stationed at the Christchurch office. In addition to regional mapping, he is working on the engineering geology of the various hydroelectric developments in the Waitaki catchment.

Mr G. NEEF, formerly at Victoria University of Wellington and lately with the Bechtel Corporation at Manapouri, is working at the Christchurch office of the Geological Survey on the completion of his doctorate work on the Eketahuna district.

Mr R.G. ADAMSON joined the Geological Survey in April of this year and will be stationed at the Dunedin office.

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#### NEW MEMBERS

The following new members have been elected since February 1965. The last list appeared in Newsletter No. 17.

Mrs A. Niethé, 31 Bellamy Avenue, CHRISTCHURCH 7.

Mr P. Wellman, Geology Department, Victoria University, WELLINGTON.

Mr W.H. Baldwin, 28 Bateman Avenue, CHRISTCHURCH 5.

Mr B.G. Hicks, Bechtel Corporation, 220 Bush Street, SAN FRANCISCO.

Mr L.J. Brown, N.Z. Geological Survey, CHRISTCHURCH.

Dr K.R. Gill, N.Z. Geological Survey, LOWER HUTT.

Dr P.B. Read, Geology Department, University of Otago, DUNEDIN.

Mrs H. Van Houten, 5 Scarborough Road, CHRISTCHURCH 8.

Dr G.J. Van der Lingen, N.Z. Geological Survey, CHRISTCHURCH.

Mr J.K. Hill, Geology Department, University of Canterbury, CHRISTCHURCH.

Mr C.A. Landis, Geology Department, University of Otago, DUNEDIN.

Mr R.J. Scarlett, Canterbury Museum, CHRISTCHURCH 1.

Mr B.C. Shepherd, 26 Church Street, WHANGAREI.

Dr R. Freund, Hebrew University of Jerusalem, JERUSALEM.

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