

# *Newsletter*



OF

*The Geological Society*

of

NEW ZEALAND

# GEOLOGICAL SOCIETY OF NEW ZEALAND

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## NEWSLETTER

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No. 4.

August, 1957.

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### SUBSCRIPTIONS.

#### FINANCIAL

You are ☐ for the current year (ending 31st Dec. 1957).  
☒ NOT FINANCIAL

PLEASE REMIT..... (sub. for..... year(s)) to make you financial.

Members who have not paid their subscriptions for two years will be struck off the list of members three months after a reminder has been sent. They will be permitted to rejoin only after payment of subscriptions for those two years.

### THE SOCIETY

The Geological Society of New Zealand was founded in May, 1955. Its objects include fostering investigations in the various fields of earth science and serving as a medium for the expression of the views of New Zealand geologists. Membership is open to all those interested in the earth sciences, including all branches of geology, paleontology, mineralogy, glaciology, geophysics, seismology, oceanography, pedology, hydrology, mining, and the utilization of minerals and rock products. There is only one class of members, and the annual subscription is at present 2/6d.

### OFFICERS

1957

President		Dr. J.T. Kingma
Vice President		Dr. D.S. Coombs
Secretary	{Jan. to June}	B.W. Collins
	{July -	L.E. Oborn
Treasurer	{Jan. to June}	R.F. Suggate
	{July -	D.R. Gregg
Committee	Mr. J. Bradley	
	Mr. J. Brodie	
	Dr. R.N. Brothers	
	Mr. D. Kear	
	Mr. F.E. Studt.	

### THE NEWSLETTER.

The Society publishes a NEWSLETTER at irregular intervals; it is hoped about twice a year.

Contributions, in the form of personal notes, short items of geological and geophysical interest, news of the mineral industries, suggestions for Society activities, reports of meetings, descriptions of recent field trips, reviews or criticisms of recent publications, letters on any relevant topic, and similar items will all be welcomed.

Unless specifically indicated, opinions expressed in the NEWSLETTER are not to be regarded as the official views of the Society.

This NEWSLETTER is edited by L.E. Oborn, Secretary of the Society, and published for the information of members by the Geological Society of New Zealand, C/o New Zealand Geological Survey, P.O. Box 2110, Christchurch, C.1.

GEOLOGICAL SOCIETY OF NEW ZEALAND.

CONSTITUTION

1. Name. The name of the Society shall be "The Geological Society of New Zealand".
2. Objects. The objects of the Society shall be:
  - (a) To serve as a means of facilitating communication among members;
  - (b) To foster investigations in the various fields of earth science;
  - (c) To serve as a channel for the expression of the views of New Zealand geologists;
  - (d) To organize an annual conference;
  - (e) To participate in the New Zealand Science Congresses.
3. Membership. Membership of the Society shall be open to all those interested in the earth sciences.
4. Officers. The officers of the society shall consist of a president, a vice-president, a secretary and a treasurer, or a secretary-treasurer, who shall be elected at a general meeting of the society and shall hold office until the next general meeting at which it is resolved to hold an election of officers.
5. Committee.
  - (a) The affairs and finances of the society shall be managed by a committee consisting of the officers and five members. Committee members shall be elected and hold office in the same way as officers.
  - (b) The Committee shall have power to fill any extraordinary vacancies that may occur among officers or committee members during its term of office.
6. Meetings. General meetings of the Society shall be held if possible annually, but in any case during each New Zealand Science Congress, or at the written request of twelve or more members.
7. Quorum. A quorum at any general meeting of the society shall consist of twenty members exclusive of officers.
8. Alteration to Constitution. This Constitution may be added to or altered only by a two-thirds majority of votes, either at a general meeting of the Society, or, in the discretion of the Committee, by a postal ballot.

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GEOLOGICAL SOCIETY OF NEW ZEALAND

ANNUAL REPORT 1956-7

This report covers the period from May to December, 1956.

Membership. At December 31, 1956, the number of members was 147, of whom only 51 had not paid their 1956 subscription.

Newsletter. A Newsletter was issued in November and another prepared for issue in January, 1957.

Committee. The committee had no opportunity of meeting until the morning before the Annual Meeting, and business was transacted mostly by correspondence.

Distribution of N.Z. Geological Publications. The Royal Society has published (in Trans. Roy. Soc. N.Z., vol. 83 pt 4 pp. 757-64, July 1956), at the suggestion of Mr. B.W. Collins, as a representative of Canterbury Branch on the Council, a list of "Institutions to which Publications of the Royal Society of New Zealand are Sent." It is intended to republish this every year - together with a list of "Serial Publications Received by the Library of the Royal Society of New Zealand", (pp. 765-74). Letters were written to the N.Z. Geological Survey and the Editor of the N.Z. Journal of Science and Technology requesting information on the distribution of their publications. No reply has been received from the Geological Survey, but a complete list of subscribers and complimentary copies has been received from the J.S.T. This list is confidential and is for the use of the committee only. It has as yet been only briefly studied by them, and no recommendations or comments can yet be made. Serious gaps will be looked for and the committee intends to take appropriate action.

Publication of Correspondence. Enquiries were made in terms of the resolution carried at the last general meeting. The editor of the N.Z.J.S.T. replied: that "Consideration has already been given on a number of occasions to similar suggestions, but I regret to advise that it is not our intention, at least at this stage, to adopt this practice." The editor of the Transactions of the Royal Society replied: "Such notes have not previously, so far as I can ascertain, been published in the Transactions..... their publication would constitute a new departure in so far as my instructions as Editor are that the Transactions exist for the publication of original research. In the light of this I could not on my own authority undertake to publish such communications, but I will bring your request before the Standing Committee at its next meeting. If such comments were acceptable for publication in the Transactions, they would have, I think, to form part of the section on Research Notes which I inaugurated a few years ago." No further communication has been received. In view of these replies the committee recommends that advantage be taken of the present facilities for the publication of critical comments as short papers or research notes.

N.Z. Fossil Record System. The committee has decided to arrange for the publication in the "Newsletter" of a full description of the system with instructions on its purpose and practice, and to recommend to all N.Z. geologists that they comply with its provisions. There seems to be a good deal of ignorance on the working of the system.

"McKay Hammer" Award. While acknowledging the worthy intentions of this suggestion, the committee feels that it needs a good deal of careful thought, and that before an award is made rules governing the award will have to be drawn up. The committee was evenly divided on the desirability or otherwise of the award, some feeling that there would be undesirable competition and that the award should be open to non-field workers.

Preservation of Outcrops. Some publicity has been given to this matter in the press and in the "Newsletter". The committee is largely dependent on members to bring to their notice any cases requiring action, and to suggest remedies.

Branches. The formation of a branch of the Society in Auckland is noted with satisfaction, and it is hoped that further local branches will be established.

Finances. A financial statement appears in "Newsletter No.3." Expenses have been fairly light, and the position appears to be satisfactory, unless the Society desires to indulge in more expensive activities.

The Society's thanks are due to the Director of the Geological Survey for the encouragement and help he has given, to the Antarctic Research Subcommittee of the Geological Society of New Zealand for their valuable contributions, and to everyone else who has helped during the year.

Geological Conferences. The action of the Director of the N.Z. Geological Survey in allowing members to attend the N.Z.G.S. Staff Conference in Gisborne last May is gratefully acknowledged. We hope that this practice will continue until the Society can organize its own Conference.

The work of Prof. D. Coombs and Mr. D. Hamilton, as joint secretaries of Section C of A.N.Z.A.A.S., Dunedin 1957 and of Mr. D.E. Buchanan as excursions officer, is also acknowledged with thanks. The two first-named and their wives also very kindly, on behalf of the Society, bore the brunt of the organization of the Section C Sherry Party sponsored by the Society.

EXTRACTS FROM THE MINUTES OF THE SECOND ANNUAL  
GENERAL MEETING HELD IN THE UNIVERSITY OF  
OTAGO AT 2PM ON WEDNESDAY, JANUARY 16,  
1957.

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Present: In the absence of the President (Mr. H.E. Pyfe) through illness, the Vice-President (Dr. J.T. Kingma) presided over an attendance of about 100 members and friends. A number of Australian geologists, in Dunedin for the A.N.Z.A.A.S. Meeting, were present by invitation.

Distribution of N.Z. Geological Literature. A useful discussion took place on the availability of N.Z. geological publications overseas, Australian geologists generally indicating that the Transactions of the Royal Society and the N.Z. Journal of Science and Technology were both accessible to them. It appeared, however, that the Journal was not available at the Sedgwick Museum, Cambridge, or in the Bureau of Mineral Resources, Canberra.

Fossil Record System: Questions on the working of the N.Z. Fossil Record system were answered by Dr. C.A. Fleming.

Election of Officers: An election of officers and committee was held and resulted as follows:

President:	Dr. J.T. Kingma.
Vice-President:	Dr. D.S. Coombs.
Secretary:	Mr. B.W. Collins.
Treasurer:	Mr. R.P. Suggate.
Committee:	Mr. J. Bradley.
	Mr. J. Brodie.
	Dr. R.N. Brothers.
	Mr. D. Kear.
	Mr. F.E. Studt.

The meeting concluded at 3.30 pm. and was followed, in lieu of the Presidential Address, by an address by Dr. H.W. Wellman on the geological structure of New Zealand, chaired by Dr. C.A. Fleming.



McKAY HAMMER AWARD.

When it was learned that a hammer, which once belong to one of the most notable geologists in New Zealand's history, was in the possession of a member of the Society, Mr. W.F. Heinz, and that he might be induced to present it to the Society, members and their executive began thinking of a McKay Hammer Award.

It was obvious that to do justice to McKay's illustrious memory the award should be made only for some meritorious contribution to New Zealand geology. But what form should this contribution take? McKay was essentially a field geologist but field geology is as hard to define as it is difficult to judge, and the number contributing papers on field work, in the ordinary sense of the words, are relatively few. After much discussion by members at various official and unofficial venues, and serious thinking by the executive in Dunedin in January, 1957, the following rules were drawn up:-

- (1) To commemorate the outstanding ability and contributions to New Zealand geology of the late Alexander McKay, and to recognize meritorious contemporary work, the Society hereby institutes an award of a geological hammer formerly the property of Alexander McKay to be known as the "McKay Hammer".
- (2) The award shall be made annually for the most meritorious published contribution to New Zealand geology in any one calendar year.
- (3) The Winner shall be chosen by the Committee of the Society if possible not later than June 1st each year.
- (4) No award shall be made if in the Committee's opinion no suitable contribution has been published during the preceding year.
- (5) The award shall consist of the McKay hammer for retention for one year, a certificate of award bearing the names of previous holders, and also a good quality geological hammer, suitably inscribed, which shall remain the property of the winner.
- (6) The McKay hammer itself shall not be conveyed outside New Zealand, and holders leaving New Zealand shall return the hammer to the care of the Society. This rule shall not limit the eligibility of geologists overseas to be considered for the award.
- (7) The award shall preferably be presented or announced at the Annual General Meeting of the Society.
- (8) A selection sub-committee shall be appointed consisting of three members of the Society, with power to co-opt, to be drawn from Auckland, Christchurch, Dunedin, and Wellington districts in rotation. This sub-committee shall make a recommendation to the Committee of the Society, which shall then make the award.



McKAY HAMMER AWARD, 1956.

On Friday, 22nd February, 1957, a sub-committee of the Geological Society of New Zealand convened in Auckland by Dr. R.N. Brothers, and including Messrs. D. Kear and E.J. Searle, unanimously agreed that the McKay Hammer Award should go to MR. G.R. STEVENS of the New Zealand Geological Survey for his work on the Hutt Valley which was published in recent numbers of the New Zealand Journal of Science and Technology.

The Society extends to Mr. Stevens its sincere congratulations on being the winner of the first award of the McKay Hammer and trusts that this will be but the first of many similar awards he will receive in the years to come.

Graeme Stevens graduated with the degree of Bachelor of Science from Victoria University College in 1954. In that year he also won a Senior Scholarship. In 1954 and 1955, while studying for a Master's degree, he worked first with Dr. Fell on fossil echinoids, and as a Temporary Junior Lecturer in the Department of Geology at Victoria College. In 1956 he graduated Master of Science with First Class Honours and won the Cotton Prize. At the beginning of 1956 he was appointed an Assistant Paleontologist to the New Zealand Geological Survey, and in May of that year, was awarded a Shell Scholarship. He left New Zealand at the end of last year to study at Cambridge for two years under the terms of this Scholarship.

Mr. Stevens's main interest is paleontology, an interest which expressed itself in his undergraduate days when, in a long vacation, he worked as a Temporary Student Assistant with the Paleontological Section of the Geological Survey, and later with Dr. Fell. When he joined the staff of the Geological Survey at the beginning of 1956, he did field work and fossil collecting in the Hokonui Hills (Triassic) and Wairaki (Permian) areas. His study of the collections made from Flag Hill established the presence of Schlotheimia angulata zone (upper Hettangian) in New Zealand for the first time. He also recognised the overlying Coroniceras zone, the first ammonite evidence of the Sinemurian Stage in the Lias of the Hokonui area.

Mr. Stevens decided to devote his period at Cambridge, under the Shell Scholarship, to studying New Zealand Belemnites. During part of 1956 he visited Kawhia to take part, with Dr. O.A. Fleming and Mr. D. Kear, in the remapping of the type section of the New Zealand Jurassic formations. While there, he collected carefully in zones, upper Jurassic belemnites from several sections. It was during this period with the Geological Survey that he prepared for publication a series of papers on the Hutt Valley-Wellington area, based on his M.Sc. thesis.

In his student days, Graeme attained notable success as a harrier. Mr. G.R. Stevens's present address is C/o Sedgwick Museum, Cambridge, England.

ROLE OF GEOLOGY IN ARCHAEOLOGY

Observations on the Second Annual Conference  
of the N.Z. Archaeological Association,  
held in Dunedin in May, 1957.

By

G.L. ADKIN.

At the first Conference of the N.Z. Archaeological Association held in Auckland in May, 1956, the importance of the application of geological principles and data in the solving of New Zealand archaeological problems was given emphasis by Mr. D. Kear of the New Zealand Geological Survey, in the course of his valuable contribution on "Geological Techniques in Dating New Zealand Prehistory." This exhortation seems to have borne fruit; at the 1957 Conference of the Association in Dunedin, about half of the papers submitted used geological data to a greater or lesser extent in the presentation of local archaeological material for consideration and debate.

Dr. R. Duff gave a résumé of the stratification and age of the Pyramid Valley moa-bone swamp deposits. He thought the whole period of the infilling of this depression appeared to be pre-human insofar as that particular area is concerned. Various considerations put the base of the uppermost peat layer at 500 B.C. or, alternatively, at A.D. 200. Carbon-14 dates determined from samples taken from the main marl layer immediately below the upper peat, ranged from 3500 B.P. (before present) for the upper part, 4200 B.P. for the middle, and 5100 B.P. for near its base. Unfortunately, a sample from peat underlying the marl - i.e., the lower peat - gave a date of only 3600 B.P. This can be taken as a reminder that samples are liable to contamination by nature, as well as by careless collection and curation. A single C14 dating is therefore not necessarily acceptable at face value despite great refinements and precision in laboratory treatment; a number of samples giving age determinations mutually checking are desirable. Dr. Duff cited another difficulty in attaining satisfactory dating. Widely differing dates had been obtained by different C14 technicians from portions of a single sample (a Dinornis gizzard) from Pyramid Valley swamp - Kulp got A.C. 150<sup>+</sup>, and Deevey, A.D. 1282<sup>+</sup>.

An informative paper on "The Use of Petrology in Delimiting the Sources of the Stone Materials of the Moahunters" was presented by Prof. D.S. Coombs. Particular reference was made to artifacts obtained from the Pounawea and other southern sites. He pointed out that in the Murihiku (Otago-Southland) region the extended linear nature of outcrops of suitable rocks made determination of the precise locality from which any particular specimen was obtained, somewhat impracticable.

All that could be done was to indicate such places along these elongated belts where the original "blanks" were probably obtained. In some cases, however, rocks of distinctive appearance or composition could be traced to a particular outcrop. A wide range of suitable materials was available but the probability must be recognized that certain desirable rock-types were obtained after lengthy canoe voyages round the coasts. When specifying rock-types shown to have been used in the manufacture of artifacts, Prof. Coombs referred to the rodingite of Nelson, which, he said, is also found in the Red Hills, Western Otago, and occasionally as boulders in the Waiau Valley; one boulder was also obtained in the Eglinton. Blackstone and aphanite types may sometimes represent highly metamorphosed volcanic ash or spilitic tuffs such as occur at The Bluff and near Orepuki. A flinty volcanic ash with well-developed conchoidal fracture has been found in the Hokonui. Cobbles in ancient conglomerates frequently provided suitable stone - such as opal agate from those at Cape Saunders, and a chalcedony from others at Moeraki and Otago Peninsula. Quartzites, or more correctly, a siliceous-cemented quartz sandstone, came from Central Otago. Schist used for artifacts also came from that area.

A review of the geological evidence for the determination of the antiquity of man in the Horowhenua area was given by G.L. Adkin in a paper entitled "The Date and Culture of the Earliest People in the North Island." This area provides the venue of the geological processes of secular uplift and coastal progradation of sufficiently extended apparent uniformity and time range to give reliable results that seem capable of being translated into terms of years. The local antiquity of man is shown by the direct association of man with dateable earlier shorelines now far inland. The relevant local geomorphic feature is the Horowhenua coastal plain of the Otaki Sandstone Formation. Surveys over a period of 30 years have shown that in an adopted "standard locality" (viz. just south of Waitarere, on the Horowhenua coast), an accretion of the order of 20 yards has taken place. This gives a rate of shoreline advance by progradation and secular uplift of 2 ft. per annum, and this is adopted as the approximate average rate of the emergence of the whole width ( $9\frac{1}{2}$  miles) of the coastal plain at this place. The age of the coastal plain thus works out, on this basis, at 25,000 years, which is the lowest probable figure for the age of this feature. A higher rate of progradation would unduly reduce this minimum age, and also make a coastwise drifted volcanic deposit (pumice) even later than a current locally-determined embarrassingly late date. A lesser rate would put the date of earliest human occupation of former shorelines located towards its seaward margin altogether too far back in time to be rational. The earliest human shoreline at the "standard locality" is now 65 chains inland; on the above basis of 2 ft. per annum this carries a date of 300 B.C.

Later shorelines to a position of 25 chains inland (= A.D.1000) are all marked by artifacts typical of New Zealand's most ancient material culture, a fact that confirms the geological evidence of an early human occupation period, especially for a site in the North Island, where human occupation was at its earliest within the New Zealand region.

G.L. ADKIN.

424 Evans Bay Parade,  
Hataitai,  
WELLINGTON.

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BRANCH NOTES.

Auckland is the only centre that has formed a branch of the Society, and its success, measured in terms of genuine interest in the earth sciences, must surely be an encouragement to other large centres.

Dr. R.N. Brothers writes:-

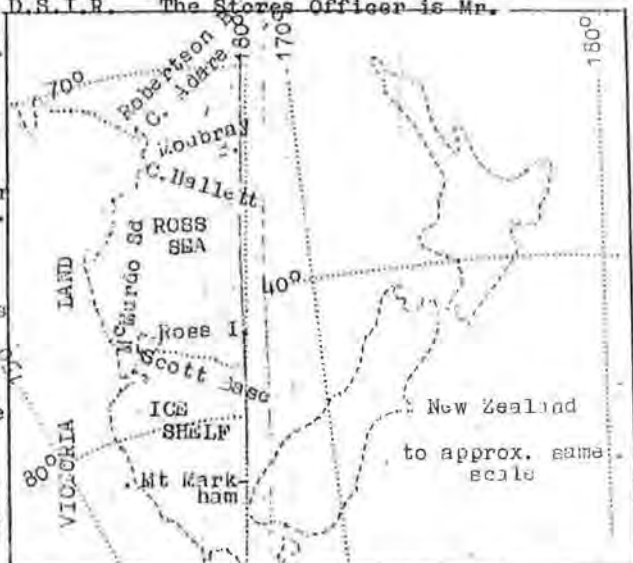
"The Society in Auckland is running its usual winter programme of evening lectures and we are still mustering between 20 and 30 people at each meeting. We have not gone out of our way to try and attract any people with geological interest from the local Institute and Museum or other sources as we find that the present group of 20-30 is quite a comfortable size to handle in informal fashion, to say nothing of providing supper. The first meeting was held in June and it was a discussion on correlations of Pleistocene surveys throughout the North Island in an attempt to work out a reasonable chronology based on the falling sea levels. David Kear led off the discussion and was followed by Jim Schofield and various Auckland University College Honours students. The July meeting has been deferred to August 16th when Dr. Goldthwait is going to give a lecture on glacial problems and the Pleistocene in New Zealand and Baffin Island. We propose having our September meeting on either soil mechanics in relation to geology, or a panel of oil people on oil prospects in the North Island."

# N.Z. GEOLOGICAL SURVEY EXPEDITION TO ANTARCTICA

by Dr. H.J. Harrington.

An eight-man Geological Survey expedition to the Ross Dependency was approved by Cabinet on 1 July and on 12 July the U.S. Navy agreed to take the party to Cape Hallett in the "Burton Island" leaving Lyttelton in mid-November. The geologists are Messrs. B.L. Wood, I.C. McKellar, G.J. Lensen and H.J. Harrington of the Geological Survey, D.S.I.R. The Stores Officer is Mr. A.J. Heine of Dominion Physical Laboratory, D.S.I.R. who last summer worked on the Skelton Glacier with the geological field party of T.A.E. (Trans-Antarctic Expedition). A surveyor from Lands and Survey Department is under selection, and Messrs. W.G. Croll and B. Hearfield of Christchurch complete the party.

The expedition breaks new ground in that it is the first official New Zealand Government expedition sent to the Dependency. T.A.E. is a private company, and I.G.Y. is nominally organised by a Royal Society Committee. For the first time since the Dependency was handed over by Britain, the Government has accepted the responsibility for making topographic and geological maps of it.



A rough comparison may be made of South Victoria Land and New Zealand. Both lands are of about the same length, and South Victoria Land has a narrow waist in a similar position to Cook Strait. Ross Island is analogous to a large island at the eastern entrance to Cook Strait, and the geological work in South Victoria Land has been done from bases on its south-western side. There has been some reconnaissance work in the vicinity of the "Strait", and the mountains have been seen from a distance by men sledging and flying across the Ross Shelf Ice (which is analogous to the Canterbury Plains) and a little has been seen of the equivalent of the "East Otago Coast". North of "Cook Strait" there have been landfalls at points on the mainland and on off-shore islands, and at Robertson Bay a strip of coastline analogous to that between North Cape and Cape Reinga has been examined. A journey has been made from "Napier" to "Te Kuiti" (David's sledge journey to the South Magnetic Pole).

In the 57-58 summer the T.A.E. party, to which two geologists (Messrs. Gunn and Warren) are attached, will pass westwards through the "Strait" using dogs, planes and tractors. It will then travel southwards along the west side of "the Alps" to about a position west of "Mt. Cook" (Mt. Markham).

The Geological Survey expedition, using back-packs and man-hauled sledges, will be landed in "Northland" at about the position



of "Whangaroa Harbour" (Cape Hallett and Moubay Bay) to fill in a blank on the map in that region. What we will do in detail depends on the glacier access routes that are available, but if it is possible we will try to get northwards towards Robertson Bay to link with the work that was done there by Priestley. We hope also to do a sortie inland to the west and, if there is any time left, another to the south. A few photographs taken by the Americans when they built Hallett Station do not show enough for possible access routes to be picked out, and our plans might have to be very much altered when we arrive at Cape Hallett. The slowness of back-packing and man-hauling will limit the size of the area that can be examined. Nevertheless we should be able to make topographic and geological maps of a fair-sized district, and to tackle some important problems such as the age of the Robertson Bay greywackes and their relations to the granitic basement of East Antarctica, and the Beacon Sandstone. If there are any dull waking moments we can meditate on the problem of how coal seams formed in a land that now has several months of darkness, and other puzzles of that kind.

Geological work in South Victoria Land can be easily justified economically, apart from its academic value. A country the size of New Zealand especially as it is a "shield area" will certainly contain many mineral deposits both large and small. The recent history of Arctic lands suggests that the climatic difficulties in working them can be overcome very rapidly, once they are found. For example, it is less than 30 years since Gino Watkins, Wager and others went to Greenland on exploratory expeditions, but the Danes now have a thriving mineral industry there, and the profits from it are used to support extensive geological and other scientific surveys (see the journal *Meddelelser om Gronland*). Similarly, the administration of Spitsbergen, which is on about the same latitude as the Beardmore Glacier, was not taken over by Norway until 1925 (by international agreement), but there are now large Norwegian and Russian coal mines in that land (as well as regular summer visits by tourist ships). It may be remembered that below ground there are no winds and there is a geothermal gradient.

We are at present in the preparatory stage of the expedition (orderly chaos), compiling stores lists, making enquiries about the best equipment and placing orders for articles ranging from down-clothing to sledges, and from the wig-wam type Polar tent to pemmican. It is surprising to find how many of those articles are made in New Zealand and how good they are. In other cases we are able to arrange for an item to be made here, as for instance our pemmican, which we hope will be made from D.S.I.R. dried meat and Shreddo mixed together by a giant electric beater at a chocolate factory.

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The two geologists at present at McMurdo Sound, Messrs. Guyon Warren and Bernard Gunn, and the four going on the Cape Hallett expedition, are all members of the Society. To these

men and to all members of the Society at present in Antarctica with I.G.Y., we send our best wishes for every success, both as a team and personally.

The Geological Survey is fortunate in its choice of leader and team; all members are capable, experienced trappers and mountaineers, and socially compatible.

There follows a few biographical notes about the members of the expedition:-

DR. H.J. HARRINGTON, leader of the party, is 33. He received his early education in Wellington and Whangarei, and his geological training at Auckland University College, where he graduated B.Sc. (1942) and M.Sc. (1944), and Oxford University where he graduated D.Phil in 1954. He joined the Geological Survey about 1942 and apart from a period of war service and overseas study, has worked with the Survey in many parts of New Zealand, including Northland; the Maitai and Te Anau areas of Nelson, Southland and Western Otago; Tertiary areas of Canterbury and Marlborough; and Kaitangata and other Otago coalfields and hydro-electric dam sites. His published papers deal with glaciology and regional geology and he has a Geological Survey Bulletin on Kaitangata Coalfield in press. He is an experienced mountaineer and in 1954 was leader of the Oxford University Expedition to the Himalayas. He is now working in Wellington on petrology and regional surveys, is New Zealand Correspondent for the Journal of Glaciology, and Chairman of the Geology Section of the Wellington Branch of the Royal Society.

MR. G.J. LENSEN was born in 1921 in the Netherlands and studied mathematics at Leiden until shortly after the German invasion of Holland. For six years he was in the R.A.F. and the Dutch Air Force, and for five of these he was a weather forecaster with the rank of Flight-Lieutenant. In 1951 he came to New Zealand and after two years with the Meteorological Service, joined the Geological Survey. He is at present studying Recent tectonics, and the interpretation of geology from air photographs, and on four-mile mapping in the Wanganui-Hawera district. Mr. Lensen is co-author of a paper on the earthquake risk in the Wellington district and has several papers on Recent tectonics in press. He is Secretary of the Geology Section of the Wellington Branch of the Royal Society.



MR. I.C. MCKELLAR, 38, studied at the University of Otago, graduating B.Sc. in 1942 and M.Sc. 1947. He joined the staff of the Department of Scientific and Industrial Research in 1947, serving first as a geophysicist and later, in 1950, as a geologist with the Geological Survey. Mr. McKellar has worked on regional and economic geology and geophysics in all parts of New Zealand from Northland to the Bluff, and has published papers on geophysics, geology and glaciology. At present he is preparing a Geological Survey Bulletin of the Hokonui sheet, Southland, and establishing, with Dr. Goldthwait, a glaciological research programme in the Mt. Cook region.

MR. B.L. WOOD is 32. He attended Otago Boys' High School and later the University of Otago where he graduated B.Sc. (1947) and M.Sc. (1949). Since joining the Geological Survey in 1947, he has worked mainly in Otago and Southland, on regional and economic problems, and has led several field parties into fiordland. He has published papers on recent faulting, and Paleozoic and Mesozoic rocks. One of his Geological Survey Bulletins, the Gore Subdivision, has been published, and another, West Southland, is in press. Mr. Wood recently spent three months in Samoa with Mr. D. Kear, who is also of the Geological Survey, on geological and hydrological work. At the end of July he left with Mr. R.F. Hay for a period in the Cook Islands where he will be engaged in geological mapping and a search for economic phosphate deposits.

MR. B. HEARFIELD, aged 29 years, is a structural engineer with Messrs. Camplon & Irving Ltd., of Christchurch, and has made numerous trans-alpine trips across the Southern Alps, generally into some remote and inaccessible area. He is a member of the Canterbury Mountaineering Club, and was one of the Club's Party which recently made the first ascent of Mt. Cook in an ordinary weekend trip - travelling from Christchurch and back again after the climb. His early mountaineering experience was gained in the Tararua Ranges while a member of the Hutt Valley Tramping Club.

MR. W. CROLL, aged 27 years, is an Engineer with the Lyttelton Harbour Board, and hopes to complete the final paper for his B.E. Degree before leaving New Zealand in November. He is assistant Editor of the New Zealand Alpine Club's Journal, and has done some outstanding climbs in the Hermitage area. About two years ago he climbed Mt. Cook by three different routes in the one season, and on one occasion he was forced to spend a night out at over 11,000 feet. His surveying experience will also be of value in the problems the Expedition hopes to overcome.

GEOLOGICAL SURVEY EXPEDITION TO THE CHATHAM ISLANDS

by

DR. W.A. WATTERS.

From January to May of this year, R.F. Hay, A.R. Mutch and W.A. Watters of the Geological Survey, visited the Chatham Islands, some 500 miles east of Lyttelton. The main object of the visit was to search for phosphate, particularly in the abundant limestones of the islands. In addition to this a prolonged stay due to the difficulty of obtaining return transport to New Zealand enabled the party to have a good look at the general geology of the main island and of Pitt Island, in the south-east of the group.

Before the visit, views on the Chathams had been adversely coloured by the monotonous forecasts of "fresh winds and approaching rain" at the conclusion of the daily weather news. But the weather turned out a pleasant surprise; February and March were almost continuously warm and sunny, and even to the end of May conditions were not very cold. Sea-bathing on fine days was enjoyable even at the end of April! As well as having pleasant summer and autumn weather the Chathams are almost completely free of mosquitoes and sandflies - pests that make parts of New Zealand uncomfortable during the warm months.

Up to the end of the last war, travel on the main island was by horse or "jogger" on formed roads that often became quagmires in the winter months. Since the war some 35 miles of metalled road have been laid down, and many cars have been imported - so many in fact that some islanders boast that the Chathams have a higher ratio of licensed road vehicles to population than the State of New York! For the work the party was able to travel to much of the island by Landrover; part of the shore of Te Whanga lagoon was examined from a dinghy, and the unpopulated southern part of the island traversed on foot.

Much of the island, particularly in the north and south, is covered by peat and low scrub (areas known locally as the "clears"). Most of the countryside is pleasant, the coastal scenery, including long dune-backed beaches and impressive basalt cliffs, being especially attractive. Except in the south the bush cover has largely disappeared. Nevertheless, in the central and northern parts of the island a few small areas remain and include excellent groves of kopi (identical with the New Zealand karaka). In several parts of the island these trees show the enigmatic carvings which are almost the only record of the long period of occupation of the islands by the ill-fated Morioris.

An interesting feature of the island bird life is the abundance of wekas; they are regarded by most of the farmers as something of a pest, however. Chatham Island is the only part of New Zealand where wekas can be hunted legally, and large numbers are taken for food in the winter months. Ducks and swans are abundant too, and the eggs of the swans are collected and preserved in large numbers (one is roughly equivalent to five hen's eggs and makes an appreciable breakfast in itself!). The islands offer wonderful fishing, both

whereas in New Zealand the Tertiary rocks have been warped and folded in many places. It seems likely also that the present islands are remnants only of a land area of much wider extent, large parts of which have foundered beneath the sea. It is still too early to say much about the results of the trip. An almost complete geological map of the islands was produced, and much petrological and paleontological material collected.

FOOTNOTE.

That the refugees from the Chathams found the climate so warm and sunny and were able to swim (and enjoy it!) at the end of April, is more easily understood when one realizes that they are all from Otago. All went to Otago Boys High and the University of Otago. Bob Hay graduated M.A. and B.E. (Mining), Alex Mutch B.Sc. and A.O.S.M. (Geology) and Bill Watters M.Sc. and Ph.D. (from Cambridge). Mr. Hay has published papers on ground water and coal and has a Geological Survey Bulletin describing the geology of part of Northland, nearing completion. Mr. Mutch has written papers on structure and stratigraphy and is particularly interested in the relation of the New Zealand Geosyncline to the Chathams and Subantarctic Islands, and is writing a Geological Survey Bulletin on the Morley Subdivision of Northern Southland. Dr. Watters has been a lecturer at the University of Otago and is now a petrologist with the Geological Survey at Wellington. He has written on geology in Otago, petrology of parts of Stewart Island and the skarn rocks of eastern Pyrenees, France. He is especially interested in matters petrological and mineralogical, including, for example, limestone contact rocks.

in the sea and in Te Whanga lagoon, parts of which carry numerous flounders.

The main island is roughly T-shaped and is formed of northern and southern blocks connected by a low-lying central area in the eastern part of which lies the great Te Whanga lagoon, shallow and brackish. In the northern block, schist, trending more or less east-west, and similar to that found in Otago, is widely exposed. In places it is capped by areas of Tertiary sediments (greensands and limestones) and volcanic rocks. The latter are especially well exposed on a number of small conical hills that rise above the general level of the schist in the north-west part of the island.

The southern block is largely made up of almost horizontal basalt flows and intervening ash layers that terminate along the south coast in a line of high cliffs. These volcanic rocks are probably younger than those occurring at the north of the island. Injected among the lava flows are thick, flat-lying basalt sills, showing columnar jointing, and later dykes of varied composition. In certain respects these volcanic rocks are comparable with some on Bank's Peninsula, but it is not possible yet to make definite correlations with New Zealand volcanic rocks.

The central part of the island has many exposures of almost horizontal limestone strata and much younger consolidated sands. These rocks usually produce very fertile soils, and much of this area is intensively farmed. Te Whanga lagoon (making up about one fifth of the area of the island) is probably a former inlet of the sea, and within comparatively recent times has been sealed off from Hanson Bay to the east by a long, low-lying gravel and sand spit.

Although most of the party's time was spent on the main island, they were able to have a fortnight on Pitt Island, 15 miles south-east of Chatham Island. Six families live here, in what must be one of the most isolated parts of New Zealand. As on Chatham Island a visitor to Pitt Island can be assured of very warm and sincere hospitality. Pitt is fairly narrow, elongated roughly north-south, and about 10 miles in length; it is perhaps the more attractive of the two islands. Much of the south is still in thick bush, but the greater part of the north has been cleared and supports a surprisingly large number of sheep. The swampy country characteristic of much of the Chatham Island is absent on Pitt, and most of the island shows gently undulating, well drained hills. Except for a relatively small area of carbonaceous mudstone on the west side, the northern half of the island is made up of Tertiary tuffaceous sediments with some limestone bands; in the south many outcrops of basalt and other volcanic rocks are found.

On the whole the geology of the Chathams is simple. But it has many points of interest, not least in comparison of its rocks with similar types in New Zealand. Of particular interest is the fact that during the Tertiary the Chathams must have been an unusually stable area compared with New Zealand. The strata are almost horizontal and undisturbed,

OBITUARY

With sadness we learned of the passing of one of our most distinguished members, Professor E. de C. Clarke, he was in his 76th year. From about 1951 until shortly before his death, Professor Clarke had been in New Zealand, staying with his sister, Mrs. Walter Scott, at Te Awamutu. At the time of his death he was revisiting his sons at Melbourne and Kalgoolie.

We are indebted to Rex T. Prider, Professor of Geology of the University of Western Australia, for permission to print the obituary which follows.

OBITUARY - E. de C. CLARKE (1880-1956)

Emeritus Professor E. de C. Clarke, formerly Professor of Geology in the University of Western Australia, died in the Kalgoolie Hospital on Friday, 30th November, 1956.

Edward de Courcy Clarke, M.A. (N.Z.), A.I.M.M., F.G.S. (America), born at Waimate North, New Zealand, on the 10th November, 1880, was educated at the High School, Napier, N.Z., and at University College, Auckland, N.Z. On the completion of his university studies in 1901 he was appointed Science Master at Auckland Grammar School, N.Z., a position which he occupied till 1905. During this time his main interest was in palaeontology and he did post-graduate work in botany, obtaining First Class Honours in this subject. In 1905 he joined the staff of the Geological Survey of New Zealand as a Field Geologist. He held this position until 1910 and conducted a number of extensive and important surveys in the Nelson, Hokianga and Taranaki Divisions.

In 1910 Professor Clarke relinquished his position as Field Geologist to return once more to academic work as Demonstrator in Geology and Biology at University College, Auckland, but in 1912, receiving an appointment as Field Geologist with the Geological Survey of Western Australia, he again turned to field work. He was associated with the Geological Survey of Western Australia from 1912 till 1920, during which period he undertook a number of important surveys, the results of which were published in the Bulletins of the Geological Survey. Outstanding examples of his work include Bulletins describing the geology and mineral resources of portions of the Murchison, Yalgoo, East Coolgardie and North-East Coolgardie Goldfields, and, in conjunction with Mr. H.W.B. Talbot, a Bulletin containing the results of an extensive reconnaissance survey of the country between Laverton and the South Australian border.

In 1920 Professor Clarke was appointed Lecturer-in-Charge of the Department of Geology at the University of Western Australia, where he remained till he retired in 1948, being given the title of Associate-Professor in 1928 and Professor of Geology in 1930. During this time his main interest was in the Pre-Cambrian formations which form so much of the southern half of the State and this interest is evidenced by his Presidential Addresses to the Royal Society of Western Australia in 1923 and to the Geological Section of the Australian and New Zealand Association for the Advancement of Science in 1930. In addition he has done much original work on physiographic problems, chiefly in the South-West, but also on the broader aspects of physiography in Western Australia.

During his association with the University of Western Australia he carried out much original work and was a source of inspiration to a large school of younger geologists who are today contributing much to the development of the natural resources of Australia. Above all he insisted that training in actual field survey methods and not simply inspectional field work, was an indispensable requisite in the training of geologists. The value of this type of training is seen in the high respect that his past students enjoy in many parts of Australia and overseas.

He rendered much valuable service to various scientific societies having at various times occupied the offices of Honorary Secretary, Honorary Editor, and President of the Royal Society of Western Australia (President 1922-3 and 1935-6), and Honorary Local Secretary for Western Australia of A.N.Z.A.A.S. He was President of Section C (Geology) of A.N.Z.A.A.S. at the Sydney meeting in 1930.

His work has been recognised by the awards to him, in 1941, of the Kelvin Medal of the Royal Society of Western Australia, and, in 1954, of the Clarke Medal of the Royal Society of New South Wales.

Clarke was a man of simple tastes and one who never sought publicity or acknowledgment of his work. To him the student was of the first importance and, outstanding as his published contributions to geological science are, his greatest contribution was in the inspiration he yielded to his students.

#### BIBLIOGRAPHY:

- 1905. "The Fossils of the Waitemata and Papakura Series." Trans. N.Z. Inst., XXXVII, pp. 413-21.
- 1907. "The Geology of the Parapara Subdivision, Karamea, Nelson." (with J.M. Bell and E.J. Webb) N.Z. Geol. Surv. Bull. No.3, 111 pp.



1908. "Work in the Whangaroa Subdivision." N.Z. Geological Survey 2nd Annual Report (N.S.) pp. 22-4.
1909. "The Geology of the Whangaroa Subdivision, Hokianga Division" (with J.M. Bell), N.Z. Geol. Surv. Bull. No.8, 115 pp.
1910. "Geological Survey of Part of New Plymouth Subdivision." N.Z. Geological Survey 4th Annual Report (N.S.), pp.19-24.
1910. "Geological Reconnaissance of Northernmost New Zealand" (with J.M. Bell). Trans. N.Z. Inst., XLII, pp. 613-24.
1911. "New Plymouth Subdivision (Summary)." N.Z. Geological Survey 5th Annual Report (N.S.), pp. 9-11.
1911. "Waitemata District." In "The Younger Rock Series of New Zealand," by P. Marshall, R. Speight, and C.A. Cotton. Trans. N.Z. Inst. XLIII, pp. 396-9.
1911. "The Geology of the Dun Mountain Subdivision, Nelson" (with J.M. Bell and P. Marshall). N.Z. Geol. Surv. Bull. No.12, 171 pp.
1912. "The Geology of the New Plymouth Subdivision, Taranaki Division." N.Z. Geol. Surv. Bull. No.14, 58 pp.
1913. "The Taranaki Petroleum-Field." Mining J., 100, pp. 133-4, 158-9,
1914. "Notes on the Geology and Mining at Sandstone and Hancocks." Geol. Surv. W.A., Bull. No.62.
1916. "Geology and Ore Deposits of Meekatharra." Geol. Surv. W.A., Bull. No.68.
1917. "A Geological Reconnaissance of the Country between Laverton and the South Australian Border" (with H.W.B. Talbot.) Geol. Surv. W.A., Bull. No.75.
1918. "Geological Results of an Expedition to the South Australian Border" (with H.W.B. Talbot). Journ. Roy. Soc. W.A., III, pp. 70-98.
1920. "Boulders, possibly glaciated, near Leonora and Laverton." Journ. Roy. Soc., W.A., VI., Part II, pp. 27-8.
1923. "The Pre-Cambrian System in Western Australia." Journ. Roy. Soc., W.A., IX., Part II, pp. 13-37.
1925. "Leonora-Duketon District." Geol. Surv. W.A., Bull. No.84.



1925. "Rothesay and Payne's Find." Geol. Surv. W.A., Bull. No.86.
1925. "Monger and St. Ives." Geol. Surv. W.A., Bull. No.90.
1926. "The Geology and Physiography of the Neighbourhood of Perth, W.A." in Science in Western Australia (a handbook for the 18th Meeting Aust. & N.Z. Ass. Adv. Sci.), pp. 23-30.
1927. "Natural Regions in Western Australia." Journ. Roy. Soc., W.A., XII, pp. 117-132.
1927. "The Geology and Physiography of Parts of the Darling Range" (with F.A. Williams). Journ. Roy. Soc., W.A., XII, pp. 161-178.
1931. "The Pre-Cambrian Succession in some parts of Western Australia." Rep. Aust. and N.Z. Ass. Adv. Sci., XX, pp. 1-38.
1936. "Water Supply in the Kalgoorlie and Wheat Belt Regions of W.A." Journ. Roy. Soc., W.A., XXII, pp. xi-xliv.
1938. "Middle and West Australia." Regionale Geol. der Erde, Band I, Abs. VII, pp. 1-58.
1939. "Metasomatism near Ore-Bodies" (with H.A. Ellis). Econ. Geol., XXXIV, pp. 777-789.
1940. "Some Cambrian basalts from the East Kimberley, Western Australia" (with A.B. Edwards). Journ. Roy. Soc. West Aust., XXVI, pp. 77-94.
1940. "Load carried by Floodwaters in the South West" (with Dorothy Carroll), Journ. Roy. Soc., West Aust., XXVI, pp. 173-9.
1946. "Algal Structures in a Western Australian Salt Lake" (with C. Teichert). Amer. Journ. Sci., 244, pp. 271-276.
1948. "Tertiary Deposits near Norseman, Western Australia" (with C. Teichert and J.R.H. McWhae), Journ. Roy. Soc. West. Aust., XXXII, pp. 85-103.
1948. "Cretaceous Stratigraphy of Lower Murchison River Area, Western Australia," (with C. Teichert). Journ. Roy. Soc. West. Aust., XXXII, pp. 19-47.
1951. "Permian Succession and Structure in the northern part of the Irwin Basin, Western Australia" (with K.L. Prendergast, C. Teichert, and R.W. Fairbridge). Journ. Roy. Soc. West. Aust., XXXV, pp. 31-84.

1953. "Physiographic and other notes on a part of the South Coast of Western Australia" (with H.T. Phillips), Journ. Roy. Soc. West. Aust., XXXVII, pp. 59-90.
1954. "The Pre-Cambrian Geology of part of the South Coast of Western Australia" (with H.T. Phillips and R.T. Prider), Journ. Roy. Soc. West. Aust., XXXVIII, pp. 1-64.
1954. "The Plantagenet Beds of Western Australia" (with H.T. Phillips), Journ. Roy. Soc. West. Aust., XXXIX, pp. 19-27.
1955. "Junior Geology, 3rd Ed." (with L.F. Hanrahan), (Univ. of W.A. Press). First published 1941.
1956. "Elements of Geology for Western Australian Students, 3rd Ed." (with R.T. Prider and C. Teichert). (Univ. of W.A. Press). First published 1944.
1956. "Elementary Practical Geology, 3rd Ed." (with R.T. Prider and C. Teichert). (Univ. of W.A. Press). First published 1946.

R.T.P.

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#### RADIOCARBON AGE DETERMINATIONS

The Geological Survey has prepared a comprehensive list of  $^{14}\text{C}$  data compiled from information supplied by the collectors of the samples, and age determinations provided by the Director of the Division of Nuclear Sciences.

The entries, almost 200 of them, have been incorporated into the fossil record system. In this system samples are grouped according to the areas in which they were collected and are numbered serially within those groups; the area of a national one mile sheet has proved to be a convenient unit. The information recorded in these entries includes:- the number of the national one mile sheet in which the sample was collected, the serial number of the sample, its grid reference in terms of the national grid and a detailed description of the locality where the collection was made, the date, and the age determined.

This information may be consulted at the various University Colleges and Geological Survey offices, but it "is not for publication without reference to the collector and subject to confirmation by formal publication".

PERSONAL NOTES.

MR. B.W. COLLINS left New Zealand for London on 12th July, 1957, to take up a post as Scientific Liaison Officer to the Information Bureau of the Department of Scientific and Industrial Research. He expects to be away for about three years. Mr. Collins has been a tireless worker for the Society and a prime mover since its inception. It was he who called the first meeting in Auckland in 1954 and was convenor of the interim committee charged to form the Society. From its beginning until his departure he was its secretary and until January, 1957, he was also Treasurer. It was Mr. Collins who conceived, nurtured and brought to fruition the idea of a Newsletter, and who in three issues brought it to maturity with a standard his successor may have difficulty in maintaining. Mr. Collins's wide interests in all branches of science, his ability as a writer and speaker, and his experience in public affairs makes him admirably qualified for his new post. The committees, interdepartmental, scientific and educational, on which he has sat and given valued advice are innumerable. When he left New Zealand he was a member of the Council of the Royal Society of New Zealand and President of the Canterbury Branch.

We will not forget Mr. Collins's efforts for the Society and we hope that he (as a paid up member for the next three years!) will from time to time remember the Newsletter and act as the Society's corresponding member in London. His present address is: N.Z. Scientific Office, Africa House, Kingsway, W.C.2, London, England.

MR. R.P. SUGGATE left New Zealand on 12th July, 1957, for Cambridge where he will spend a year with Dr. Godwin at the Botany Department to work on problems related to Pleistocene research. From January, 1957, until shortly before he left, Mr. Suggate was the Society's Treasurer. Mr. Suggate, a prominent member of the Geological Survey, was recently chosen as co-ordinator of Pleistocene research within the Department of Scientific and Industrial Research, and he may be relied upon to bring back to New Zealand the latest principles, ideas and techniques from overseas, and to apply them to our Pleistocene problems.

MR. G. GRINDLEY of the New Zealand Geological Survey will attend the Ninth Pacific Science Congress to be held in November at Bangkok, Thailand.

PROFESSOR LILLIE left New Zealand for England last November. After spending four months in England he went to Austria and Switzerland where he did field work until the end of July. He writes that he has been impressed by the number of places where geologists are finding two sets of fold axes at right-angles, which have, apparently, been produced during one orogeny. The structures developed in this way are similar to those in many of our greywacke areas.

Dr. Lillie is at present in America and will be at the University of California, at Berkeley, until the end of the year.

DR. W.F. HARRIS, previously of the Botany Division and Soil Bureau of the Department of Scientific and Industrial Research, has joined the staff of the Geological Survey. His knowledge of fossil pollens will be invaluable to that active group working on New Zealand's Quaternary deposits, and his transfer will ensure closer liaison between the botanists and geologists.

DR. M.T. TE PUNGA, until recently a member of the staff of Victoria College, has joined the staff of the New Zealand Geological Survey. It is expected that he will continue his work on the Quaternary deposits and geological history of the Wellington district.

MR. D.R. GREGG of the New Zealand Geological Survey has been transferred from the Rotorua Office to Christchurch and has succeeded Mr. R.P. Suggate as Treasurer of the Society.

MESSRS. R.F. HAY and B.L. WOOD of the Geological Survey left New Zealand at the end of July for the Cook Islands where they will look for economic phosphate deposits.

[There is no truth in the rumour that the Geological Survey plans to establish District Offices in England, the Cook Islands, Bangkok or Antarctica. Ed.]

DR. R.P. GOLDTHWAIT, Professor of Geology at Ohio State University, is a Fulbright Research Scholar sponsored by the New Zealand Geological Survey. His mission in New Zealand is officially two-fold, that of advising the New Zealand Geological Survey in the establishment of a programme of glaciological research, and of examining some aspect of glaciation in New Zealand. Mr. I.C. McKellar is working with Dr. Goldthwait on a glaciological research programme. For his own researches he is studying the glacial deposits in the Tasman valley. Dr. Goldthwait is also a consultant to the American Government on I.G.Y. This phase of his work will take him to Antarctica between October and December of this year. In past years he has visited many glacial and recently glaciated regions in Alaska, Canada, Baffin Island, Greenland and Europe, and experiences on these visits, with many excellent colour slides, provide him with much material of scientific and popular interest for lectures. New Zealand educational, scientific and cultural organizations are fortunate that Dr. Goldthwait is not only an excellent speaker but also very generous with his services: he has freely given all his available time until his departure for America early next year. He will be spending most of September lecturing in Australia.

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#### GLACIER NEAR MELBOURNE

Headline Christchurch "Press"  
25/1/57.

The Ed. has assured Dr. Goldthwait that the "Glacier" has sailed since the headline was written, but it appears that he is still determined to make his Australian trip as planned.

Illustrations are available which leave no doubt that Mr. Wilhelm has been subjected to Pleistocene glaciation.

Extract from an abstract - A.N.Z.A.A.S.

LETTERS TO THE EDITOR.

Sir,

In "Time" of January 7, 1957, page 45, we read "and he does not see why scientists should not be prosperous as well as famous." In contrast to this I find in conversation with geologists that they are dourly determined to accept low pay as a necessary evil of scientific work. May I use your paper to suggest that scientists try to find out why they are in the less prosperous section of the community. If we will do this and send our results to you, we can in this way begin to do something to help ourselves.

Some of the communications may be worth publishing in your Geology News.

Yours etc.,

22.2.57.

108 Gracefield Rd.,  
LOWER HUTT.

(Sgd.) M. ONGLEY.

Dear Sir,

May I express my deepest concern over an error in your last Newsletter. The list of members contains my name, but no asterisk is placed beside it. Is the singular honour (that of being a foundation member) to be denied me? That would be the least of my concerns, but it is the Society itself that I am considering. In years to come, will it not wish to feel a glow of pride when it acknowledges that Suggate, R.P., was one of its foundation members? May I respectfully request that an apology be made in the next issue of your Newsletter.

Yours faithfully,

R.P.S.

[We hasten to assure Mr. Suggate that only the asterisk was denied him, not foundation membership. The secretary denies that the omission is in anyway responsible for Mr. Suggate's decision to return to England! (The missing asterisk was found deeply buried on the previous Treasurer's desk and has been carefully returned to the Society's archives). Ed.]

NEW ZEALAND GEOLOGICAL SURVEY

UNPUBLISHED REPORTS

By kind permission of the Director of the N.Z. Geological Survey (Mr. R.W. Willett), we are able to announce that the following recent unpublished reports have been placed on "open file", and they, with the translations, are available for consultation (and in some cases borrowing) by members. Enquiries should in the first instance be made to:

The Director,  
N.Z. Geological Survey,  
P.O. Box 8002,  
WELLINGTON.

- FLEMING, C.A. Traces of Petroleum in the Jurassic of Cheviot, North Canterbury. 30.10.56. 1 p.
- SCHOFIELD, J.C. Ground-water Supplies, Ravenhorpe Mental Hospital, Papakura. With Geological Notes on Fault Shadows and Pseudo-dykes. 13.11.56. 7 pp., map.
- HEALY, J. Dating of Volcanic Eruptions of the Taupo Region. Oct. 1956. 8 pp., 2 figs. (duplicated).
- WATTERS, W.A. Preliminary Report on Igneous Rocks from the Morley Bulletin Area (S159), Southland. Nov. 1956. 3 pp.
- WOOD, B.L. Preliminary Account of the Geology of Samoa. Oct. 1956. 8 pp., geol. map, 4 sketches.
- BECK, A.O. Examination of Coastline: Fighting Bay - Tory Channel area and Ohau Bay - Oteranga Bay. 2 pp., 3 figs.
- COUPER, R.A. Summary of Quaternary Plant Fossil Collections in Wellington District. 4.2.57. 6 pp. (?) See R.P.S.
- COUPER, R.A. Report on Wellington Quaternary Floras (Sheets N.160 and N.164). 5.2.57. 12 pp.



- THOMPSON, B.N. Preliminary Report on the Waioeka River Dam Site. Dec. 57. 9 pp., map.
- GRINDLEY, G.W. Four-mile Reconnaissance, Northern Kaimanawa Mountains. 13.2.57. 4 pp. (duplicated).
- STEINER, A. Deposition of Silica in Drill Holes at Wairakei. Petrological Progress Report No.2. Dec. 56. 2 pp. (duplicated).
- SEITZ, O. (Hannover) On the Ontogeny, Variability, and Biostratigraphy of certain Inoceramus. Palaont. Zeitsch., 30: 3-6; 1956. (orig. in N.Z.G.S. Library). Translation by C.A. Fleming. 2 pp. + diag.
- AXELROD AND FLEMING. Correspondence on the Base of the Pleistocene in New Zealand Dec.-Jan. 56-7. 4 pp. and fig.
- HARRINGTON, H.J. Greensand versus Serpentine versus Dunite for the Reversion of Calcium Superphosphate. 9.4.57. 1 p.
- WELLMAN, H.W. The Cretaceous of N.Z. (Extract from XX Congresso Geologico Internacional Mexico 1956.)  $\frac{1}{2}$  p. with Table. March, 56.
- COLLINS, B.W. Ground Water in the proposed Oxford Irrigation District. 19.3.57. 3 pp. 1 Table.
- GRINDLEY, G.W. Four Mile Reconnaissance. Northern Urewera Country, Part 1. 11 pp. and 1 map. 19-21.3.57.
- BOWEN, F.E. Sheet S44. Water Supply for Runanga Test Hole No.1. 2 pp. 4 Tables. 3.4.57.
- BOWEN, F.E. Sheet S64. Wanganui River Bridge Site. 3 pp. 1 map. 2 Figs.

TRANSLATIONS BY DR. BENNETT.

- AVIAS, J. 1949: Preliminary note on some new observations and interpretations concerning the Peridotites and Serpentes of New Caledonia (Central Sector). Bulletin de la Société géologique de France 5<sup>e</sup> serie, Tome 19, pp. 439-451. Figs. 1-3.

- BARTOLUCCI, G. 1956: On the Fumeroles, Solfataras, and Hot Spring Areas of the N.W. of the Republic of Argentina and the possibility of Industrial use. *Annali di Geofisica*, Vol. 9, No.1, pp. 31-42.
- ZESCHKE, GUNTHER. 1956; Radioactive Deposits of Fluorite. *Neues Jahrbuch für Mineralogie*. Heft 3, pp. 59-67, figs. 1-4.
- PFANNESTIEL, M. 1956: Variations in the level of the Mediterranean in the Area of the Nile Delta during the Ice Ages. *Act. IV. Cong. Int. Quat.* pp. 529-532.
- PANOV, D.G. 1956: On the Genetic Classification of the Bottom Relief of the Pacific Ocean. *Doklady Akademii Nank USSR* Vol.108, No.6, pp.1061-4, table, bibliography.

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HAMILTON, ROTORUA, TAURANGA and PALMERSTON NORTH PAPERS PLEASE COPY.

BOX 284. Available September 1, 1957. One complete and established department of geology and geophysics consisting of seven professors with Ph.D. degrees and six with M.S. degrees. Present positions have become untenable due to excessive teaching loads, lack of equipment, and poor salaries. Have hammers and coffee pots, will travel.

from "Geotimes" April 1957.

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# NEW MEMBERS.

A welcome is extended to the following members who joined the Society between 31st December 1956 and 7th August 1957. Total membership is now 185 (of whom 96 are unfinancial.)

- Adkin, G.L., 424 Evans Bay Parade, Hataitai, WELLINGTON.  
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 Mitchell, J.W., Pukemino, Via HUNTLY.  
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