

# NEWSLETTER

GEOLOGICAL SOCIETY  
OF  
NEW ZEALAND



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No. 24

APRIL 1967

NEWSLETTER

GEOLOGICAL SOCIETY OF NEW ZEALAND

Member Body of the Royal Society of New Zealand

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No. 22

April 1967

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The recent election of Dr C.A. FLEMING as a Fellow of the Royal Society is a signal honour upon which the Geological Society of New Zealand offers its warmest congratulations. Since Sir James Hector founded the New Zealand Institute in 1867 geologists have been eminent both in the service they have rendered to New Zealand science through high office in the Royal Society of New Zealand and in their scientific achievement. The Geological Society will share a sense of pride in the great honour conferred on one of its most distinguished members.

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### THE COMMONWEALTH GEOLOGICAL LIAISON OFFICE

B.W. Collins, who has for the past 5½ years been editor of the N.Z. Journal of Geology and Geophysics, has been appointed to succeed Mr G.H.S.V. Prasada Rao as Commonwealth Geological Liaison Officer in London for the next term of two years. Mr Collins was on the staff of the Geological Survey from 1946 to 1957, and from 1957 to 1960 was N.Z. Scientific Liaison Officer in London.

The Commonwealth Geological Liaison Office was established by the Commonwealth Committee on Mineral Resources and Geology in 1951. It is unique in that it is the only branch of science having a permanent liaison office associated with the Commonwealth Scientific Liaison Offices in London. The other groups in this organisation represent their respective countries in the whole field of science generally. The CGLO is a Commonwealth servant working for all Commonwealth countries in a restricted field.

Dr R.W. Willett (of New Zealand) was the first CGLO (then BCGLO) from 1951 to 1954. He was succeeded in turn by Dr K.A. Davies (UK) 1954-1957, Mr C.B. Bisset (UK) 1957-1961, Mr L.G. Noskes (Australia) 1961-1963, Dr E.R.W. Neale (Canada) 1963-1965, and Mr Prasada Rao (India) 1965-1967.

The CGLO was instituted in the first place to assemble and distribute information on mineral resources in the Commonwealth and on new techniques and developments in geological and mineral research. Over the years the functions of the office have changed, as the membership, needs, and meaning of the Commonwealth have been modified. The emphasis now is on the exchange of information between member countries, action on special request of individual Geological Surveys, assistance with the recruitment of geologists from the United Kingdom for work with Commonwealth Geological Surveys, reporting on scientific establishments and conferences of geological interest, and representation at international meetings.

Publications of the office include a monthly Newsletter, and various series of reports. The circulation list for these now includes many university geology departments as well as government geological establishments, and has grown to about 400. Mr Collins says he would welcome items of interest for inclusion in the newsletter, and ideas for special reports, from any source whatever.

As the greater number of requests for information and assistance have in recent years come from the smaller and newly independent Commonwealth countries, and not from those contributing most to the budget of the office, this service can be regarded as a minor Commonwealth aid scheme.

The address of the office is - Africa House,  
Kingaway,  
LONDON W.C.2.

Geologists from Commonwealth countries, or others interested in Commonwealth geology and mineral resources, are welcome to visit the office and take advantage of its facilities, whether they are employed by Government organisations, universities or private industry. Mr Collins hopes that during his term in London he will meet any New Zealand geologists visiting the U.K.

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ELEVENTH PACIFIC SCIENCE CONGRESS

TOKYO, August 1966

For the information of members of the Society a list of the titles of geological papers presented at the 11th Pacific Science Congress is given below. Abstracts of the papers are available at the Geological Survey, P.O. Box 30368, Lower Hutt. Anyone interested in a particular paper can obtain a copy of the relevant abstract by writing to the Editor or to Mr N. de B. Hornibrook.

SEA LEVEL CHANGES AND CRUSTAL MOVEMENTS OF THE PACIFIC DURING THE PLIOCENE AND POST-PLIOCENE TIME  
Convener: Nobuo IKEBE

Chairman: J.C. Schofield

- KATILI, J.A. and F. HEHUWAT (Indonesia) On the possible occurrence of large transcurrent faults in Sumatra, Indonesia.
- HUZITA, K. (Japan) Quaternary crustal movements in the "Kinki triangle", southwest Japan.
- SUGIMURA, A., Y. NARUSE, and T. MATSUDA (Japan) Three examples characterizing Quaternary earth movements in Japan.
- PLAFKER, G. and M. RUBIN (USA) Vertical tectonic displacements in south-central Alaska during and prior to the Great 1964 Earthquake.
- PALMER, L.A. (USA) Pleistocene tectonic movement in California, Oregon and Washington as determined from marine terrace warping.
- SLEMMONS, D.B. (USA) Pliocene and Quaternary crustal movements of the Basin-and-Range province, USA.
- TE PUNGA, M.T. (New Zealand) Problems of Quaternary earth movements in New Zealand.
- GILL, E.D. (Australia) Description of Quaternary shorelines with special reference to the tectonic factor.

Chairman: D.B. Slemmons

- NAKAGAWA, H. (Japan) Quaternary sea-levels of the Japanese islands.
- FUJII, S. and N. FUJI (Japan) Postglacial sea-levels in the Japanese island.
- HOPKINS, D.M. (USA) Late Cenozoic sea-level history in western Alaska.
- RICHARDS, H.G. and W. BROECKER (USA) A summary of the marine Pleistocene of the Pacific coast of North and South America.
- DILL, R.F. (USA) Erosion in the head of La Jolla submarine canyon.
- PASKOFF, R.P. (Chile) Recent state of researches on Quaternary sea-levels of the Chilean side of the Pacific between Lat. 30°S and 33°S.
- SCHOFIELD, J.C. (New Zealand) Evidence for Quaternary sea-levels from the Cook Islands and the effect of density changes on Post-glacial sea-level rise.
- WELLMAN, H.W. (New Zealand) Elevated Marine Beach Ridges at Cape Turakirae, New Zealand.

MINERALOGENETIC PROVINCES AND EPOCHS IN THE PACIFIC BELT  
Convener: Takeo WATANABE

Chairman: V.I. Smirnov

- HUANG, C.K. (Republic of China) Characteristic features of the gold-copper deposits of the Chinkuashin area, Taiwan.

- BARSUKOV, V.L. (USSR) The problem of genetic relationships between the sulphide-cassiterite deposits and intrusive bodies, and its significance for metallogenic hypotheses.
- RUB, M.G. (USSR) Accessory minerals and elements as indicators of comagmatism and metallogenic specialization of volcano-plutonic complexes (on the example of ore-bearing regions of Pacific belt)
- TOMSON, I.N. and V.S. KRAVCOV (USSR) On the Late Cretaceous stage of tin-silicate ore-formation at Pacific ore-belt and its relation to activation processes.
- TAKEUCHI, T., MIYAZAWA, T. and H. IMAI (Japan) Characteristics of the epigenetic mineralizations in the Japanese Arc during the Cretaceous and Miocene epochs.

Chairman: W.D. Johnston, Jr.

- FAVORSKAYA, M.A. (USSR) The metallogenic province of the south-east Kamchatka in Cenozoic time.
- RUSINOV, V.L. (USSR) Some peculiarities of superficial wall rock metasomatism in the Kamchatka-Kuril province.
- WATANABE, T. and T. TATSUMI (Japan) The strata-bound metalliferous deposits in relation to mineralogenetic provinces and epochs in Japanese Islands.
- FISHER, N.H. (Australia) Metallogenic provinces in Papua-New Guinea.
- ROY CHOWDHURY, M.K. (India) Mineralogenetic provinces and epochs in relation to tectonic evolution of India.

Chairman: N.H. Fisher

- SEKINE, Y., T. OKANO and H. OHMACHI (Japan) Metallogenic features of the Japanese Islands
- BAND, R.B. (Fiji) The relationship between mineralization and igneous activity in Fiji.
- RADKEVICH, E.A. (USSR) Comparative character of metallogeny in the Pacific belt.
- NISHIWAKI, C. (Japan) Distribution of disseminated copper deposits in the Pacific belt.
- SMIRNOV, V.I. (USSR) Features of metallogeny in the north-western part of the Pacific Ocean belt.

#### AGE AND NATURE OF THE CIRCUM-PACIFIC OROGENESIS

Convener: Tatsuro MATSUMOTO

Chairman: W. Hamilton

- RODDICK, J.A., J.G. SOUTHER, J.O. WHEELER, H. GABRIELSE (Canada) Age and nature of the Canadian part of the circum-Pacific orogenic belt.
- KRASNY, L. and B. ANDREJEV (USSR) The geologic structure and the history of the geologic evolution of the northwestern part of the Pacific mobile belt.
- MATSUDA, T., K. NAKAMURA and A. SUGIMURA (Japan) Late Cenozoic orogeny in Japan.
- HO, C.S. (Republic of China) The orogenesis of Taiwan.
- GERVASIO, F.C. (Philippines) The age and nature of orogenesis of the Philippines.

- KATILI, J.A. (Indonesia) Structure and age of the Indonesian tin belt with special reference to Bangka.
- FLEMING, C.A. (New Zealand) Biogeographic change related to Mesozoic orogenic history in the southwest Pacific.
- BURGL, H. (Colombia) The orogenesis of the Andean system in Colombia, South America.

Chairman: Yu. M. Pushcharovsky,  
J.M. Harrison

- LEBEDEV, M.M. and I.A. TARARIN (USSR) Metamorphic zones of Kamchatka as an example of the metamorphic assemblages of the inner part of the Pacific belt.
- ERNST, W.G. (USA) and Y. SEKI (Japan) Petrologic comparison of the Franciscan and Sanbagawa metamorphic terranes.
- COLEMAN, R.G. (USA) Glauconophane schists from California and New Caledonia.
- ARONSON, J.L. (USA) Absolute ages of the plutonic and metamorphic rocks of New Zealand.
- COOMBS, D.S. and C.A. LANDIS (New Zealand) Metamorphic belts and orogenesis in New Zealand.
- KAWANO, Y. and Y. UEDA (Japan) Periods of igneous activities of granitic rocks in Japan by the K-A dating method.
- SILVER, L.T., C.R. ALLEN and F.G. STEHLI (USA) Time constants and orogenic setting of the Peninsular Range batholith of southern California, USA and Baja California, Mexico.

Chairman: J.M. Harrison

- DICKINSON, W.R. (USA) Tectonic development of Fiji.
- HAMILTON, W. (USA) Orogeny in Antarctica.
- HAMILTON, W. (USA) Continental drift in Eastern Asia and Alaska.
- PUSHCHAROVSKY, Yu.M. (USSR) General outline of the structure of the Pacific tectonic belt.
- BOGDANOV, N.A. (USSR) Paleozoic geosyncline belt of the western part of the circum-Pacific.
- VASILKOVSKY, N.P. (USSR) On geological nature of the Pacific mobile belt.
- MATSUMOTO, T. (Japan) Fundamental problems in the circum-Pacific orogenesis.

#### TERTIARY CORRELATION AND CLIMATIC CHANGES IN THE PACIFIC

Convener: Kiyoshi Asano

Chairman: O.L. Bandy

- GLAESSNER, M.F. (Australia) Time scales and Tertiary correlations.
- LUDBROOK, N.H. (Australia) Correlation of Tertiary rocks of the Australasian region.
- SEROVA, M.J. (USSR) Zonal scale of Paleogene deposits from the north-west part of the Pacific province and their correlation with Tethys deposits.
- ZHIDKOVA, L.S. (USSR) The cyclicity in formation of Cenozoic sediments in the northwest part of the Pacific province and its significance in biostratigraphic correlation.



- ZHUZE, A.F. (USSR) Tertiary Diatomaceous rocks of the Pacific Ocean basin.  
LIDZ, L. (USA) Intercontinental correlation of Miocene marine sediments.  
EMILIANI, C. (USA) Late Cenozoic stratigraphy of Atlantic and Pacific deep-sea sediments and correlations with the glacial and interglacial continental stages.  
HORNIBROOK, N. de B. (New Zealand) New Zealand Tertiary microfossil zonation, correlation and climate.

Chairman: N. de B. Hornibrook

- ALEKSEEV, M.N. (Thailand) Provisional correlation of Cenozoic index sections of central western Pacific island arc.  
TEWARI, B.S. (India) Tertiary stratigraphy in India and climatic changes.  
GREY, R.R. (Philippines) Correlation of Tertiary rocks in the Philippines.  
CHANG, L.S. (Republic of China) Tertiary biostratigraphy of Taiwan and its correlation  
WOLFE, J.A. and D.M. HOPKINS (USA) Climatic changes recorded by Tertiary land floras in northwestern North America.  
ASANO, K. and K. HATAI (Japan) Micro- and Macropaleontological Tertiary correlations within Japanese islands and with planktonic Foraminiferal sequences of foreign countries.  
HUZIOKA, K. and T. TANAI (Japan) Climatic implication of Tertiary floras in Japan.  
BANDY, O.L. (USA) Problems of Tertiary Foraminiferal zonation, circum-Pacific area.

DIVISIONAL MEETING IV-1: MAJOR AND MINOR GEO-TECTONICS

Organizers: Masao Minato  
Ryohei Morimoto

Chairman: R.S. Dietz

- SMIRNOV, A.M. (USSR) Role of the pre-Cambrian basement in the structural evolution of the Pacific mobile belt (particularly its north-western section).  
THACH, T.K. and TIET, L.V. (Vietnam) Paleogeographic analysis of Indochina during the Paleozoic and the Mesozoic Eras.  
BANDO, Y. (Japan) The Triassic ammonoid zones of Japan.  
WESTERMAN, G.E.G. (Canada) and G. CECIONI (Chile) The Triassic-Jurassic marine transition of coastal central Chile.  
ICHIKAWA, K. (Japan) Early Mesozoic tectonic provinces in Japan.  
MARKOV, M.S. and I.A. SOLOVIEVA (USSR) Meso-Cenozoic history and structure of the earth's crust of the Okhotsk region.

Chairman: T.K. Thach

- KIMURA, T. (Japan) On some fold patterns in Japan.  
BOSTROM, R.C. (USA) The ocean-ridge system in the northeast Pacific Ocean.  
EGIASAROV, B.C. (USSR) Tectonics and main stages of development of the northern part of the Pacific mobile belt inner zone.



- KONISHI, K., T. ITABASHI and S. ISHIDA (Japan) Revision of pre-Miocene stratigraphy of the Ryukyu Island arc.
- TILMAN, S.M. (USSR) The tectonic evolution of the north-east Asia as the zone of transition between the continent and the Pacific.
- TOKUYAMA, A. (Japan) Some characteristic features of Mesozoic orogenies in Japan.
- CHEONG, C.H. (Republic of Korea) The Myogog Formation and the so-called Daebog disturbance in Korea.

Chairman: N.A. Shilo

- TJIA, H.D. (Indonesia) Volcanic lineaments in the Indonesian island arcs.
- USTIEV, E.K. (USSR) East-Asiatic volcanic belt: its structural position, geological history and magmatic formations.
- KANMERA, K. (Japan) Early Mesozoic outside submarine volcanic belt in southwest Japan.
- GORYATCHEV, A.V. (USSR) Tectonics and developmental history of Kuril-Kamchatka arc.
- MATSUMOTO, T. (Japan) Genetical considerations on the Mesozoic plutonic-volcanic association in the circum Pacific border zone.
- DIETZ, R.S. (USA) Pacific border geosynclines, mountains and continent building.
- THACH, T.K. (Vietnam) Structure of the lower Donnai river basin.

Chairman: E.I. Erlich

- HONDA, T. (Japan) Geotectonic movements of eastern Japan and considerations on the Great Kanto Earthquake of 1923 and some other shocks.
- GANESHIN, G.S. and Y.F. CHEMEKOV (USSR) Neotectonics and morphostructural features of the north-western part of the Pacific mobile belt.
- MATSUZAWA, I. (Japan) The structural movement of the Nobi tilted block - A neotectonic deformation of the central Japan.
- MENG, C.Y. (Republic of China) The structural development of the southern half of the western Taiwan.
- GROVER, J.C. (British Solomon Islands Protectorate) The British Solomon Islands - the present geological picture as a result of sixteen years of geological and geophysical exploration.
- DEVIS, S.G. (Hongkong) A preliminary report on the geochronology of Hongkong.
- VLASOV, M.G. (USSR) Interrelations between Kuril-Kamchatka arc and continental and oceanic geological structures.
- ERLICH, E.I. (USSR) Latest movements on the territory of Kamchatka and the development of Quaternary volcanicity.
- LAUDON, T.S., L.L. LACKEY (USA) and P.G. QUILTY (Australia) Geology of eastern Ellsworth Land, Antarctica.
- HADIKUSUMO, D. (Indonesia) Mt. Kelut and its problem.
- HACKMAN, B.D. (British Solomon Islands Protectorate) The geology of central and eastern Guadalcanal, British Solomon Islands Protectorate.
- GANESHIN, G.S. (USSR) The evolution of the relief of the Sakhalin Island in Pleistocene.

SASA, Y., IZAKI, A. and Y. MOCHIDA (Japan) Submarine geology and geologic history of the Tsugaru straits, Japan.

DIVISIONAL MEETING IV-2: PALAEONTOLOGY

Organizer: Masao Minato

Chairman: A.V.H. Be

IGO, H. and T. KOIKE (Japan) Studies of Asiatic conodont.

SCHLANGER, S.O. (USA) and K. KONISHI (Japan) Contrasting bryozoan content of Plio-Pleistocene to present-day Carbonates from Guam, Mariana Islands, and Kikai-jima Ryukyu Islands, and its regional implications.

HAMADA, T. (Japan) Nautilus distribution.

KIM, B.K. (Republic of Korea) The stratigraphic and paleontologic studies on the Tertiary (Miocene) of the Pohang area, Korea.

CHINZEI, K. and Y. IWASAKI (Japan) Paleocology of shallow sea molluscan faunas in Neogene deposits of Northeast Japan.

SAITO, T., J.D. HAYS and L.H. BURCKLE (USA) Cretaceous and Tertiary sediments of the Pacific Ocean.

Chairman: B.K. Kim

LING, H.Y. (USA) A discussion of radiolaria from the northeast Pacific Ocean.

UCHIO, T. (Japan) Deep-sea stratigraphy of several piston cores off Japan.

BE, A.W.H. and T. SAITO (USA) Planktonic Foraminifera of the southeastern Pacific Ocean.

GLADENKOV, Y.B. (USSR) Biostratigraphy of various Neogene facies of the Koryak-Kamchatka region.

PARAKASH, U. (India) and E.S. BARGHOORN (USA) Miocene fossil woods from the Columbia Basalts of central Washington.

HARTONO (Indonesia) Globigerina marls from the Eocene of Naggulan.

DIVISIONAL MEETING IV-3: PETROLOGY

Organizer: Ryohei Morimoto

Chairman: R.S. Fiske

ISHIOKA, K. (Japan) A Clinopyroxene granitic rock from Myogase, Kawai-mura, Hida.

RAY, D. and R.B. FORBES (USA), T. KATSURA, H. MATSUMOTO, and H. HARAMURA (Japan) The geochemistry and petrology of Trident volcano, Alaska.

WAHJU, B.N. (Indonesia) Petrochemical study on the 1963 volcanic products of the Agung and Batur volcanoes, Bali.

STICE, G.D. (USA) Petrology of the Manu'a group, American Samoa.

CHIHARA, K. (Japan) Miocene basalts of north Japan arc.

MACDONALD, G.S. (USA) New data on chemical composition of Hawaiian lavas.

SHILO, N.A., A.B. ZILBERMINTS, A.A. SIDOROV (USSR) Pacific volcanic belts of the Soviet Asia and the features of their metallogeny.

Chairman: A.M. Smirnov

IWASAKI, M. (Japan) Some metamorphic equivalents of the basic volcanic rocks in eastern Shikoku, Japan.

THOMPSON, R.B. (British Solomon Islands Protectorate) Serpentinization accompanied by volume changes.

KUNIYOSHI, S. and D. CARLISLE (USA) Selective albitization of submarine volcanic rocks of the upper Triassic Karmutsen group, Vancouver Island, British Columbia Canada.

NABOKO, S.I. (USSR) Modern facies of the hydrothermally modified rocks of the Kamchatka-Kuril volcanic arc.

FISKE, R.S. (USA) Subaqueous pyroclastic flows of Wadaira type in North America.

GOVOROV, I.N., V.G. MOISEYENKO, F.G. FEDCHIN and P.G. NEDOSHKOVSKY (USSR) Geochemical cycles in endogenous mineralization of the Soviet Far East.

#### DIVISIONAL MEETING IV-4: SEDIMENTATION

Organizer: Masao Minato

Chairman: G.E.G. Westerman

TERCINIER, G. and P. QUANTIN (New Caledonia) Effect of the weathering on the recent volcanic ashes and pumices about the species, the properties and the fertility of the soils in New Hebrides Islands.

PURBO-HADIWIDJOJO, M.M. (Indonesia) Mineral springs of Java, Indonesia.

NAGASAWA, K. (Japan) Formation and transformation of clay minerals in the Pleistocene sediments around Nagoya.

LARUELLE, J. (Belgium) Soils of the Galapagos Islands.

HIRAYAMA, J. and Y. SUZUKI (Japan) On the extent and variation of sandstone and mudstone layers composing the Flysch-type alternations.

BRODSKAIA, N.G. (USSR) Phosphate accumulation in the zone of the Pacific belt.

HORIE, S. (Japan) On the process of sedimentation in Lake Biwa-ko, an ancient lake in Japan.

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#### VISITING SPEAKER

Professor O.M.B. BULMAN, lately retired as Woodwardian Professor of Geology at Cambridge University, and an authority on Lower Paleozoic invertebrates, especially the graptolites, will be visiting New Zealand in July and August as a Commonwealth Prestige Fellow. During his visit, arranged through the University Grants Committee, he will give lectures and seminars at the four university geology departments, and will also spend some time at the Lower Hutt office of the New Zealand Geological Survey.

GEOLOGICAL SOCIETY OF NEW ZEALAND

NOTICE OF MEETING

The Twelfth Annual General Meeting of the Society will be held at the University of Waikato on Friday, May 12, at 8.00 p.m. This will be during the Geological Society of New Zealand conference at Hamilton.

A G E N D A

1. Confirmation of Minutes of the 1966 Annual General Meeting. Matters arising.
2. Presentation and adoption of Annual Report and Balance Sheet.
3. Election of Officers and Committee.
4. Presentation of the McKay Hammer for 1965.
5. McKay Hammer: proposed change to Rules.
6. R.S.N.Z. Centenary Building Fund.
7. General Business.
8. Presidential address.

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Members are reminded that every person nominated for election must have signified his or her acceptance of nomination, personally or in writing, before election.

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NOTICE OF MOTION:

The following notice of motion has been received from M. Gage:

"That it be a recommendation to the Committee of the Society that the Bylaw "McKay Hammer Award" be amended by replacing the word "published" in Clause 3 with the words "becoming available".

D.G. Jenkins  
Hon. Sec.

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GEOLOGICAL SOCIETY OF NEW ZEALAND

Annual Report for the Year ended 31 March 1967  
to be presented at the Twelfth Annual General Meeting  
at Hamilton on 12 May 1967

Committee: The Officers and Committee elected at the Eleventh Annual General Meeting held at Oamaru on 17 May 1966 were:-

President: Mr N. de B. Hornibrook (Lower Hutt)  
Vice-President: Professor J. Bradley (Wellington)  
Secretary: Mr D.R. Gregg (Canterbury Museum,  
Rolleston Avenue,  
Christchurch 1)  
Treasurer: Mr Guyon Warren (N.Z. Geological Survey,  
Box 1471,  
Christchurch)  
Committee: Mr R.A. Garrick (Wellington)  
Mr W.F. Heinz (Christchurch)  
Dr J.T. Kingma (Christchurch)  
Mr J.C. Schofield (Papatoetoe)  
Dr I.G. Speden (Lower Hutt)  
Auditor: Mr D.J. Daly

Additional Committee members were:

Past President: Professor R.N. Brothers (Auckland)  
Representative on  
RSNZ Member Bodies'  
Committee: Mr B.W. Collins (Wellington)  
Editor: Dr W.A. Watters (Lower Hutt)  
Co-opted 12 Feb. 1967: Dr D.G. Jenkins (Christchurch)

The Committee met three times.

Membership: The number of members at 31 March 1967 was 308, a net gain of 11 since 31 March 1966. In accordance with Rule 3(c) it has subsequently been necessary to remove 8 names from the list of members.

Finance: Income exceeded expenditure during the year by £17, resulting principally from a slight increase in membership and lower bad debts. Although several proposals that involve extra expenditure for the Society in 1967-68 have been put forward, the present annual subscription is likely to continue to be sufficient in the meantime.

Newsletter: The Society is indebted to the Editor, Dr W.A. Watters, for his continued valuable work. Newsletter No. 20 was distributed in April; and No. 21, which included a very useful list of geology theses held in New Zealand universities, in October.

First Conference of the Society: After discussing the matter intermittently for some years, the Committee has decided that the Society will hold its first conference in Hamilton on 10-15 May 1967. An organizing committee has been set up at Auckland and Hamilton, initially under the chairmanship of Professor Brothers, but now with Mr J.C. Schofield as chairman. The conference secretary is Mr J.A. Grant-Mackie. Dr R.W. Willett, Director of the New Zealand Geological Survey has cooperated fully with the Society, and the University of the Waikato has generously provided accommodation for the conference.

Sections: A new section of the Society has been formed in Dunedin (Secretary, Mr C.A. Landis), and held eight meetings:

- "Median Tectonic Lines of Japan, Celebes, and New Zealand" by C.A. Landis
- "Carbonate sediments of Florida" by A.E. Meder
- "1966 Auckland Islands Expedition" by P.C. Rickwood
- "Landforms in American Deserts" by B.L. Wood
- "Partial Fusion of Peridotite" by A. Reay
- "Some Aspects of Portugal with Observations on the Geology of a Ring Complex near Lisbon" by J.B. Wright
- "Field Studies in Labrador, Canada: an Investigation of the Michikanad Anorthosite" by D.J. Mossman
- "Visit to Japan" by D.S. Coombs

The Auckland Section (Chairman, Professor A.R. Lillie; Secretary, Mr L.O. Kermode) held six meetings; details are given in Newsletter 21, p.23.

The Christchurch Section (Secretary, Dr R.P. Suggate) held four meetings:

- "Late Quaternary Vegetation and Climate in the Colombian Andes" by Professor R.F. Flint
- "Correlation of Interglacials, Marine Benches and Rates of Tectonic Rise in New Zealand" by Professor H.W. Wellman
- "The Stratigraphy and Economic Geology of the Westport Pakihis" by R.I. McPherson
- "The Cenozoic History of the Sierra Nevada, California" by Professor Clyde Wahrhaftig.

In Wellington, meetings of geologists are organized by the Geology Section of the Wellington Branch of the R.S.N.Z.

Stratigraphic Code: The 1966 Annual General Meeting resolved that the Society recommends as a guide to stratigraphic classification a modified version of the "Statement of Principles of Stratigraphic Classification and Terminology", 21st International Geological Congress, 1961. A suitably amended copy of the code has been prepared and is now available (see note in this Newsletter).

Preservation of Geological Features: An approach was made to the owner of the land at Cape Turakirae regarding the possibility of a segment of the marine terraces being purchased by the Crown as a reserve. A report on the significance of the terraces was made to the Department of Lands and Survey, which has initiated negotiations for the acquisition of some of the land.

Royal Society of New Zealand: As a member body the Society has participated in RSNZ affairs. Mr B.W. Collins has continued to serve as our representative on the Member Bodies' Committee, and nominations have been made for Fellows' Councillors on the RSNZ Council. Mr Collins has given notice that he will be unable to continue in the position next year. The Society is indebted to him for the excellent and energetic representation he has provided for us in Royal Society affairs.

Supplement to Stratigraphic Lexicon: An index has been prepared of new stratigraphic names published in Geological Survey Bulletins and maps and the following journals: Trans. Roy. Soc. N.Z., N.Z. J. Sci. Tech. and N.Z. J. Geol. Geophys. Other publications have yet to be searched for new names but it is anticipated that the index will be completed in mid-1967. Authors of new stratigraphic names will then be asked to prepare lexicon articles for their names.

McKay Hammer Award: It has been recommended that no McKay Hammer award be made for 1966.

Thanks: The Society is grateful to Dr R.W. Willett, Director of the New Zealand Geological Survey, for his invitation to members to attend the 1966 Staff Conference at Oamaru.

Death: With regret, we record the death of Professor R.S. Allan, a foundation member of the Society.

N. de B. Hornibrook, President

D.R. Gregg, Secretary

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ANZAAS, CHRISTCHURCH, January 1968

The first circular, announcing details of the congress and inviting intending participants to send notice of papers they wish to present, has become available and is being sent to all Geological Society members with this Newsletter. Some proposed programme topics for Section C (Geology) are outlined in the circular, but it should be emphasized that few firm decisions have yet been made, and suggestions are still welcome. These should be sent either to the section secretary or to the section programme convener, Dr D.G. Jenkins, University of Canterbury.

Professor David BROWN, Australian National University, Canberra, who is well known to many members of the Society from his earlier associations with NZGS and Otago University, will be President of the geology section. A distinguished visitor will be Professor Kalervo RANKAMA, University of Helsinki, who will be studying Precambrian stratigraphy in Australia for a period from June 1967, and will give a paper at ANZAAS before returning to Europe in February.

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G E O L O G I C A L   S O C I E T Y

RECEIPTS and PAYMENTS ACCOUNT

RECEIPTS		1966
Balance 1/4/66 - Cash at Bank	195.17.3	182
Subscriptions	157.16.6	139
Receipts for "Transactions"	20. 0.0	38
Interest	6.13.7	5

389. 7.4

INCOME and EXPENDITURE ACCOUNT

EXPENDITURE		10
Royal Society - Annual Contribution	10. 0.0	10
- Travelling Quota	8.15.2	10
Audit Fee	2. 2.0	2
Stationery and Postages	24.14.5	23
Printing	87. 8.5	89
Cost of "Transactions"	14.8	3
Sundry Expenses	5. 3.0	5
<u>Excess of Income over Expenditure</u>	<u>17.16.1</u>	<u>2</u>
	<u>156.13.7</u>	

BALANCE SHEET

LIABILITIES		
Subscriptions and "Trans." payments in advance	50.19.8	50
Provision for Newsletter 22	28. 0.0	28
<u>Accumulated Fund</u>		
Balance at 1/4/66	130. 9.8	129
Add Excess of Income over Expenditure	<u>17.16.1</u>	<u>1</u>
	<u>148. 5.9</u>	<u>130</u>
	<u>227. 5.5</u>	

CERTIFICATE

I have audited the accounts and vouchers of the Geological Society of New Zealand (Inc.) for the year ended 31st March 1967, and in my opinion the accounts and Balance Sheet show correctly the affairs of the Society as at that date.

Nelson, N.Z.  
10th April 1967.

(Signed) D.J. Daly,

A.R.A.N.Z.  
Auditor



NEW ZEALAND (INC)

Year ended 31/3/67

PAYMENTS

Royal Society - Annual Contribution	10. 0.0	1966
- Travelling Quota	8.15.2	10
- "Transactions"	<u>29. 5.0</u>	22
	43. 0.2	42
Stationery and Postages	24.14.3	23
Printing	87. 8.5	88
Audit Fee	2. 2.0	2
"Transactions" Postage	7. 2.2	8
Sundry Payments	5. 3.0	5
Balance 31/3/67 - Cash at Bank	<u>214.17.4</u>	196
	<u><u>389. 7.4</u></u>	

Year ended 31/3/67

INCOME

Subscriptions	154.10.0	148
Add Bad Debts Recovered	<u>4. 0.0</u>	2
	158.10.0	150
Deduct Bad Debts Written Off 31/3/67	<u>8.10.0</u>	12
	150. 0.0	138
Interest	6.13.7	5
	<u><u>156.13.7</u></u>	

1/3/67

ASSETS

Cash at Bank of New South Wales, Christchurch	214.17.4	196
Subscriptions and "Trans." payments in arrears	12. 8.1	15
	<u><u>227. 5.5</u></u>	

Guyon Warren  
Honorary Treasurer

## GUIDE TO STRATIGRAPHIC NOMENCLATURE

Since its beginnings in 1955, the Society has wrestled from time to time with the question of the establishment of a New Zealand stratigraphic code. Geologists being what they are, opinions on the matter have been widely different and strongly maintained. Views have ranged - and doubtless still range - from those of geologists who see the absence of an agreed code as a major obstacle to geological progress in New Zealand, to those who regard a code of any kind as unnecessary if not positively evil. Even among those geologists who favour the option of a code, agreement has been far from unanimous on specific details.

The matter was raised again in 1964 and the Society appointed a committee under the chairmanship of Mr N. de B. Hornibrook to "report on the desire for and desirability of New Zealand adopting a stratigraphic code,...." For this purpose a searching questionnaire was devised under Mr Hornibrook's guidance, and sent to all members in July 1964. Analysis of the replies served both to define large areas of very wide agreement, and to highlight fundamental differences in approach on certain aspects of time-stratigraphy. The questionnaire and tabulation of replies were circulated to members as Newsletter 18 in July 1965, and the subcommittee reported its findings to the Society's annual meeting later that year. This meeting with some difficulty persuaded Mr Hornibrook's committee to continue in existence and prepare a detailed resolution for the next meeting in the light of their findings.

The 1966 Annual General Meeting in Oamaru passed a motion recommending to members "the Statement of Principles of Stratigraphic Classification and Terminology by the International Subcommission on Stratigraphic Terminology, as a guide to stratigraphic classification" subject to various relatively minor amendments and additions. These were set out in Newsletter 20 (April 1966), pp. 12-13. The meeting also decided that the statement and recommended changes could be reproduced and made available to members at a small charge.

The Guide has now been prepared and is available for purchase. It consists basically of a reproduction of the "Statement" submitted to the 1960 International Geological Congress in Copenhagen, and published in 1961. The amendments recommended by the Oamaru meeting are mentioned as footnotes, and the suggested additions listed.

One copy of the Guide may be purchased by each member of the Society, and undergraduate students, for 2/-; other copies are available in unlimited number at 3/- each.

For members' convenience, copies will be available at meetings of the local sections of the Society during the next few months, and at the Society's conference in Hamilton. Copies are also held by:

- Mr J.A. Grant-Mackie, Geology Department, University of AUCKLAND.
- Mr J.C. Schofield, N.Z. Geological Survey, Otago Research Station, PAPATOETOE.
- Mr J. Healy, N.Z. Geological Survey, Lawson's Building, ROTORUA.
- Dr W.A. Watters, N.Z. Geological Survey, State Fire Building, LOWER HUTT.
- Prof. J. Bradley, Geology Department, Victoria University, WELLINGTON.
- Mr G. Warren, N.Z. Geological Survey, Geology Building, University of Canterbury, CHRISTCHURCH.
- Mr R.G. Adamson, N.Z. Geological Survey, Regent Theatre Building, GREYMOUTH.
- Mr J.D. Campbell, Geology Department, University of Otago, DUNEDIN.
- Mr I.C. McKellar, N.Z. Geological Survey, Angus Motors' Building, DUNEDIN.

Would members wishing to receive a copy by post please get in touch with the Secretary or Treasurer. Payment may conveniently be made when the annual subscription (still 10/-) is sent in.

G.H.

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INTERNATIONAL COMMISSION ON STRATIGRAPHY

Circular No. 18 of the International Subcommittee on Stratigraphic Classification of the International Commission on Stratigraphy, dated February 15, 1967, was received during March. The contents of this circular include:

1. Introduction
2. Invited outside commentaries on the Subcommittee report on "Definition of Geological Systems"
3. Further letters regarding the commentary from India on the Subcommittee report on "Definition of Geologic Systems"
4. Draft Statement on Lithostratigraphic units
5. Changes in Membership of the Subcommittee
6. Attachment A. Suggested outline of a section on Lithostratigraphy for an International Guide to Stratigraphic Usage.

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Parts of interest to New Zealand geologists are:

(a) Both the Geological Society of New Zealand (through I.G. Speden) and the New Zealand Geological Survey (through its Director) have become Organizational Members of the Subcommittee on Stratigraphy. This means that these organizations will be kept informed of developments in stratigraphic classification, and have the right to comment if desired.

(b) As could be expected, the comments on the "Definition of Geologic Systems", published in the Bull. Amer. Assoc. Petrol. Geol. v. 49, no. 10, p.1694-1703 (1965), include many diverse opinions, most being favourable, and nearly all making points worthy of consideration.

(c) Of most importance is the "Suggested Section on Lithostratigraphy for an International Code on Stratigraphic Nomenclature" prepared by Dr G.V. Cohee, U.S. Geological Survey.

The outline of contents for this code is as follows:

Article I	Nature of lithostratigraphic units
Remarks	a. Recognition
	b. Type section and extent
	c. Independence from inferred geologic history
	d. Independence from time concepts
	e. Formal and informal units

- f. Lithostratigraphic zone
- g. Named economic units

Article II     The formation is the fundamental lithostratigraphic unit

- Remarks
- a. Sedimentary and extrusive igneous rocks
  - b. Volcanic rocks
  - c. Intrusive igneous rocks
  - d. Metamorphic rocks
  - e. Complexes

Article III    Member, tongue and lentil

- Remarks
- a. Rank of tongue and lentil
  - b. Change in rank of member

Article IV     Bed

- Remarks
- a. Informal status of most beds
  - b. Key or marker beds

Article V       Group

- Remarks
- a. Change in component formations
  - b. Change in rank

Article VI      Boundaries of lithostratigraphic units

- Remarks
- a. Boundary in a gradational sequence
  - b. Key beds used for boundaries
  - c. Mechanically defined boundaries
  - d. Obscure unconformity
  - e. Boundaries in facies change

Article VII     Naming lithostratigraphic units

- Remarks
- a. Source of geographic name
  - b. Omission of part of name
  - c. Use of simple lithologic term
  - d. Group name
  - e. Formation name
  - f. Member name
  - g. Capitalization
  - h. Informal usage of identical geographic names
  - i. Intrusive igneous rocks
  - j. Metamorphic rocks
  - k. Misuse of well-known names



- Article VIII The geographic component of an established lithostratigraphic name should not be changed
- Remarks
- Difference in spelling of geographic name
  - Change in name of geographic feature
  - Disappearance of geographic feature
  - Names in different countries and different languages
- Article IX Procedure in establishing formal lithostratigraphic units
- Remarks
- Specific requirements
  - Additional requirements for subsurface units
  - Form of publication
  - Casual mention of name insufficient
  - Publication in abstracts and guidebooks
  - References for names already established
  - Surface and subsurface names
  - Type section never changed
  - Reference localities
- Article X Rule of priority
- Remarks
- Definition
  - Preservation of well-established name
  - Duplication of names
- Article XI Revision of lithostratigraphic classification and nomenclature
- Remarks
- Importance of redefinition
  - Undesirable restriction
  - Change in lithologic designation
  - Change in rank
  - Different geographic names for unit and its parts
- Article XII Abandoned names may be available for use
- Remarks
- Obsolete names
  - Reference to abandoned names

This lithostratigraphic section includes the first published discussions of some practical aspects of lithostratigraphic classification, aspects which have troubled many geologists. The "remarks" from Article II (see above) are particularly interesting, and are reproduced here:

"Remarks:

(a) Sedimentary and extrusive igneous rocks

Intricately interbedded sedimentary and igneous rocks may be assembled into a formation under one name.

(b) Volcanic rocks

Cartographically distinguishable sequences of volcanic rocks should be treated as formations like any stratified sequence of sedimentary rocks.

(c) Intrusive igneous rocks

Units composed of intrusive igneous rocks that are discriminated by mineralogic or textural characteristics, or chemical composition, may be classed as formations.

(d) Metamorphic rocks

Formations composed of metamorphic rocks are, like other formations, distinguished primarily by lithologic composition. The mineral facies may differ from place to place, but these variations do not necessarily require definition of a new formation. Metamorphic rocks with relict textures and structures that enable the geologist to recognize mappable units should be classified just as any normal stratigraphic sequence. Metamorphic and metasomatic rocks not classifiable by normal stratigraphic methods have to be discriminated primarily on their petrographic and structural features.

(e) Complexes

If a mass of rock is composed of diverse types of any class or classes or is characterized by highly complicated structure, the word "complex" may be used as part of the formal name instead of a lithologic or rank term; for example, Akkajaure Complex."

I.G. Speden

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REVIEW

STRATIGRAPHIC CLASSIFICATION, TERMINOLOGY AND NOMENCLATURE AS APPROVED BY THE NATIONAL COMMITTEE OF GEOLOGISTS OF THE U.S.S.R. Interdepartmental Stratigraphic Committee of the U.S.S.R. Nedra Press, Leningrad, 1965.

The English translation of the Soviet official Stratigraphic Code recently published in International Geology Review Vol. 8, No.10 part 2, pp. 1-36, October 1966, will be of considerable interest to New Zealand geologists.

The Code, which is a mandatory statement for all geological organisations of the U.S.S.R., is prefaced by a statement of stratigraphic principles followed by sections on the rules for assignment of names to stratigraphic subdivisions, priority and its application, derivation and inscription of names of stratigraphic subdivisions, and organisation of the Stratigraphic Nomenclature Service in the U.S.S.R.

The principles on which the Soviet code is based could be summarised in a nutshell as "The unity of stratigraphy" and, as the following extracts show, reject the basic principles of the American and proposed International Codes, which separate stratigraphic classification into its discrete parts: lithostratigraphic, biostratigraphic, and chronostratigraphic categories.

"The differentiation of stratigraphic subdivisions must be free from any subjectivism or accident. It must not evolve from some principle of a formal convenience or a bare convention, but it must be aimed at an objective determination of the actual course of the geological history. Stratigraphic subdivisions must be differentiated so as to make them correspond to actual historical stages of geological evolution of the earth as a whole or of its definite regions. At that, the differentiations must be based upon the sum total of all the evidence objectively reflecting stages within the historical course of the earth's evolution as well as idiomorphisms of these stages in different parts of the earth. It is on such premises that one must choose the criteria for the boundaries and the taxonomy of the stratigraphic subdivisions.

"The system of stratigraphic subdivisions must be a reflection of the natural stages of the historical-geological process and must be founded upon evolutionary data of the earth's crust and of the organic world.

"Insofar as the evolution of the organic world depends most intimately upon the state and the direction of the evolution of abiotic factors in the environment (its direction, rate, and conditions), phenomena of a physical character (tectonic movements, historical changes in the land-sea relations, changes in climate and in facies environments, epochs of volcanism, etc.) have a cardinal importance in determining at least the most significant stratigraphic thresholds in the stratigraphic classifications as a whole. However, in the practice of stratigraphy we make use not of those phenomena constituting the initial basis of geological periodization, in the majority of the cases, but changes in composition of the organic world which depend on them - the data of paleontology. The reason is easily understood: factual evidences of the irreversible evolution of the organic world are so numerous and multifiform, yet so clear and intelligible, the paleontological data will always remain the most accessible basis for estimations of relative time and stratigraphic correlations. Paleontological data also play an exceptional role, because any given stage in the evolution of the organic world is contingent upon the entire course of the earth's evolution and upon special aspects of the latter in the corresponding time-span and the corresponding place.

"It follows from the foregoing principles and basic criteria of stratigraphic classification that any subdivision of the stratigraphic scale, from the largest and all-inclusive to the smallest and exclusively local, must represent a definite natural stage in the overall progress of the earth's evolution and in the evolution of its inhabitants (fauna and flora) as a whole or in some part thereof.

"... The possibility of a breakdown of the earth's history into its natural stages, as a whole or on a regional basis, is contingent upon the progressive development of the earth, i.e. the irreversibility of the phenomena which have occurred in the geological past against the background of their more or less clearly expressed periodicity. The most striking and common expression of that is in the sequence of long stages of evolutionary development and relatively short stages of a far more rapid qualitative transfiguration of the earth's surface, in which there were major reconstructions of the inner structures of the terrestrial crust and of the physical-geographical environments of the earth's surface. Another striking manifestation of periodicity in the historical development of the earth is connected in an orderly fashion with the sequence of the evolutionary-revolutionary stages, namely, the sequences of epochs of predominant subsidence of vast areas of the earth's surface with epochs of predominant uplifting of territories just as large, and epochs of major transgression and regressions of the sea. These special aspects of the course of the terrestrial crusts tectonic evolution, considered with variables of a larger cosmic order and the causally related changes in the physical-geographical environment, are manifested in various degrees or forms, in the known periodicity of most other geological processes and phenomena, including evolution of the organisms

populating the earth. Basic stages in the evolution of flora and fauna correspond to the major natural stages in the history of the earth, although this relationship is expressed in highly intricate forms.

The sequence of the various historical-geological stages produces the very same thresholds which are accepted as the boundaries of the principal stratigraphic subdivisions, and as the corresponding spans of the geochronological scale.

"... Development of the correct theoretical premises of stratigraphic classification, and the design of one single stratigraphic scale for all countries as well as the terminology and the nomenclature, have great scientific and practical importance at this time, and constitute an immediate problem for geologists of all countries. This is so much more important when it comes to stratigraphic classification, because there now exists a whole series of diverse, uncoordinated, and often mutually contradictory representations.

"A single stratigraphic scale must be founded upon a comprehensive historical-geological principle, on recognition of definite stages in the history of the earth's geological evolution but not upon some isolated arbitrarily chosen indications in rocks.\*

"Soviet geologists believe that a single stratigraphic scale, embracing planetary and provincial stratigraphic subdivisions, must contain the following subordinations of the units which differ in their geographical range, adopted by the 2nd and 8th Sessions of the International Geological Congress in 1881 and 1900, respectively:

#### Stratigraphic Subdivisions

- |            |            |
|------------|------------|
| 1. Gruppa  | [Group]    |
| 2. Sistema | [System]   |
| 3. Otdel   | [Division] |
| 4. Yarus   | [Stage]    |
| 5. Zona    | [Zone]     |

#### Geochronological Subdivisions

- |                 |               |
|-----------------|---------------|
| 1. Era          | [Era]         |
| 2. Period       | [Period]      |
| 3. Epokha       | [Epoch]       |
| 4. Vek          | [Age]         |
| 5. Vremya, Faza | [Time, Phase] |

"In regions and districts composed of formations which cannot be differentiated clearly into units of the single stratigraphic scale shown, then it is essential to define the appropriate local stratigraphic subdivisions for use in geological mapping and other practical purposes.

The following stratigraphic subdivisions, are acceptable (in the indicated

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\* Specifically unacceptable is the officially adopted formal classification in the U.S.A., with its differentiations of the several types of stratigraphic subdivisions: lithostratigraphic, biostratigraphic, chronostratigraphic, as well as subdivisions differentiated on the basis of isolated and arbitrarily chosen indicators.

order of their subordination):

- |           |          |
|-----------|----------|
| 1. Seriya | [Series] |
| 2. Svita  | [Suite]  |
| 3. Pachka | [Unit]   |

"... Thus the actual stratigraphic model of any region is generally a combination, i.e. consists of subdivisions of the single scale and of the supplements. In every particular case, the stratigraphic differentiation is carried out in units of the single scale, only to the point and to the level attainable objectively. This level is a sistema [system] or an otdel [division], but still more often a yarus [stage]. Smaller subdivisions already consist of supplementary local units (svity [suites] etc.)

"... Yarus [Stage] consists of sediments representing a stratigraphic subdivision which is a part of a division, i.e. a unit of the fourth order in the single stratigraphic scale, formed in the course of one geological age. A stage corresponds to a definite period in the geological evolution of the earth or any part thereof. The volume and the boundaries of a stage are defined by the sum total of geological and paleontological information reflecting a corresponding period in the evolution of the earth and its organic world. The latter is expressed in stage sediments, by the presence of an index complex of fossil remnants of organisms belonging to genera, subgenera, and groups of species typical of and restricted to the stage in question.

"... In the Quaternary System, stages must be differentiated by the same principles as in the others. Boundaries of stages in the Quaternary System are defined by the character of those changes in composition of sediments and of organisms which are related basically to changes in climatic environments during the time, to evolution of the organic world, to man and his material culture. Sediments of a glacial or an interglacial period or of any such pair must not be considered a stage."

The suite is the category corresponding most nearly to the Formation as used by New Zealand geologists. It is defined as

"the basic unit among the supplementary stratigraphic subdivisions. In its lateral spread it is confined to a single structure facies zone or else to regions where sedimentation environments were more or less similar ... The concept of suite implies an inner unity (in regards to formation conditions, composition of sediments, fauna, flora, stratigraphic inter-relations, metamorphism etc). A suite must consist entirely of homogenous rocks ... it may consist of sedimentary, volcanogenic, or metamorphic formations or their combinations."

The Soviet approach to stratigraphic classification has resulted in a strong naturalistic theme running throughout the whole code which not only gives marked cohesion to its tenets but also provides a solid creed by which "correct" and "incorrect" attitudes and actions can be judged. It is a pity that the authors have felt it necessary to produce such an extremely discursive document. Perhaps it was unavoidable because of the necessity of defining and justifying every division in terms of the total natural evolution of the earth.

Basically the difference in approach between the Russian and American codes is that one uses the concept of "natural phases" of earth history to classify and map the rocks whereas the other divides the rocks into different objective categories based on unifying characters and properties, both lithological and biological, and uses



these as the framework of classification from which 'natural phases' of earth history can be deduced. Historically, of course, the major divisions of stratigraphy derive from original concepts of natural phases but there have been increasing moves towards more objective definitions in standard areas or sections in recent years.

- N. de B. Hornibrook

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INTERNATIONAL UNION OF GEOLOGICAL SCIENCES

PROPOSED SOUTHERN CONTINENTS PROJECT

(Extracts from a statement issued by the convenors of the Preparatory Meeting)

Late in 1964, Dr H.J. Harrington, Associate Professor of Geology at the University of New England, Armidale, New South Wales, at that time visiting the Department of Geology, University of Illinois, Urbana, Illinois, sent a letter to a number of geologists to explore the possibility of organizing an International Gondwana Project. As a result of the ensuing correspondence Dr Harrington was asked by Professor W.P. van Leckwijck, Secretary-General of the International Union of Geological Sciences, to send him formal proposals when they had been formulated. Meantime a symposium had been organized by the Gondwana Subcommittee of the International Commission on Stratigraphy of I.U.G.S.

After informal discussion between Dr Harrington and several interested workers, and consultation with Dr N.H. Fisher, Convenor of the Australian Committee of Geological Sciences, a small meeting of interested geologists was arranged at the Bureau of Mineral Resources, Geology and Geophysics, Canberra, on 29th March 1966, to formulate a definite proposal.

The following comment on the scope of the project gives some explanation additional to that contained in the formal proposals.

The need for geological work, especially comparative geological work, in the southern continents seemed apparent and the results interesting enough to world geology for the present proposal to receive at least formal approval from northern Hemisphere geologists. Geographically, the limits made seemed to be the most practicable and are in line with emphasis on the gathering of data. The word "Gondwana" was not used, in order to avoid confusion with the Gondwana (Karroo) System or Series and because its use might presuppose certain conclusions best avoided in a project not designed to test a particular theory. A project specifically referring to continental drift was also avoided for this reason and also in order to keep it on as broad a basis as possible.

scope

The areas within the project are southern Africa (including Malagasy), South America, Australasia, and Antarctica; this does not exclude associated projects in neighbouring areas such as India. It is hoped that workers from all countries will take part.

These continents are chosen because their geology is not so well known as that of the northern continents, and the solution to many basic geological

problems hinges on data to be found in these continents. A main object is to enable workers familiar with problems of the geology of the southern continents to undertake comparative studies in other appropriate areas. This is to be achieved by travel between continents, by mounting expeditions, by sponsoring fellowships specifically designed to be available at any research centre, by strengthening existing research facilities, and ensuring publication. In addition, workers outside the hemisphere would be encouraged to bring their special skills to bear on the problem.

A sample of possible problems to be investigated includes

- 3) comparative geology of the goldfields of Victoria and the New Zealand Fjordland; and
- 5) comparative stratigraphy and palaeontology of the southern continents. This could include amongst others
  - a) the Lower Devonian succession of southern Africa (Bokkeveld Beds), eastern Australia, New Zealand, Argentina, Falkland Islands, and the Horlick Mountains of Antarctica;
  - b) the Tertiary of south-eastern Australia, New Zealand, south-east Africa, and eastern South America;
  - c) comparative studies of selected sedimentary basins and their fossil fuels, underground water, and other resources;
  - d) special attention to palynology, especially applied to the widespread non-marine sedimentary rocks of the regions.

The project will provide critical geological information bearing on the continental drift theory but, as outlined, is designed to gather information which will provide a basis for testing not only this but other theories.

The project is not intended to encompass specific problems in geophysics or geochemistry, but cooperation from workers in allied disciplines will be sought where necessary to complement geological work.

#### Finance

Finance could be sought from the following sources:

- a) governments;
- b) international organisations - International Union of Geological Sciences, (I.U.G.S.)  
International Council of Scientific Unions (I.C.S.U.)  
United Nations Educational, Scientific and Cultural Organizations (U.N.E.S.C.O.);
- c) fund-granting organisations;
- d) companies and other organisations.

The project is planned for a ten-year period, and Australia would be asked to contribute £100,000 during the first year, increasing to a maximum of £400,000 in the third or fourth year.

#### Timing

It is hoped to start field work in November 1967, following a suitable period of preparation.

#### RETIREMENT OF MR A. STEINER

In early November of last year members of the Geological Survey in Lower Hutt farewelled Mr A. Steiner on his retirement after 19 years with the petrology section of the Survey. For most of this time Mr Steiner was closely associated with the Geothermal Power Project, carrying out petrological examination of core samples from the many holes drilled at Wairakei and at producing or potential geothermal fields elsewhere, notably Kawerau and Waiotapu.

Mr Steiner gained an international reputation for his work in connection with the Wairakei field, especially from his demonstration and description of pronounced mineral zoning with depth and from his discovery of the new zeolite mineral wairakite. Latterly he has also done considerable work, still unpublished, on the clay minerals formed as a result of low-rank hydrothermal alteration at Wairakei.

For the next three years Mr Steiner will be working part-time at the Geological Survey writing up the detailed petrological and mineralogical data resulting from geothermal exploration at Wairakei. In September of this year he is to attend the Clay Minerals Conference at Denver, U.S.A., as one of the principal guest speakers. The Society extends its warmest congratulations to Mr Steiner on this honour and its best wishes for his retirement.

W.A.W.

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#### PERSONAL NOTES

Congratulations are extended to Mr E.R. GARDEN of Dunedin who was awarded an O.B.E. in the last New Year Honours list.

The Society's recently retired Secretary, Mr D.R. GREGG, is at present overseas. Before leaving he wrote:

"Since going to the Canterbury Museum in December 1964, one of my main responsibilities has been planning displays to occupy the 2,300 square feet of the Von Haast Hall of Geology. This space is now partly taken up by mineralogical exhibits dating back 20 years to Brian Mason's days at Canterbury University College. Before proceeding too far with plans for new displays, I had hopes of visiting North America to see some of the outstanding geology displays, particularly displays explaining the local geology.

The award of a Winston Churchill Fellowship and the generosity of the Canterbury Museum Trust Board have enabled these hopes to be realised. I leave for California on 22 March and will work my way east to the 62nd Annual Meeting of the American Association of Museums at Toronto at the end of May. Then I cross the Atlantic to attend the Museums Association Meeting in Glasgow. Then down through England, and a hurried trip back to Australia, where I will spend two weeks. I should be back in Christchurch on 19 August.

The exciting prospect of the trip, on which I hope to see some geology in the field as well as that preserved in museums, is tinged with regret that I will be unable to attend the Society's first conference at Hamilton. I hope the conference is a great success, and I will, I'm sure, be thinking of you at that time, when I will be somewhere about Detroit or Pittsburgh. I also wish the incoming secretary well - I am retiring from this position after having occupied the rather inactive secretarial chair since 1961."

We have since heard that Mr Gregg, like all good N.Z. geologists, made the



pilgrimage to the winery that straddles the active San Andreas fault at Hollister, California. He says that towards the end of his visit he could plainly see the building moving.

New Zealand geologists attending the ANZAAS meeting in Melbourne during January of this year were Dr W.F. HARRIS and Mr W.M. PREBBLE. After the meeting Mr Prebble stayed on in Australia for several months; he visited Tasmania briefly and has since been working with the engineering geology section of the Snowy Mountains Hydroelectric Authority. He returns to New Zealand towards the end of May.

Dr S. KESTON (formerly KUSTANOWICH) is now with the Continental Oil Company of Australia. He is based in Sydney and is working on the Tertiary biostratigraphy of the Company's permit areas in northern New Guinea.

Dr Peter ANDREWS returned in November to the Sedimentology Section of the NZGS in Christchurch. He had been working for 4 years at the University of Texas, Austin, completing his Ph.D. under Professor A.J. Scott on "Facies and Genesis of a Wash-over Fan, Central Texas Coast."

Mr D. MILDENHALL joined the Palynology Section of the Geological Survey in March 1967. He is particularly interested in macropalaeobotany and is at present completing a thesis at Victoria University of Wellington on the paleobotany of the Pakawau Beds, North-west Nelson.

Dr H.R. KATZ, a former graduate of the University of Zurich, recently joined the Geological Survey at Lower Hutt. Previously he spent four years in Peru followed by eight years in Chile where, first in Punta Arenas and then in Santiago, he was concerned with overseeing geophysical and geological exploration work for the Chilean State Oil Company.

Dr H.W. KOBE, also a Zurich graduate, joined the Geology Department, University of Auckland, in November 1966 as senior lecturer in Economic Geology. Previously he worked for nine years with the Cerro de Pasco Mining Corporation at La Oroya, Peru. Immediately prior to coming to New Zealand he spent a year at the Mineralogical-Petrographic Institute of the University of Heidelberg.

Mr P.R.L. BROWNE recently joined the Geological Survey at Lower Hutt to continue the work on geothermal petrology following Mr Steiner's retirement. A New Zealander, he spent a year at Auckland University followed by three years at the University of Cape Town. He then carried out two years' post-graduate work on geochemistry at Leeds University.

Dr F.F. EVISON has recently been appointed to the first New Zealand professorship in Geophysics, at Victoria University of Wellington. Dr T. HATHERTON, formerly in charge of the Geophysical Survey, succeeds Dr Evison as Director of the Geophysics Division. The Society congratulates both on their appointments.

Dr P.N. WEBB was awarded a Ph.D. from the University of Utrecht in November of last year, with a thesis entitled "New Zealand Late Cretaceous Foraminifera and Stratigraphy", and then spent three months at the Hebrew University, Jerusalem, with Dr Z. Reiss, studying methods of investigating wall structure of Foraminifera. He returns to New Zealand in June.

Mr B.W. COLLINS, D.S.I.R. Information Service, Wellington, has recently been appointed as British Commonwealth Geological Liaison Officer in London for the next term of two years. The Society's good wishes go with him when he leaves for England later this year. An account of this appointment is given elsewhere in this issue.

Mr G.J. SMITH has taken up a two-year Colombo Plan appointment as junior advisor to the Agricultural Faculty, Khon Kaen University, Thailand.

Mr Simon NATHAN has recently joined the N.Z. Geological Survey and will be stationed at Greymouth. He will be mapping sheet S31, covering the area about the lower Buller Gorge, and will be particularly concerned with uranium prospecting in the area. He spent last summer mapping in northern Victoria Land.

Already at Greymouth are Mr R.G. ADAMSON (not at Dunedin as mentioned in Newsletter 20), Mr R.I. McPHERSON, who will shortly be transferring to Dunedin, and Mr W.A. SARA.

#### NEW MEMBERS

The following have joined the Society since the last Newsletter was issued (October 1966).

Dr J.D. Bradshaw, Geology Department, University of Canterbury.  
Mr M.J. Selby, University of Waikato, Hamilton.  
Dr D. Shelley, Geology Department, University of Canterbury.  
Mr W.M. Prebble, N.Z. Geological Survey, Lower Hutt.  
Dr W. Oldershaw, Geology Department, University of Canterbury.  
Mr R.C. Walker, 8 Tyler Crescent, Mt Roskill, Auckland.  
Mr A.G. Boreham, 18 Malta Crescent, Christchurch 7.  
Mr C.R. Lennie, N.Z. Geological Survey, Lower Hutt.  
Dr A. Reay, Geology Department, University of Otago.  
Mr C.H. Pharo, Waikato Explanade, Ngaurawahia.  
Mr J.C. Hopkins, 58 Queen Street, Northcote, Auckland.  
Mr B.G. Jones, Geology Department, Australian National University, Canberra.  
Mr T.H. Wilson, Geology Department, University of Auckland.  
Dr H.W. Kobe, Geology Department, University of Auckland.  
Dr H.R. Katz, N.Z. Geological Survey, Lower Hutt.  
Mr W.B. Gallot, Geology Department, University of Auckland.  
Miss N. Anderson, Crown Lynn Potteries, New Lynn, Auckland.  
Mr D.J. Woodward, Geophysics Division, DSIR, Wellington.  
Dr D.W. Lewis, Geology Department, University of Canterbury.  
Mr P.L. Rolley, 28 23rd Avenue, Tauranga.  
Mr S. Storrie, 119 Rewi Street, Te Awamutu.  
Mr B. Challinor, 141 Russell Street, Huntly.  
Mr T.J. Nicholls, 12 Naylor Street, Hamilton.  
Mr H. Larsen, 36 Graham Street, Hamilton.  
Mr B. Caldwell, Fenwick Crescent, Hamilton.  
Mr P. Tonkin, Soil Bureau, DSIR, Hamilton.  
Mr K.B. Lewis, N.Z. Oceanographic Institute, Wellington.

At 24 April 1967, the Society had 314 members.