

## PERSATUAN GEOLOGI MALAYSIA

# WARTA GEOLOGI

## NEWSLETTER OF THE GEOLOGICAL SOCIETY OF MALAYSIA

Jil. 10, No. 5 (Vol. 10, No. 5)

Sept-Oct 1984

### KANDUNGAN (CONTENTS)

#### CATATAN GEOLOGI (GEOLOGICAL NOTES)

Tjia, H.D.: Multidirectional Tectonic Movements in the Schist of Bentong, Pahang	187
Murthy, K.N.: Turquoise found in Tras/Raub, Pahang	190
De Silva, Sriyane: The Geologic Time Scale, and the Logic behind it	193

#### PERTEMUAN PERSATUAN (MEETINGS OF THE SOCIETY)

Miller, A.: Geology of the Proterozoic Basins in Central Keewatin and non-time bound character of uranium deposits in these basins	199
--	-----

#### BERITA PERSATUAN (NEWS OF THE SOCIETY)

GEOSEA V Proceedings	200
Petroleum Geology Seminar 1984	205
Amendments to the Society's Constitution	206
Forthcoming GSM Bulletin 17	208
GSM Council for 1985/86	209
Acting Editor's Note	210
Keahlian (Membership)	210
Pertukaran Alamat (Change of Address)	210
Pertambahan Baru Perpustakaan (New Library Additions)	211
Young Geoscientists Publications Award	211

#### BERITA-BERITA LAIN (OTHER NEWS)

Syarahannya Perdana Profesor H.D. Tjia (Inaugural Address of Prof. H.D. Tjia)	212
Southeast Asian Union of Geological Societies—Statutes and By-Laws	216
Conference on Petroleum Geochemistry and Exploration in the Afro-Asian Region	219
Eight Southeast Asian Geotechnical Conference	219
Fourth International Kimberlite Conference	220
Sixth Offshore Southeast Asia Conference & Exhibition	222
Bicentennial Gold 88	223
Proposed Seminar on Exploration Techniques for Primary Tin Deposits	224
Tentative Proposals for the 29th IGC, Japan	225
Kursus-kursus Latihan dan Bengkel-bengkel (Training Courses and Workshops)	227
Kalendar (Calendar)	235



DIKELUARKAN DWIBULANAN  
ISSUED BIMONTHLY

**PERSATUAN GEOLOGI MALAYSIA  
(GEOLOGICAL SOCIETY OF MALAYSIA)**

Majlis (Council) 1984/85

**Pegawai-pegawai (Officers)**

- Presiden  
(President)** : Leong Khee Meng, Petronas-Carigali,  
P.O. Box 12407, Kuala Lumpur
- Naib Presiden  
(Vice-President)** : John Kuna Raj, Jabatan Geologi,  
Universiti Malaya, Kuala Lumpur
- Setiausaha Kehormat  
(Honorary Secretary)** : Mohamad Ali Hasan, Jabatan Geologi,  
Universiti Malaya, Kuala Lumpur
- Penolong Setiausaha Kehormat  
(Honorary Assistant Secretary)** : Koh Tuck Wai, Petronas-Corigali,  
P.O. Box 12407, Kuala Lumpur
- Bendahari  
(Honorary Treasurer)** : Gan Ah Sai, Geological Survey  
Malaysia, Ipoh, Perak
- Pengarang  
(Editor)** : Teh Guan Hoe, Jabatan Geologi,  
Universiti Malaya, Kuala Lumpur
- Presiden Yang Dahulu  
(Immediate Past President)** : Khoo Teng Tiong, Jabatan Geologi,  
Universiti Malaya, Kuala Lumpur
- Ahli-ahli Majlis, 1984-86  
(Councillors, 1984-86)** : Abdul Hamid Mohamad, Jabatan  
Geologi, Universiti Kebangsaan  
Malaysia, Bangi, Selangor
- Michael Leong, Petronas, P.O. Box  
12444, Kuala Lumpur
- S. Paramanathan, Dept. of Soil  
Science, Universiti Pertanian  
Malaysia, Serdang, Selangor
- Yin Ee Heng, Geological Survey  
Malaysia, Kuala Lumpur
- Ahli-ahli Majlis, 1984-85  
(Councillors, 1984-85)** : Andrew Spykerman, Malaysia Mining  
Corp., P.O. Box 10936, Kuala Lumpur
- Choo Mun Keong, Malaysia Mining  
Corp., P.O. Box 10936, Kuala Lumpur
- Syed Sheikh Almashoor, Jabatan  
Geologi, Universiti Kebangsaan  
Malaysia, Bangi, Selangor
- Yeap Ee Beng, Jabatan Geologi,  
Universiti Malaya, Kuala Lumpur
- Juruodit Kehormat  
(Honorary Auditor)** : Peter Chew

\*\*\*\*\*

CATATAN GEOLOGI  
(GEOLOGICAL NOTES)

MULTI-DIRECTIONAL TECTONIC MOVEMENTS IN THE SCHIST OF  
BENTONG, PAHANG

TJIA, H.D., Department of Geology, Universiti Kebangsaan Malaysia,  
Bangi, Selangor.

Quartz phyllite-schist outcrops along a few kilometres of the Karak Highway in the vicinity of Bentong, Pahang. The rock is characterized by the presence of small to 3-m long quartz inclusions, generally conformable with the surrounding foliation. Many of the inclusions are lenticular to sigmoidal in shape and may display recurved ends that suggest tight isoclinal folds. Faults varying from hairline widths to zones several metres wide disturb the foliation and the pattern of quartz inclusions adjacent to the faults. The general structure appears to dip gently to moderately eastward as indicated by straight to undulating foliation. The mesoscale structures, however, indicate a complex deformation history.

Alexander (1968) noted frequent isoclinal folds, intense buckling in the pelitic rocks, foliation parallel to bedding (interpreted by him as indicating isoclinal fold limbs), fold plunges 15 to 20 degrees north beside jointing and faulting. In spite of the evidence of severe folding, geological trends are uniformly in northwest direction and foliation dips eastward. Haile *et al.* (1977) stated that "the schists are strongly folded and show micro-folding and crenulation indicating that they have been folded at least twice". However, no further description was given to support their opinion. Basing on fossil finds in chert-argillite series at a locality farther to the south and other geological considerations, they assigned an Earliest Devonian or older age to the schist.

The structures in figure 1 are representative of structural style in the schist that outcrop in several roadcuts west of the Bentong toll plaza.

In figure 1A, the pattern of quartz stringers and larger flasers suggest isoclinal folds with gently eastward inclined limbs. The en echelon quartz lenses suggest vergence in southwest direction. Drag structures near the fault indicate that reverse faulting also produced transport in that direction. This roadcut is located about 1100 m west of toll plaza.

Figure 1B is a detail of the roadcut near kilometre 198 towards Kuantan. The crinkly foliation,  $S_1$ , is conformable with a medium-size quartz flaser. The recurved ends of the flaser suggest that it had been isoclinally folded conformable to  $S_1$ . Cross fractures and the shape of the flaser suggest relative displacement as indicated by the

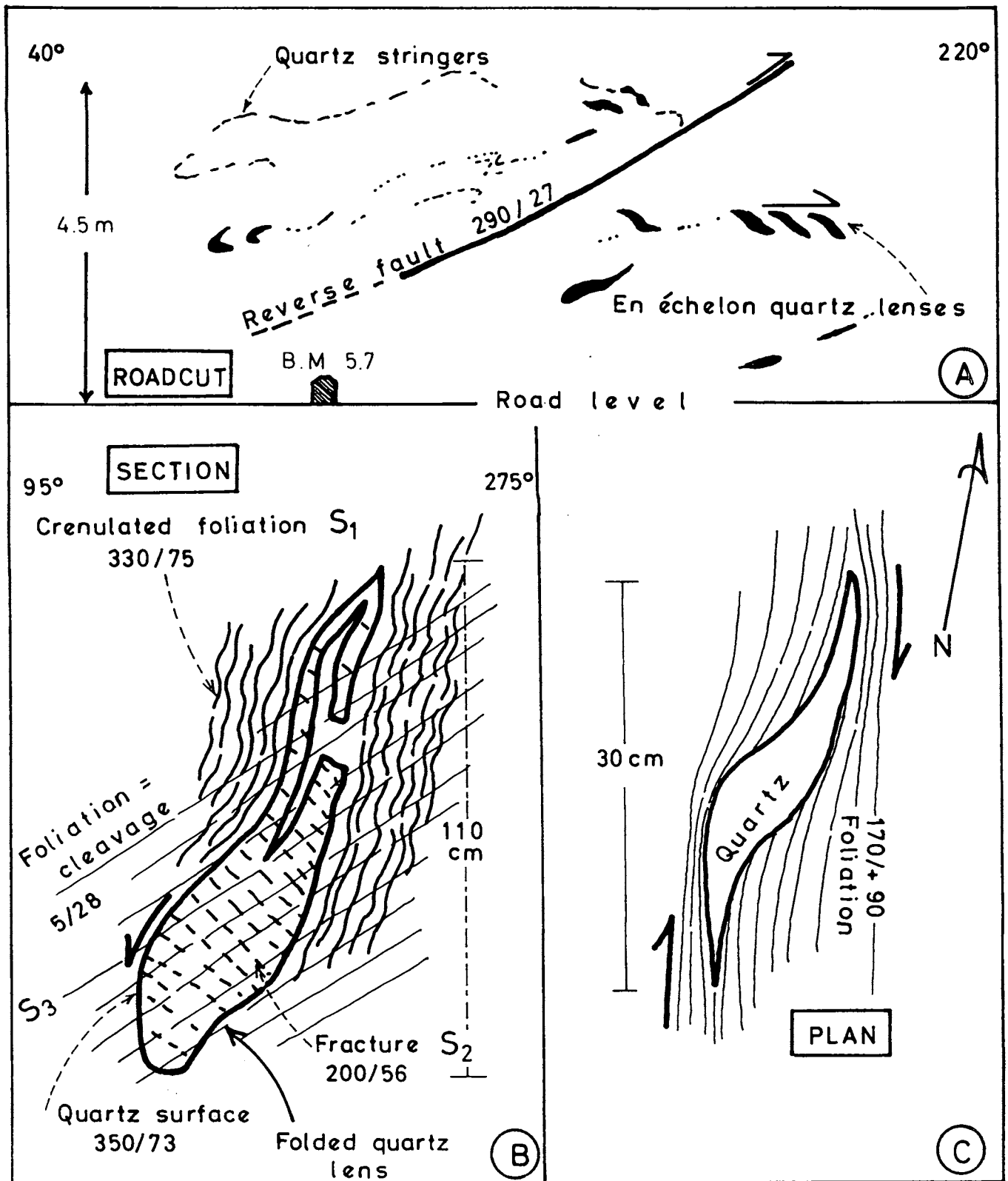


Fig. 1. Three examples showing sense of tectonic transport in the quartz phyllite-schist of Bentong, Pahang. Details in the text.

half-tipped arrow, that is, east side went down. Asymmetric folds in the schist nearby and in other outcrops also indicate that tectonic transport eastward had occurred in the schist.  $S_3$  represents cleavage planes, flat and mutually parallel dipping 28 degrees in  $95^\circ$  direction.  $S_3$  may represent axial plane cleavage for it is pervasive. Its straight traces are particularly clear in a large patch of the roadcut that consists of phyllite-schist without quartz inclusions.

The outcrop of figure 1C is about 250 m west of the toll plaza. The sigmoidal quartz flaser indicates dextral flexural slip in  $170^\circ$  direction or parallel to foliation. Diagnostic for slip sense are: The sigmoidal shape of the quartz, the closer and wider spacing of foliation on opposed sides of the flaser, and the concave junction between quartz flaser and foliation on the lee side of the flaser. A recent, useful evaluation of criteria for interpreting sense of movement in sheared rock was published by Simpson and Schmid (1983).

The examples given in this note thus show three different directions of tectonic transport in the Earliest Devonian (or older) quartz phyllite-schist near Bentong. (1) Tectonic transport towards east, followed by (2) tectonic transport towards west and (3) right-lateral motion in fault zones that trend a few degrees east of north. The straight and flat character of  $S_3$  representing deformation (2) indicates its younger age. Strike slip motion (3) may represent another manifestation of stresses that produced  $S_3$ .

A full account will be published in Sains Malaysiana.

### References

- Alexander, J.B., 1968. The geology and mineral resources of the neighbourhood of Bentong, Pahang, and adjoining portions of Selangor and Negeri Sembilan. Geological Survey, West Malaysia, District Memoir 8, 250 p.
- Haile, N.S., P.H. Stauffer, D. Krishnan, T.P. Lim & G.B. Ong, 1977. Palaeozoic redbeds and radiolarian chert: Reinterpretation of their relationships in the Bentong and Raub areas, West Pahang, Peninsular Malaysia. Geological Society of Malaysia, Bulletin 8, 45-60.
- Simpson, C. & S.M. Schmid, 1983. An evaluation of criteria to deduce the sense of movement in sheared rocks. Geological Society of America, Bulletin, Vol. 94, 1281-1288.

*Manuscript received 3 September, 1984.*

\*\*\*\*\*

## TURQUOISE FOUND IN TRAS/RAUB, PAHANG

K.N. MURTHY, Geological Survey, Federal Headquarters, Kuala Lumpur.

Turquoise has not been reported in Peninsular Malaysia to-date. This short note records the first turquoise locality found.

In April 1984, whilst the writer was on his way to Raub on vacation, he spotted some green and bluish-green mineral on a road cutting between the towns of Tras and Raub (see Fig. 1).

The mineral was found to occur both as amorphous and botryoidal masses. They are found as veinlets about 2 mm - 4 mm wide and up to 1 metre long intruding into highly fractured chert. At places they occur as infillings along the fractures and joint planes of the country rock.

The mineral is identified as a hydrated phosphate of copper, zinc, and aluminium. It forms an isomorphous turquoise-faustite series which has a composition of  $(Zn, Cu)Al_6(PO_4)_4(OH)_8 \cdot 5H_2O$  (American Geological Institute 1973). Turquoise is the copper end member whilst faustite is the zinc end member.

The host rock is highly fractured chert belonging to the "Foothills" group of rocks of Devonian age.

The colour of the turquoise is bluish-green and in some places it is apple-green. The mineral is subtranslucent to opaque, cryptocrystalline, and has a conchoidal fracture. Texturally it is slightly waxy and porous. It has a whitish and sometimes a greenish-white streak. It scratches glass and has a hardness of about 5-6 on the Mohs' Scale.

The turquoise was identified by X-ray diffraction and X-ray refraction methods. There were two varieties:

- (a) a green variety which has a higher Cu/Zn ratio, and
- (b) a bluish-green variety which has a lower Cu/Zn ratio.

Turquoise is a mineral of secondary origin, found in thin veins, as incrustations, nodules and less commonly as small masses in various rock types which have undergone extensive alteration (Dana and Ford, 1932). The colour is generally bluish-green to green and is usually not stable. The uniform sky-blue colour variety of turquoise is most prized. It has been used for ornamentation since ancient times.

In the light of the recent turquoise discovery in the "Foothills" group of rocks at Tras, it is recommended that other road cuttings in the "Foothills" be investigated not only for possible economic deposits of turquoise but for phosphate or copper related deposits.

### Acknowledgements

The writer would like to thank Mr. Gan Ah Sai, Ketua Pegawai Kajibumi, Cawangan Mineralogi and Petrologi, officers of the Geochemistry Division and X-ray laboratory who helped in the identification of the

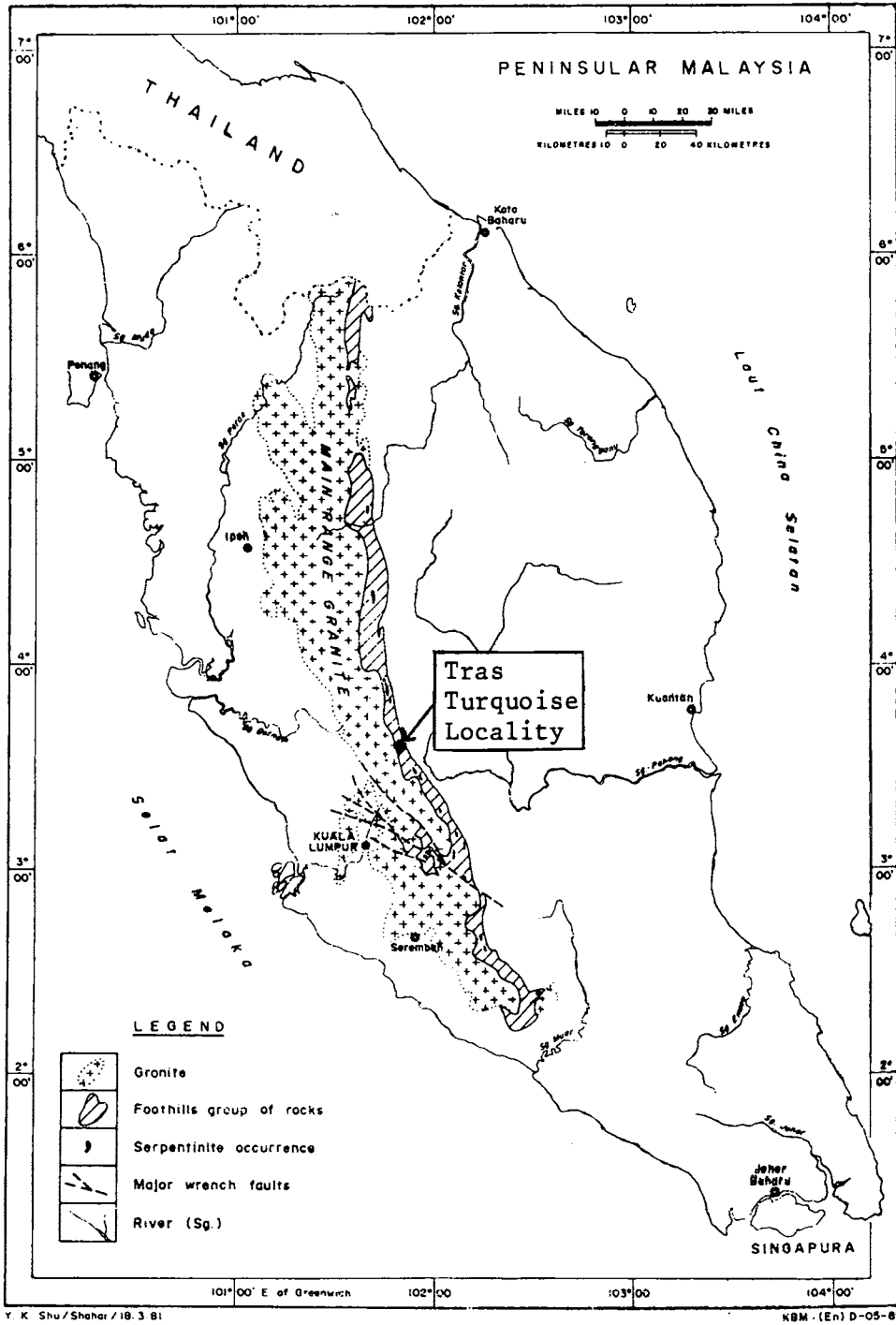


Fig. 1. Tras Turquoise Locality.

mineral. Thanks are due to Mr. Chow Weng Sum, Geologist, Geological Survey, Kuala Lumpur for advice and reading on the draft of this note.

### References

American Geological Institute, 1973. Glossary of Geology, M. Gurey, R. McAfee Jr and C.L. Wolf. Editors American Geological Institute Washington, D.C.

Dana E.S. and W.E. Ford., 1932. A Textbook of Mineralogy. Fourth Edition. Wiley and Tuttle, Tokyo.

\* Publication authorised by the Director General, Geological Survey, Malaysia.

*Manuscript received 2 October, 1984.*

\*\*\*\*\*



## THE GEOLOGIC TIME SCALE, AND THE LOGIC BEHIND IT

SRIYANEE de Silva, Geology Department, University of Malaya.

*"Before there was any earth or sea, before the canopy of heaven stretched overhead, Nature presented the same aspect the world over, that to which men have given the name Chaos. This was a shapeless uncoordinated mass, nothing but a weight of lifeless matter, whose ill sorted elements were indiscriminately heaped together in one place."* (Ovid, in *Metamorphoses*).

We may conceive the geological history and time beginning in a similar manner, since geologic time can be defined as being the "set of all events of the geologic past" (Kitts, 1966). According to him, the events of the set are spatially ordered and temporally ordered with respect to the relationship "earlier than ..... later than" and "simultaneous with". For example, the Palaeozoic era is 'simultaneous with' the time span of the trilobite. The history of mankind is recorded with respect to human lifetimes (hence, the use of centuries to demarcate the history of civilisation). Therefore, an analogous scale was introduced to provide an adequate, if not complete measure of time with respect to the geological history of the earth. And, at the same time, to attempt to achieve a mature and coherent picture of the earth, her nebulous beginnings and subsequent evolutionary trends.

The modern time scale was developed in the nineteenth century. Geologic periods were established on the basis of relative ages and the fossil content of sequences of sedimentary rocks. The Palaeozoic (Gk. 'ancient life') periods were established through the cumulative works of several English geologists. Notably, Adam Sedgewick who named the Cambrian system, Roderick Murchison who named the Silurian, Devonian (with Sedgewick) and Permian systems, and Charles Lapworth who recognized the intermediary Ordovician system. The Mesozoic periods Triassic, Jurassic and Cretaceous were named after rock units or sites in Western Europe. The names of the Cenozoic period reflect the scale terminology of the pioneer chronologists, Lehmann and Arduino (Seyfert and Sirkin, 1973). The latest definition of the geological time scale is "composed of standard stratigraphic divisions based on rock sequences and calibrated in years. It is thus the joining of two different kinds of scales. A chronometric is based on units of duration - the standard second - hence the year. A chronostratigraphic scale is now conceived as a scale of rock sequence with standardized reference points selected in sections, each particularly complete at the boundary and known as boundary stratotype. The chronostratigraphic scale is a convention to be agreed rather than discovered, while its calibration in years is a matter for discovery rather than agreement". (Harland, *et al.*, 1982)

There are, of course, other time scales (chronologies) which can be derived from natural phenomena, for example:

- i) binary scale of magnetic reversals or otherwise known as the magnetostratigraphic scale,

- ii) chronologies based on degrees between two extreme states - glacial and interglacial, cold and warm, high and low sea levels or even greater and lesser tectonic activity,
- iii) decay chronologies - radioactive series or cooling curves,
- iv) biostratigraphic chronologies based on the multifarious biological evolutionary trends (Harland, *et al.*, 1982).

The chronostratigraphic (chronostratic) and the chronometric scales are created by the interpolation between and extrapolation from tie-points that relate to particular rock samples in which fortunate combination of characters allow for the radiometric determination on rocks closely related to those with the fossils that can be used to relate with the stratotype (Harland, *et al.*, 1982). The time divisions (eras, periods, etc.) are defined by their initial and terminal points.

The geological time scale, though far from being complete, is suitable for all pragmatic purposes. Since there is more than one method of determining geologic time (radiometrically or biostratigraphically) there are various scales used, as illustrated in Fig. 1.

Geochronological scales Chronostratic scale based on:		Magnetiostratigraphic scale
Rock units	Stratigraphical units	
Eonothem Erathem System Series Stage Chronozone	Eon Era Period Epoch Age Chron	Polarity hyperchronozone Polarity superchronozone Polarity chronozone Polarity subchronozone

Fig. 1. Three chronologies used in geological studies (Harland, *et al.* 1982).

All divisions and subdivisions found in the geochronological scales have progressed on a hierarchical basis, "the number of ranks is not a matter of principle, but an accident of history" (Harland, *et al.*, 1982). This 'hierarchy' begins with eon, era, period, epoch, age and ending with chron. The relationships are explained in Fig. 2, in which one period is illustrated. These divisions, which were erected without actual ages in the nineteenth century, remained, and with radiometric dating the boundaries are now with defined values.

The principle scientific methodology employed in the correlation as well as the interpretation of chronological data, is the inductive method. The inductive logic is the name given to the systematic

Eon	Era	Period	Epoch	Age	Chronometric calibration
PHANEROZOIC which includes the Mesozoic, and Cenozoic eras.	PALAEOZOIC which includes Cambrian, Ordovician, Silurian, Carboni- ferous and Permian periods.	DEVONIAN	D <sub>3</sub>	Famennian	360-367 Ma
				Frasnian	367-374 Ma
			D <sub>2</sub>	Givetian	374-380 Ma
				Eifelian	380-387 Ma
			D <sub>1</sub>	Emsian	387-394 Ma
				Siegenian	394-401 Ma
				Gedinnian	401-408 Ma

Fig. 2. Chronostratic scale with chronometric calibration.

approach of formulating a universal statement based on singular, empirical data. There are three types involved:

- i) enumerative - the conclusion or inferred statement is based solely on statistical and mathematical principles. Statistics is used to substantiate a hypothesis. In this case, the greater the collection of data, the more precise the conclusion. An example of enumerative logic is seen below - (hypothetical set of data)

Ammonite 1 is found in rocks belonging to the Mesozoic era, Ammonite 2 is found in rocks belonging to the Mesozoic era. And so forth, till ammonite n (where n represents a positive integer) is found, also belonging to the Mesozoic era. The conclusion based on enumerative method is that all ammonites are to found during the Mesozoic era.

The method is further defined to be complete, if all aspects of the data are known, that is, to say that the total number of premises (data) are finite and known. Using the simplified example above, the method is said to be complete if all the ammonites born were found and all their ages determined. If, as in the case the ammonites where actual quantities are unknown and infinite, the number of cases studied are within the constraints of space and time, the method used is the incomplete enumerative method. This method depends on statistics in the interpretation of the accumulated data.

- ii) analogical - this is the method used when the conclusion is supported by premises that are analogous. To understand this method, let us consider two known invertebrates, one extinct and the other still in existence and commonly found (the invertebrates are studied at class level).

- a) Insecta - have an exoskeleton of chitin, jointed appendages and are members of the phylum Arthropoda, which includes crustaceans, arachnids, centipedes and millipedes.
- b) Trilobita - are found to have a hard exoskeleton made of chitin and possess appendages which are jointed.

By analogous induction, the conclusion is that 'the trilobite is an arthropod'.

Although actual correlation requires a great deal more information than the above example, the principle is identical to that used extensively in palaeontology (and its subdivisions like palaeoecology) and biostratigraphy to corroborate their data. Since it is physically impossible to observe first-hand the conditions of the past, all correlation pertaining to fossils and their niches have to be made with respect to the present, observable situations.

- iii) causal - which explains the relationship the cause has with the effect or in other words, the connexion between two incidences which are sequentially related. We take this relationship for granted since we, more often than not, cannot discern a tangible or observable connexion between cause and effect. In radiometric dating procedures, we use radioactive decay as a criterion for measuring the age of an unknown rock, usually metamorphic or igneous, which contain radio active isotopes (uranium-238, thorium-230, potassium-40, rubidium-87 and protactinium-231). When a radioactive isotope decays (which we assume to spontaneous) it releases energy in the form of particles and electromagnetic radiation that are recorded as alpha- and beta-particles and gamma rays. The rate of decay is measured in half-life which is defined as the time taken for a radioactive mass to decrease by half. The causal relationship to be found here is the statement that decay causes alpha- and beta-particles and the gamma rays to be emitted (which is the underlying principle of radiometric dating).

All forms of inductivism (excluding complete enumerative inductivism) utilize the 'inductive leap' (that is, the 'leap' from finite number of data, to total number of instances, including the infinite) to express the conclusion in a form acceptable to the scientist (geologist) since science requires universal statements in the form of theories, hypotheses and postulations. These universal statements must be contrived to encompass all aspects of the object studied, before it can be recognized as being scientific, and then utilized. The 'inductive leap' receives a great deal of justifiable scepticism because it is presupposing further data that would maintain its present conclusion. To put it simply, how can we claim to know or predict or even explain the unobservable (which in geology is the past)? Causality, furthermore is deemed to be based on contiguity (our perception in time and space as a principle of associations) which to scientific methodologists (David Hume, Karl Popper, Bertrand Russell, etc.) reduces science to the same, base, levels as of

superstition and mysticism. The more 'scientific' radiometric determination, too, has its limitations. Organic radiometry is severely impeded by the short half-life of carbon which is found in all organic compounds as it is confined to materials less than 50,000 years old (Pleistocene period). Therefore, it is not possible to date the organic relicts in sedimentary sequences beyond the period. The sequences are then ascertained relative to the igneous intrusion. It is, however, possible to give relative ages based on fossil assemblages using biostratigraphy.

All the 'geologic clocks' are based on inferences that are correlated to construct a credible geologic time scale. These inferences are in turn based on the fact that 'historic events' (signals according to Kitts, 1966) will not be repeated. But, how do we account logically for this assumption in order to establish the signals used to demarcate the geologic time? The assumption is contrary to logical thinking, which accepts the recurrence of historic events as being in concordance with the laws of nature. However, the author is of the opinion that, while geologic history may repeat itself, the probability of historic events occurring in exact duplication is very low, enough to be ignored.

Another assumption made when formulating the geologic time scale is of the symmetry of temporal relationships, that is, between the past and the present. Rosean (1975) defines symmetry of temporal displacement to mean that all moments of time are equivalent. Time is a very important concept in chronology (obviously), yet, it is taken for granted to be homogenous (when there is no tangible proof). Homogeneity also implies that time moves in one direction only, forward. What if time did/does move backwards? There is no proof that it does not. Causal relationships would be then invalid, among other things.

The use of inductivism is not restricted to geochronology alone. We base all our correlations on the inductive method because it is an instinctive method and also pragmatic one. It is unfortunate that many eminent philosophers of science regard deductivism as the only valid logical system because it does not involve the 'inductive leap'. The author believes that induction represents the most primordial form of intelligence, since the ability to correlate past experiences (premises) with current and future experiences is what separates the higher (more intelligent) life-forms from the lower. Therefore, the author finds it improbable that a universal statement can be formulated without any prior correlation with empirical data (as in deductive logic). The author is of the opinion that in deductive reasoning, the universal statement is formed as a result of conscious or sub-conscious correlating of data which may or may not be in tangible forms. Even the model or precedent for which data are collected is not formulated a priori, but, with some pre-conceived idea.

We cannot justify or eliminate the use of the 'inductive leap'. However, if we modify the inductive conclusion from 'all ..... ' to 'some ..... ' we remove the offending clause. Unfortunately, we reduce the intrinsic effectiveness of the conclusion, since it no longer represents a universal statement. The author would like to propose a modified falsification method to be used when correlating data. The falsificationist begins with a falsifiable (that is

according to Karl Popper, capable of being finally decided, with respect to its truth and falsity) hypothesis and works using competing theories to attempt to falsify the said hypothesis. These competing theories are tested using empirical methods. The modified falsification method would be to start by observing anomalous phenomena or data and then, by induction, formulate a falsifiable hypothesis. The method used in falsifying the hypothesis then can be by deductive inference to argue from the truth of singular statements to the falsity of a universal statements (Popper, 1959). Hence, a symbiotic relationship is forged between the two forms of scientific logic - induction for the formulation of the hypothesis and deduction for the testing. In this way, a more realistic methodology can be evolved since we cannot condone the 'inductive leap' nor ignore the pragmatism of the inductive method and while at the same time incorporating the more scientific deductive method. If we extend the method to be used to other fields in geoscience, we increase the 'logic potential' (the intrinsic value in terms of scientific methodology) of not only geochronology but all the others as well.

### Bibliography

- Harland, W.B., Cox, A.V., Lewellyn, P.G., Pickton, C.A.G., Smith, A.G., Walters, R., 1982. A geologic time scale, Cambridge earth science series, Cambridge University Press, Cambridge, United Kingdom, 1982.
- Kitt, D.B., 1966. Geologic time; in Philosophy of geohistory, Albritton, C.L.Jr., (ed), Hutchinson & Ross, Inc., U.S.A., 1975, p. 357-377.
- Ovid, Metamorphoses, translated by Innes, M.M., Penguin Books Ltd., 1955.
- Popper, K.R., 1959. The logic of scientific discovery, Hutchinson, London, 1959.
- Rosean, J., 1975. Symmetry discovered - concepts and applications in nature and science; Cambridge University Press, Cambridge, United Kingdom, 1975, pp. 138.
- Seyfert, C.K., and Sirkin, L.A., 1973. Earth history and plate tectonics - an introduction to historical geology, Harper & Row, U.S.A., 1973.

\*\*\*\*\*

P E R T E M U A N   P E R S A T U A N  
( M E E T I N G S   O F   T H E   S O C I E T Y )

### TECHNICAL TALK

A. MILLER: Geology of the Proterozoic basins in Central Keewatin and non-time bound character of uranium deposits in these basins.

The above technical talk which was earlier scheduled to be held in Kuching, Sarawak, was finally presented by Dr. Allan Miller to a crowd of 50 at the Geology Department, University of Malaya, Kuala Lumpur, on Monday 22 October at 5.30 p.m.

Dr. Miller who is with the Economic Geology Division, Geological Survey of Canada, briefed the audience on the geological setting of the Proterozoic Basins of the District of Keewatin, the rock types present, the ages and uranium mineralization.

On the NE Thelan Basin, the sandstone is red from oxidation and is mineralised while the siltstone and mudstone are basin. The mineralised zones are 10-20 cm wide,  $\frac{1}{2}$  km in strike and contain uraninite coffinite and pitchblende. The mineralisation is early diagenetic.

The Baker Lake Basin consists of the Christopher Island Formation of trachybasalt and trachyandesite, with 15-20 ppm uranium, together with rhyolite and hot granites. There are various episodes of magmatism and the rapakivi granite of 1.8 Ma appears to be the last in the area. Uranium is found in every formation in the Baker Lake Basin together with a variety of mineralisation which includes Cu, Ag, Se and Mo.

Essentially uranium mineralisation in the Lower Proterozoic metasediments are in polydeformed quartzite. The Lone Gull Deposit, an unconformity-type deposit, is one of retrograde greenschist metasediments. The quartz-illite-Mg chloride rock is porous and contains coffinite with multicyclic remobilisation of pitchblende and tellurides, Selenides and Ni-arsenides.

During question time, members who are directly involved in one way or another with uranium or radioactivity were ready with various points for discussion.



G.H. TEH

\*\*\*\*\*

Dr. A. Miller

BERITA PERSATUAN  
(NEWS OF THE SOCIETY)

GEOSEA V PROCEEDINGS

The Society has decided that it will publish the Proceedings of the GEOSEA V. To-date (end Oct 1984) seventy eight manuscripts of the papers presented have been received. Authors of another thirteen (13) authors have indicated that their manuscripts will be submitted late. A list of the papers received to-date is given in the following pages together with a list of papers for late submission. Authors of papers for late submission are requested to send in their papers quickly for the editorial work to proceed smoothly.

The Proceedings will be published as two issues of the Bulletin of the Society (possibly Bulletins 18 and 19). If all goes well we hope to have both volumes published by July 1985. In order to facilitate the editorial review of papers the GSM Council has proposed an Editorial Board consisting of 26 members. Letters will be sent shortly to these members seeking their acceptance to serve on the Board. We sincerely hope that all the members appointed will willingly assist the Editor in his work and thereby maintain the name of the Society.

In spite of letters of appeals for donations to various organisations for the GEOSEA V Proceedings the response has been slow. It is the Council's hope that members can all assist in this drive. An Advertising Space Order Form can be found in this Warta for members to assist in this fund-raising campaign.

GEOSEA V Proceedings - Manuscripts Received

1. Nature of gold mineralization in certain areas in East Manipur, India, within the Indo-Burman Ophiolite Belt - P.J. Deka. (10.4.84)
2. Chromite deposits of Papua New Guinea - a future potential source of chrome - P.M. Afenya. (10.4.84)
3. The succession of vertebrate faunas in the continental Mesozoic of Thailand - E. Buffetaut & R. Ingavat. (10.4.84)
4. Present understanding of the Pre-Cenozoic stratigraphy of Hong Kong - D.R. Workman et al. (9.7.84)
5. Clay mineralogy of selected alluvial soils from Peninsular Malaysia - J. Shamshuddin. (9.7.84)
6. Palaeogeographic development of west Sarawak - Denis Tan. (14.7.84)
7. Discovery of Lower Permian corals in Sumatra - H. Fontaine. (17.7.84)
8. Slope stability problems in part of western Singapore - J. Pitts. (17.7.84)



9. Residual soil development on sedimentary rocks of the Jurong Formation in Singapore - J. Pitts & R. Kannan. (17.7.84)
10. Geologic significance of granitic fragments found from pumice flow of 1883 eruption at the Krakatau Group, Indonesia - N. Oba et al. (21.7.84)
11. A preliminary sulfur and oxygen isotope study of the Maha Sarakham Evaporitic Anhydrite from Bamnet Narong Area of NE Thailand - Visut Pisutha-Arnond et al. (31.7.84)
12. The Chemistry of Lateritic Soils: The search for new agricultural technology - B.I. Kronberg, W.S. Fyfe et al. (31.7.84)
13. Conodont biostratigraphic studies in Sumatra: Preliminary Results - I. Metcalfe. (1.8.84)
14. Bauxite in the Kuantan area, Peninsular Malaysia - S. Senathi Rajah. (6.8.84)
15. Magnetic Spectrum of the San Kampaeng geothermal area, Northern Thailand - Somsri Sertsriwanit et al. (7.8.84)
16. On a Pleistocene gravel beach sequence exposed in coastal plain tin mines, Phuket Island, Thailand - G.A.M. Kruse. (9.8.84)
17. The Role of the ESCAP Regional Mineral Resources Development Centre - J.F. McDivitt. (9.8.84)
18. Palynology as a tool in delineating tropical lowland depositional environments of Late Quaternary age - R. Hillen. (13.8.84)
19. Cretaceous melange in West Kalimantan and its tectonic implications - P.R. Williams et al. (15.8.84)
20. Mud volcanoes and the origin of chaotic deposits in Sabah, East Malaysia - R.B. Tate. (15.8.84)
21. Progress in Quaternary Geology investigations in S.E. Asian countries since GEOSEA IV, Manila, 1981 - J.A.M. Ten Cate. (15.8.84)
22. Aspects of the Geochemistry of Malaysian cassiterites - W. Fuad Hassan. (14.8.84.)
23. Petrochemistry of basaltic rocks at km 567.5 Pahonyothin Highway, northern Thailand - Y. Panjasawatwong & W. Yaowanoyothin. (17.8.84)
24. Recent advances in exploration modelling for tin deposits, and their application to the S.E. Asian environment - R.G. Taylor & P.J. Pollard (20.8.84)
25. On the Geology of the Petchabun Fold-Belt (Central Thailand) - Implications on the Geodynamic Evolution of Mainland S.E. Asia - Dietrich Helmcke. (21.8.84)
26. Some aspects of southern granitoid complex and tin mineralization in the northern part of Bangka, Indonesia - R. Soeria-Hmadja et al. (23.8.84)

27. On the Quaternary Deposits of Thailand - Phisit Dheeradilok & Worakoon Kaewyana. (24.8.84)
28. Aspek Geologi Kejuruteraan batuan metasedimen klastik di sekitar Kuala Lumpur, Semenanjung Malaysia - I. Komoo. (27.8.84)
29. The rare-earth elements geochemistry of Lingshan tungsten-tin bearing granites and their applications to petrogenesis of the granites - Yuan Zhongxing et al. (28.8.84)
30. Geology and Stratigraphy of Sri Racha area, Chonburi Province, Eastern Thailand - M. Taiyaqpt et al. (28.8.84)
31. Petrological & Geochemical studies of granites of Kathu Plutons of Phuket Island, Southern Thailand - P. Charusiri et al. (28.8.84)
32. Geological Framework of Bangladesh - Abdul Halim Quazi. (29.8.84)
33. Distribution of major and some trace elements of some granites from Bangka, Indonesia - J.M. Sitanggang. (29.8.84)
34. Complex tin-bearing sulfides of the South Chinese Ore Type - G.H. Moh. (1.9.84)
35. Preliminary synthesis of the geology of Bangka Island, Bangka - U Koko. (3.9.84)
36. Quaternary volcanic ash deposits in the Padang Terap District, Kedah State, Peninsular Malaysia - J. Debaveye et al. (3.9.84)
37. Geomorphology and soils of the Padang Terap District, Kedah State, Peninsular Malaysia - M. De Dapper & J. Debaveye. (3.9.84)
38. Age determination on the Kuantan Granite and Dolerite Dykes - F.L. Yap. (4.9.84)
39. The pattern of K/Ar ages of biotites from the granites of Penang: Its interpretation in the light of available Rb/Sr and U/Pb data - T.S. Kwan & F.L. Yap. (4.9.84)
40. Geological evolution of the Southern Philippines - C.K. Burton. (4.9.84)
41. Quaternary volcanism and other phenomena generally attributed to volcanicity in the Acheh Region (North Sumatra), Indonesia - G.A. De Neve. (4.9.84)
42. Geohazards of the Galunggung 1982-83 Aftermarth - C.A. De Neve (4.9.84)
43. Aspects of the Geohydrology in coral reef atolls of the Kai and Tanimbar Islands in the southern Moluccas - G.A. De Neve. (4.9.84)
44. Southeast Asia as a part of an Early Palaeozoic Australian Gondwanaland - C. Eurrett & B. Stait. (6.9.84)
45. Quaternary stratigraphy and prospects for placer tin deposits in the Kuantan area, Pahang - T. Sunthralingam. (6.9.84)

46. Some thoughts on the development of the alluvial tinfields of the Malay-Thai Peninsula. - D. Taylor. (6.9.84)
47. On the evaporite deposits in Bamnet Narong area, northeastern Thailand - S. Yumuang et al. (6.9.84)
48. The slope stability problem at Mae Moh lignite mine, Lampang Province, Northern Thailand - W. Tandicul et al. (6.9.84)
49. The Holocene transgression in Peninsular Thailand - P. Pramojane & P. Hastings et al. (6.9.84)
50. Factors concerning with spontaneous fires in Northern Thailand coals - B. Ratanasthien. (7.9.84)
51. Soil landscapes in Peninsular Malaysia - S. Paramanathan & S. Zauyah. (11.9.84)
52. Geological evolution of the Indonesian Archipelago - H.M.S. Hartono & S. Tjokrosapoetro. (11.9.84)
53. New lights on human evolution in Southeast Asia - S. Sartono. (11.9.84)
54. Tin-tungsten mineralized granite at Mae Chedi area, Wiang Pa Pao District, Chiang Rai Province, Northern Thailand - R. Hansawek et al. (11.9.84)
55. Discovery of stone age tools from Tripura and its relevance to Prehistory of Southeast Asia - N.R. Ramesh. (11.9.84)
56. Base metal exploration in Sabah - David T.C. Lee & H.S. Weber. (12.9.84)
57. Massive sulfide deposits and their possible significance to other ores in Southeast Asia - R.W. Hutchinson. (11.9.84) (Keynote paper)
58. Development of San Kamphaeng geothermal energy plant Thailand - T. Ramingwong & S. Praserdvigai. (11.9.84)
59. Regional controls of hydrothermal ore localization in northern Thailand - P. Asnachinda & S. Chantaramee. (11.9.84)
60. Metallogeny of Hoang Lien Son subduction zone - Le Thac Xinh. (11.9.84)
61. Recent advances in the knowledge of geology and mineral resources of Vietnam since 1981 - Le Thac Xinh & Nguyen Xuan An. (11.9.84) (Review Paper)
62. Recent advances in the knowledge of geology, energy resources and metallogenesis of Papua New Guinea since 1981 - R. Rogerson, A. Williamson & G. Francis. (11.9.84)
63. Sedimentology of Upper Jurassic deposits in the Tembesi River area (Central Sumatra) - L. Beauvais et al. (11.9.84)
64. A review of what is presently known about the nature, distribution and genesis of certain authigenic minerals in the stanniferous alluvial deposits of Southeast Asia - K.F.G. Hosking. (14.9.84)

65. Global tectonics and resources - W.S. Fyfe. (17.9.84)
66. Tertiary basins of S.E. Asia - their disparate tectonic origins and eustatic stratigraphical similarities - Charles S. Hutchison. (20.9.84)
67. Tin/tungsten-bearing granites in South China and their metallogenetic relations - Xu Keqin & Zhu Jinchu. (24.9.84)
68. Geology and exploitation of kaolin deposits in the Bidor area, Peninsular Malaysia - P.C. Aw. (25.9.84)
69. Geology and tectonics of Arakan Yoma - a reappraisal - D.R. Nandy. (2.10.84)
70. Application of the Zeiss TGA 10 particle-size analyzer in the exploration of stanniferous placers - W.W.-S. Yim. (2.10.84)
71. Hydrogeological activities in Peninsular Malaysia and Sarawak - F.S. Chong and Denis N.K. Tan. (2.10.84)
72. Neogene stratigraphy, structure and petroleum potential of the Oiapu-Yule Island - Oroï Region, Papua New Guinea - G. Francis, R. Rogerson et al. (2.10.84)
73. Results of a gravity survey in the Kuala Lumpur area - C.A. Foss. (11.10.84)
74. A study of altimeter height control in a gravity survey around Kuala Pilah, Central Malaysia - C.A. Foss. (11.10.84)
75. Catchment geomorphology and its relationship with stream flow - a case study of selected drainage basins in Peninsular Malaysia - C.H. Peh. (15.10.84)
76. Status of uranium exploration in Peninsular Malaysia - L.H. Chu. (19.10.84)
77. The nature and potential of gold mineralization in Kelantan, Peninsular Malaysia - L.H. Chu & D. Santokh Singh. (19.10.84)
78. Late Palaeozoic Palaeogeography of Southeast Asia: Some Stratigraphical, Palaeontological and Palaeomagnetic Constraints - I. Metcalfe (5.10.84)

GEOSEA V Proceedings - Late Submission

1. Forearc or Foredeep: Tectonic controversy concerning structure of Banda Arc - Audley-Charles, M.G.
2. The integration of remote sensing, terrain evaluation and engineering geology in Southeast Asia - Beaumont, T.E. and Hunt, T.
3. The Kanchanaburi Supergroup of Peninsular and Western Thailand - Burton, C.K.

4. Geochemistry and Petrogenesis of alkaline basaltic rocks of Kuantan, Peninsular Malaysia - Chakraborty, K.
5. Coal potential and exploration in Sarawak - Chen Shick Pei.
6. Behaviour of tin and associated elements in a mountain stream, Bujang Melaka, Malaysia - Fletcher, W.K., Dousset, P.E. and Yusoff bin Ismail.
7. Cathaysia, Gondwanaland and the Paleotethys in the evolution of continental Southeast Asia - Gatinsky, Yuri G. and Hutchison, Charles S.
8. Marginal sea formation by rifting of the Chinese and Australian continental Margins and implications for Borneo - Hutchison, Charles S.
9. The seismic record in S.E. Asia: Some distribution characteristics in time - Leong Lap Sau and Burton, Paul W.
10. Seismic risk parameters from cumulative frequency estimates in S.E. Asia - Leong Lap Sau and Burton, Paul W.
11. Late Paleozoic glacial maring facies in Southeast Asia and its implications - Stauffer, P.H. and Lee Chai Peng.
12. Directions of geologic transport in Peninsular Malaysia - Tjia, H.D.
13. Cretaceous melange in West Kalimantan and its tectonic implications - Williams, P.R., Supriatna, S. and Harahap, H.

\*\*\*\*\*

## PETROLEUM GEOLOGY SEMINAR 1984

The response to the 1984 Petroleum Geology Seminar is very encouraging. About 140 participants are expected to attend the Seminar which is scheduled for the 3rd and 4th of December 1984 at Hotel Merlin in Kuala Lumpur.

Even the response for papers has been good such that some of the papers offered for this year had to be turned away. This list of papers scheduled for presentation is as given below.

1. A heat flow study in the Malay Basin, offshore East Peninsular Malaysia - Wan Ismail Wan Yusoff.
2. Cyclicities in the Miocene Nyalau Formation and their implications - Dr. Azhar Hj. Hussin and Dr. Nuraiteng Tee Abdullah.
3. Slumping at the Late Miocene Shelf-Edge, offshore West Sabah: A view of a Turbidite Basin Margin - B.K. Levell and Awang Kasumajaya.
4. Aspects to the Resolving Power of 3D Seismic Surveys - Wolfgang Houba.
5. The role of geophysics in oil and gas field development - Khee Kok Kean and Mohd Izham Ismail.

6. Direct detection of hydrocarbon by electraflex method - Abdul Halim Quazi.
7. Seismic prediction of hydrocarbon reservoirs - A (critical) review on the determination of lithological parameters from Seismic Data - Dr. Burkhard Buttkus.
8. Depositional environments of the J Sandstone, southeastern part of the Malay Basin, offshore East Peninsular Malaysia - Nik Ramli Nik Hassan.
9. The history and geology of the Tiong Field - Redzuan Mohd Said.
10. Marine geoscientific studies of The Federal Institute for Geosciences and Natural Resources (BGR) in Asian Offshore Areas - Dr. Burkhard Buttkus.
11. LITHO, a computerised approach to Lithofacies identification - A.R. Somturk.
12. Exploration history of Malong Discovery - Ong Hock Thye and Ng Tong San.
13. Modern laboratory techniques for the handling of measurement on unconsolidated cores - Lars Lydersen.
14. The mechanics of progressive deformation in crustal plates - A working model for Southeast Asia - B.G.M. Wood.

\*\*\*\*\*

## AMMENDMENTS TO THE SOCIETY'S CONSTITUTION

Two ammendments to the Society's Constitution were approved at the last AGM. Both these ammendments will be implemented in 1985 after formal approval of the Registrar of Societies is obtained. The two ammendments are as follows:

### 1) Subscription rates for the Society

The revised subscription rates for the Society are as follows:

<u>Grade of Membership</u>	<u>Old Rate</u>	<u>New Rate</u>
Full Member	M\$25.00	M\$40.00
Associate Member	M\$25.00	M\$40.00
Student Member	M\$10.00	M\$10.00 (no change)
Entrance fee	M\$10.00	M\$20.00
Institutional Member	M\$50.00	M\$100.00
Professional Member	M\$50.00	M\$50.00 (no change - processing fee)
Life Member	M\$350.00	M\$400.00

### 2) Ammendments to Article V, Section 2

The following ammendment was approved by members after a postal ballot:

As at present

Article V

Section 2: This Council shall be elected by a simple majority postal vote in the following manner:

- i) The Council shall before 30 April appoint a Nominations Committee of three consisting of one member of the Council as Chairman and two Corporate Members of the Society, who are not members of Council. This Committee shall by 30 June Recommend to the Council the names of one or more Corporate Members suitable for nomination for the President, Vice President, Secretary, Treasurer, Assistant Secretary, Editor and for each position of Councillor due for election that year.
- ii) The Council based on the recommendation of the Nominations Committee shall prepare a list of nominees, having obtained their written consent, and shall send this to all Corporate Members with a call for further nominations, not later than 31 August. A candidate nominated as an Officer may also stand as a Councillor, if elected as an Officer his candidature for Councillor automatically lapses Nominations, which must include the written consent of the nominee and the supporting signatures of two Corporate Members, shall be received by the Secretary until 30 September. A nominee must be a Corporate Member.
- iii) The Council shall appoint an Election Officer and one or more scrutineers who are not candidates in the election. The Election Officer shall mail one numbered ballot to each Corporate Member during the month of October. He shall receive the returned ballots, and, with the scrutineers, count all valid ballots received by 31 December. The candidate with the greatest number of ballots cast shall be elected. In the case of a tie vote, the Council shall cast a deciding vote.

New amended wording

Article V

Section 2: The Council shall be elected by a simple majority postal vote in the following manner:

- i) The Council shall not later than 15 August send to all Coporate Members a call for nominations for the positions of President, Vice President, Secretary, Treasurer, Assistant Secretary, Editor, and each position of Councillor due for election in that year. A nominee must be a Corporate Member. Nominations must include the written consent of the nominee and the supporting signature of two Corporate Members, and shall be received by the Secretary not later than 30 September. A candidate nominated as an Officer may also stand as a Councillor. If elected as an Officer, his candadature for Councillor automatically lapses.
- ii) The Council shall before 30 September appoint a Nominations Committee of three consisting of one member of/Council as Chairman and two Corporate/the Members of the Society, who are not members of Council. This Committee shall by 31 October recommend to the Council the names of one or more Corporate Members suitable for nomination for each position of Officer and Councillor for which no nominations have been received under section (i) above. This Committee may at its discretion also recommend the names of one or more

Corporate Members suitable for nomination for each position of Officer and Councillor in addition to the nominations already received under section (i) above. Nominations must be accompanied by written consent of the nominees. Council shall then prepare a complete list of the nominations received under sections (i) and (ii). At the discretion of Council, the list may state which are Council nominees.

- iii) The Council shall appoint an Election Officer and two scrutineers who are not candidates in the election. The Election Officer shall mail one numbered ballot to each Corporate Member before 15 November. The ballot paper shall contain the names and affiliations of all nominees. The Election Officer shall receive the returned ballots, and with the scrutineers, count all valid ballots received by 31 December. The candidate with the greatest number of ballots cast shall be elected. In the case of a tie vote, the Council shall cast a deciding vote.

\*\*\*\*\*

## FORTHCOMING GSM BULLETIN 17 (DECEMBER 1984)

Once again a varied collected of undoubtedly interesting articles have been included in this Bulletin. A majority of paper are on Malaysian geology. Two review papers from Prof. Hosking on Ore Deposits in Cornwall have also been included. These papers it is hoped will stimulate similar reviews of the tin ore deposits in Malaysia. The sixteen papers accepted in this voluminous Bulletin are currently being type-set and we hope to release this Bulletin by early 1985 if there is no unforeseen delay.

The papers appearing in Bulletin 17 are:-

1. Sunthralingam, T. Quaternary Stratigraphy and Prospects for Placer Tin in the Taiping-Lumut Area, Perak, Malaysia.
2. Chakraborty, K.R. and A.G. Djatar. P-T-XH<sub>2</sub>O Conditions of Sungei Ara Granite, Penang Island, Malaysia.
3. Wan Fuad Wan Hassan *et al.* Niobium-Tantalum Minerals from Peninsular Malaysia.
4. Au Yong Mun Heng and B.K. Tan. Construction Materials for the Sembrong and Bekok Dams - a case study.
5. Santokh Singh *et al.* The Stong Complex: A Reassessment.
6. Khoo, T.T. The Terrane of the Patani Metamorphics.
7. Ibrahim, S. *et al.* A Preliminary Study on the Dielectric Properties of a Malaysian Rock saturated with water and Crude Oil.
8. Lye, Y.H. Studies of Pegmatitic Cassiterites from the Gunong Jerai (Kedah), Bakri (Johore) and Kathu Valley (Phuket) Regions.
9. Hosking, K.H.G. A Historical Review of Ways and Means of Searching for Ore Deposits in the Southwest of England.



10. Macdonald, A.S. and S.M. Barr. The Nan River Mafic-Ultramafic Belt, Northern Thailand: Geochemistry and Tectonic Significance.
11. Zaiton Harun and H.D. Tjia. Overtured Folds, Superposed Thrusts and Structural Overprints Near Sungei Buah, Selangor.
12. Tan, Dennis, N.K. Paleocurrents in the Tertiary Sedimentary Deposits in Western Sarawak.
13. Akiyama, Y. A Case History - Exploration, Evaluation and Development of the Mamut Porphyry Copper Deposit.
14. Khoo, T.T. Evidence of Polymetamorphism in the Rebak Islands, Langkawi, Kedah.
15. Zaw, U-Khin *et al.* Pb-Zn Mineralization at Theingon Mine, Bawsaing, Southern Shan State, Burma: A Mississippi Valley type deposit?
16. Hosking, K.F.G. The Stanniferous Placers of Cornwall, Southwest England.

Another three papers are currently being reviewed and if found acceptable they will also be included in this volume.

\*\*\*\*\*

## GSM COUNCIL FOR 1985/86

The GSM Council for 1985/86 is as follows:-

President	:	Dr. John Kuna Raj (Univ. Malaya)
Vice President	:	Dr. S. Paramanathan (Univ. Pertanian)
Hon. Secretary	:	Mr. Mohd. Ali Hasan (Univ. Malaya)
Hon. Asst. Secretary	:	Mr. Koh Tuck Wai (Petronas Carigali)
Hon. Treasurer	:	Mr. Chow Weng Sum (Geological Survey)
Editor	:	Dr. Teh Guan Hoe (Univ. Malaya)
Councillors (2-year)	:	Dr. Abdullah Hasbi bin Hj. Hassan (SEATRAD)
		Mr. Ahmad Said (Petronas)
		Dr. Azhar Hussein (Univ. Malaya)
		Mr. Albert Loh (MMC)
(1-year)	:	Dr. Abdul Hamid Mohamad (Univ. Kebangsaan)
		Dr. Hamzah Mohamad (Univ. Kebangsaan)
		Mr. Michael Leong (Petronas)
		Mr. Yin Ee Heng (Geological Survey)
Immediate Past President:		Mr. Leong Khee Meng (Petronas)

This in fact is the same line-up as that proposed by the Nominations Committee. As no new valid nominations were received by the closing date 21st October 1984. The above line-up will be the Council for 1985/86.

\*\*\*\*\*

## ACTING EDITOR'S NOTE

Dr. Teh Guan Hoe who is the Editor of the Society's publication will be on sabbatical leave from early November 1984 to June 1985. During Dr. Teh's absence the GSM Council has appointed me as Acting Editor. It is my hope that members will continue to give me the support which they have been giving to Dr. Teh. On my part I will try my best to maintain the high standard of the Society's Publications set by my predecessors.

Dr. S. PARAMANANTHAN

\*\*\*\*\*

## KEAHLIAN (MEMBERSHIP)

The following applications for membership were approved by the Council:

### Full Members

Zaidi Hassan, Batu 3 $\frac{3}{4}$  Jalan Kuala Krai, Kota Bharu, Kelantan.  
 Robert Hall, Dept. of Geology, University College London, Gower St., London, WC1E 6BT, U.K.  
 Michael G. Audley-Charles, Dept. of Geology, University College London, Gower St., London WC1E 6BT, U.K.  
 Ting Tiin Kiuea, Glass Sand Co. Bhd., P.O. Box 168, Bintulu, Sarawak.  
 Nicholas M. Tate, 1, Chilton Place, Upper Sturt, South Australia 5156.  
 Amerizal G. Djafar, Geomex Surveys, 34, Jalan Pinggir, Off Jalan Ipoh, Kuala Lumpur.  
 Lim Kian Beng, Geomex Surveys, 34, Jln. Pinggir, Off Jln. Ipoh, K.L.

### Student Member

Mogana S. Narayanasamy, 24 Jalan Anggerik, Taman Seroja, Slim River, Perak.

\*\*\*\*\*

## PERTUKARAN ALAMAT (CHANGE OF ADDRESS)

The following members have informed the Society of their new addresses:

D. Newton, Gearhart Geodata Services Ltd, 46 Tagore Lane, Sindo Industrial Estate, Singapore 2678.  
 Karl Hiller, Thönsenstr. 5A, 3006 Großburgwedel, Federal Republic of Germany.  
 Peter L. Cutts, Shryves, Colne Engaine, Earls Colne, Colchester, Essex CO6 2QN, U.K.

\*\*\*\*\*

## PERTAMBAHAN BARU PERPUSTAKAAN (NEW LIBRARY ADDITIONS)

The following publications were added to the Library:

1. The U. of Kansas, Paleontological contributions. Paper 109, 110, 111 & 112, 1984.
2. South Pacific Marine geological notes, vol. 3, no. 1, 1984.
3. Jurutera Galian, no. 15, 1984.
4. Scripta Geologica, nos. 68, 70 & 72, 1984.
5. Bulletin of the National Sc. Museum, vol. 10, no. 2, 1984.
6. Seatrad Centre, Report of investigation, nos. 24 (1984), No. 20 (1983), no. 18 (1984), no. 21 (1984) & no. 23 (1983).
7. Bull. Science & Technology Malaysia, vol. 3, no. 1, 1984.
8. Geophysical Research Bull. v. 22 (1), 1984.
9. Seatrad Centre, annual rep. 1983.
10. Oklahoma Geology Notes. vol. 44, nos. 1-3, 1984.
11. Seatrad Bull. v. V (2), 1984.
12. Geological Survey of India News. vol. 15, nos. 2-3, 1984.
13. AAPG Explorer, April-Aug. 1984.
14. Transactions of the National Academy of Science & Technology, vol. IV, 1982.

\*\*\*\*\*

## YOUNG GEOSCIENTISTS PUBLICATIONS AWARD

Please be informed that nominations of author(s) for the above award are now invited from all members of the Society except Student and Associate Members. Nominations should be of young geoscientist(s) who have published papers in the previous calendar year (1983). Relevant excerpts concerning the nomination of young geoscientist(s) and conditions of award are listed below:

### Eligibility

5. (1) No person shall be considered for the award unless he satisfies the Board:
  - (a) that he is thirty years old or younger at the time of publication of the paper.
  - (b) that he has been a resident of Malaysia for at least 3 years prior to the publication of the paper.
  - (c) that he belongs to any one of the membership classes of the Society.
  - (d) that the paper was published or has been accepted for publication in the previous calendar year, in which case written proof from the publisher must be shown.
  - (e) that the paper has been published in any Malaysian or international scientific publication.

### Procedure

8. (1) Nominations for an award must be made by a member who is not a Student or Associate Member.
  - (2) an author cannot nominate himself for the award.
  - (3) the written consent of the author is required.

9. (1) The award, in the opinion of the Board, shall be made to the author of the best paper in geology about Malaysia or the region and/or should be of general interest to the local community of geoscientists.
- (2) Papers with joint authorship may be considered, if a statement as to the relative responsibility of the authors, signed by all the authors, is attached.
- (3) In the case of joint authorships, the Board may make the award to one author, or to two or more authors, provided these qualify under subsection 5 (1).

Nominations should be on prescribed forms that can be obtained from the Hon. Secretary of the Society. Nominations should be received by the Chairman of the Young Geoscientist Publications Award Committee before the 31st of December, 1984.

\*\*\*\*\*

## BERITA - BERITA LAIN ( OTHER NEWS )

### SYARAHAN PERDANA PROFESOR H.D. TJIA - ASPEK GEOLOGI KUATERNARI ASIA TENGGARA (INAUGURAL ADDRESS OF PROF. H.D. TJIA - ASPECTS OF THE QUATERNARY GEOLOGY OF SOUTHEAST ASIA)

Pada 22hb September 1984 Dr. Tjia Hong Djin, Profesor Geologi di Jabatan Geologi, Universiti Kebangsaan Malaysia (UKM) telah menyampaikan Syarahan Perdana (Professor's Inaugural Speech) di atas tajuk "Aspek Geologi Kuaternari Asia Tenggara". Penyampaian satu Syarahan Perdana oleh seseorang Profesor adalah satu tradisi akademik yang diamalkan oleh setengah universiti di dunia, contohnya di universiti-universiti di England dan Perancis. Di Malaysia tradisi ini telah diamalkan oleh UKM dan Universiti Malaya. Tajuk yang disampaikan pada Syarahan Perdana biasanya meliputi bidang penyelidikan utama Profesor yang berkenaan, atau teori-teori dan konsepnya dalam bidang tertentu.

Syarahan yang disampaikan oleh Prof. Tjia ini merupakan Syarahan Perdana yang kedua diadakan oleh UKM. Syarahan yang pertama telah diadakan dua belas tahun yang lepas oleh seorang profesor Bahasa dan Kesusasteraan Melayu. Oleh itu kita dapat faham betapakah bermaknanya peristiwa kali ini kepada UKM dan lebih lagi kepada Jabatan Geologi.

Syarahan tersebut disampaikan di Dewan Majlis UKM dan dihadiri oleh lebih-kurang 140 orang. Naib Canselor UKM, Y.B. Datuk Dr. Abdul Hamid Hj. Abdul Rahman telah memperkenalkan Prof. Tjia kepada hadirin.

Syarahan Perdana biasanya menarik minat umum. Jadi tidak hairanlah jika sebahagian besar hadirin terdiri dari pensyarah UKM bukan dari Jabatan Geologi. Ahli geologi dari luar UKM terdiri dari pensyarah-pensyarah Universiti Malaya dan Universiti Teknologi Malaysia dan pegawai-pegawai Unit Tenaga Nuklear, Petronas dan

Jabatan Penyiasatan Kajibumi. Tiap hadirin telah dihadih dengan satu cenderamata, iaitu sebuah buku bertajuk "Aspek Geologi Kuaternari Asia Tenggara" karya Prof. Tjia.

Sebelum syarahan bermula saya sedar betapa rumit bagi pihak Prof. Tjia untuk menyampaikannya kerana sebahagian besar daripada hadirin adalah bukan 'orang' geologi. Tetapi Prof. Tjia telah mengguna taktik yang bijak untuk menawan perhatian hadirin dari awal. Dia telah memilih skala masa geologi sebagai pembuka selera. Ini disampaikan dengan cara yang begitu mudah difaham, hinggakan hadirin rasa senang dan bersedia untuk menikmati hidangan berikutnya. Walau bagaimanapun sajian seterusnya tidak kurang tarikannya. Rajah-rajah yang disusul (dengan projektor) sangat mudah dan menerangkan. Gambar-gambar slaid yang dicelahkan dalam Syarahan tambah menjelaskan penerangan. Slaid-slaid membawa hadirin dari kawah Krakatau hingga ke puncak Gunung Kinabalu dan dari hutan Trias hingga ke pantai Holosen.

Seterusnya Prof. Tjia menyentuk mengenai setengah kaedah bagi menentukan umur longgokan atau batuan Kuaternari seperti kaedah  $^{14}\text{C}$ ,  $^{234}\text{U}$ , kesan belahan (fission-track), dendokronologi dan magnetostratigrafi. Dari sini syarahan mengarah kepada aspek geologi Kuaternari.

Keadaan pada Kuaternari dipengaruhi besar oleh perubahan iklim yang ketara, iaitu dari sejuk ke panas dan sebaliknya. Perubahan iklim ini berkai rapat dengan pengglasieran. Ada beberapa tahap glasial dan antarglasial. Kesan perubahan iklim pada tahap glasial dapat dilihat pada penghijrahan flora dan fauna dari garisan lintang tinggi ke kawasan tropika. Di tropika sendiri berlaku penghijrahan dari dataran tinggi ke rendah. Anjakan begini ke atas sejenis flora pernah dirakam di Gunung Kinabalu.

Perubahan iklim yang berkaitan rapat dengan penyejatan air untuk membentuk ais juga memberi kesan kepada isotop oksigen dalam sedimen dan kehidupan seperti moluska. Kajian isotop oksigen telah menunjukkan bahawa, secara relatif, perubahan tahap glasial kepada tahan antarglasial berlaku dengan pantas. Lagi satu bukti kepantasan perubahan tersebut adalah atas wujudnya morfologi bertangga-tangga seperti teres, mendapan pesisir yang terangkat dan kemuncak sama tinggi yang terbentuk semasa paras laut lebih tinggi daripada paras sekarang.

Ada perbezaan pendapat mengenai ketinggian dan kerendahan (bawah paras laut sekarang) paras laut Kuaternari. Dari fakta yang disampaikan nampaknya pendapat Prof. Tjia mengenai perkara ini tidak mudah disangkal. Penurunan paras laut telah mendedahkan sebahagian besar Pentas Sunda dan membentuk lembah-lembah sungai sehingga ke Laut China Selatan. Penurunan paras laut telah menghasilkan longgokan plaser bijih timah di laut seperti di luar pantai Pulau Singkep. Selain dari itu ianya membolehkan penghijrahan fauna dari Asia ke Kalimantan dan Jawa.

Pada Kuaternari Pentas Sunda dan Pentas Sahul boleh disifatkan sebagai kawasan mantap. Oleh itu perubahan paras laut di situ mewakili perubahan eustasi. Filipina, Sulawesi dan sebahagian besar Jawa adalah di antara tempat-tempat yang dipengaruhi oleh pergerakan tektonik. Kadar pengangkutan pada kawasan bertektonik hidup berbeza-beza. Di pantai barat Sabah pula terbentuk satu pemungkuman. Sesar-sesar hidup ditemui di setengah tempat. Kajian tegasan ke atas tiga kawasan yang pernah merasai gempa tektonik telah dilakukan oleh Prof. Tjia.

Tada kulit bumi yang mobil dicirikan oleh gunung berapi hidup dan juga terumbu karang dan sedimen laut yang kini terangkat. Di antara letupan gunung berapi yang disifatkan kuat, contohnya Gunung Tambora dalam tahun 1815 dan Krakatau dalam tahun 1883, letupan tidak setanding kekuatan letupan yang menghasilkan Danau Toba kira-kira 75,000 tahun dahulu. Debu riolit letupan tersebut telah ditemui di beberapa tempat di Semenanjung Malaysia.

Lagi satu fenomena taburan yang meluas hingga ke Selatan Australia berlaku pada lebih kurang 700,000 tahun dahulu ialah taburan tektit. Sungguhpun punca tektit masih menjadi tajuk perbincangan, tidak dinafikan kegunaannya dalam penentuan umur sedimen Kuaternari Asia Tenggara dan di segi korelasi.

Sebagai penutup Syarahan, Prof. Tjia sebut tiga aspek gunaan dari pengetahuan geologi Kuaternari di Asia Tenggara, iaitu dalam penjelajahan timah plaser lepas pantai, di segi perancangan binaan besar-besar seperti empangan dan bangunan cakar langit, dan dalam usaha mencari akifer di bawah tanah untuk kegunaan penduduk yang makin bertambah.

Syarahan tersebut dan juga laporan ini boleh dianggapkan sebagai ringkasan. Butir lanjut dan yang lebih lengkap boleh didapati dari buku yang saya sebut dalam perenggan keempat di atas. Buku ini sewajarnya menduduki rak buku taip ahli geologi di Asia Tenggara, khususnya yang di Malaysia dan Indonesia, kerana banyak rujukan dibuat mengenai Geologi Kuaternari kedua negara ini. Bagi yang berminat membelinya (harga \$6.50) sila berhubung dengan Pegawai Penerbitan, Pejabat Penerbit, Universiti Kebangsaan Malaysia, Bangi, Selangor. Kiriman wang, deraf bank atau cek hendaklah ditulis atas nama Bendahari, Universiti Kebangsaan Malaysia. Sila tambahkan \$0.40 sebagai perbelanjaan pos.

SYED SHEIKH ALMASHOOR

\*\*\*\*\*



Profesor Tjia sedang menyampaikan Syarahan Perdana  
(Gambar oleh SSA)



Sebahagian daripada hadirin Syarahan Perdana  
(Gambar oleh SSA)

STATUTES AND BY-LAWS OF THE  
SOUTHEAST ASIAN UNION OF GEOLOGICAL SOCIETIES

STATUTES

STATUTES AND BY-LAWS OF THE  
SOUTHEAST ASIAN UNION OF  
GEOLOGICAL SOCIETIES



I. DENOMINATION AND DOMICILE

- a) The Southeast Asian Union of Geological Societies commonly known as GEOSEA UNION is a non-governmental non-profit organisation.
- b) The Council of the Union, at an ordinary session, may decide the location of the legal domicile of the Union until the next decision as to such location is made.

II. OBJECTIVES

- a) The aims of the Union is to foster cooperation among geologists working in Southeast Asia and to promote the advancement of geological sciences in the region.
- b) To facilitate and coordinate regional co-operation and research through the organisation of international congresses and through commissions and other bodies created for the study of specific problems.

III. INTERNATIONAL CONGRESSES — GEOSEA

- a) The Union holds an International Congress approximately once in every three years.
- b) The Congress Organising Committee of the host Member Society assumes responsibility for the organising and financing of the Congress.

1

IV. MEMBERSHIP

- a) Application for admission to Membership is made to the Council through the Executive Committee. Membership in any country may normally be assumed by the National Geological Society
- b) After admission each Member forms a National GEOSEA Committee to represent it in the affairs of the Union.
- c) Each Member appoints three Delegates to the Council of the Union, where the Delegates have the right to vote, provided the current subscription of the Member has been received by the Secretary-Treasurer.
- d) Geological institutions or associations in Southeast Asia may apply to the Council through the Executive Committee for Associate Membership. Associate Members pay an annual subscription to be decided by the Council. Associate membership does not grant the right to vote in the Council or the right to hold membership in the Executive Committee.
- e) Geological Societies, associations and other geoscience organisations within and outside Southeast Asia may apply to the Council through the Executive Committee to become Supporting Members. Supporting members pay an annual subscription to be decided by the Council. Supporting membership does not grant the right to vote in the Council or the right to hold membership in the Executive Committee.

V. HONORARY FELLOWS

Prominent internationally known geologists may be elected by the Council to become Honorary Fellows of the Union for life.

VI. ADMINISTRATION

The work of the Union shall be directed by :  
The General Assembly  
The Council  
The Executive Committee

2

VII. THE GENERAL ASSEMBLY

The General Assembly serves as a forum for discussion on general policies of the Union.

The General Assembly is composed of Members of the Geological Societies forming the Union and participating at a GEOSEA Congress. It is presided over by the President of the Union, but he does not vote, unless there is an equality of votes, in which case he has the deciding vote. The General Assembly meets at least once during the International Congresses of the Union.

For practical purposes the General Assembly delegates its powers of managing the Union to the Council.

VIII. THE COUNCIL

The Council of the Union is composed of the Member Delegates, the Executive Committee, and the President and Secretary-Treasurer of the current Congress.

The Council meets during Congresses.

The business of the Council is prepared by the Executive Committee, and the agenda of the first meeting at a Congress is circulated in advance.

All resolution moved in the Council are voted on the basis of one vote for each currently paid up Member Delegate. Members of the Executive Committee and the President and the Secretary-Treasurer do not vote.

The President of the Union presides over meetings of the Council but he does not vote, unless there is an equality of votes, in which case he has the deciding vote.

The decision of the Council are submitted to the General Assembly. The Council elects the Executive Committee.

The Council determines the annual subscriptions.

By-Laws in harmony with the provisions of these Statutes are established by simple majority vote in the Council, and may be altered or cancelled by similar vote. In every case advance notice of intent to change a By-Law must be given to each Member Delegate present at the Congress. By-Laws come into effect as soon as they have been adopted by the Council.

3



## IX. THE EXECUTIVE COMMITTEE

- a) The Executive Committee of the Union consists of
  - The President of the Union (Chairman)
  - At least four Vice-Presidents
  - The immediate Past President of the Union
  - The Secretary-Treasurer
 The President of the Union should normally reside in the country hosting the forthcoming GEOSEA Congress.
- b) The Executive Committee prepares the agenda for meetings of the Council and of the General Assembly, and carries out the decisions of the Council. It administers the funds of the Union in accordance with these decisions, and accounts for its administration to the Council and the General Assembly.
- c) The members of the Executive Committee enter into office immediately after their election by the Council.
- d) In the intervals between General Assemblies, the Executive Committee has the power to take decisions on matters of urgency that may arise, subject to the understanding that it will render account of them to the Council and the General Assembly at the next GEOSEA Congress.

## X. COMMISSIONS AND COMMITTEES

- a) On the proposal of the Council, the General Assembly may create Commissions and Sub-Commissions to examine specific scientific problems.
- b) Commissions may create temporary Working-Groups for limited objectives within their authorised task.
- c) The Council and the Executive Committee may each set up ad hoc Committees to study particular problems; the life of such a committee shall not exceed one inter-Congress period.
- d) Commissions and Committees are composed of a convenient number of members kept to the practical minimum in relation to the nature of the work involved.
- e) Commissions report to the General Assembly, and Committees report to the body that established them.

4

the cost of all Congress publications, are the responsibility of the Organising Committee of the host country. The Union's assistance may be sought if required.

5. When the Organising Committee of the Congress has accomplished all the tasks associated with the organisation of the Congress, including the publications, it notifies the Executive Committee of the cessation of its functions, and at the same time submits a final report on its activities.

## II. MEMBERSHIP

1. In any country the organisation wishing to join the Union as a Member makes initial application to the Executive Committee. The Executive Committee may accept or reject the application, subject to subsequent approval of the decision by the Council.
2. Any Member which withdraws from the Union abandons by that act all rights of accredited association.

## III. NATIONAL GEOSEA COMMITTEE

1. Each Member, through the National GEOSEA Committee and/or the organisation assuming Membership, arranges the appointment of a Congress Delegation. A maximum of three members of the delegation shall be the Member Delegates, with power to vote in the Council.
2. No member of the Executive Committee of the Union may be a member of a Congress Delegation or be a Member Delegate.

## IV. THE GENERAL ASSEMBLY

1. The President of the Union may invite scientists and representatives of other international scientific organisations to attend a session of the General Assembly as observers.

6

## XI. GENERAL PROVISIONS

- a) These Statutes shall come into force as soon as they have been approved by two-thirds of the votes of the Member Delegates present and voting in the Council.
- b) No changes shall be made in these Statutes except with the approval of two-thirds of the votes of the Member Delegates present and voting in the Council.
- c) The duration of the Union is not limited.
- d) No dissolution of the Union may be made without the approval of two-thirds of the votes of the Member Delegates present and voting in the Council.
- e) In the event of such dissolution, any dispensable funds shall be transferred to another international non-governmental non-profit scientific organisation by similar vote of the Member Delegates.

## BY-LAWS

## I. CONGRESSES

1. During a Congress a host country for the next Congress is selected, from among invitations received by the Council. In case a host country is subsequently unable to organise a Congress, the Executive Committee makes every effort to ensure that a Congress is held, with the least possible delay, in the country of another Member.
2. Within the host country an Organising Committee for the next Congress is designated.
3. The Organising Committee for the Congress acts in conformity with the Statutes and By-Laws of the Union, and maintains contact with the Executive Committee, the GEOSEA Committees of the Group Members and the Chairman of the Member Society.
4. The budget, financing and expenditures of a Congress, including

5

2. The agenda of a session of the General Assembly is fixed by the Executive Committee, after consultation with the National GEOSEA Committees, and is announced to all the National GEOSEA Committees at least three months before the opening of the session. No question that is not on the agenda can be given a decision; but, with the assent of the President, it may be discussed.
3. i) In the General Assembly all Participating Members have the right to give their opinions and to vote on items on the Agenda. Voting is by a show of hands. On any resolution in which the votes for and against are equal, the President shall have a deciding vote.  
ii) In the General Assembly all Participating Members have the right to introduce proposals. Such proposals if approved shall be referred to the Council for consideration.
4. A Member that is not represented at a meeting may before the meeting send to the President in writing the views of its National GEOSEA Committee on any topic under consideration, so that its views may be put before the meeting.

## V. THE COUNCIL

1. During each Congress the agenda prepared by the Executive Committee including invitations for the location of the next Congress, will be discussed at an early meeting. The agenda of the first meeting of the Council shall be circulated three months before the Congress.
2. Business submitted by the Member Delegates shall be placed on the agenda for the next meeting of the Council.
3. Proposals made at the General Assembly shall be considered by the Council at its next meeting.
4. All resolutions moved in the Council will be voted on the basis of one vote for each Member Delegate represented at the meeting; if there is an equality of votes, the President shall have a deciding vote.
5. In order for a Member Delegate to vote in the Council during any Congress, the annual subscription of his Society to the

7

Union up to December 31 of the preceding year (or if the Society has joined the Union since the preceding December 31, for the current year) must have been received by the Secretary-Treasurer, unless specifically exempted.

## VI. THE EXECUTIVE COMMITTEE

1. The Executive Committee acts as liaison between the Union and other international organisations. It co-operates in the organisation of the Congresses and of meetings and promotes the activities of the Union, in every way.
2.
  - i) The President is normally chosen from the membership of the National Geological Society hosting the next GEOSEA Congress. He is elected by the Council.
  - ii) The Secretary-Treasurer is elected by the Council.
  - iii) The President and Secretary-Treasurer may be nominated by any Member Delegate.
3. The members of the Executive Committee are elected as follows :
  - i) Each Member Society may submit the name of one member for nomination as Vice President to the next Executive Committee. Every such nomination must be in writing, and must be handed to the President not later than the first day of the Congress. The nomination should state that the candidate is willing to serve.
  - ii) At a meeting of which due notice has been given the Council elect the President and Secretary-Treasurer from among the nominated candidates. The President shall appoint two scrutineers.
    - a) The President shall be elected on a special ballot.
    - b) The Secretary-Treasurer shall be elected on a special ballot.
4. Immediately after he takes office, the President shall nominate one of the Vice-Presidents as his alternate, and in the event of the President dying, resigning, ceasing to hold office for any other reason, or being disabled from fulfilling his functions, the nominated alternate President shall fulfill the duties of the President, and if the President ceases to hold office shall be-

8

### Expenditure

4.
  - i) The revenue of the Union derived from Member contributions, or from other sources, is used to pay the expenses of the Union, other than the costs of Congresses, under the budget approved by the Council, and for items specifically authorised by the Executive Committee.
  - ii) The financial year of the Union shall begin on January 1 and end on December 31.
  - iii) The following categories of expenditure are permissible, subject to authorisation by the Executive Committee :
    - a) The expenses of meetings of the Executive Committee and the Council.
    - b) Grants to assist scientists to attend GEOSEA Congresses and meetings.
    - c) The expenses of publication of the business proceedings of the Union.
    - d) Grants towards the expenses of publications of the scientific proceedings of a Congress, including the remuneration of assistants, upon application by the Organising Committee.
    - e) Other expenses authorised by the Executive Committee, and approved by the Council, for the general work of the Union, as defined in the Statutes.
  - iv)
    - a) No officer or member of the Union shall receive a salary for his services, though expenditures on behalf of the Union as approved by the Executive Committee shall be reimbursed.
    - b) No part of the income of the Union shall accrue to the benefit of any individual member.
  - v)
    - a) An Auditing Committee, consisting of three individuals, none of whom is a member of the Executive Committee or of the Council, is elected by the first General Assembly of Congress, upon the nomination of the Council.
    - b) The Auditing Committee, shall review the execution of the budget by the Executive Committee, and shall verify the accounts of the Secretary-Treasurer.
    - c) The Auditing Committee prepares a report on these two matters, and submits copies both to the Council and to the General Assembly of the Congress.

10

come President in his place for the unexpired portion of the President's term of office.

5. The names of those elected to office by the Council are reported to the General Assembly.
6. The President, the Vice-Presidents and the Secretary-Treasurer shall begin their period of office after their election by the Council and shall continue to hold office (unless they die, resign or become disqualified beforehand) until the election of the next Executive Committee.
7. The President shall not be elected for more than one inter-Congress period. As the Immediate Past President he remains a voting-member of the Executive Committee until the election of the next Executive Committee. The Vice-Presidents may be re-elected for further periods.
8. The Executive Committee may fill by co-option any vacancies that occur in its membership during its term of office. All persons so co-opted remain in office until the election of the next Executive Committee.

## VII. FINANCES

### Budget

1. The Executive Committee prepares a provisional budget for each year of the period until the next Congress. This budget is submitted to the Council for approval.

### Income

2.
  - i) The annual subscription becomes due on January 1 of each year and must be received by the Treasurer before December 31 of the year. Any Society which is two years in arrears with its annual subscription shall ipso facto cease to be a member of the Union on December 31 of the second year in arrears.
  - ii) Payment is made to the Secretary-Treasurer.
3. Donations in cash or kinds may be received by the Union, and utilised for scientific purposes in accordance with the aims of the Union.

9

## CONFERENCE ON PETROLEUM GEOCHEMISTRY AND EXPLORATION IN THE AFRO-ASIAN REGION

Organised by KDM Institute of Petroleum Exploration Dehradun India  
- First Circular

Date: November 1985

### Objectives:

To exchange knowledge on petroleum geochemistry of different sedimentary sequences in Afro-Asian region.

- To generate new ideas/concepts.
- To identify new frontiers of exploration from geochemical genetic considerations.

### Scientific Programme

The conference will deal with the geochemistry of

- (i) Pre-Cambrian/Cambrian sedimentary sequences
- (ii) Paleozoic-Mesozoic (including Gondwana) sedimentary sequences
- (iii) Tertiary and Recent sedimentary sequences

covering the following topics

- Source Rock Evaluation
- Genetic Correlations of Oil, Gas and Water
- Geochemical Prospecting and Geochemical Logging
- Isotopic Studies on Sedimentary Organics, Oil, Gas and Water
- Geochemistry, Origin, Migration, Accumulation and Basin Evaluation

### Registration Fee

- Overseas delegate US\$50
- Indian delegate Rs.100

### Language

English will be the official language for the conference.  
Papers in Hindi will also be accepted.

### Further Information:

KULDEEP CHANDRA,  
KDM Institute of Petroleum Exploration,  
Oil & Natural Gas Commission,  
Dehra Dun-248195,  
India.

\*\*\*\*\*

## EIGHT SOUTHEAST ASIAN GEOTECHNICAL CONFERENCE

Organized by Institution of Engineers, Malaysia and the Southeast Asian Geotechnical Engineering Society. (Details were given in Warta Geologi vol. 10, no. 3).

Dates: March 11 - 15, 1985.

Objective:

To provide a forum where engineers and scientists engaged in Geotechnical Engineering may exchange information and ideas.

Programs:

A number of Special Papers and Keynote addresses will be delivered together with technical papers.

Registration:

Registration fees for the Conference are as follows:

## Conference Participants:

Before 31st December 1984 - M\$400.00

After 31st December 1984 - M\$500.00

Participant will be entitled to one set of Conference Proceedings, entrance to all technical sessions, official lunches, dinners and receptions.

Student Member - M\$150.00

Accompanying Person - M\$100.00

Further Information:

Hon. Secretary,  
8th SEAGC,  
The Institution of Engineers Malaysia,  
P.O. Box 223,  
Petaling Jaya,  
Selangor,  
Malaysia.

Cable: INSTEM Petaling Jaya

Telex: MA 30160

Telephone: 03-569173

\*\*\*\*\*

## FOURTH INTERNATIONAL KIMBERLITE CONFERENCE

Organized by the Geological Society of Australia.

Dates: 11-15 August, 1986 (with Pre and Post Conference Tours)

Venue: University of Western Australia, Perth, Australia

Programme Structure

## I. WHAT ARE WE CONCERNED WITH?

Descriptive lithology, mineralogy, petrology and geochemistry of kimberlites and closely related rocks and their constituent minerals - excluding xenoliths and xenocrysts.

## II. WHEN AND WHERE DO THEY OCCUR?

Their distribution in geologic space and time; their tectonic setting and regional occurrence; possible causes of observed distribution patterns.

## III. HOW DO THEY FORM?

Upper mantle processes, magma genesis, ascent and eruption.

- IV. WHAT IS THE NATURE OF THE UPPER MANTLE AND LOWER CRUST?  
Descriptive lithology, mineralogy, petrology and geochemistry of xenoliths and xenocrysts; physical and chemical conditions within the upper mantle and lower crust.
- V. DIAMONDS  
All aspects of diamond research, including inclusions in diamonds. Contributions relating to diamonds may also be included in other sections if more appropriate.
- VI. DIAMOND EXPLORATION  
Exploration for primary and alluvial deposits of diamonds, including: concepts, exploration technology, evaluation procedures and case histories.
- VII. WHAT DON'T WE KNOW AND WHAT SHOULD WE DO?  
Gaps in our knowledge and future directions in kimberlite research.

Each section will commence with a comprehensive review from an invited speaker. The remaining oral presentations will each be allocated 15 minutes plus 5 minutes for questions. Poster papers will be an important component of the technical sessions and the display area will include demonstration facilities.

#### Excursions

##### Pre-Conference (Eastern Australia) 1-10 August 1986

This 10-day excursion will commence in Sydney, on the east coast of Australia, and will progress westwards across the continent to Perth, in three distinct sections connected by air flights. In the first (Sydney) section travel will be by bus from Sydney to Canberra, and will include visits to the Hornsby, Erskine Park, and Jugiong diatremes. Following a flight from Canberra to Melbourne the second (Melbourne) section will consist of a bus tour out of that city to the nodule-bearing basaltic volcanoes of western Victoria. The third (Adelaide) section follows a further flight from Melbourne to Adelaide. A bus will take participants via the Port Augusta/Sugar Loaf and Terowie/Orroroo kimberlites back to Adelaide, and the excursion ends with a flight from Adelaide to Perth on the final day.

This excursion, of necessity, involves a great deal of travel-time. For this reason, options are offered to join the excursion at Sydney, Melbourne, or Adelaide. However, booking preferences will be given to those who wish to participate in the complete excursion.

##### Post-Conference (Kimberley) 17-23 August 1986

This 6-day excursion will begin with a flight from Perth to Derby, in the far north of Western Australia. From Derby a safari-type bus tour with overnight camps will travel overland to Kununurra for a return flight to Perth. This will be a distance of about 1500 kilometres and involve four nights sleeping out. In the West Kimberley there will be visits to many different types of lamproites including the Ellendale diamondiferous olivine lamproite vents, and the leucite lamproites of Mount North and 81-Mile Vent. The excursion will end in the East Kimberley, where the AK1 pipe at Argyle Diamond Mine and nearby lamprophyric dykes will be visited.

##### Travel note

To take advantage of cheaper air travel within Australia for overseas visitors, participants from overseas in the Pre-Conference Excursion must ensure that their air tickets for travel to Australia

include the necessary Sydney-Perth component; full details of the necessary arrangements will be notified when excursion places are confirmed. The cost of the Post-Conference Excursion will include return air fares from Perth to the Kimberley area.

#### Accommodation

A number of block bookings have been made for the period of the Conference for accommodation of the following standards:

	<u>Estimated Price</u>
A. International standard hotel:	\$A50 per day
B. Comfortable city hotel:	\$A40 per day
C. Economy standard city hotel:	\$A27 per day
D. University Hall of Residence: including breakfast.	\$A27 per day

#### Cost and Payment

Full Conference Registration - \$A300  
(There will be a reduced charge for students.)

Excursion costs for participants from -

	<u>Overseas</u>	<u>Eastern Australia</u>	<u>Western Australia</u>
	\$A	\$A	\$A
Pre-Conference only	1400	1700	1700
Post-Conference only	1400	1400	1400
Both excursions	2300	2300	3000

No payment is required, or will be accepted, before the Second Circular is issued.

#### Further Information:

Mr. J.D. Lewis - Secretary  
Fourth International Kimberlite Conference,  
Geological Survey of Western Australia  
Mineral House,  
66 Adelaide Terrace,  
PERTH Western Australia 6000.

Telephone: (ISD619) 325 0161  
TELEX: MINEWA AA95791

\*\*\*\*\*

## 6TH OFFSHORE SOUTH EAST ASIA - CONFERENCE & EXHIBITION

The above Conference and Exhibition is being organized by the Southeast Asian Petroleum Exploration Society (SEAPEX).

Dates: 28-31 January 1986

Venue: World Trade Centre Singapore

#### Call for Papers

The Southeast Asia Petroleum Exploration Society is seeking papers relevant to Southeast Asia to be presented at the 6th Offshore South East Asia Conference. Papers should address the following themes:

1. Development of Marginal Oil and Gas Fields
2. Recent Advances in Exploration for Subtle Traps
3. Systematic Approaches to Basin Evaluation
4. The Effects of Technological Advances in Exploration

General papers on other exploration and development topics will also be considered. Papers showing technical and presentational merit are sought.

Please write to the Seapex OSEA committee for format and presentation details. The deadline for submittal of Abstracts is April 30th, 1985.

Further Information:

D.H. MORGAN  
SEAPEX OSEA Committee,  
c/o Marathon Petroleum Exploration Ltd.,  
P.O. Box 227,  
Tanglin Post Office,  
Singapore 9124.

\*\*\*\*\*

## BICENTENNIAL GOLD 88

There will be an international gold conference in Melbourne, Australia from May 16 to 20th 1988 with both pre- and post-conference tours to gold deposits in the young active Tertiary of the SW Pacific, the Palaeozoic of eastern Australia, and the Precambrian of central and western Australia.

The meeting is designed to promote the latest thinking and ideas on gold mineralization, gold transport, exploration techniques, and up-to-date review papers on major gold provinces throughout the world. Case histories of individual prospects and mines will complement the regional papers. The meeting will draw attention to the new discoveries in Australia.

I have been appointed honorary correspondent for the Malaysian region and will be happy to supply further information to interested readers who contact me. I would also like to supply to the conference organizers any information that readers send me on new significant developments or research of interest to the geological community.

Professor C.S. Hutchison  
Dept. of Geology,  
University of Malaya,  
Kuala Lumpur,  
Malaysia.

Tel: 03-555466 Ext 202

\*\*\*\*\*

## SEMINAR ON EXPLORATION TECHNIQUES FOR PRIMARY TIN DEPOSITS

We have received a request from Malaysian gravel pump tin miners to organize a seminar on "Exploration Techniques for Primary Tin Deposits". In response to this request, SEATRAD Centre hopes to organize the above Seminar with cooperation from Geological Survey of Malaysia and a number of mining companies. The aim of the Seminar is to provide some basic knowledge on geology and exploration for primary tin deposits for the benefit of mining engineers and practising miners who are familiar with alluvial mining techniques but have little knowledge of primary tin exploration. The Seminar is scheduled to be held at Ipoh in July/August 1985, for a duration of 2-3 days, to be followed by a 1-day field trip. Seminar participants will be charged a basic fee to cover the cost of reproducing lecture notes, tea/coffee during the breaks and other miscellaneous expenses.

The Seminar will cover the following topics:

1. Types of primary tin deposits
2. Review of existing literature and selection of favourable areas
3. General geology as a guide to prospecting
4. Geochemistry and heavy mineral surveys, including analytical techniques
5. Geophysical techniques
6. Follow-up techniques
7. Case studies

This circular is intended as a Preliminary Survey to find out whether there would be a strong interest from mining engineers and practising miners to attend the above Seminar. Interested persons should fill in the attached questionnaire or telephone SEATRAD Centre directly (05-559366 Ext. 12 Wendy).

\*\*\*\* PRELIMINARY SURVEY \*\*\*\*

Seminar on Exploration Techniques for Primary Tin Deposits

July/August 1985

(Please type or print clearly)

Name \_\_\_\_\_ Title \_\_\_\_\_

Organization \_\_\_\_\_

Address \_\_\_\_\_

Telephone \_\_\_\_\_



My chances of attendance are: Good \_\_\_\_ Fair \_\_\_\_ Slight \_\_\_\_

I will need hotel accommodation: Yes \_\_\_\_ No \_\_\_\_

I would like to participate in the field trip: Yes \_\_\_\_ No \_\_\_\_

Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

NOTE: This questionnaire is to be completed and sent by 31 December 1984 to:-

The Director  
 SEATRAD Centre,  
 Tiger Lane,  
 Ipoh,  
 Perak,  
 Malaysia.

(Attention: Ms Wendy Vong)

\*\*\*\*\*

## TENTATIVE PROPOSALS FOR THE 29TH IGC, JAPAN

Japan will be responsible for organising the 29th IGC in 1992. Please find below a tentative proposal sent by Dr. Tamotsu Nozawa, Chairman, Japanese National Committee on Geology for comments and suggestions on the proposed programme.

- (I) Place  
 Plenary and scientific sessions - Kyoto (Kyoto International Conference Hall) or Tokyo (not fixed).  
 Excursion - Pre-congress, in North- and South-east Asia.  
                   Mid-congress, in Japan.  
                   Post-congress, in Japan and North- and South-east Asia  
 GEOEXPO-92 - Close near the congress hall.
- (II) Date  
 Plenary and scientific sessions - August 20-29, 1992.  
 Excursion - Pre-congress, around 10 days before the sessions.  
                   Mid-congress, one day during the sessions.  
                   Post-congress, around 10 days after the sessions.  
 GEOEXPO-92 - During the whole term of scientific session.
- (III) Scientific program  
 It consists of three parts. The first one is symposia organized under a main global theme and occupies the main part of the scientific session. The second one is symposia proposed by international organizations, mostly affiliated to IUGS. The third one is sessions of personal presentation and the time to each paper may be restricted if necessary. Poster session will be held to cover the shortage of oral presentation.

(IV) Excursion

Japan: A number of excursions of 4 days will be prepared. These will be composed of three days field excursion and one day field conference. Participants can join two excursions continuously. North- and South-east Asia: Not fixed yet. For these several years we have been asking geologists of these region for holding one or several excursions in their countries at the chance of Japanese IGC. We have received generally positive feeling from them.

(V) GEOEXPO-92

Exhibition for printed matters, instruments, samples of geological materials will be prepared.

(VI) Publication

The organizing committee of the congress will put out three kinds of publications.

- a. Circulars, probably three numbers
- b. Program and abstracts of lectures of the scientific sessions
- c. Post-congress business report

Other than these, brief introduction to "the geology of the Japanese Islands and its neighborhood" (tentative title) with geological maps will be prepared by organizing committee or some other organization in Japan. No post-print is planned for scientific sessions. Publication of excursion-guidebook will be left to each excursion-leaders.

(VII) Accomodations

We will be able to reserve enough number of rooms either in Tokyo or Kyoto with reasonable rate. For instance at present rate:

Twin-room for one person	15-30 US dollars
Single-room	25-50 US dollars
(No meals are included)	

The above rate is for Tokyo and it will be lower in Kyoto by around 20%.

More low-rate accomodations will be prepared for student participants.

(VIII) Finance

The target of our effort for economically modest IGC is focussed to make the total expense per one participant 300 US dollars, at the present rate. That means, if we have 4,000 participants, then total sum of expenditure should be 1,200,000 US dollars.

Registration fee will be 200 US dollars for participating member. Financial support of our government will be less than 100,000 US dollars.

Expenditure for excursion will be left to each excursion leaders.

Further Information write to:

Tamotsu Nozawa  
Chairman,  
Japanese National Committee on Geology,  
Geological Survey of Japan,  
1-1-3, Higashi, Yatabe,  
Tsukuba,  
Japan 305

\*\*\*\*\*

## KURSUS-KURSUS LATIHAN DAN BENGKEL-BENGKEL (TRAINING COURSES AND WORKSHOPS)

December 1984 - January 1985

METHODS AND TECHNIQUES IN EXPLORATION GEOPHYSICS (Hyderabad, India). Diploma course organized annually by the National Geophysical Research Institute of the Council of Scientific and Industrial Research, Hyderabad, India, and sponsored by Unesco. Language: English. For information: The Director, International Training Course on methods and techniques in geophysical exploration, National Geophysical Research Institute, Hyderabad, 500 007 (A.P.) India.

January 1985 - March 1985

REMOTE SENSING APPLICATION AND DIGITAL IMAGE PROCESSING (Enschede, The Netherlands). Certificate courses on techniques for national resources surveys, organized annually by the International Institute of Aerial Surveys and Earth Sciences (ITC). Sponsored by Unesco. English. For information: ITC Student Affairs Office, P.O. Box 6, 7500 AA Enschede, The Netherlands.

1st Half 1985

WORKSHOP ON THE ECONOMIC GEOLOGY, EXPLORATION, MINING AND MARKETING OF POTASH AND OTHER FERTILIZER MINERALS (Bangkok, Thailand).

February 1985

METALLOGENY (Quito, Ecuador). Annual training course for Latin Americans organized by Central University of Quito, the Autonomous University of Madrid (Spain), and Unesco. Spanish. For information: Ing. Antonio Salgado, Director, Curso Internacional de Metaloginia, Escuela de Ingenieria en Geologia, Minas y Petroleos, Division de Post-grado, Universidad Central, Quito, Ecuador.

February 1985 - March 1985

GEOCHEMICAL PROSPECTING TECHNIQUES (Tervuren, Belgium). Annual course sponsored by the Royal Museum of Central Africa and UNDP. French. For information: Musee royal de l'Afrique centrale, Steenveg op Leuven, 13, B-1980 Tervuren, Belgium.

25 February - 9 March 1985

UNITED NATIONS INTERREGIONAL SEMINAR AND STUDY TOUR ON GOLD EXPLORATION AND DEVELOPMENT (Bangalore, India). For information: Mr. Geoffrey Robson, Chief, Minerals Branch, Natural Resources and Energy Division, DTCD - United Nations, Room DC-848, New York, N.Y. 10017, U.S.A.

February 1985 - June 1985

MINERAL EXPLORATION (Leoben, Austria). Diploma course organized annually by the University of Mining and Metallurgy in Leoben and sponsored by Unesco. English. For information: University for Mining and Metallurgy, Postgraduate course on mineral exploration, Montanuniversitat, Leoben, A-8700, Austria.

February 1985 - November 1985

PHOTOINTERPRETATION APPLIED TO GEOLOGY AND GEOTECHNICS (Bogota, Colombia). Course organized by the Interamerican Centre of Photo-interpretation (CIAF) in cooperation with ITC and Unesco. Spanish. For information: Academic Secretariat of the CIAF, Apartado Aereo 53754, Bogota 2, Colombia.

February 1985 - December 1985

GEO THERMICS (Pisa, Italy). Certificate course organized annually by the Istituto Internazionale per le Ricerche Geotermiche and sponsored by Unesco, UNDP and Italy. English. For information: Dr. Mario Fanelli, Istituto Internazionale per le Ricerche Geotermiche, Via Buongusto 1, 56100 Pisa, Italy.

March 1985 - April 1985

MINERAL EXPLORATION (Paris, France). Short course based on a simulation method organized annually by the Ecole Nationale Superieure des Mines and sponsored by Unesco. French. For information: Prof. H. Pelissonnier, Ecole des Mines, 60 Bd Saint Michel, 75272 Paris, Cedex 06, France.

Mid 1985

WORKSHOP ON GOLD GEOLOGY OF MELANESIA (Papua New-Guinea).

June 1985 - August 1985

PRINCIPLES AND METHODS OF ENGINEERING GEOLOGY (Budapest, Hungary). Certificate course organized by the Hungarian Geological Institute and sponsored by Unesco. Language: English. For information: Hungarian Geological Institute, Nepstadion ut 14, P.O. Box 106, H 1142 Budapest, Hungary.

June 1985 - August 1985

TECHNIQUES OF HYDROLOGIC INVESTIGATIONS (Washington, D.C. and Denver, Colorado, U.S.A.). Annual training course for international participants. For information: Office of International Hydrology, Water Resources Division, U.S. Geological Survey, 470 National Centre, Reston, Virginia 22092, U.S.A.

June 1985 - November 1985

GENERAL HYDROLOGY with emphasis on groundwater (Argentina). Post-graduate course. Language: Spanish. For information: IHP National Committee of Argentina, Comite Nacional para el Programa Hidrologico Internacional de la Republica Argentina, Av 9 de Julio 1925 - 15<sup>o</sup> piso, 1332 Buenos Aires, Argentina.

July 1985 - August 1985

SUMMER COURSE ON EARTH SCIENCES: CRYSTALLOGRAPHY, MINERALOGY, METALLOGENY (Madrid, Spain). Annual course organized by the Department of Geology and Geochemistry of the Universidad Autonoma de Madrid and sponsored by Unesco. Language: Spanish. For information: Prof. T. Monseur, Departamento de Geologia y Geoquimica, Facultad de Ciencias, Universidad Autonoma de Madrid, Canto Blanco, Madrid 34, Spain.

August 1985 - October 1985

GEOCHEMICAL PROSPECTING METHODS (Prague, Czechoslovakia). Certificate course organized every second year by the Geological Survey of Czechoslovakia and sponsored by Unesco, IAGC and Czechoslovakia. Language: English. For information: GEOCHIMCSSR Unesco, Geological Survey, Malostranske nam. 19, 11821 Prague, Czechoslovakia.

September 1985

SEMINAR ON DRILLING, SAMPLING AND BOREHOLE LOGGING (Wuxi, Jiangu Province, China)

September 1985 - October 1985

GROUNDWATER TRACING TECHNIQUES (Graz, Austria). Five-week course organized every other year by the Institute of Technical Geology, Petrography and Mineralogy and sponsored by Unesco. Language: English. For information: Institute of Technical Geology, Petrography and Mineralogy of the University of Technology, A-8010 Graz, Austria.

September 1985 - November 1985

MINING EXPLORATION AND EXPLORATION GEOPHYSICS (Delft, The Netherlands). Annual diploma courses organized by the International Institute for Aerial Survey and Earth Sciences and sponsored by Unesco. Language: English. For information: ITC (ME), 3, Kanaalweg, 2628 Delft, The Netherlands.

September 1985 - November 1985

GEOTHERMAL ENERGY (Kyushu, Japan). Annual short course organized by the Government of Japan and sponsored by Unesco. Language: English. For information: Japan International Cooperation Agency (2nd Training Division, Training Affairs Department), P.O. Box 216, Shinjuku Mitsui Building, 2 - 1, Nishi-shinkuku-ku, Tokyo 160, Japan.

October 1985 - November 1985

TECTONICS, SEISMOLOGY AND SEISMIC RISK ASSESSMENTS (Potsdam, East Germany). One-month training course organized annually by East German Academy of Sciences in collaboration with Unesco. Language: English. For information: Prof. Dr. H. Kautzleben, Director, Central Earth's Physics Institute, Academy of Sciences of the German Democratic Republic, Telegraphenberg, DDR 1550 Postdam, German Democratic Republic.

October 1985 - September 1986

FUNDAMENTAL AND APPLIED QUATERNARY GEOLOGY (Brussels, Belgium). Annually organized training course leading to a Master's degree in Quaternary Geology by the Vrije Universiteit Brussel (IFAQ) and sponsored by Unesco. Languages: English and French. For information: Prof. Dr. R. Paepe, Director of IFAQ, Kwartairgeologie, Vrije Universiteit Brussel, Pleinlaan 2, B-1050, Brussels, Belgium.

October 1985 - September 1986

HYDRAULIC ENGINEERING AND HYDROLOGY (Delft, The Netherlands). Diploma courses organized annually by the International Institute for Hydraulic and Environmental Engineering and sponsored by Unesco for professionals from developing countries. Language: English. For information: International Institute for Hydraulic and Environmental Engineering (IHE), Oude Delft 95, P.O. Box 3015, 2601 DA Delft, The Netherlands.

November 1985 - December 1985

REMOTE SENSING APPLICATIONS COURSE FOR EARTH SCIENCES (Enschede, The Netherlands). Annual course organized by the International Institute for Aerial Survey and Earth Sciences and sponsored by Unesco. Language: English. For information: ITC Student Registration Office, P.O. Box 6, 7500 AA Enschede, The Netherlands.

Calendar of AAPG Schools and Field Seminars for 1985

February 19-22

PROSPECT EVALUATION

Location: Dallas, Texas

Tuition: \$960

February 19-22

THE GEOLOGIST AS MANAGER

Location: Dallas, Texas

Tuition: \$1060

March 4-6

BUSINESS SIDE OF OIL AND GAS

Location: Los Angeles, California

Tuition: \$780

March 18-22

MODERN DELTAS

Location: Baton Rouge to New Orleans, Louisiana

Tuition: \$1128, includes lodging for five nights in Baton

Rouge and New Orleans, bus and boat transportation, field lunches and guidebook

March 20-22

PETROLEUM FORMATION AND OCCURRENCE

Location: New Orleans, Louisiana

Tuition: \$880

April 14-20

UPPER PALEOZOIC DEPOSITIONAL AND DIAGENETIC FACIES-EXPLORATION  
MODELS IN A MATURE PETROLEUM PROVINCE

Location: El Paso, Texas throughout New Mexico

Tuition: \$960, includes lodging, lunches and internal transportation

April 21-26

ANCIENT CLASTICS

Location: Lexington, Kentucky throughout eastern Kentucky

Tuition: \$1500, includes lunches, lodging, transportation and guidebook

April 22-25

THE GEOLOGIST AS MANAGER

Location: New Orleans, Louisiana

Tuition: \$1060

April 22-26

TECHNIQUES OF PETROLEUM EXPLORATION I

Location: New Orleans, Louisiana

Tuition: \$1020

April 28 - May 4

MODERN CLASTIC DEPOSITIONAL ENVIRONMENTS

Location: Columbia to Charleston, South Carolina

Tuition: \$1685, includes breakfasts, lunches, two banquets, transfer to Charleston, overflights, and guidebook

- April 29 - May 3  
DEEP WATER CLASTICS  
Location: Santa Barbara, California  
Tuition: \$1430
- May 5-11  
ANCIENT CARBONATE ROCK SEQUENCES  
Location: San Antonio to Austin, Texas  
Tuition: \$1000, includes field transportation, field lunches,  
guidebook and supplementary materials
- May 13-17  
STRATIGRAPHIC INTERPRETATION OF SEISMIC DATA  
Location: Washington, DC  
Tuition: \$1120
- May 17-24  
PALEOZOIC STRATIGRAPHY AND APPALACHIAN BASIN EXPLORATION TRENDS  
Location: Arlington, Virginia to Atlanta, Georgia  
Tuition: \$1700, includes lodging, transportation and guidebook
- May 24 - June 7  
MODERN AND ANCIENT CLASTIC DEPOSITIONAL SYSTEMS  
Location: San Antonio, Texas to New Orleans, Louisiana and  
Albuquerque and Taos, New Mexico  
Tuition: \$2800, includes field transportation, overflights,  
flight from New Orleans to Albuquerque, lunches, field  
refreshments, and guidebook
- May 28 - June 3  
MODERN CLASTIC DEPOSITIONAL ENVIRONMENTS  
Location: Columbia to Charleston, South Carolina  
Tuition: \$1685, includes breakfasts, lunches, two banquets,  
transfer to Charleston, overflights, and guidebook.
- June 2-9  
FLORIDA-BAHAMAS MODERN CARBONATES  
Location: Miami, Florida and The Bahamas  
Tuition: \$1800, includes lodging and lunches
- June 3-9  
CRETACEOUS TRANSGRESSIVE-REGRESSIVE CYCLES IN UTAH-PRESERVATION  
IN THE STRATIGRAPHIC RECORD AND CONTROLS ON DISTRIBUTIONS OF  
FOSSIL FUELS  
Location: Salt Lake City, Utah and throughout central and  
southwest Utah  
Tuition: \$1250, includes field transportation, lunches, two  
dinners and guidebook
- June 8-15  
WAVE-DOMINATED DELTAS? SHELF SANDS, AND SUBMARINE FANS:  
CLASTIC DEPOSITIONAL MODELS FOR HYDROCARBON EXPLORATION  
Location: Salt Lake City, Utah  
Tuition: \$1550, includes guidebook and lunches
- June 17-21  
CARBONATE EXPI ORATION  
Location: Austin, Texas  
Tuition: \$1120

June 24-28

WELL LOG ANALYSIS FOR GEOLOGISTS  
 Location: San Diego, California  
 Tuition: \$930

June 24-28

SANDSTONE DIAGENESIS  
 Location: San Diego, California  
 Tuition: \$1225

July 8-16

GEOROOTHS  
 Location: Edinburgh, Scotland and throughout Scotland  
 Tuition: Approximately \$1400 each person (depending upon UK/USA rate of exchange), includes hotel, breakfasts, and excursion transportation

July 17-24

MODERN CLASTIC DEPOSITIONAL SYSTEMS OF ALASKA  
 Location: Cordova, Alaska and south-central Alaska  
 Tuition: \$2700, includes internal transportation, daily lunches, field guide, and lecture materials

July 26 - August 9

MODERN AND ANCIENT CLASTIC DEPOSITIONAL SYSTEMS  
 Location: San Antonio, Texas to New Orleans, Louisiana and Albuquerque and Taos, New Mexico  
 Tuition: \$2800, includes field transportation, overflights, flight from New Orleans to Albuquerque, lunches, field refreshments, and guidebook

July 29 - August 2

SEDIMENTATION AND TECTONICS: BASIN EVOLUTION? SEDIMENTARY SYSTEMS, AND PETROLEUM EXPLORATION  
 Location: Banff, Alberta, Canada  
 Tuition: \$1230

August 5-9

ANCIENT SANDSTONES  
 Location: Calgary and Banff, Alberta, Canada  
 Tuition: \$1140

August 5-9

OVERTHRUST BELT  
 Location: Salt Lake City, Utah to Las Vegas, Nevada  
 Tuition: \$1400, includes course materials, lodging, lunches and transportation in seminar area

TBA

STRUCTURAL GEOLOGY  
 Location: TBA  
 Tuition: TBA

September 7-14

WAVE-DOMINATED DELTAS, SHELF SANDS, AND SUBMARINE FANS: CLASTIC DEPOSITIONAL MODELS FOR HYDROCARBON EXPLORATION  
 Location: Salt Lake City, Utah  
 Tuition: \$1550, includes guidebook and lunches



September 9-12

SEISMIC PROSPECTING

Location: San Francisco, California

Tuition: \$990

September 9-13

FLUVIAL SYSTEMS: THEIR ECONOMIC AND FIELD APPLICATIONS

Location: Salt Lake City, Utah

Tuition: \$1250, includes lodging, breakfasts, lunches, lecture notebook, field guidebook, field transportation and a banquet

September 9-15

CRETACEOUS TRANSGRESSIVE-REGRESSIVE CYCLES IN UTAH -- PRESERVATION IN THE STRATIGRAPHIC RECORD AND CONTROL ON DISTRIBUTIONS OF FOSSIL FUELS

Location: Salt Lake City, Utah and throughout central and southwest Utah

Tuition: \$1250, includes field transportation, lunches, two dinners and guidebook

September 9-15

MODERN CLASTIC DEPOSITIONAL ENVIRONMENTS

Location: Columbia to Charleston, South Carolina

Tuition: \$1685, includes breakfasts, lunches, two banquets, transfer to Charleston, overflights and guidebook

September 14-21

PALEOZOIC CARBONATE CONTINENTAL MARGIN: FACIES TRANSITIONS, DEPOSITIONAL PROCESSES, AND EXPLORATION MODELS - THE BASIN AND RANGE PROVINCE

Location: Salt Lake City, Utah to Las Vegas, Nevada

Tuition: \$1700, includes lodging, lunches, internal transportation and guidebook

September 14-22

TECTONICS AND SEDIMENTATION OF TURBIDITES IN CALIFORNIA

Location: San Francisco to San Diego, California

Tuition: \$1800, includes lodging, lunches, dinners and transportation

September 16-20

PETROLEUM RESERVOIR FUNDAMENTALS

Location: South Padre Island, Texas

Tuition: \$990

September 16-20

TECHNIQUES OF PETROLEUM EXPLORATION II

Location: South Padre Island, Texas

Tuition: \$1020

September 17-20

THE GEOLOGIST AS MANAGER

Location: London, England

Tuition: \$1200

September 17-20

PROSPECT EVALUATION

Location: London, England

Tuition: \$1200

October 6-12

## ANCIENT CARBONATE ROCK SEQUENCES

Location: San Antonio to Austin, Texas

Tuition: \$1000, includes field transportaiton, field lunches,  
guidebook and supplementary materials

October 6-13

## FLORIDA-BAHAMAS MODERN CARBONATES

Location: Miami, Florida and The Bahamas

Tuition: \$1800, includes lodging and lunches

TBA

## FRACTURED RESERVOIR ANALYSIS

Location: TBA

Tuition: TBA

November 11-15

## STRATIGRAPHIC INTERPRETATION OF SEISMIC DATA

Location: Houston, Texas

Tuition: \$1120

## \*\*\*\*\* REGISTRATION FORM \*\*\*\*\*

Name, date and location of School/Field Seminar \_\_\_\_\_

Name \_\_\_\_\_ Business Phone (AC ) \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Member of  AAPG  SEG  SPE  Non-Member Membership No. \_\_\_\_\_Preferred Name on Name Tag \_\_\_\_\_  Male  Female

Professional Sepcialty \_\_\_\_\_

Number of Years Experience \_\_\_\_\_

College Major \_\_\_\_\_ Highest Degree \_\_\_\_\_

Mail the completed form with a \$50 non-refundable registration fee  
(payable to AAPG) for each school or field seminar chosen to:AAPG Education Department  
P.O. Box 979  
Tulsa, Oklahoma 74101If you have any questions, write the above address, or phone (918)  
584-2555; telex 49-9432; cable AAPG TUL.

Photocopy additional forms

\*\*\*\*\*

## KALENDAR (CALENDAR)

A bracketed date (Mar-Apr 1984) denotes entry in that issue carried additional information.

1985

- January : ACID-SULPHATE SOILS (Meeting), Dakar, Senagal.  
(Dr. W.G. Sombroek, ISSS, International Soil Museum,  
9 Duivendaal, POB 353, 6700 A.J. Wageningen, The  
Netherlands)
- Jan 7 - 10 : HYDROGEOLOGY OF ROCKS OF LOW PERMEABILITY (17th  
International Congress of IAH), Tucson, Arizona,  
U.S.A. (Eugene S. Simpson, Department of Hydrology  
and Water Resources, College of Earth Sciences,  
The University of Arizona, Tucson, AZ 85721, U.A.A.)
- February : INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION ASSEMBLY  
(13th Session), Paris, France. (Unesco, 7, place  
de Fontenoy, 75700 Paris, France)
- Feb 11 - 14 : GEOMECHANICS IN TROPICAL LATERITE AND SAPROLITIC  
SOILS (1st International Conference), Sao Paulo,  
Brazil. (Dr. W.C. Hachich, Secretary ISTS-BMS, C.P.  
7141, 01000 Sao Paulo, SP, Brazil)
- Feb 11 - 14 : ASIAN MINING '85 (2nd Conference), Manila Philippines.  
(Meeting Secretary, The Institution of Mining and  
Metallurgy, 44 Portland Place, London W1N 4BR, U.K.)
- Feb 27 - : GEOLOGY OF THE OCEANS (75th Annual Meeting of the  
Mar 2 : Geologische Vereinigung), Kiel, West Germany.  
Languages: English and German. (M. Sarnthein,  
Geologisch-Palaeontologisches Institut, Universitaet,  
Olshausenstrasse, D-2300 Kiel, F.R.G.)
- Mar 11 - 15 : SE ASIAN GEOTECHNICAL CONFERENCE (8th), Kuala Lumpur,  
Malaysia. Language: English. (The Hon. Secretary,  
8th SEAGC, The Institution of Engineers, Malaysia,  
P.O. Box 223, Petaling Jaya, Selangor, Malaysia).
- Mar 11 - 15 : TUNNELLING 85 (4th International Symposium),  
Brighton, England. (Tunnelling 85, The Secretary,  
Institution of Mining and Metallurgy, 44 Portland  
Place, London W1N 4BR, U.K.)
- Apr 1 - 4 : EUROPEAN UNION OF GEOSCIENCES (Biennial Conference),  
Strasbourg, France. (Organizing Committee,  
Department of Earth Sciences, University of Cambridge,  
Downing Street, Cambridge CB2 3EQ, U.K.)
- Apr 1 - 5 : NUMERICAL METHODS IN GEOMECHANICS (5th International  
Conference), Nagoya, Japan. (Prof. T. Kawamoto,  
Department of Civil & Geotechnical Engineering,  
Nagoya University, Chikusa, Nagoya 464, Japan)
- Apr 9 - 12 : EVOLUTION OF THE EUROPEAN LITHOSPHERE (MEGS 4:  
Meeting of European Geological Societies), Edinburgh,  
U.K. (Dr. S.K. Monro, Institute of Geological  
Sciences, Murchison House, West Mains Road,  
Edinburgh EH9 3LA, Scotland, U.K.)

- Apr 14 - 17 : PROSPECTING IN AREAS OF DESERT TERRAIN (Conference), Rabat, Morocco. (Conference Office, IMM, 44 Portland Place, London W1N 4BR, U.K.)
- Apr 28 - : GEOCHEMICAL EXPLORATION (11th International AEG  
May 1 Symposium), Toronto, Canada. (Dr. W.B. Coker, Kidd Creek Mines Ltd., 357 Bay St., Ste. 300, Toronto, Ontario, Canada M5H 1T7)
- May 6 - 17 : NEOGENE PHOSPHORITES OF THE SE UNITED STATES (International field workshop and seminar, IGCP 156), Greenville, N.C., to Tallahassee, Florida. (W.C. Burnett, Dept. of Oceanography, Florida State University, Tallahassee, FL 32306, U.S.A.)
- May 13 - 17 : TUNGSTEN (3rd International Symposium), Madrid. (Mr. M.R.P. Maby, Secretary, Primary Tungsten Association, 280 Earls Court Road, London SW5 9AS, U.K.)
- May 15 - 17 : TURBIDITE-HOSTED GOLD DEPOSITS (International Symposium), Fredericton, New Brunswick, Canada. Symposium held with Geological Association of Canada Annual Meeting. (Simon J. Haynes, NOVA Scotia Department of Mines and Energy, P.O. Box 1087, 1690 Hollis Street, Halifax, Nova Scotia, Canada B3J 2X1)
- May 27 - 31 : AMERICAN GEOPHYSICAL UNION (Spring Meeting), Baltimore, Md. (Meetings, AGU, 2000 Florida Avenue, NW, Washington, DC 20009, U.S.A.)
- May 27 - : CORAL REEF CONGRESS: Reef and Man (5th International),  
June 1 Papeete, Tahiti. (Antenne Museum Ephe, Congres Recifs Coral Liens 1985, B.P. 562, Papeete, Tahiti, French Polynesia)
- June 2 - 9 : INTERNATIONAL MINERAL PROCESSING CONGRESS (15th), Cannes, France. Languages French and English. (International Mineral Processing Congress Secretary, BRGM SGN/Mineralurgie, B.P. 6009-45060 Orleans Cedex, France)
- June 9 - 15 : WATER RESOURCES (5th World Congress), Brussels, Belgium. (Dr. L.W. Debacker, c/o Brussels International Conference Centre, Parc des Expositions, Place de Belgique, B-1020 Brussels, Belgium)

\*\*\*\*\*



# PERSATUAN GEOLOGI MALAYSIA

## Geological Society of Malaysia

c/o Department of Geology, University of Malaya, Kuala Lumpur 22-11, Malaysia. Tel 03-577036.

### GEOSEA V PROCEEDINGS

#### Advertising Space

Format of Proceedings: 18 cm x 25 cm

Rates:	<u>Colour</u>	<u>Black &amp; White</u>
Inside full page	M\$2500	M\$1500
Inside half page	M\$1500	M\$1000

Artwork and positive films or slides (for colour or black & white) should be supplied by the advertiser.

Please send the completed order form below together with remittance payable to 'Geological Society of Malaysia' to:

Editor  
Geological Society of Malaysia  
c/o Dept. of Geology  
University of Malaya  
Kuala Lumpur 22-11, Malaysia.

For further information, ring 03-577036.

-----  
The Editor  
Geological Society of Malaysia  
c/o Dept. of Geology  
University of Malaya  
Kuala Lumpur 22-11

I/We\* would like to take up an advertising space in the GEOSEA V Proceedings in the form (please tick as appropriate)

<u>Colour</u>	<u>Black &amp; White</u>
<input type="checkbox"/> Full page	<input type="checkbox"/> Full page
<input type="checkbox"/> Half page	<input type="checkbox"/> Half page

Artwork/Positive film or slide\* is/is not\* enclosed.

Company .....

Address .....

Enclosed cheque/money order/bank draft ..... for M\$ .....

Person to be contacted: ..... Tel.....

Designation ..... Signature .....

\* delete as appropriate

# GEOLOGICAL SOCIETY OF MALAYSIA PUBLICATIONS

## BACK ISSUES AVAILABLE

- Bulletin 1** (1968), 79 p. *Studies in Malaysian Geology*, edited by P.H. Stauffer. A collection of papers presented at a meeting of the Geological Society of Malaysia on 31st January 1967. M\$3.00 (US\$1.50).
- Bulletin 2** (1968), 132 p. *Bibliography and Index of the Geology of West Malaysia and Singapore* by D.J. Gobbett. Price: M\$10.00 (US\$5.00)—softcover; M\$15.00 (US\$7.50)—hardcover.
- Bulletin 3** (1970), 146 p. *Papers in Gemorphology and Stratigraphy (with Bibliography supplement)*, edited by P.H. Stauffer. Price: M\$10.00 (US\$5.00).
- Bulletin 4** (1971), 100p. *Papers in Petrology, Structure and Economic Geology*, edited by P.H. Stauffer. Price: M\$10.00 (US\$5.00).
- Bulletin 5** (1973), 70 p. *The Search for Tungsten Deposits* by K.F.G. Hosking. Price: M\$10.00 (US\$5.00).
- Bulletin 6** (1973), 334p. *Proceedings, Regional Conference on the Geology of Southeast Asia, Kuala Lumpur, March 1972*. Edited by B.K. Tan. Price: M\$22.00 (US\$11.00)—hardcover only.
- Bulletin 7** (1974), 138 p. Edited by B.K. Tan. Price: M\$12.00 (US\$6.00).
- Bulletin 8** (1977), 158 p. Edited by T.T. Khoo. Price: M\$12.00 (US\$6.00).
- Bulletin 9** (1977), 277 p. *The relations between granitoids and associated ore deposits of the Circum-Pacific region*. A collection of papers presented at the IGCP Circum-Pacific Plutonism Project Fifth Meeting, 12–13 November 1975, Kuala Lumpur, edited by J.A. Roddick & T.T. Khoo. Price: M\$25.00 (US\$12.50).
- Bulletin 10** (1978), 95 p. *A collection of papers on the geology of the Asean region*. Edited by C.H. Yeap. Price: M\$10.00 (US\$5.00).
- Bulletin 11** (1979), 393 p. *Geology of Tin Deposits*. A collection of papers presented at the International Symposium on 'Geology of Tin Deposits', 23–25 March 1978, Kuala Lumpur. Edited by C.H. Yeap. Price: M\$50.00 (US\$25.00).
- Bulletin 12** (1980), 86p. *Papers on Petroleum Geology, Engineering Geology, Structure, Palaeomagnetism & Petrology*, edited by G.H. Teh. Price: M\$20.00 (US\$10.00).
- Bulletin 13** (1980), 111p. *Papers on Stratigraphy, Geophysics, Geochemistry & Petrology*, edited by G.H. Teh. Price: M\$20.00 (US\$10.00).
- Bulletin 14** (1981), 151p. *Papers on Petroleum Geology, Petrology, Economic Geology, Structure*, edited by G.H. Teh. Price: M\$30.00 (US\$15.00).
- Geological Map of the Malay Peninsula** (1:1,000,000 coloured) compiled by D.J. Gobbett. 1972. Price: M\$4.00 (US\$2.00)—folded flat.
- Field Guide** for a 7-day, one thousand mile, geological excursion in Central and South Malaya (West Malaysia and Singapore) (1973), 40 p. by C.S. Hutchison. Price: M\$5.00 (US\$2.50).
- Abstracts of papers**, *Regional Conference on the Geology of Southeast Asia, Kuala Lumpur (1972)*, 64 p. 8 figs., 3 tables, many extended abstracts. Edited by N.S. Haile. Price: M\$6.00 (US\$3.00).
- Warta Geologi** (Newsletter of the Geological Society of Malaysia). Price: M\$2.00 (US\$1.00) (for non-members) per bimonthly issue from July 1966.

### PACKAGE DEAL FOR BULLETINS (while stocks last)—Effective June 1982.

#### Package Deal I: Bulletins 1 to 8 plus Field Guide I

Student members	: M\$12.00 (US\$10.00)
Other members	: M\$25.00 (US\$15.50)
Non-members	: M\$45.00 (US\$28.50)

#### Package Deal II: Bulletins 9 to 12

Student members	: M\$40.00 (US\$22.00)
Other members:	: M\$60.00 (US\$32.00)
Non-members	: No offer

Please note that the Package Deal offer is limited to ONE order per member only. There is no limit on the number of orders from non-members. Prices may be changed without notice.

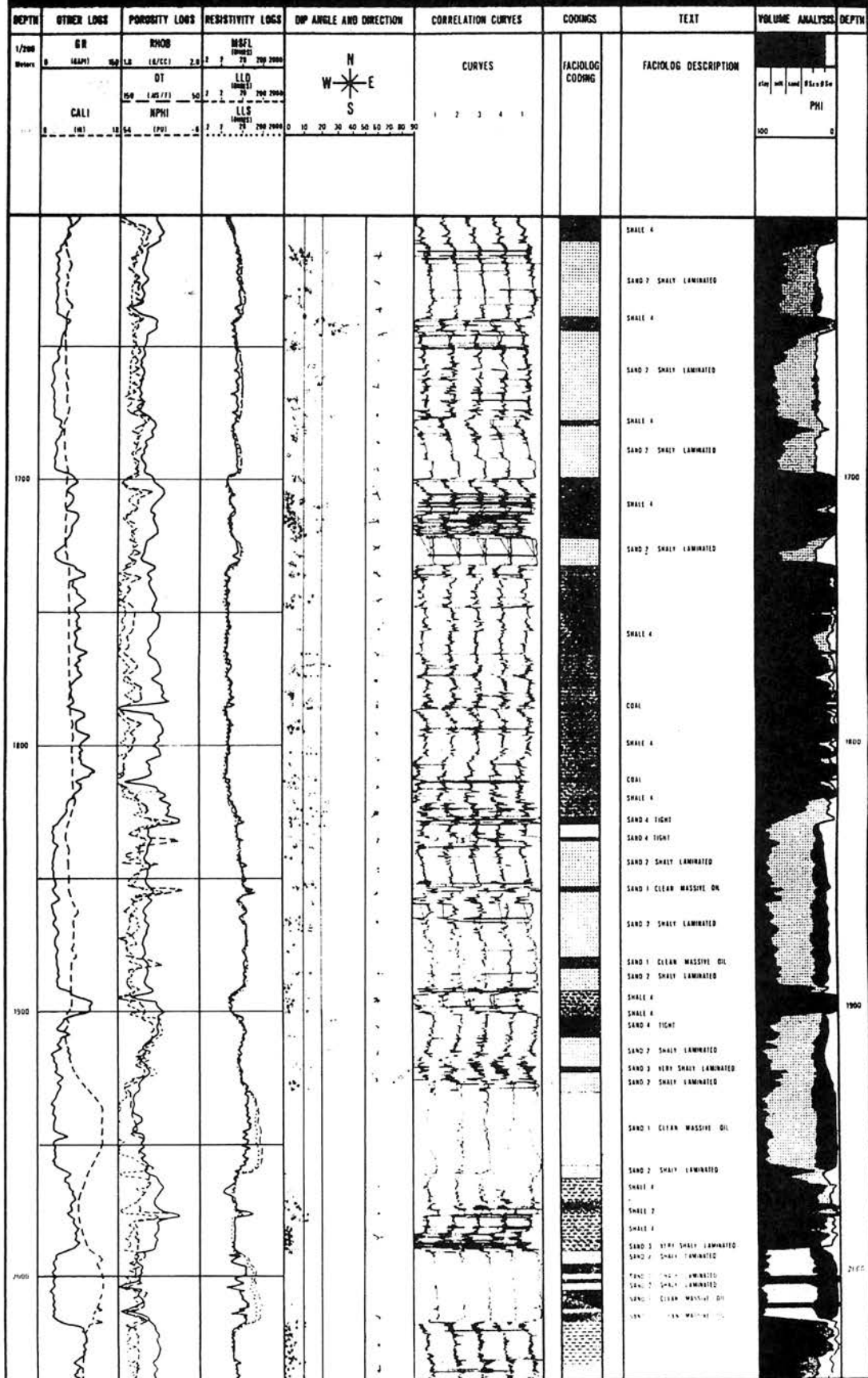
Individual copies of **Bulletins 1–10** and **Warta Geologi** are available to members at half price.

All prices quoted are inclusive of postage and packing by Surface Mail; for Air Mail, write in for enquiry. Allow 6–8 weeks for delivery.

Cheques, Money Orders or Bank Drafts must accompany all orders. **Please add US\$1.30 for bank charges.**

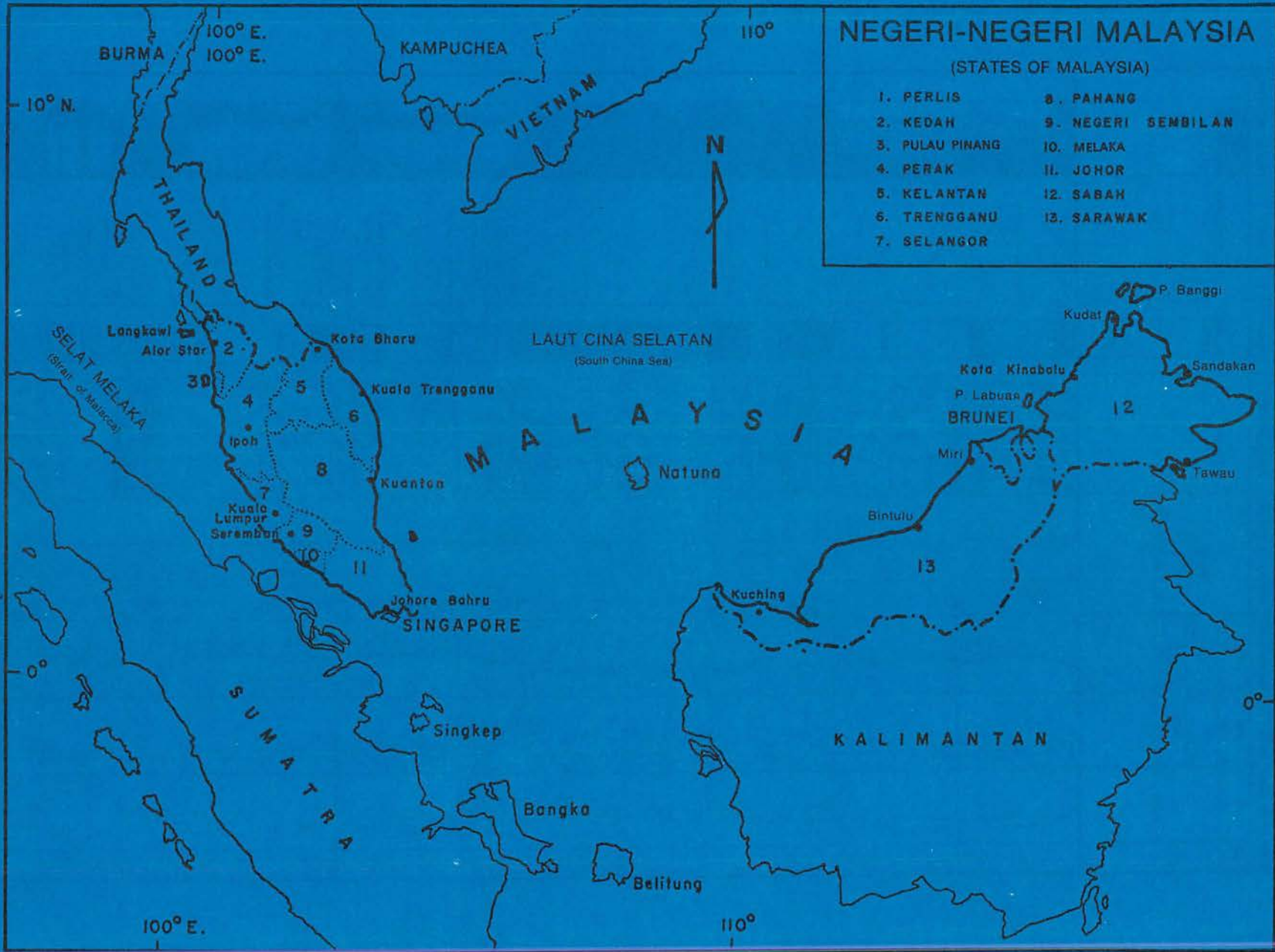
Orders should be addressed to: The Hon. Assistant Secretary  
GEOLOGICAL SOCIETY OF MALAYSIA  
c/o Dept. of Geology  
University of Malaya  
Kuala Lumpur 22—11  
MALAYSIA

# FACIOLOG



Wireline logging data is finding wider applications in sedimentology. This began with the study of log curve shapes to identify different depositional sequences. Recent developments have led to the use of logs to identify "electrofacies"—that is, a set of log responses that characterizes a sediment and distinguish it from others. The objective is to associate a certain type of lithofacies defined by core data with a set of log responses so that such a lithofacies can be identified in other wells without core data. This can also be used to guide the choice of interpretation model and in well to well correlations.





# NEGERI-NEGERI MALAYSIA

(STATES OF MALAYSIA)

- |                 |                    |
|-----------------|--------------------|
| 1. PERLIS       | 8. PAHANG          |
| 2. KEDAH        | 9. NEGERI SEMBILAN |
| 3. PULAU PINANG | 10. MELAKA         |
| 4. PERAK        | 11. JOHOR          |
| 5. KELANTAN     | 12. SABAH          |
| 6. TRENGGANU    | 13. SARAWAK        |
| 7. SELANGOR     |                    |