K E S A T U A N K A J I B U M I M A L A Y S I A

GEOLOGICAL SOCIETY OF MALAYSIA

N E W S L E T T E R

Number 11 March 1968

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THE SECOND ANNUAL GENERAL MEETING OF THE GEOLOGICAL SOCIETY OF MALAYSIA

Lecture Room, Department of Geology, University of Malaya, 8.00 p.m. Friday 26 January 1968.

Professor N.S. Haile, the President was in the chair and twenty one members were present.

The minutes of the Inaugural General Meeting were tabled and accepted. There were no matters arising from these minutes.

The President and Secretary-Treasurer then presented their reports and these were accepted.

A ballot for members of the Council was then held with the following result:

President	: Mr. H.C. Olander
Vice-President	: Mr. S.K. Chung
Councillors	: Professor N.S. Haile and Mr. J.H. Leow

Mr. Lee Whye Kwong and Dr. P.H. Stauffer were elected unopposed as Secretary-Treasurer and Editor respectively.

Dr. D.J. Gobbett proposed that Mr. Jackson, who had audited the Society's account for 1967, should be asked to continue to act as Honorary Auditor. This was seconded by Dr. C.S. Hutchison and carried unanimously.

Under any other business Dr. P.H. Stauffer raised a complaint from Dr. B.N. Koopmans about the lack of liaison between the Council and the Field Meetings Committee. It was agreed that the convenor of the Field Meetings Committee be invited to Council Meetings.

The business meeting was adjoined at 8.30 p.m. and the retiring President, Professor N.S. Haile then delivered his Presidential Address "Meaning, Precision, and Quantification in Geology".

It is hoped that the Society will publish this Presidential Address shortly.

- JDB

PRESIDENT'S REPORT

The details of the Society's activities given in the Secretary-Treasurer's report indicate that, in its first year, the Society has made a very active start.

Lectures of high quality and wide interest were given at our eight ordinary meetings and our three field meetings were well attended and very instructive. I have to record with great regret that a serious accident occurred in a tunnel on the field trip to the Muda River which has already been reported in our Newsletter. It is, however, a relief to learn that Mr. Yeap Cheng Hock is making a good recovery.*

The Society is sponsoring a book on the geology of the Malay Peninsula, and has nominated Dr. C.S. Hutchison, Dr. D.J. Gobbett and Mr. S.K. Chung as the editorial board. Eight contributors have agreed to prepare various sections and so far three have completed their task. It is hoped that the final draft will be sent to the publisher, J. Wiley and Sons Ltd., later this year. In connection with this work, a draft revision of the geological map is being prepared, some sections of which will be exhibited tomorrow at the Conversazione. Other publications are being prepared by the Editor, and are described in the report of the Secretary-Treasurer. A Committee on Stratigraphic Nomenclature was set up by the Council, and has already produced a stratigraphic code, excellent in many ways. The Vice-Chancellor of the University of Malaya, after consulting the Council, has nominate the President (by office) to represent Malaysia on the Standing Committee of Solid Earth Sciences of the Pacific Science Association.

The Newsletter has been appearing regularly, and it is hoped that our first Bulletin will appear soon.

Our Secretary-Treasurer, Dr. D.J. Gobbett will be leaving Malaysia shortly, and I feel sure members will wish to record our thanks to him for his hard work, and wish him every success.

- NSH

* Ed. note: Mr. Yeap Cheng Hock is shortly to go to the Rochampton Artificial Limb Centre, London, to have an artificial leg fitted.

SECRETARY-TREASURER'S REPORT

During this first year as an official body your Council has attempted to expand the activities of the Society. Some of these activities are noted below and I hope they will

continue as successful and worthwhile projects.

Council

Two members, Mr. D. Santokh Singh and Dr. J.F. Lambert were co-opted by the Council, and during the temporary absence of Professor N.S. Haile and myself, Mr. J.H Leow and Enche Ja'afar bin Ahmad were also co-opted. The Council met on seven occasions during the year. It was successful in applying to Inland Revenue Department for approval as an "Institution of public character". Thus donations received by the Society may be deducted from the taxable income of the donor. We now have an official emblem which will appear in future on the Newsletter and on the Bulletin. The first volume of the latter contains the proceedings of the Discussion Meeting held in January 1967 and is entitled "Studies in Malaysian Geology". It is now with the printers. The second volume "Bibliography and Index of the geology of West Malaysia and Singapore" has just been completed and is with the editor.

A standing Committee on Stratigraphic Nomenclature was set up by the Council, consisting of Dr. P.H. Stauffer, Dr. G.E. Wilford, Mr. H.C. Olander and Mr. G. Darling. A field meetings Committee comprising Dr. B.N. Koopmans, Mr. D. Santokh Singh and Mr. Lee Whye Kwong have organised three field meetings during the year.

Membership

Forty-eight Full Members, fourteen Associate Members and one Student Member, have been elected since the Inaugural General Meeting. In addition four Student Members were elected to Full Membership. There was one resignation. The total membership is now 191.

Meetings

The following meetings were held during the year.

Ordinary Meetings:

31 January	Professor J. Sutton	"Precambrian geology"
29 March	Dr. Slade Warne	"Mineral indentification by different thermal analysis"
14 June	Dr. G. Riley	"The cassiterite-stannite occurrence at Tekka Mines Kinta"

4 August	Dr. R.F. Dill	"Submarine Geology"
26 September	Dr. G.E. Wilford	"The Bau gold mining district, Sarawak"
9 October	Dr. J.J. Veevers	"Geology of Northwest Australia"
26 October	Mr. E. Hamilton-Smith	"Caves of Australia" Joint meeting with the Malayan Nature Society
4 December	Dr. G.E. Purdy	"Carbonate diagenesis"

Field Meetings

2-3 September	Sg. Dong, Pahang, lead by Enche Ja'afar bin Ahmad
15 October	Tekka and S.E.K. mines, Kinta, lead by Dr. G. Riley and Mr. R. Newell
2-3 November	River Muda Scheme, lead by Mr. P.M. James

Accounts

The Society's accounts are before you. The generous donations we have received have enabled us to start a publications Fund. This will shortly be used in launching the Bulletin.

Acknowledgement

Before closing this report I wish to acknowledge a gift of books on Indonesian geology from Dr. J. Katili. I would also like to express my thanks, on behalf of the Society, to Mr. Boey Ah Wah and to Miss Anne Chong who have borne the brunt of the clerical work connected with the running of the Society. Finally I would like to thank the Honorary Auditor, Mr. Jackson, for so patiently checking over my inexpert accounting.

- DJG

ACCOUNTS

BALANCE SHEET AS AT 31ST DECEMBER 1967

LIABILITIES		ASSETS		
Capital Funds -		Cash in Hand	$ 160.78	
Balance, 1st Jan. 1967	$3,785.21	Cash at Bank	1,435.33	
Add: Surplus for year as per Income & Expenditure A/c	8,188.25	Cash on Deposit	10,277.35	$11,873.46
		Furniture, Fittings etc. (1 steel filing cabinet)		100.00
	$11,973.46			$11,973.46

Report of the Auditor

To members of the Geological Society:

I have obtained all the information and explanations which to the best of my knowledge and belief were necessary for the purpose of my audit. In my opinion adequate books of account have been kept. I have examined the Balance Sheet and annexed income and expenditure account which are in agreement with the books of account. In my opinion and to the best of my information the said accounts give the information in the manner so required and the Balance Sheet gives a true and fair view of the state of the Society's affairs as at 31st December 1967.

- D.T. Jackson
Auditor

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST DECEMBER 1967

EXPENDITURE			INCOME		
Printing and Stationery		$338.48	Entrance Fees and Subscriptions	$2,245.74	
Postages		492.57	Less: Refund of Subscriptions	30.00	$2,215.74
Telephone, Telegrams		46.60	Donations:		
Refreshments		45.00	Pacific Tin Ltd.	200.00	
Discussion Meeting 31st January 1967:			Shell Co. Ltd.	500.00	
Refreshment & Lunches	$97.50		Esso Exploration	6,000.00	6,700.00
Lapel Badges	27.50		Sales of Newsletter, extra copies		7.50
Framing Photo	3.50	128.50	Registration Fees for Discussion on 31st January 1967		77.00
Prizes for Emblem Competition		30.00	Interest on Fixed Deposits		277.35
Cheque Book and Bank Charges		8.19			
Balance (Surplus of Income over Expenditure for the year)		8,188.25			
		$9,277.59			$9,277.59

- DJG

REPORT ON THE CONVERSAZIONE

Department of Geology, University of Malaya, 27 January 1968 at 9.30 a.m.

The first session was devoted to a discussion of the Malayan Code of Stratigraphic Nomenclature, led by Dr. P.H. Stauffer and Professor N.S. Haile with Dr. E.G. Purdy in the chair.

The purpose of the code, said Dr. Stauffer, was to aid in the understanding of Malayan geology by sorting out some of the confusion caused by loose usage of terms in the past and to prevent further confusion of terms and names as Malayan stratigraphy is unravelled. The code was designed and specifically for Malaya and to act as a guide in naming new Malayan units.

Professor Haile, while agreeing that most of the code was an excellent document, said that Sections 5 and 6 should be improved. In particular Professor Haile objected to Article 39 which states that in Malaya practical time-rock units are biostratigraphic units. A biostratigraphic unit includes strata bearing a particular characteristic fossil or fossil assemblage and excludes strata not bearing the fossil assemblage. Therefore a biostratigraphic unit cannot be extended to include non-fossiliferous strata, nor can the same unit include completely different biofacies of the same age. Time-rock units however, can and do unite fossiliferous strata, of different biofacies, with non-fossiliferous strata. Time-rock units may coincide with biostratigraphic units but this was not necessarily the case. Time-rock units can be set up using radiometric ages, marker beds or stratigraphic position. A distinction was therefore needed between time-rock units and biostratigraphic units, as was made by the American Code of Stratigraphic Nomenclature.

In answer to questions by Mr. H.C. Clander and Dr. Purdy, Professor Haile said that in his opinion the main use of the code was for the definition of rock units and the problems associated with time-rock units were perhaps less important, but for the sake of clarity it was preferable to sort out this question as soon as possible.

Dr. Koopmans in supporting a distinction between time-rock units and biostratigraphic units said that the code should follow as closely as possible the International Code and deviations should only be permitted when a clear benefit would result.

Dr. Koopmans also suggested that the term "time-rock unit" be replaced by the term "time-stratigraphic unit" in order to avoid confusion with the distinct term "rock unit".

Dr. Stauffer replied that the purpose of the code was to assist in defining and erecting units in Malaya and it seemed unlikely that non-biostratigraphic time-rock units would be defined. Although radiometric ages had great significance for detailed stratigraphic work fossils were unbeatable.

Mr. S. Panchatcharasivam raised the possibility of setting up time-rock units in the alluvium using carbon-14 dates from peat horizons. Article 39 as it stood appeared to exclude the possibility.

Dr. Stauffer conceded that Article 39 should read "Hence most practical time-rock units are in fact biostratigraphic units".

In a written contribution Dr. G.E. Wilford criticised the dictatorial opening to the code and the meeting agreed with him that the only way the Society could implement the code was through the influence of its members in the Surveys, University and commercial companies. Dr. Wilford further suggested a clarification of the use of such terms as "contiguous" in Article 19.

In closing the discussion Dr. Purdy said that the code should not only satisfy the present but also possible future needs and that it must be borne in mind that geologists outside of Malaya will be interested in Malayan stratigraphy and hence any code should be consistent with international practice.

After an adjournment for coffee Dr. C.S. Hutchison and Mr. J.D. Bignell led a discussion on "Malaysian Granites, Genesis and Economic Significance" under the Chairmanship of Mr. J.H. Leow.

Dr. Hutchison suggested a possible classification of Malayan granites into epizonal, mesozonal and katozonal bodies based upon the depth of intrusion. Epizonal granites are intruded at a high level in the crust, are completely discordant to the country rock and are associated with contact metamorphism. He quoted the Benom granite as a Malayan example. Mesozonal granites occur low to moderate grade regional metamorphic orogens. Typically they parallel the regional strike of the country rock but are locally discordant, and contact metamorphism is not necessarily evident e.g. The Main Range Batholith. Katozonal rocks are developed in deep high grade metamorphic orogens and show a sequence of interfoliated granite and country rock at the contact. No contact metamorphism is produced as both granite and country rock are at similar temperatures e.g. Gunong Stong Complex, Kelantan.

As a rough guide Dr. Hutchison quoted figures for possible depths of intrusion of down to 4 miles for epizonal, 4 - 8 miles for mesozonal and 8 - 12 miles for katozonal granites. This classification implied nothing about the relative ages of Malayan granites.

Dr. Hutchison observed that most of the tin deposits in Malaya appeared to be associated with mesozonal granites while the gold is associated with katozonal granites, although he acknowledged the dangers of this generalisation and that the association could be more apparent than near.

Dr. Hutchison also spoke on his work of plotting chemical composition and norms of Malayan granites on triangular diagrams and concluded that all the Malayan granites investigated fitted the compositions consistent with "normal" granite.

Mr. Bignell gave a brief outline of the theory of potassium-argon and rubidium-strontium geochronology and explained how rubidium-strontium data from whole rock samples could penetrate the potassium-argon "metamorphic veil". He drew attention to the fact that radiogenic argon could be liberated from biotite flakes by even quite minor tectonic and thermal activity and hence each potassium-argon biotite data must be considered in the light of the geological context, and illustrated this with examples from West Malaysia. He briefly discussed some of the results of the age work so far done by the Overseas Geological Survey in Oxford and himself and drew attention to the known periods of granite intrusion in West Malaysia:- the late Carboniferous, early and late Triassic and early Tertiary. An, as yet, undefined, group of results from all over Malaya suggested some activity at the close of the Jurassic. These results all come from areas of known tin mineralisation and it was suggested there might possibly be some connection between the tin and these dates. Some tin is undoubtedly associated with greisenization and it was hoped that this could be dated soon.

In the ensuing discussion Dr. Koopmans enthusiastically criticised Dr. Hutchison's classification on the grounds that it ignored the effects of lateral pressure, metasomatic and other processes active during synkinematic granite intrusion and these effects rendered the depth fig. was quoted meaningless. There was evidence that in the Pyrenees katozonal granites were emplaced with an overburden of less than 3,000 metres and in the Genting Sempah area the emplacement of the Main Range granite likewise occurred at a shallow depth.

Dr. Hutchison agreed the figures he quoted were only very approximate and would be better termed depth equivalents rather than depths, but even though exact details of the emplacement conditions were not known thought this classification could throw some light on the origin of the different granites and on the structural evolution of Malaya.

The discussion was reluctantly curtailed and the Conversazione closed at 1.00 p.m. to enable several members to catch a plane.

- JDB

"NEW RESEARCH TECHNIQUES IN EXPLORATION GEOLOGY"

Notes on the talk given by Dr. P.J. Solomon and Mr. G. Kater at 5.00 p.m. on 22 February, 1968.

Dr. Solomon gave a brief account of the Mt. Isa sulphide deposit in Queensland, Australia before he discussed the various geochemical methods employed in delimiting ore-bodies.

Mt. Isa Deposit: The well-known Mt. Isa deposit consists of copper-silver-lead-zinc sulphide minerals concentrated in bands that are mostly concordant with the bedding of the sediments. The silver-lead-zinc-rich horizons are localised as a series of elongated bedded ore-bodies in predominantly tuffaceous and carbonaceous shale whereas the copper-rich deposits are confined to segregations within those parts of the sequence that have a very high carbonate-silica content.

Geochemical Techniques: The usual procedure is the collection of stream and/or soil samples for analysis of the base metal elements. The measurement of the pH of the stream water may serve as an indicator of oxidation of a nearby sulphide deposit. The analytical results are plotted on a map with all the relevant geological data prior to interpretation.

In the case of the hydro-geochemical technique electrode probes are inserted into the ground to reach the water-table for measurement of the pH, Eh and activity of the ground water. Any consistent anomalous variations of the three parameters from the background value may be an indication of a hidden sulphide deposit.

Isotopical analysis of the sulphide minerals may throw light on the depositional and post-depositional history of sulphide mineralization. The broad isotopic distribution, together with the enrichment of S^{34} relative to that found in definite magmatic sulphides is indicative of a biogenic origin for the sulphur of the sulphide assemblages forming the Mt. Isa deposits.

Geophysical Methods: A short outline of the principles of the various geophysical methods used in the exploration geology was given by Mr. Kater. Those most relevant to sulphide exploration are the electro-magnetic, resistivity, self-potential and induced-polarization techniques.

- LWK

Dr. Solomon's Talk

Dr. Solomon said that as the boring of a hole disturbs the conditions pertaining at the water table, the hole had to be left for up to three months before the measurements of pH, Eh and activity could be made in order to allow the original conditions to be re-established.

To obtain meaningful results the measurements in different boreholes had to be made at the same position relative to the level of the water table since the pH, Eh and activity changed appreciably with depth below the level of the table. The measurements were in fact usually made at the air water interface.

In emphasising that exploration geochemistry was still very much in the development stage, Dr. Solomon quoted an example of a blind-alley.

The use of mercury as a tracer element for high temperature ore bodies was investigated around mined deposits. To the delight of geochemists mercury seemed to work very well. Unfortunately mercury also seemed to work as a tracer element around the low temperature Mt. Isa deposit, where mercury was totally unexpected. This caused some confusion until someone realised that the one feature in common of the various bodies investigated was the use of mercury compounds in explosives used for blasting and the mercury aureole around the Mt. Isa deposits was in fact shown to be due to these mercury compounds. Whether or not mercury will ever be useful as a tracer remains to be seen.

- JDB

VISIT OF DR. N.J. SNELLING

Dr. Snelling, the head of the Age Unit of the Institute of Geological Science, formerly the Overseas Geological Survey, paid an official visit to the Geological Survey of West Malaysia in early March.

The purpose of his visit was primarily to discuss with the Geological Survey the results and implications of the age work already carried out on samples sent to England from Malaya and to discuss plans for future co-operation and the development of geochronology in Malaya.

Dr. Snelling also visited the University of Malaya to check on the progress of one of his research students who

recently arrived in Malaya to work on the geochronology of the Malayan granites.

Dr. Snelling is a graduate of the University of Manchester (1951) and following two years research in the Scottish Highlands became one of the first students in the Research School of Physical Sciences in the Australian National University. He took his Ph.D. at the A.N.U. in 1957 having studied the geology and petrology of the Murrumbidgee batholith which outcrops over an area of some 500 sq. miles of the Australian Capital Territory and adjacent parts of New South Wales. He held a Canadian National Research Council Fellowship with the Geological Survey of Canada, when he was attached to the Isotope Geology Section from 1957 to 1959. He joined the Overseas Geological Surveys in 1959 and since then has been engaged in geochronological studies in large areas of Africa and British Guiana (now Guyana).

*

NEW MEMBERS

The following were elected to Full Membership in the Geological Society of Malaysia at the meeting of the Council on 22 February 1968.

Aye, T.
Broun, A.
Dhonau, D.D.
Raja, M.
Stone, B.

- LWK

* Dr. Snelling would like to express his regrets to members at being unable to arrive in Malaya in time to address the Society on the dates arranged.