

## PERSATUAN GEOLOGI MALAYSIA

## WARTA GEOLOGI

## NEWSLETTER OF THE GEOLOGICAL SOCIETY OF MALAYSIA

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Mar-Apr 1989

## KANDUNGAN (Contents)

## CATATAN GEOLOGI (Geological Notes)

- M.B. Idris: Early Silurian multielement conodont assemblages from Pulau Tanjung Dendang, northeastern Langkawi Islands, Kedah 63
- J.A. Richardson: Unresolved Problems of Malaysian Geology – thoughts from the past (Letter to the Editor) 69

## PERTEMUAN PERSATUAN (Meetings of the Society)

- W. Drost: Nuclear tracer techniques in groundwater studies 71
- Working Group on Tectonics and Structural Geology – Report of meeting 73
- Structural and Tectonics Working Group – Bentong-Raub fieldtrip report 76
- Working Group on Economic Geology – Report of meeting 76
- S.P. Sivam, Idris Mohamad & J.K. Raj: Stratigraphic evolution of Peninsular Malaysia with special reference to the western belt 77
- Annual General Meeting 1989 – Report 78
- Jamuan Makan Malam Tahunan 1989 (Annual Dinner 1989) 78
- Ucapan Presiden (President's Speech) 80
- Minutes of AGM 1988 82

## BERITA-BERITA PERSATUAN (News of the Society)

- Polisi Mineral Kebangsaan – Jawatankuasa Kecil Teknik (National Mineral Policy – Technical Subcommittee) 101
- GEOSEA V Proceedings Vol. II – Contents 101
- Keahlian (Membership) 104
- Pertukaran Alamat (Change of Address) 105
- Pertambahan Baru Perpustakaan (New Library Additions) 105

## BERITA-BERITA LAIN (Other News)

- Project Workshop on tin-bearing and tin-barren granites, primary tin mineralization 106
- Shell sponsors geological students' fieldwork 107
- Istilah: Beberapa masalah yang harus diselesaikan 108
- Report of IGCP Secretary on 1988 – List of Projects 109
- Centenary of Indian Petroleum Industry 111
- GEOTROPIKA '90 112
- Regional seminar on management and utilisation of agricultural and industrial wastes 114
- Kursus-kursus Latihan & Bengkel-bengkel (Training Courses & Workshops) 117
- Kalendar (Calendar) 119



DIKELUARKAN DWIBULANAN  
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# CATATAN GEOLOGI (GEOLOGICAL NOTES)

## EARLY SILURIAN MULTIELEMENT CONODONT ASSEMBLAGES FROM PULAU TANJUNG DENDANG, NORTHEASTERN LANGKAWI ISLANDS, KEDAH

M.B. Idris,  
Department of Geology, University of Malaya, 59100 Kuala Lumpur.

### Introduction

As early as 1879, Hinde advanced a multielement species concept of a conodont species. In this concept, a single conodont species comprises a few morphologically dissimilar elements but it was not influential in the subsequent development of conodont taxonomy. However, direct evidence from 'natural assemblages', the first of which was reported by Schimdt (1933) and from clusters found in acid insoluble residues (among which have been recorded by Rexroad & Nicoll (1964) and Pollock (1969)) support the need for a natural classification of conodonts. The development of the early phases of transition of emphasis in conodont taxonomy from a single element to a multielement basis has been comprehensively documented by Huddle (1972). The discovery of the conodont animal by Briggs *et al.* (1983) has further strengthened the validity of this taxonomical approach. Silurian conodont assemblages representative of three multielement species are here reported from the Setul limestone of the Langkawi Islands.

### The Upper Setul limestone of Pulau Langgun and Pulau Tanjung Dendang

The stratigraphical sequence of the sediments on these islands have been worked out in detail by Jones (1961). The Upper Setul limestone is located immediately above the Lower Detrital Band. These horizons can be found on both islands. The Lower Detrital Band at Pulau Langgun have yielded characteristic early Silurian fossils such as graptolites *Glyptograptus persculptus*, *Monograptus gregarius*, *Climacograptus scalaris* (Kobayashi *et al.*, 1964) and the trilobite *Dalmantina malayensis* (Kobayashi & Hamada, 1984). Similarly, Igo & Koike (1967) recovered some early Silurian conodonts from a limestone horizon immediately above the Lower Detrital Band. The conodont assemblage which includes *Spathognathodus pennatus procerus* Walliser (s.f.), and *Pterospathodus amorphognathoides* Walliser (s.f.) are thought to be of late Llandovery to early Wenlock age. However, no early Silurian conodonts have been reported from the Upper Setul limestone of Pulau Setul limestone of Pulau Tanjung Dendang.

### Conodont faunas and age

Four samples were taken from the Upper Setul limestone on the northwestern bay of Pulau Tanjung Dendang (Fig. 1). One sample (PTD1), from the Lower Detrital Band itself, proved barren. The other samples yielded a total of 79 conodont elements, of which three multielement are identified (Table 1). The reconstruction of the multielement apparatus

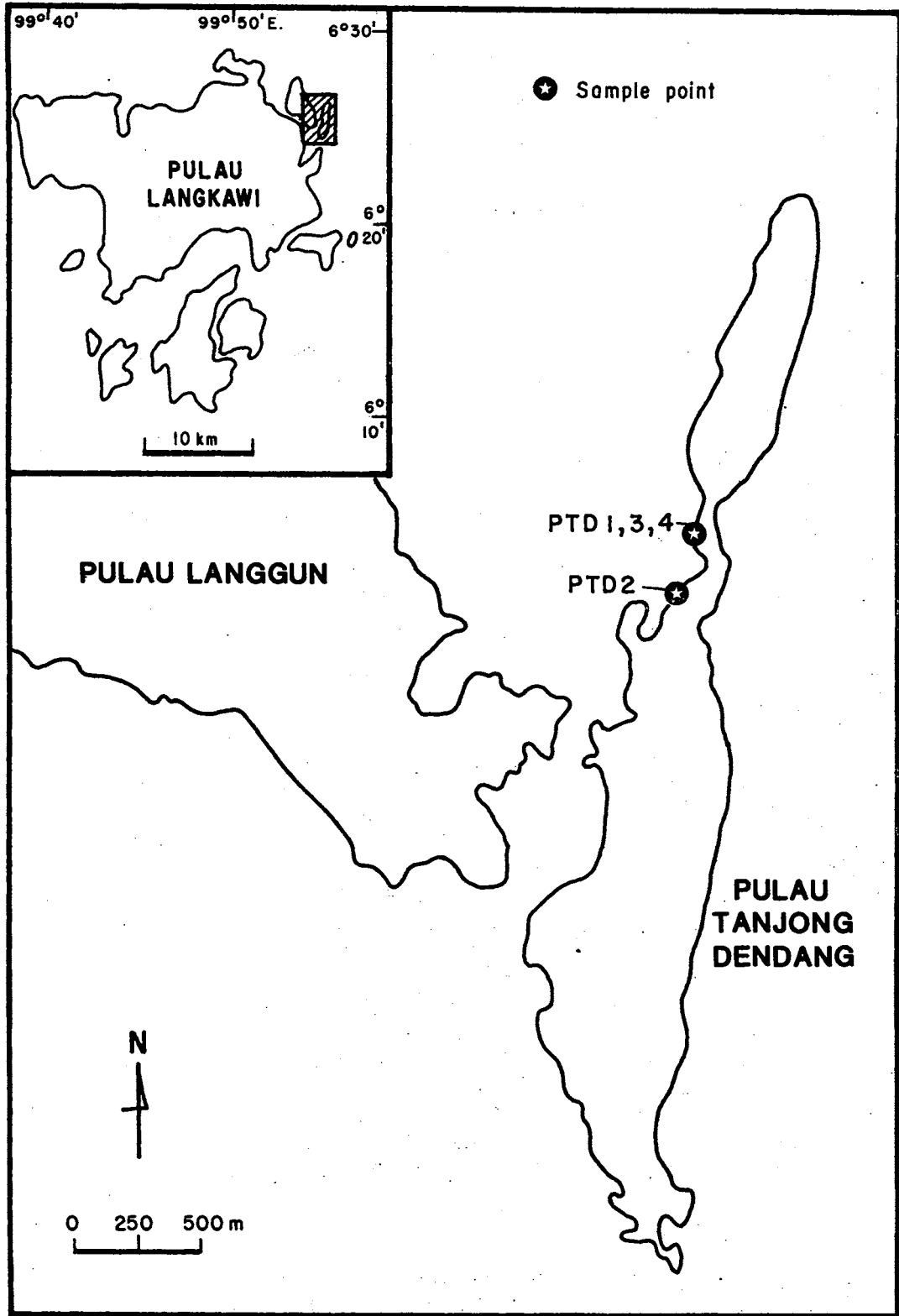


Fig. 1. Early Silurian conodont localities of Pulau Tanjung Dendang.

for the ramiforms and pectiniforms is based on the standard P, M, S notational scheme of Sweet (1981). As this scheme is not easily applicable to the coniform apparatuses, the alternative scheme of Type I apparatus of Barnes *et al.* (1979) is employed in the reconstruction of the *Walliserodus* apparatus and the informal terminologies of Sweet (1979) for the *Panderodus* apparatuses. Stratigraphically, sample PTD2 is located 3 m from the top of the Lower Detrital Band. Samples PTD3 and PTD4 are 7 and 10.5 m above sample PTD1 respectively.

Among the conodont species recovered *P. pennatus procerus* is the most diagnostic age indicator. This species is known to occur in the *celloni* Zone and the *amorphognathoides* Zone in the early Silurian of Europe and N. America (Aldridge, 1972, Barrick, 1976 and Savage *et al.*, 1983). Thus the age of the horizon 3 m above the Lower Detrital Band at PTD2 is within the range from late Llandovery (late C5 of the Telychian), i.e. in the later part of the *celloni* Zone, to early Wenlock. A more precise age cannot be given as there is a marked absence of *P. amorphognathoides* and *Llandoverygnathus celloni* (Walliser), both the critical zonal indices.

The coniform apparatuses are of little significance stratigraphically as they are long ranging species that are known to span the entire Silurian. However, *W. santclairi* and *P. unicostatus* first appeared in the early Silurian.

#### Acknowledgements

This research was funded by University of Malaya research grant No. F103/83. Mr. Henry Lee assisted in the fieldwork and Encik Samad Sulaiman with laboratory work. The figure was drafted by Mr. Y.H. Ching and photography is by Ms. Christina Ong.

#### References

- Aldridge, R.J., 1972. Llandovery conodonts from the Welsh Borderland. *Bull. Br. Mus. Nat. Hist. (Geol.)* 22: 125-231.
- Barrick, J.E., 1976. Multielement simple-cone conodonts from the Clarita Formation (Silurian), Arbuckle Mountains, Oklahoma. *Geol. et Paleont.* 10: 47-68.
- Barnes, C.R., Kennedy, D.J., McCracken, A.D., Nowlan, G.S. & Tarramt, G.A., 1979. The structure and evolution of Ordovician conodont apparatuses. *Lethaia* 12: 125-151.
- Briggs, D.E.G., Clarkson, E.N.K. & Aldridge, R.J., 1983. The conodont animal. *Lethaia* 16: 1-14.
- Huddle, J.W., 1972. Historical introduction to the problems of conodont taxonomy. *Geol. et Paleont.* SBl: 3-16.
- Igo, H. & Koike, T., 1967. Ordovician and Silurian conodonts from the Langkawi Islands, Malaya Pt. II. *Geol. Paleont. S.E.A.* 4: 1-21.
- Jones, C.R., 1961. A Revision of the stratigraphical sequence of the Langkawi Islands, Federation of Malaya. *Proc. IX Pacific Sc. Congress* 12: 287-300.

Plate 1

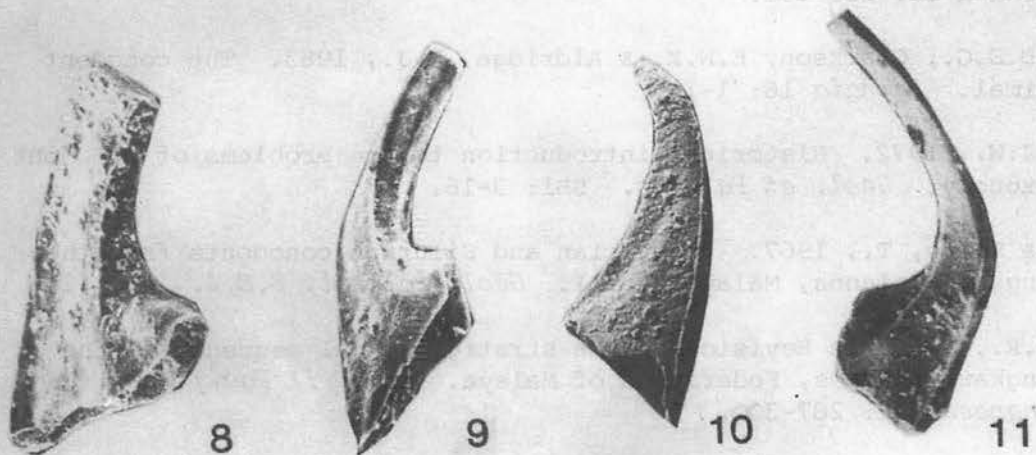
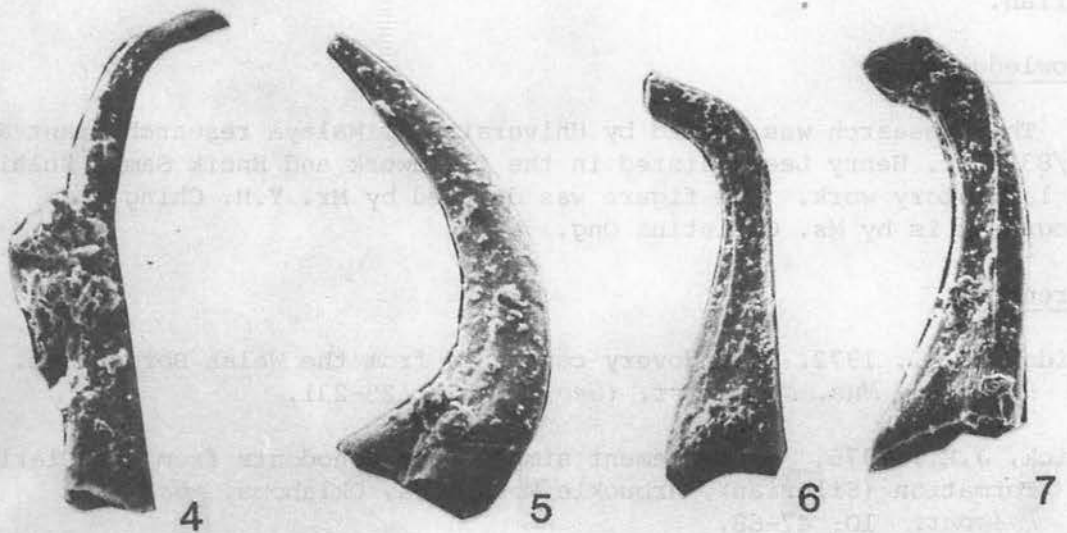
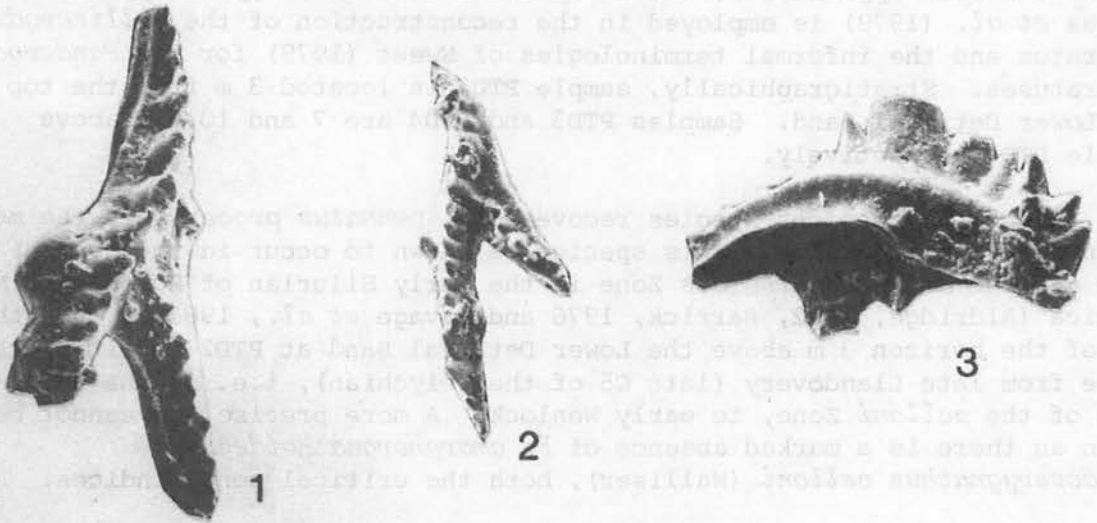


PLATE 1

Fig. 1.	<i>Pterospathodus pennatus procerus</i> (Walliser)	Pa	X 170
2.	" " "	Pa	X 90
3.	" " "	Pb	x 180
4.	<i>Panderodus unicostatus</i> (Branson and Mehl)	falfm	X 180
5.	" " "	smfm	X 160
6.	" " "	asmfm	X 170
7.	" " "	arcfm	X 180
8.	<i>Walliserodus santiclairi</i> Cooper	s	X 180
9.	" " "	t	X 160
10.	" " "	t	X 80
11.	" " "	u	X 160

Table 1. Distribution of conodont assemblages in P. Tanjung Dendang limestones. (falfm = falciform, smfm = similiform, asmfm = asimiliform, arcfm = arcuatiform).

SAMPLE		PTD2	PTD3	PTD4
<i>Pterospathodus pennatus procerus</i> (Walliser)	Pa	7	-	-
	Pb	5	-	-
<i>Panderodus unicostatus</i> (Branson and Mehl)	falfm	12	-	1
	smfm	9	-	-
	asmfm	12	-	1
	arcfm	10	-	-
<i>Walliserodus santiclairi</i> Cooper	s	8	-	-
	t	5	-	-
	t	4	-	-
	u	4	1	-
Total		76	1	2

- Kobayashi, T. & Hamada, T., 1984. Trilobites of Thailand and Malaysia. *Geol. & Paleont. S.E.A.* 25: 273-284.
- Kobayashi, T., Jones, C.R. & Hamada, T., 1964. On the Lower Silurian Shelly Fauna in the Langkawi Islands, Northwest Malaysia. *Jap. J. Geol.* 35: 73-80.
- Pollock, C.A., 1969. Fused Silurian conodont clusters from Indiana. *J. Paleont.* 43: 929-935.
- Rexroad, C.B. & Nicoll, R.S., 1964. A Silurian conodont with tetanus? *J. Paleont.* 38: 771-773.
- Savage, N.M., Potter, A.W. & Gilbert, W.G., 1983. Silurian and Silurian to Early Devonian conodonts from west central Alaska. *J. Pal.* 57: 873-875.
- Schmidt, H., 1933. Cephalopodenfaunen des alteren Namur aus der Umgehend von Arnsberg in Westfalen. *Jb. Preuss. Geol. Landesanst.* 54: 440-461.
- Sweet, W.C., 1979. Late Ordovician conodont biostratigraphy of the Western Midcontinent Province. 45-86. In: Sandberg, C.A. & Clark, D.L. (eds.): Conodont biostratigraphy of the Great Basin and Rocky Mountains. *Brigham Young Univ. Geol. Stud.* 26.
- Sweet, W.C., 1981. Morphology and composition of elements: macromorphology of elements and apparatuses. W5-W20. In: Robison, R.A. (ed.): *Treatise on Invertebrate Paleontology, Part W, Miscellanea, Supplement 2, Conodonta.* Geol. Soc. Am. and Univ. Kansas.

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*Manuscript received 24 March 1989.*



## LETTER TO THE EDITOR

19 Acacia Road,  
Maida Vale,  
Western Australia, 6057.

8th March 1989.

Dr. Teh Guan Hoe,  
Pengarang Kehormat,  
Persatuan Geologi Malaysia,  
Jabatan Geologi,  
Universiti Malaya,  
59100 Kuala Lumpur, MALAYSIA.

Dear Dr. Teh,

"Unresolved Problems of Malaysian Geology" - "Thoughts from the past"

Perhaps a few thoughts stimulated by the abstract of Professor C.S. Hutchison's Retirement Address may be of some interest to members of the Society.

Professor C.S. Hutchison's Retirement Address "Unresolved Problems of Malaysian Geology" (*Warta Geologi*; Jil. 13, No. 4; Jul-Ogos 1987) not only highlights many aspects of Malaysian geology which still await solution; it also emphasizes the advances made in our knowledge of the complex geological history of this fascinating region. This stimulating abstract directed my thoughts back to concepts of Peninsular geology current before the 1941 outbreak of war in Malaya.

I began mapping in the Gold Belt of Northwest Pahang early in 1937 (Technical Staff of the F.M.S. Geological Survey at that time were Director, Mining Geologist, Chemist and me). Later in 1937 to 1939 four additional field geologists joined the Department and mapping began in the Fraser's Hill, Rasa/Kuala Selangor, Kuala Lipis, Bentong and Kuantan/Pekan Districts. The Geological Survey Department however still functioned on a very slim budget. By early 1938 I realized that the geology of the Malay Peninsula as depicted on the then current reconnaissance map was enormously oversimplified. Regional mapping had evidently been based on the concept that "*if rock assemblages looked alike then they were most probably contemporaneous*". Consequently the major sedimentary assemblages (plus their supposed metamorphic equivalents were mapped either as Triassic or Permo-Carboniferous. The concept of cyclical sedimentation of similar lithologies during widely separated stratigraphic ages was not then current. My early attempts to introduce alternative interpretations were considered to be too revolutionary and were thus unacceptable! In 1940-1941 new stratigraphic data were being obtained from newly discovered fossil localities. It was becoming clear that the geology of the Malay Peninsula was more complex than had hitherto been supposed.

No remote sensing techniques were available in Malaya before World War II; no geophysical instrumentation; no aerial photography; and, of course, no Landsat imagery. Our field maps were compiled from such outcrops as were available along rivers (often very scarce), road cuttings, mines and prospecting pits etc. Over much of the areas being investigated there were no outcrops. What was really needed was a technique by which we could obtain an overview of the "*lay of the land*"; to visualize its tectonic grain. So in 1939 I asked the Director "*Could we obtain some aerial photographs of areas of interest?*" His smiling reply: "*Jim, haven't you forgotten the trees?*" I hadn't but we did not obtain any photos! Despite the lack of data our maps were more detailed than the reconnaissance maps which had preceded them; they were, however, still conjectural.

In 1940 I began analysing the river systems of Northwest Pahang using the standard topographic maps. By lining up the longest and straightest sectors of the rivers and noting sudden drastic changes of flow direction I was attempting to establish regional lineations and tectonic patterns. Various trends emerged. The project however was interrupted by two periods of military training, by furlough and then by the outbreak of war; it remained uncompleted. In retrospect this was a primitive precursor to modern geotectonic analysis using Landsat imagery; I often recalled those early activities while engaged on Landsat studies between 1974 and 1987 as a consultant in Perth, Western Australia.

As a Prisoner of War (P.O.W.) in Changi and on the Siam-Burma Railway between 1942 to 1945 I was able periodically to discuss Malayan geology with various of my Departmental colleagues, with geologists of the Dutch East Indies, oil companies and from the United Kingdom. Very stimulating and a most welcome relief from the rigours of P.O.W. existence. Various ideas concerning the regional structure of the Peninsula, its stratigraphy and geomorphological development were considerably clarified during that period of stress. Consequently after liberation and return to England I wrote several papers on aspects of Peninsular geology which were published in the '*Geological Magazine*' of 1946 and 1947.

I did not return to Malaya after the war and so lost touch with Malaysian geology until in 1966 during a visit to the Peninsula I joined the Society; I find '*Warta Geologi*' very stimulating. I was interested to learn in 1987 that areas south of Raub and northwards through Cheroh and Bukit Selinsing were being re-prospected for gold using modern techniques. I was retained as consultant for one mining group interested in this prospective area; echoes of the past!

Very best wishes.

Yours sincerely,

Signed Dr. James A. Richardson  
Field Geologist,  
F.M.S.; G.S.D., 1936-1946

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# PERTEMUAN PERSATUAN (MEETINGS OF THE SOCIETY)

## CERAMAH TEKNIK (TECHNICAL TALK)

W. Drost: Nuclear tracer techniques in groundwater studies

### Laporan (Report)

Pada hari Jumaat, 3 Mac, 1989 lalu bertempat di Jabatan Geologi, Universiti Kebangsaan Malaysia, Dr. W. Drost, pakar IAEA yang kini bertugas di Institute of Hydrology, Munich, Republik Persekutuan Jerman telah menyampaikan sebuah ceramah teknik yang menarik bertajuk "Nuclear Tracer Techniques In Groundwater Studies". Ceramah ini dihadiri oleh 35 orang, terdiri daripada ahli-ahli akademik, penyelidik dari Puspati, pelajar-pelajar siswazah serta beberapa orang dari syarikat swasta. Selepas ceramah, Dr. Drost telah diraikan oleh Persatuan di dalam suatu jamuan "satey Kajang", yang disertai juga oleh semua hadirin.

### Abstrak (Abstract)

*Groundwater tracing by multi- and single-well techniques by means of well selected radioactive tracers, which have several advantages over conventional tracers, includes measurement of transport parameters of groundwater flow in saturated rocks as well as moisture movement in the unsaturated zone. Multi-well techniques give information on the spatial and temporal tracer distribution over a given distance, and tracer evolution at a given point is measured by single-well techniques. The techniques have been or may be applied in water resources evaluation, scientific investigation of water related physical and chemical processes, and model formulation and calibration. Most case studies were encountered in problems of water management and civil engineering. There have been three levels of investigations, those performed before construction for feasibility studies, site investigation and design; those performed during construction and those performed after construction such as maintenance and control. Other applications have been in the delineation of protection zones as an important feature of the development of water supplies, and the subsurface drainage of liquid waste originated from man-made or natural sources. The techniques have proved to be a reliable tool of easy and economical applicability. Sometimes the use of the techniques is unique, in many cases they are of promise in confirming and complementing data which have been gathered from non nuclear tracer techniques.*

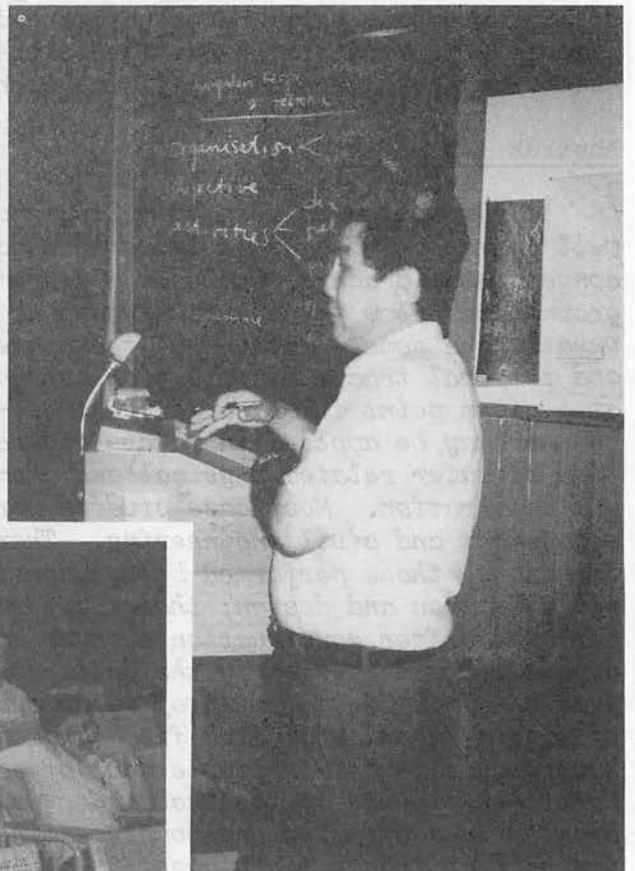
Hamzah Mohamad

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W. Drost at Universiti Kebangsaan Malaysia.



Technical in Groundwater Studies". Course ini dihadiri oleh 35 orang...



H.D. Tjia and the Working Group on Tectonics and Structural Geology Meeting.

KUMPULAN KERJA TEKTONIK DAN GEOLOGI STRUKTUR  
(WORKING GROUP ON TECTONICS AND STRUCTURAL GEOLOGY)  
- REPORT OF MEETING

On 3 March 1989, 32 GSM members met at the Geology Department, University of Malaya, and elected for a one-year period H.D. Tjia, Chairman, and Mustaffa Kamal Shuib, Secretary of this working group. The meeting also agreed on the following matters.

Objective

To encourage exchange of ideas and cooperative research in order to better understand the tectonics and structural geology of the region.

Activities

- (1) Discussion meetings, including workshops;
- (2) Field trips and conferences;
- (3) Special publications

Programme (first half year)

- (1) Tectonic cross sections of Peninsular Malaysia to be constructed from available published material with additions from selected field traverses by the working group.
- (2) "Triassic rocks and palaeotectonics of Peninsular Malaysia" (provisional title) by Kamal Roslan Mohamed (UKM).
- (3) Comparative structural geology of rock series of different ages.
- (4) Field meetings:
  - (a) Bentong-Raub zone on 2 April 1989.
  - (b) East-West Highway in June 1989.
  - (c) Permo-Triassic rocks of the Central Belt, including major fault zones in August 1989.

Other possible field meetings identified include the Lubuk Antu melange, Sarawak; multiphase deformations at Kuala Sawah, N.S.; Cenozoic volcanism in west Pahang, central Johor, and Mersing area (?).

Contact persons of the working group

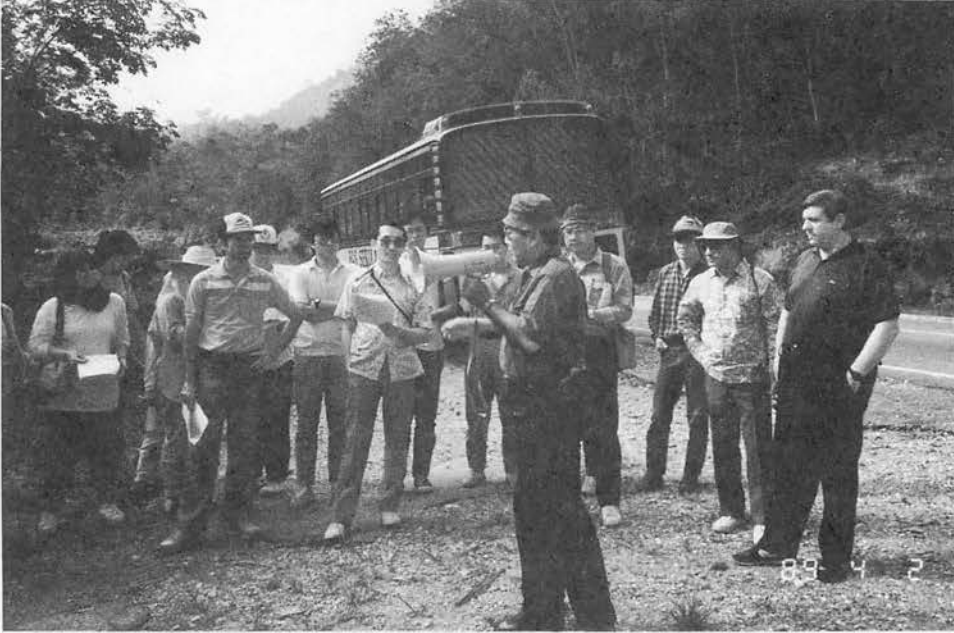
- (a) Y.K. Shu, Jabatan Penyasatan Kajibumi
- (b) Ng Tong San, Petronas Carigali
- (c) S. Paramanathan, Universiti Pertanian Malaysia
- (d) Muluk Wahab, Tenneco Oil

Other interested members of organisations like MMC, USM, and others are invited to become contact persons.

The meeting closed with views from K.R. Chakraborty on the shortcomings of existing tectonic models for the Central Belt and its borders and a display of maps showing major fault zones in Peninsular Malaysia interpreted by H.D. Tjia from Landsat, Spot, and radar images.

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## STRUCTURAL AND TECTONICS WORKING GROUP - BENTONG-RAUB FIELDTRIP



Working Group chairman Prof. Tjia briefing participants.



Olistostrome outcrop along Karak Highway.

STRUCTURAL AND TECTONICS WORKING GROUP - BENTONG RAUB FIELDTRIP



Assoc. Prof. Chakraborty elaborating on the olistostrome outcrop outside Bentong:



Lively discussions going on at the olistostrome outcrop outside Bentong.



Braving the rain at Sg. Bilut.



Pebbly deposits at Kran Satu Road.

## STRUCTURAL AND TECTONICS WORKING GROUP - BENTONG-RAUB FIELD TRIP REPORT

On Sunday morning, 2nd April, a busload of about 35 GSM members left the University of Malaya for a day field trip around Bentong-Raub area. Eager participants included undergraduate and post-graduate students and lecturers from University of Malaya and Universiti Kebangsaan Malaysia and geologists from the Geological Survey and the industry.

Field trip leaders, K.R. Chakraborty, H.D. Tjia, I. Metcalfe and Kamal Roslan showed an enthusiastic group of members good exposures of chaotic sediments with blocks of various lithology and sizes. There is concensus among the many participants that these deposits represent olistostromes. However, the question of tectonic setting for the deposits prompted interesting debate among the keen participants.

After lunch at Raub, heavy rain put the march to a refolded limestone locality at Sg. Bilut to a halt, forcing the participants to run for shelter at a nearby house in the oil palm estate. After the rain, participants examined the refolded fold exposure.

The rest of the afternoon was spent looking at the series of exposures along the Krau Satu Road showing various pebbly deposits.

The field trip ended at about six in the afternoon and the bus arrived back in Kuala Lumpur at about 8.30 p.m.!

Mustaffa Kamal Shuib  
Secretary

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## KUMPULAN KERJA GEOLOGI EKONOMI (WORKING GROUP ON ECONOMIC GEOLOGY) - REPORT OF MEETING

A meeting to inaugurate the Economic Geology Working Group was held on Saturday morning, 4th of March 1989, at Universiti Kebangsaan Malaysia, Bangi. The response was poor as only five members turned up, and as a result, it was postponed to a later date.

Another meeting was called on Wednesday, 5.00 p.m., 15th of March 1989 at Universiti Malaya for a similar purpose. This time the response was equally poor and as a result, election of committee members could not be made. An informal discussion was however made and it was suggested that a one-day field trip to a nearby gold-field (Lipis area?) could be arranged to attract members into the group.

Wan Fuad

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## CERAMAH TEKNIK (TECHNICAL TALKS)

S.P. Sivam, Idris Mohamad & J.K. Raj: Stratigraphic evolution of Peninsular Malaysia with special reference to the western belt.

### Laporan (Report)

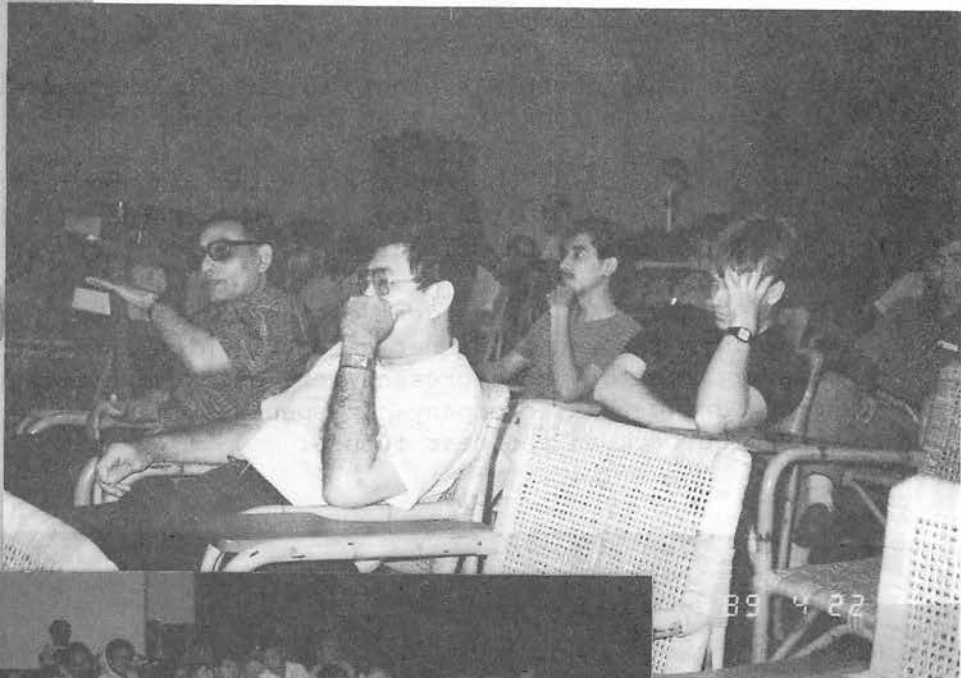
A crowd of about 30 members turned up on the afternoon of Saturday, 22 April 1989, 4.30 p.m. to listen to this technical talk which was planned to precede the Annual General Meeting.

The talk, delivered by the senior author, S.P. Sivam, proved to be very interesting and as expected of such a title, there was a lot of questions and comments after the presentation.

With the authors' own data and material from previous workers, especially those on Langkawi, NW Peninsular Malaysia, the Kinta Valley and the Kuala Lumpur area, the authors synthesized with appropriate sketches, the stratigraphic evolution of the western belt of Peninsular Malaysia.

G.H. Teh

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## ANNUAL GENERAL MEETING 1989 - REPORT

The AGM 1989 was held at 5.30 p.m. at the Geology Department, University of Malaya on Saturday 22 April 1989. The other events planned for the day included the Technical Talk by S.P. Sivam from 4.30-5.30 p.m. and the Annual Dinner from 7.30 p.m.

There was a quorum of 34 members. The meeting went on smoothly. Among the highlights of the meeting was announcement by the Editor that the second volume of the GEOSEA V Proceedings has been finalised and will be available soon; the Warta Geologi will be brought up to date; the Council was asked to consider buying a building with its good financial standing; and the introduction of a Graduate Research Grant.

G.H. Teh

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## JAMUAN MAKAN MALAM TAHUNAN 1989 (ANNUAL DINNER 1989)

The dinner this year attracted a record crowd of about 40 members, some of whom brought along their wives. It was held at the Rumah Universiti, just after the Annual General Meeting and to coincide with the breaking of fast by the Muslim members.

As usual there was plenty of food in the buffet-style dinner and almost everyone took more than one helping.

The historic event of the evening was the first get together of the Presidents of IME (Datuk Abdul Ghani Hj. Fateh Akhir), the IMM, Malaysia (Chan Wan Choon), and of course the President of Persatuan Geologi Malaysia.

As usual, the President of the Society, Dr. Hamzah Mohamad, was around to deliver the usual 'dinner speech' (which is reproduced in this issue), however, most of those present were quick to notice the absence of the spicy *pantun* that accompany his speeches. Anyway we hope that he will add the spice back in the near future.

G.H. Teh



At the GSM Annual Dinner, Dr. Hamzah flanked by Mr. W.C. Chan, specs (IMM) and Datuk Abdul Ghani (IME).

UNITAR PRACTICE IN JAPAN KARAOKE TOWN PADA 25 APRIL 1989



GSM ANNUAL DINNER 1989

## UCAPAN PRESIDEN DI JAMUAN MAKAN MALAM TAHUNAN PADA 22 APRIL 1989

Terima kasih tuan Pengerusi Majlis, Yang Berbahagia Datuk Abdul Ghani Haji Fateh Akhir, Presiden IME, Encik Chan Wan Choon, Presiden IMM, Encik Peter Chew, Auditor Kehormat Persatuan Geologi Malaysia, Prof. Tjia Hond Djin, Ahli Kehormat Persatuan Geologi Malaysia, Prof. Madya Dr. Hj Abdul Rahim Hj Samsudin, Ketua Jabatan Geologi, UKM, Ahli-Ahli Majlis Persatuan Geologi Malaysia, Para jemputan, puan-puan dan tuan-tuan ahli Persatuan yang saya hormati.

Assalamualaikum dan selamat petang.

Terlebih dahulu izinkan saya menyatakan penghargaan peribadi saya di atas kesudian tuan-tuan dan puan-puan menghadiri Jamuan Makan Malam Tahunan Persatuan Geologi Malaysia bagi Tahun 1989. Sesungguhnya sambutan meriah yang tuan-tuan berikan adalah di luar dugaan kami. Tentunya Persatuan merasa begitu gembira kerana mengetahui ramai yang jatuh cinta dengan Persatuan ini, serta betapa Persatuan mendapat perhatian ramai. Pada masa yang sama saya bagi pihak Persatuan menyusun jari sepuluh jika kiranya terdapat cacat cela di dalam program yang kami atur dan jamuan yang baru kita nikmati sebentar tadi.

Dengan ini genaplah sudah usia Persatuan Geologi Malaysia 22 tahun. Tempoh tersebut mungkin tidak signifikan jika dibandingkan dengan "geologic time" kita tetapi dalam hakikat kehidupan yang sebenarnya ia merupakan tempoh yang cukup panjang. Jika seandainya saya bertemu janji kali pertama dengan isteri saya pada tahun 1967, iaitu kala mana beberapa kerat geologis di Universiti ini mengasaskan Persatuan Geologi Malaysia, dan terus mendirikan rumah tangga tentunya, saya yakin masa ini saya sudah menimang cucu dan mendapat panggilan datuk. Pun begitu ada juga yang sesekali sekala tersasul memanggil saya datuk - bukannya kerana kehebatan seperti Datuk Abdul Ghani, tetapi kerana rambut di kepala. Begitulah lamanya masa 22 tahun itu. Jadi tidak hairanlah jika di sepanjang tempoh ini bilangan ahli yang beberapa kerat pada tahun 1967 itu telah berkembang menjadi kira-kira 500 orang pada hari ini, lebih kurang enam puluh peratus daripadanya datang dari 15 negara lain selain Malaysia. Terlalu banyak persidangan peringkat kebangsaan dan antara-bangsa yang telah dianjurkan dengan jaya jika hendak disebutkan di sini. Begitu juga dengan kertas-kertas saintifik yang diterbitkan oleh jurnal dan "newsletter" Persatuan, yang tiada syak lagi menjadi salah satu penyumbang utama kepada "literature" sains bumi Malaysia khususnya. Dalam hal ini terlalu ramai pula ahli yang terlibat dalam menjayakan aktiviti Persatuan jika hendak disebutkan, tetapi biar bagaimanapun, kita patut membuat peringatan khas kita kepada ahli peneroka yang telah bersusah payah membawa Persatuan Geologi ke tengah-tengah mata dunia hingga begitu dikenal hari ini.

Tuan-tuan dan Puan-puan,

Hari ini kita juga mempunyai alasan untuk bergembira dan berbangga kerana pada tahun ini Persatuan masih berjaya mengekalkan prestasinya.

Kita berjaya menganjurkan dua persidangan di peringkat kebangsaan, di samping sekian banyak pertemuan-pertemuan saintifik. Selain daripada itu kita mempunyai alasan tersendiri untuk berbangga, iaitu kerana kedudukan kewangan Persatuan yang begitu istimewa. Sedang kebanyakan Persatuan lain di Malaysia menghabiskan masa yang banyak merancang aktiviti bagi mengisi tabung persatuan, kita pula mencari-cari lebih banyak projek yang memberi faedah bagi membelanjakan wang dan mengecilkan sedikit jumlah di dalam simpanan tetap. Sekali lagi kita patut mengenang usaha yang telah dijalankan oleh ahli-ahli peneroka sebelum kita kerana merekalah yang telah meyakinkan syarikat-syarikat besar di Malaysia sehingga syarikat-syarikat tersebut tidak keberatan menghulurkan bantuan, hingga kini.

Tuan-tuan dan Puan-puan,

Sekarang izinkan saya merakamkan ucapan penghargaan dan terima kasih kepada ahli dan orang perseorangan lain yang saya rasa telah menyumbang secara positif dan terus dalam menjayakan aktiviti-aktiviti Persatuan sepanjang Sesi lalu.

Pertama sekali saya harus mengucapkan terima kasih kepada ahli-ahli Majlis sidang lalu. Dalam heboh-heboh Parlimen tidak cukup korum, kami tidak pula pernah menanggungkan mesyuarat kerana sebab tersebut. Saya rasa semua setuju perjalanan harian Persatuan ini menjadi begitu efisien kerana cekapnya individu bernama Anna Lim, kita mengucapkan syabas dan berharap beliau tidak akan jemu menjalankan tugas. Di sini juga saya ingin merakamkan penghargaan kepada Dr. Teh Guan Hoe dan Dr. Wan Fuad Hassan yang sama-sama melaksanakan Persidangan Tahunan Kali Ke-4, dan Encik Hila Ludin Abu Hazim kerana mempengerusikan Seminar Geologi Petroleum Ke-12. Tahun ini "Nomination Committee" Persatuan diketuai oleh En. Tan Boon Kong dan dianggotai oleh En. Mohamad Ali Hassan dan Dr. Abd Ghani Rafek, sementara Dr. Ahmad Tajuddin menjaga bahagian "Geoscientist Award", meskipun tiada pencalonan. Kita berterima kasih banyak kepada Pengerusi "working group" Persatuan yang baru sahaja diformalitikan tetapi sudah bergiat cergas, iaitu Prof. Tjia Hong Djin bagi "Structural Geology and Tectonics", Dr. Ibrahim Komoo bagi "Engineering Geology and Hydrogeology", Dr. Wan Fuad Hassan bagi "Economic Geology", Dr. Azhar Hussain dan En. Nor Azim bagi "Stratigraphy and Sedimentology", dan Dr. Nik Ramli bagi "Petroleum Geology". Kita juga mengucapkan syabas kepada En. Fateh Chand yang telah berjaya mengepalai Protam Committee kita hingga Institut Geologi Malaysia, iaitu "stepping stone" kepada Geologists Acts berjaya didaftarkan baru-baru ini.

Sumbangan Wakil kita di Ipoh, En. Aw Peck Chin, di Pulau Pinang, En. Leong Lap Sau, di Pantai Timur, En. Zakaria Hussain, di Sabah, En. Lim Peng Siong, dan di Sarawak, En. Chen Sheik Pei amat dihargai. Persatuan juga ingin mengucapkan terima kasih kepada wakil-wakil kita ke IGCP, Dr. Teh, ke IGCP 274, Dr. Khoo Teng Tiong, ke "Dasar Mineral Negara" sebagai Pengerusi, En. Choo Mun Keong, dan ke Kumpulan Kajian Tanah Liat, En. Kadderi Md Desa. Bagaimanapun saya cuba ingati, tentunya ada yang nama yang tercicir. Jadi saya meminta maaf jika berlaku demikian.

Buat akhirnya saya berharap di sesi 1989/1990 Persatuan kita akan terus maju, malah bertambah maju lagi, berkat sokongan yang bakal puan-puan dan tuan-tuan berikan.

Terima kasih.

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

Minit Mesyuarat Agung Tahunan ke-22 yang telah diadakan di Jabatan Geologi, Universiti Malaya, Jalan Pantai Baru, Kuala Lumpur pada jam 2.30 petang, Sabtu 16hb. April 1988.

Mesyuarat Agung ini telah dijemput oleh Presiden Persatuan Geologi Malaysia, Dr Hamzah Mohamad.

**Ahli Yang Hadir**

Hamzah Mohamad (Pengerusi)  
Ahmad Tajuddin Ibrahim  
Mohamad Ali Hassan  
Mohammad Tahir Ismail  
Ramly Khairuddin  
Khoo Kay Khean  
Choo Mun Keong  
Nik Ramli  
Noor Azim  
Yin Ee Heng  
Fateh Chand  
Chue Hang Cheong  
Wong Yoke Fah  
Teh Guan Hoe  
Idris Mohamad  
John K. Raj  
Mazlan  
Ibrahim Komoo (Pencatat)

**1/ Pengesahan Minit Mesyuarat Agung Tahunan Ke-21**

Minit Mesyuarat Agung Tahunan ke-21 telah diluluskan tanpa sebarang pindaan. Kelulusan Minit dicadangkan oleh Dr Ahmad Tajuddin dan disokong oleh Dr Nik Ramli.

**2/ Perkara-perkara Berbangkit**

a/ Dr Nik Ramli membangkitkan kedudukan 'Professional Geologist's Act'. Majlis diberitahu Jawatankuasa pro-tem telah mengadakan beberapa kali mesyuarat dan telah selesai menggubal perlembagaan Institut Geologi Malaysia. Permohonan untuk menubuhkan Institut ini telahpun dikemukakan kepada Pendaftar Pertubuhan pada akhir bulan Mac 1988. Pada masa ini Jawatankuasa pro-tem sedang menunggu keputusan Pendaftar mengenai permohonan ini. Apabila Institut Geologi Malaysia sudah tertubuh, baharulah Akta tersebut diusahakan.

b/ En Mohamad Ali Hassan bertanyakan perkembangan kemudahan Tabung Pinjaman Pelajar. Majlis diberitahu sehingga kini 6 orang

pelajar telahpun menerima faedahnya.

c/ Mengenai keresahan ahli pada Mesyuarat Agung yang lepas berhubung dengan aktiviti PGM yang hanya diadakan di kawasan sekitar Kuala Lumpur, saudara Presiden menjelaskan pada sidang ini beberapa ceramah teknik telah diadakan di Ipoh, malah Persidangan Tahunan Geologi telah diadakan di Bukit Fraser.

### 3/ Laporan Presiden

Dr Hamzah Mohamad membentangkan laporan sidang 1987/1988. Menurut beliau Persatuan pada sidang 1987/1988 boleh dianggap berjaya memenuhi objektifnya iaitu '.... to promote advancement of the geological sciences, particularly in Malaysia and nearby areas'. Tambah beliau, Persatuan juga berjaya menganjurkan 2 kegiatan besar iaitu Seminar Geologi Petroleum Ke-11 dan Persidangan Tahunan Geologi Ke-3. Kedua-dua aktiviti ini telah mendapat sambutan baik di luar dugaan. Persidangan Tahunan Ke-3 ini telah diadakan serentak dengan Persidangan Tahunan Ke-19 Jabatan Penyiasatan Kajibumi Malaysia.

Mengenai ceramah teknik, menurut beliau pada sidang kali ini sebanyak 13 pertemuan telah diadakan, 2 daripadanya bersifat simposium kecil iaitu bertemakan 'Tektonik dan Geologi Sekitaran' dan 'Pagi Siswazah'. Kegiatan ini membolehkan 22 buah kertas dibentangkan, dan 9 daripadanya disampaikan oleh penyeminar luar negeri.

Bagi kemudahan ahli di sektor petroleum, Persatuan telah menganjurkan kursus 2 hari AAPG bertajuk 'Tectonics, structure and sedimentation along strike-slip and oblique-slip mobile belts'. Persatuan turut menjadi penganjur bersama 'Asian Mining 88'.

Kumpulan kerja yang baru dibentuk juga telah mula memainkan peranannya. Kumpulan Stratigrafi/Sedimentologi telah menganjurkan sekali seminar dan lawatan lapangan. Bagaimanapun, saudara Presiden menjelaskan, di sebalik usaha yang bersungguh-sungguh Persatuan, pengeluaran penerbitan masih berada dalam fasa lembap. Begitu juga penjualan isu-isu kebelakangan penerbitan Persatuan.

Akhir sekali beliau telah mencadangkan supaya Persatuan menubuhkan 'Gran Penyelidikan Bagi Siswazah Geologi'. Ini tentunya dapat membantu ahli geologi yang masih berminat mengenai penyelidikan geologi tetapi terhalang dari segi kewangan dan kemudahan kerana telah berkecimpung dalam kerjaya yang lain. Sebagai penutup beliau merakamkan ucapan terima kasih kepada semua pihak yang terlibat dalam menjayakan kegiatan Persatuan sepanjang sidang 1987/88, dan kepada para dermawan.

Dalam sesi soal-jawab ramai ahli yang tertarik dengan cadangan 'Gran Penyelidikan Bagi Siswazah Geologi'. Di antara yang inginkan keterangan lanjut ialah En Mohamad Ali Hassan, Dr Nik Ramli, En Chue, En Noor Azim dan Dr Teh. Di antara perkara

yang ditimbulkan ialah mengenai jumlah gran, bentuk pemberian (sumbangan, award, bantuan kemudahan), penerima (siswazah, geologi menganggur), cara pemilihan dan beberapa perincian lain. Memandangkan perkara ini merupakan satu cadangan baru, ia akan dibincang dengan mendalam pada mesyuarat Majlis sidang akan datang.

En Chue mengesyorkan supaya Persatuan menubuhkan sebuah pusat Maklumat dan Kerjaya. Pusat ini tentunya dapat membantu ahli yang memerlukan maklumat dan kerjaya terutama bagi bakal siswazah/siswazah menganggur. Beliau juga meminta Persatuan memikirkan kaedah menambah ahli baru.

Laporan Presiden telah diterima melalui cadangan En Mohamad Ali Hassan dan sokongan oleh Dr Nik Ramli.

#### 4/ Laporan Setiausaha Kehormat

Laporan Setiausaha Kehormat telah dibentangkan oleh Penolong Setiausaha Kehormat Dr Ibrahim Komoo. Laporan ini menggariskan semua aktiviti utama Persatuan sambil menjelaskan kedudukan keahlian dan penerbitan Persatuan.

En Mohamad Ali Hassan bertanya mengapa jumlah ahli berkurangan berbanding dengan sidang 1986/87. Majlis diberitahu meskipun terdapat agak ramai ahli baru yang mendaftar pada sidang 1987/88, didapati ramai ahli lama tidak menjelaskan yuran tahunan mereka, oleh itu nama mereka terpaksa digugurkan daripada senarai ahli.

Dr Nik Ramli bertanya adakah Persatuan dapat mengadakan perangkaan peratus ahli geologi tempatan yang menjadi ahli Persatuan. Majlis diberitahu setakat ini perangkaan ini tidak ada dan sukar disediakan. Bagaimanapun, Persatuan akan cuba berkerjasama dengan badan kerajaan dan universiti tempatan untuk mendapatkan maklumat ini.

Laporan Setiausaha Kehormat telah diterima melalui cadangan Dr Idris Mohamad dan sokongan oleh Dr J.K. Raj.

#### 5/ Laporan Editor Kehormat

Laporan Editor Kehormat telah disampaikan oleh Dr G.H. Teh. Beliau menjelaskan Buletin 20 mengalami masalah pencetakan dan editorial dan akan dapat diterbitkan sedikit masa lagi. Buletin 21 telah dikeluarkan di akhir tahun 1987, sementara Buletin 23 sedang dalam persediaan. Buletin 22 dan 24 dijangka dapat diterbitkan dalam tahun 1988 ini. Beliau menambah, Warta Geologi, No 1 - 6, mengalami masalah kelambatan kerana sebab yang tidak dapat dielakkan dan berjanji akan mengeluarkannya sekaligus secepat yang mungkin. Akhir sekali beliau mengucapkan terima kasih kepada penyumbang kertas, penyumbang iklan, pembaca dan penilai di atas sumbangan mereka menjayakan penerbitan Persatuan.



Menjawab pertanyaan En Chue, beliau menjelaskan Warta No 1 - 3 telah siap dan No 4 - 6 sedang dalam persediaan, dan dijangka dapat dikeluarkan dalam tempoh sebulan ini.

Dr Nik Ramli meminta penjelasan mengenai perbelanjaan pencetakan, dan menambah perbelanjaan ini dapat dikurangkan sekiranya bentuk penerbitan 'sedia cetak' boleh dipertimbangkan oleh Persatuan.

En Noor Azim pula meminta penjelasan mengenai sambutan ahli mengenai sumbangan kertas, tempoh yang diambil untuk diterbitkan dan siapa yang menetapkan penilai kertas. Penjelasan telah diberi oleh Editor Kehormat.

En Mohamad Ali Hassan, selepas menjelaskan masalah kelambatan terbitan Persatuan sejak 2 tahun kebelakangan ini, dan pertimbangan beban Editor yang agak berat berbanding dengan ahli Majlis yang lain, telah mengesyorkan supaya Persatuan melantik seorang Pembantu Editor. En Chue menyokong usul ini sambil menambah kemungkinan dibuat pembahagian beban tugas antara Editor dan Pembantu Editor.

En Mohamad Ali Hassan bertanyakan tentang perkembangan persediaan 'peta diperbaharu' dan 'panduan lapangan'. Editor Kehormat menjelaskan kedudukan terkini.

#### 6/ Laporan Bendahari Kehormat & Auditor Kehormat

Bendahari Kehormat telah membentangkan kedua-dua Laporan ini. Beliau menjelaskan pendapatan melebihi penggunaan sebanyak \$71,375.79 (tidak termasuk tanggungan yang belum berbayar sebanyak \$33,392.28) menunjukkan kedudukan kewangan Persatuan yang kukuh. Pendapatan Persatuan terutamanya datang dari yuran ahli, faedah simpanan tetap dan derma dari Seminar Geologi Petroleum. Simpanan tetap Persatuan berjumlah \$275,817.80. Bagi pihak Persatuan beliau menyampaikan ucapan terima kasih kepada semua penderma dan ahli yang menyokong kegiatan Persatuan, dan penghargaan khas kepada En Peter Chew selaku Auditor Kehormat yang telah membantu Persatuan dengan cemerlang.

En Wong, En Chue dan Dr Nik Ramli merasakan Persatuan perlu membeli bangunan sendiri yang dapat digunakan sebagai tempat pertemuan, kegiatan persatuan sambil menyewakan sebahagian daripadanya. En Wong menyarankan supaya Persatuan membuat pungutan derma khas untuk menambah wang membeli bangunan. Dr J.K. Raj menjelaskan mungkin sukar untuk membeli harta kerana Persatuan tidak mempunyai Pemegang Amanah.

En Mohamad Ali Hassan mencadangkan supaya ditubuhkan Jawatankuasa Khas atau Tabungan mengenai bangunan. Saranan ini telah disokong oleh Dr Nik Ramli.

En Ramly pula mencadangkan supaya yuran antara ahli tempatan dan ahli luar negeri dibezakan. Hal ini telah menjadi amalan

banyak persatuan dalam dan luar negeri yang lain.

Kesemua cadangan di atas akan diteliti oleh ahli Majlis di sidang akan datang.

Kedua-dua Laporan ini telah diterima melalui cadangan oleh Dr J.K. Raj dan sokongan Dr Nik Ramli.

#### 7/ Perlantikan Auditor Kehormat

Dr Ahmad Tajuddin memaklumkan kepada ahli bahawa Mr Peter Chew bersetuju untuk menyambung perkhidmatannya sebagai Auditor Kehormat Persatuan. Dr Ahmad seterusnya mencadangkan supaya beliau dilantik semula, dan cadangan ini disokong oleh En Noor Azim dan seterusnya diterima oleh ahli mesyuarat.

#### 8/ Hal-hal Lain

a) Dr Hamzah Mohamad selaku Presiden sidang yang lepas merakamkan ucapan berbanyak terima kasih kepada semua ahli Majlisnya kerana telah memberikan kerjasama yang baik. Ucapan terima kasih khusus kepada Dr Wan Fuad Wan Hassan dan Dr S. Paramanathan yang tidak akan lagi bersama ahli Majlis yang lain pada sidang akan datang.

b) En Mohamad Ali Hassan pula bagi pihak ahli mesyuarat merakamkan ucapan terima kasih kepada semua ahli Majlis sidang 1987/1988 yang telah menjalankan tugas dengan jayanya.

#### 9/ Pengumuman Majlis 1988/1989

Presiden mengumumkan anggota Majlis 1988/89 adalah seperti berikut:

Presiden	: Hamzah Mohamad (UKM)
Naib Presiden	: Ahmad Said (PETRONAS)
Setiausaha	: S. Paramanathan (UPM)
Penolong Setiausaha	: Ibrahim Komoo (UKM)
Bendahari	: Ahmad Tajuddin Ibrahim (UM)
Editor	: Teh Guan Hoe (UM)

Ahli Majlis (2-tahun)	: Idris Mohamad (UM)
	: Khee Kok Kean (ESSO)
	: Fateh Chand (GSM)
	: Tan Boon Kong (UKM)

Ahli Majlis (1-tahun)	: Albert Loh (MMC)
	: Tai Say Ann (PETRONAS)
	: Azhar Hj Hussin (UM)
	: Chin Lik Suan (Pemborong)

10/ Mesyuarat Agung Ke-22 ini ditangguhkan jam 4.30 petang.

LAPORAN PRESIDEN SIDANG 1988/89

Di sepanjang sidang 1988/89, Persatuan bergerak cergas dalam usahanya memenuhi objektif "... to promote advancement of the geological sciences, particularly in Malaysia and nearby areas". Ini diizinkan oleh kedudukan kewangan Persatuan yang terus-menerus kukuh.

Pada umumnya terdapat sedikit pertambahan bilangan ahli berbanding pada sidang lalu. Ini menggambarkan sambutan berterusan terhadap Persatuan ini.

Persatuan berjaya meneruskan dua kegiatan terbesarnya, iaitu "Seminar Geologi Petroleum Kali Ke-12" (Kuala Lumpur, 5-6 Disember, 1988) dan "Persidangan Tahunan Kali Ke-4" (Cameron Highlands, 14-15 Januari, 1989). Persidangan Tahunan kali ini juga masih diadakan serentak dengan Persidangan Jabatan Penyiasatan Kajibumi. Kedua-dua persidangan dianggap berjaya dari segi besarnya bilangan kertas yang dibentangkan, jumlah peserta, kelicinan penganjuran, serta kejayaan mewujudkan forum berinteraksi di kalangan ahli-ahli sains bumi. Persatuan ingin merakamkan penghargaan khusus kepada Encik Hila Ludin Abu Hazim dan Dr Teh Guan Hoe selaku Pengerusi-pengerusi persidangan di atas. Ucapan terima kasih juga ditujukan kepada Ketua Pengarah Jabatan Penyiasatan Kajibumi di atas kerjasama penuh beliau sehingga persidangan "sebumbung" kali kedua ini dapat diadakan. Kesudian Malaysia Mining Corporation menjadi penganjur majlis makan malam Persidangan Tahunan amat dihargai. Sebagaimana biasa sejumlah syarikat yang terlibat dengan carigali dan industri petroleum di negara ini telah memberikan sumbangan kewangan yang amat bermakna kepada Persatuan semasa Seminar Petroleum Geologi diadakan. Persatuan mengucapkan terima kasih.

Siri Ceramah Teknik terus diadakan dengan lapan kertas yang merangkumi berbagai-bagai disiplin, tujuh daripadanya disampaikan oleh ahli sains luar negara. Persatuan mengucapkan terima kasih kepada Ketua-ketua Jabatan Geologi Universiti Malaya dan Universiti Kebangsaan yang bermurah hati membenarkan penggunaan dewan-dewan kuliah bagi pertemuan-pertemuan di atas.

Kelima-lima Kumpulan Kerja (Study Group) Persatuan iaitu Stratigrafi & Sedimentologi, Geologi Petroleum, Geologi Struktur & Geotektonik, Kejuruteraan & Hidrogeologi, dan Geologi Ekonomi telahpun tertubuh secara rasmi dan mempunyai ahli-ahli Jawatankuasa masing-masing. Beberapa daripadanya telahpun memulakan kegiatan, termasuk penganjuran "Bengkel Diagenesis dan Sedimentasi Karbonat" anjuran Kumpulan Kerja Stratigrafi & Sedimentologi.

Dalam hal penerbitan, usaha yang bersungguh-sungguh telah ditumpukan di sidang ini bagi mengurangkan, malah menghapuskan "backlog" penerbitan. Usaha ini bolehlah dikatakan hampir berhasil dengan terbitnya Bulletin Bil.22, dan Warta Geologi 1987. Buletin Bil.20 sedang berada di tahap akhir pembacaan prof,

sementara Warta Geologi 1988, dan Warta Geologi Bil.1 (1989) sedang dicetak dan dijangka dapat diedarkan tidak lama selepas tarikh Mesyuarat Agung Tahunan. Penjualan isu kebelakangan, walau bagaimanapun, masih lembap. Dengan ini ahli sekali lagi diseru supaya membeli Buletin Persatuan yang tidak diberikan percuma.

Kejayaan memberangsangkan dalam sidang ini ialah terdaftarnya Institut Geologi Malaysia pada 11 Mac, 1989 lalu. Dengan ini usaha yang berikutnya akan tertumpu kepada memperjuangkan sebuah Akta Geologis (Geologist Act). Persatuan mengucapkan syabas dan terima kasih kepada En. Fateh Chand, Pengerusi JK Protam penubuhan Institut Geologi Malaysia serta ahli-ahlinya.

Di Mesyuarat yang lalu kita telah membincangkan dua perkara, salah satunya merupakan cadangan saya sendiri. Pertama, kemungkinan membeli bangunan kita sendiri, dan kedua kemungkinan menubuhkan Gran Penyelidikan Siswazah Geologi. Kedua-dua perkara ini telahpun dihalusi oleh Jawatankuasa-jawatankuasa kecil khas yang ditubuhkan. Cadangan mereka, selepas diperakui oleh Majlis bolehlah dibahaskan di Agenda Hal-hal Lain dan satu keputusan muktamat diambil.

Akhirnya seperti biasa, saya ingin mencadangkan supaya di sidang akan datang, Persatuan mengambil daya usaha menjaga mutu kertas-kertas yang dibentangkan di dalam Persidangan Tahunannya, memandangkan kita akan mengadakannya bagi kali-5, yang juga menandakan bertambahnya kematangan kita. Ini dijangka dapat dilakukan dengan mewajibkan penyerahan kertas penuh sebelum Persidangan diadakan, yang dikeluarkan dalam bentuk prosiding. Dengan ini juga kelonggaran-kelonggaran dalam penyertaan dan pembentangan yang diberikan oleh Persatuan sebelum ini yang bertujuan menarik ramai peserta dan kertas patutlah dikaji semula.

Sebagai penutup, saya ingin merakamkan ucapan terima kasih kepada semua pihak, baik individu atau kumpulan, yang terlibat secara langsung mahupun tidak langsung dalam menjayakan kegiatan-kegiatan persatuan di sidang ini, yang nama mereka belum disebutkan. Saya berasa yakin mereka ini akan sentiasa bersedia meluangkan masa membantu Persatuan menjalankan apa juga kegiatannya di sidang akan datang. Muga-muga dengan ini kita akan terus dapat memenuhi objektif dan fungsi Persatuan ini.

14 April, 1989

LAPORAN SETIAUSAHA KEHORMAT  
(April 1988 - Mac 1989)

1. Majlis

Ahli Majlis Persatuan Geologi Malaysia (PGM) bagi tempoh laporan ini disediakan adalah seperti berikut:

Presiden:	Hamzah Mohamad (UKM)
Naib Presiden:	Ahmad Said (Petronas)
Setiausaha Kehormat:	S. Paramanathan (UPM), sehingga Jun 1988 Ibrahim Komoo (UKM), mulai Julai 1988
Pen. Setiausaha Kehormat:	Ibrahim Komoo (UKM), sehingga Jun 1988 Jimmy Khoo (GSM), mulai Julai 1988
Bendahari Kehormat:	Ahmad Tajuddin Ibrahim (UM)
Editor Kehormat:	Teh Guan Hoe (UM)
Ahli Majlis (2 tahun):	Idris Mohamad (UM) Khee Kok Kean (ESSO) Chin Lik Suan (Usahawan) Tan Boon Kong (UKM)
(1 tahun):	Albert Loh (MMC) Tai Say Ann (Petronas Carigali) Azhar Hj Hussin (UM) Fateh Chand (GSM)
Presiden Terdahulu:	John Kuna Raj (UM)

Saudara Azhar Hj Hussin telah meletakkan jawatan sebagai ahli Majlis mulai Oktober 1988 kerana bercuti sabatikal, Majlis bersetuju melantik Hila Ludin (Petronas) untuk menggantikan tempat beliau. Saudara Khee Kok Kean telah meletakkan jawatan sebagai ahli Majlis mulai Januari 1989, dan pengganti beliau hanya akan diisi pada sidang akan datang.

Kepada ahli Majlis yang telah dan akan menamatkan perkhidmatan mereka selepas sidang kali ini, bagi pihak ahli PGM, kami mengucapkan ribuan terima kasih di atas sumbangan mereka selama ini.

2. Mesyuarat Majlis

Majlis PGM 1988/1989 telah mengadakan mesyuarat bulanannya sebanyak sebelas kali. Mesyuarat Majlis lazimnya diadakan pada hari Jumaat pertama setiap bulan. Sekiranya perlu, Majlis telah menubuhkan beberapa jawatankuasa/kumpulan kecil bertujuan untuk melicinkan dan mempercepatkan pentadbiran PGM. Beberapa orang ahli turut dilantik untuk mewakili PGM dalam pelbagai jawatankuasa di peringkat kebangsaan.

3. Keahlian

Jumlah ahli PGM sehingga 31hb Disember 1988 adalah 445. Butir-butir keahlian disenaraikan dalam Jadual 1.

4. Aktiviti Persatuan

PGM meneruskan aktiviti tahunan seperti tahun yang lepas. Seminar Geologi Petroleum telah diadakan pada Disember 1988 di ibukota, dan Persidangan Tahunan Geologi Ke-4 telah berlangsung di Tanah Rata,

Cameron Highlands pada Januari 1989. Kedua-dua aktiviti ini telah mendapat sambutan dan mencapai kejayaan yang cemerlang. Ceramah Teknik masih diteruskan. Kumpulan Kerja yang ditubuhkan pada sidang 1987/1988 mulai menjalankan aktiviti masing-masing. Ringkasan aktiviti PGM untuk tempoh April 1988 hingga Mac 1989 disenaraikan dalam Jadual 2.

#### 5. Penerbitan

Masalah penerbitan PGM mulai dapat diatasi. Enam siri Warta yang ketinggalan (tahun 1987) telah dapat dikeluarkan. Buletin No. 22 telah dapat dikeluarkan. Adalah dijangkakan, enam siri Warta tahun 1988 dan Buletin No. 20 yang ketinggalan akan dapat dikeluarkan sebelum Mesyuarat Agung kali ini. Jualan penerbitan masih lembab. Ahli dirayu untuk membeli penerbitan persatuan. Stok pada 31hb Disember 1988 dan jualan dalam tahun 1988 ditunjukkan dalam Jadual 3.

#### 6. Wakil Kawasan

Ahli berikut telah dilantik sebagai wakil PGM kawasan:

- a) Aw Peck Chin (Ipoh)
- b) Leong Lap Sau (Pulau Pinang)
- c) Zakaria Hussin (Pantai Timur)
- d) Chen Shick Pei (Sarawak)
- e) Lim Peng Siong (Sabah)

#### 7. Kumpulan Kerja

Mulai sidang kali ini, kumpulan kerja secara formalnya berjaya diwujudkan. Beberapa kumpulan kerja telah memulakan aktiviti sulungnya. Berikut adalah Pengerusi kumpulan kerja yang telah dilantik oleh Majlis:

- a) Geologi Kejuruteraan/Hidrogeologi : Ibrahim Komoo
- b) Geologi Petroleum : Nik Ramli Nik Hassan
- c) Stratigrafi/Sedimentologi : Azhar Husin sehingga  
Oktober 1988  
: Noor Azim mulai  
November 1988
- d) Tektonik/Geologi Struktur : H.D. Tjia
- e) Geologi Ekonomi : Wan Fuad W. Hassan

#### 8. Anugerah Geosaintis Muda

Tiada penamaan diterima untuk penganugerahan tahun ini.

#### 9. Institut Geologi Malaysia

Jawatankuasa Protem telah menghantar deraf pindaan perlembagaan Institut seperti yang dikehendaki oleh Pendaftar Pertubuhan. Institut Geologi Malaysia telah diluluskan pendaftarannya pada 11hb Mac 1989.

Table 1: Membership of the Society

Country	Full	Associate	Student	Institutional	Honorary	Life	Professional/ Life	Professional/ Full
Africa				1				
Australia	20			2			1	5
Brunei	2							
Canada	7		1					
Europe	17		2	5	1	2		
Hong Kong	3							
Indonesia	8			1	1	1		
Japan	10			1	1			
New Zealand	2							
Papua New Guinea	1							
Singapore	15	1		3				1
Taiwan	1							
Thailand	5			1	1	1		
Turkey	1							
United Arab Emirates	1							
United States of America	19		1	1		1		2
Malaysia	190	11	36	15	3	8	4	28
<b>TOTAL</b>	<b>302</b>	<b>12</b>	<b>40</b>	<b>30</b>	<b>7</b>	<b>13</b>	<b>5</b>	<b>36</b>

# GEOLOGICAL SOCIETY OF MALAYSIA PUBLICATIONS

**BULLETIN OF THE GEOLOGICAL SOCIETY OF MALAYSIA**  
**WARTA GEOLOGI - NEWSLETTER OF THE GEOLOGICAL SOCIETY OF MALAYSIA**

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 University of Malaya,  
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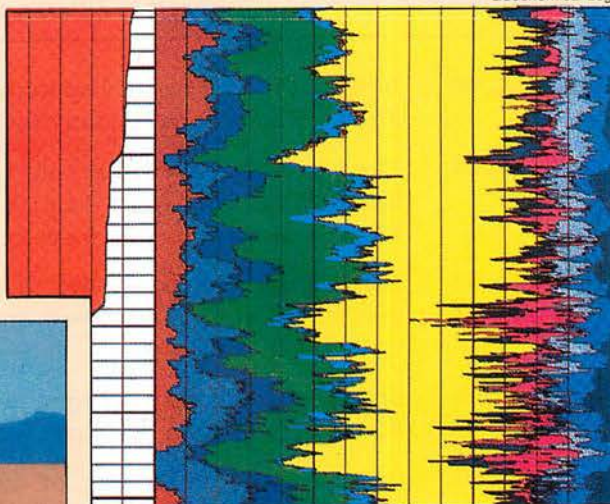
Designation ..... Signature .....

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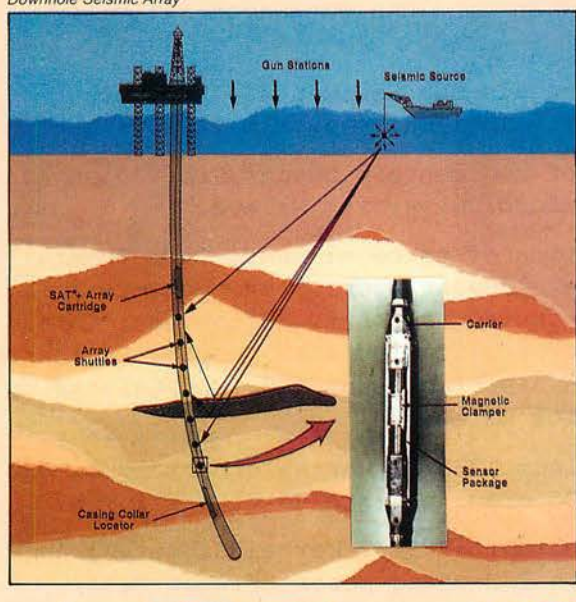


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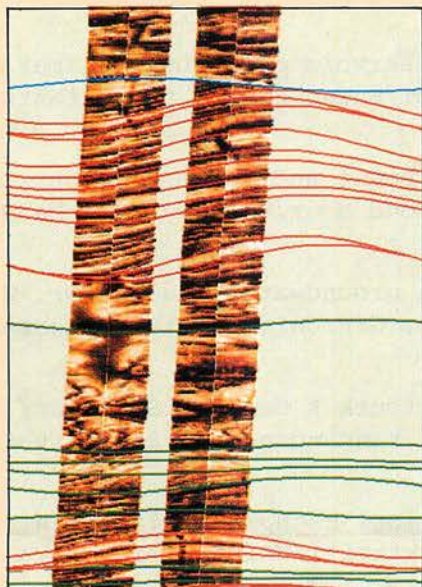
Geochemical Log



Downhole Seismic Array



Array Sonic Service



The Formation Microscanner Log

Pioneering and advancing Wireline  
Technology is our commitment to the  
oil industry.

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**Schlumberger (Malaysia) Sdn. Bhd.**  
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Tel: 03-2485533/2485621/2485947. Telex: SCHLUM MA 31335.  
Cable: SCHLUMEAD. Fax: 03-2421291.

Jadual 2: Aktiviti Persatuan Geologi Malaysia (April 1988 hingga Mac 1989)

Bil.	Tarikh	Aktiviti/Penceramah/Pertubuhan/Tempat
1.	2.4.88	Bengkel dan kerja lapangan ke Jeram dan Batu Arang/Kumpulan Kerja Stratigrafi dan Sedimentologi/Universiti Malaya.
2.	13.4.88	The Ordovician-Silurian tectonic setting of the Southern Upland of Scotland (and its similarities with Burma)/Dr. Stuart McKerrow/University of Oxford/Universiti Malaya.
3.	6.9.88	Penubuhan Kumpulan Kerja Geologi Kejuruteraan & Hidrogeologi/Penubuhan jawatankuasa dan rancangan aktiviti/Universiti Malaya.
4.	17.9.88	Bengkel Karbonat Diagenesis dan Sedimentasi/Kumpulan Kerja Stratigrafi dan Sedimentologi/Universiti Malaya.
5.	29.9.88	Origin and evolution of sedimentary basins/Prof. John F. Dewey/University of Oxford/Universiti Malaya.
6.	10.10.88 hingga 11.10.88	Talk 1: The distribution of trace elements in polymetallic ores; Talk 2: The development of complex, polymetallic Sn-W-Mo-Bi-(Be) skarn-greisen deposit, Shizhuyuan, China; Talk 3: Black shale mineralization with special reference to genesis and paragenesis/Prof. Gunter H. Moh/University of Heidelberg/Universiti Malaya.
7.	5-6.12.88	Seminar Geologi Petroleum 1988/22 kertas dibentangkan dan dihadiri oleh lebih 200 orang peserta/Hotel Merlin, K.L.
8.	14.1.89 hingga 15.1.89	Persidangan Tahunan Geologi 1989/32 kertas dibentangkan dan dihadiri oleh lebih 170 orang peserta/Tanah Rata, Cameron Highlands.
9.	25.1.89	An integrated approach to reservoir petrophysical parameters evaluation/Elio Poggiagliolmi/EnTec Energy Consultants Ltd./Universiti Malaya.
10.	24.2.89	Groundwater recharge, development and sedimentation: a case of Langat Basin/Dr. Ismail Mohd Noor/Universiti Kebangsaan Malaysia/Universiti Malaya.
11.	3.3.89	Nuclear tracer techniques in groundwater studies/Dr. W. Drost/Institute of Hydrology, GSF/Universiti Kebangsaan Malaysia.
12.	3.3.89	Penubuhan Kumpulan Kerja Tektonik & Geologi Struktur/Perlantikan Jawatankuasa dan rancangan aktiviti/Universiti Malaya.
13.	15.3.89	Penubuhan Kumpulan Kerja Geologi Ekonomi/Perlantikan jawatankuasa dan rancangan aktiviti/Universiti Malaya.
14.	22.4.89	Stratigraphic evolution of Peninsular Malaysia with special reference to the western belt / S.P. Sivam & Idris Mohamad/Universiti Malaya.

Table 3: Stock of Publications

---

Bulletin No.	Sales 1988	Stock remaining
1	22	134
2	23	446
3	21	487
4	21	452
5	21	194
6	25	815
7	24	690
8	22	193
9	16	129
10	21	102
11	17	383
12	22	225
13	21	140
14	20	223
15	20	170
16	21	171
17	23	222
18	21	157
19 & 20	317	523
21	56	400
22	547*	453
Field Guide 1	22	162
Abstracts (Bulletin 6)	2	34
Stratigraphic Correlation	20	647

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\* inclusive of free copies distributed to Members

10. Kesimpulan

PGM setahun lagi telah dapat menjalankan aktiviti seperti yang telah dirancang dengan jayanya. Majlis ingin mengambil kesempatan untuk merakamkan ucapan terima kasih kepada organisasi/pertubuhan dan orang perseorangan yang telah memberikan kerjasama, moral dan kewangan, untuk menjayakan aktiviti Persatuan pada sidang 1988/1989 ini.

Dr. Ibrahim Komoo  
Setiausaha Kehormat

20 Mac 1989

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## HONORARY EDITOR'S REPORT

*Bulletin No. 22*, the Special Issue on Petroleum Geology Vol. III, was brought out in time for the Petroleum Geology Seminar '88. It contains 14 papers and heralds the first GSM publication to be fully produced by the Desktop Publishing (DTP) technique.

The GEOSEA V Volume II (*Bulletin No. 20*) will be out around the time for the Annual General Meeting 1989. Similarly the rest of the *Warta Geologi* will also be brought up-to-date around the same time. All the 1987 issues of *Warta Geologi* have, however, been published.

The Editor would like to thank all contributor's to the Society's publications, reviewers and proof-readers, for their painstaking contributions and excellent cooperation.

In addition the Society appreciates the valuable financial contributions by the many donors towards the Society's Publication Fund.

G.H. Teh

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HONORARY TREASURER'S REPORT  
1988/89

The Society's financial situation continues to strengthen confidently. This is reflected by the \$327,368.29 placed in fixed deposits. There was however a decrease in income from the fixed deposits due to the lower interest rates given and also that some of the long term fixed deposits have not reached maturity yet.

Petroleum Geology Seminar 1988 attracted very encouraging support from petroleum and petroleum services companies. Donation to this seminar increased by almost 50% compared to that of 1987.

The biggest increase in the expenditure this year compared to 1987 was due to the printing of Bulletin nos. 21 and 22 and the Warta Geologi which amounted to \$24,799.25.

On behalf of the Society, I would like to thank all donors and members who have supported the Society's activities for the year.

The Society wishes to express its profound gratitude to the Honorary Auditor, Mr. Peter Chew, for his excellent services in keeping track of the accounts of the Society.

Dr. Ahmad Tajuddin Hj. Ibrahim  
Honorary Treasurer

11th April, 1989

REPORT OF THE AUDITORS TO THE MEMBERS  
OF THE GEOLOGICAL SOCIETY OF MALAYSIA

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To,

The Members of the  
Geological Society of Malaysia

We have obtained all the information and explanations necessary for the purpose of this audit and in our opinion, the accounts for the year ended 31st December 1988 give a true and fair view of the state of the Society's financial affairs.



PETER CHEW & CO.  
CERTIFIED PUBLIC ACCOUNTANTS  
AUDITORS

Kuala Lumpur  
Date: 22nd February 1989

PERSATUAN GEOLOGI MALAYSIA  
(GEOLOGICAL SOCIETY OF MALAYSIA)

INCOME AND EXPENDITURE ACCOUNT FOR  
THE YEAR ENDED 31 DECEMBER 1988

INCOME	1987	1988	
-----	-----	-----	
Entrance fee	\$547.99	\$762.52	
Subscriptions	\$19,313.15	\$18,431.32	
Fixed deposits interest	\$18,006.28	\$12,152.80	
Sales of publications	\$16,868.59	\$14,567.38	
Petroleum Geology Seminar 1987	\$31,205.13	\$46,276.52	
Xerox		\$1,266.86	
Printing & Stationary	\$1,079.24	-	
AAPG Course		\$7,596.33	
	-----	-----	
	\$87,020.38		\$101,053.73
LESS EXPENDITURE			
-----			
Bank charges	\$333.93	\$417.30	
Depreciation on office equipment	\$3,026.00	\$3,355.00	
Honorarium	\$3,763.00	\$4,220.00	
Postage	\$1,612.69	\$2,106.62	
Printing & Stationary:			
Miscellaneous	\$207.95		
Newsletters	\$5,696.30		
Bulletin 21	\$19,895.00		
Bulletin 22	\$1,000.00	\$24,799.25	
Refreshments	\$261.00	\$383.80	
Subscription to professional bodies	\$100.00	\$169.21	
Sundry expenses	\$504.73	\$1,514.40	
Annual General Meeting	\$1,155.10	-	
Telephone expenses	\$407.44	\$423.15	
Speakers' account	\$1,874.04	\$1,357.85	
Annual Dinner	\$466.05	\$315.00	
Annual Conference 1988	\$1,888.25	\$2,678.16	
Xerox	\$252.36	-	
Institute Geology Malaysia		\$105.00	
Study Groups		\$119.05	
	-----	-----	
	\$15,644.59		\$41,963.79
EXCESS OF INCOME OVER EXPENDITURE	\$71,375.79		\$59,089.94
	=====		=====

PERSATUAN GEOLOGI MALAYSIA  
(GEOLOGICAL SOCIETY OF MALAYSIA)

BALANCE SHEET AS AT 31 DECEMBER 1988

FIXED ASSETS	1987	1988	
-----	----	----	
Office equipment	\$30,262.87	\$33,559.87	
Less: Accumulated depreciation	\$21,694.00	\$25,049.00	
	-----	-----	
	\$8,568.87		\$8,510.87

CURRENT ASSETS			
-----			
Fixed Deposits	\$275,817.80	\$327,368.29	
Expenses prepaid:			
Telephone deposit	\$300.00	\$300.00	
Cash at bank	\$91,253.03	\$82,155.84	
Petty cash	\$333.73	\$249.88	
Annual Conference 1988		\$699.00	
	-----	-----	
	\$367,704.56	\$410,773.01	
	-----		-----
	\$376,273.43		\$419,283.88
	=====		=====

Represented by:

CAPITAL FUND

Balance as at 1.1.88	\$241,612.88	\$312,988.67	
Add: excess of income over expenditure	\$71,375.79	\$59,089.94	
	-----	-----	
	\$312,988.67		\$372,078.61
Student Loan Fund	\$7,904.91		\$7,904.91
Petroleum Geology Seminar 1988	\$33,388.60		\$36,231.72
Young Geoscientist Award	\$3,068.64		\$3,068.64
AAPG Course	\$18,922.61		
	-----		-----
	\$376,273.43		\$419,283.88
	=====		=====



# BERITA - BERITA PERSATUAN (NEWS OF THE SOCIETY)

## POLISI MINERAL KEBANGSAAN - JAWATANKUASA KECIL TEKNIK (NATIONAL MINERAL POLICY - TECHNICAL SUBCOMMITTEE)

Majlis telah menubuhkan sebuah Jawatankuasa Kecil Teknik yang akan menasihati Jawatankuasa Induk Kebangsaan mengenai perkara Polisi Mineral Kebangsaan. Ahli-ahli Persatuan yang dilantik menganggoti Jawatankuasa Kecil Teknik ini adalah berikut:

Pengerusi: Choo Mun Keong  
Ahli-ahli: Chin Lik Suan  
Ahmad Said  
Yeap Ee Beng  
Wan Fuad  
K.K. Cheang  
Wong Yoke Fah

Jawatankuasa kecil ini akan diberikan masa 6 bulan untuk menyediakan laporan cadangan. Garis panduan kerja akan diberikan oleh Fateh Chand, Pengerusi J.K. Induk.

\*\*\*\*\*

## GEOSEA V PROCEEDINGS VOL. II CONTENTS

### SECTION 1: KEYNOTE PAPER

Global tectonics and resources  
W.S. Fyfe

### SECTION 2: PROGRESS REPORTS, REVIEW PAPERS

Recent advances in the knowledge of geology, energy resources and metallogenesis of Papua New Guinea since 1981  
R. Rogerson, A. Williamson & G. Francis

Recent advances in the knowledge of geology, mineral and energy resources of Singapore since 1981  
Ausafur Rahman & P.P. Wong

SECTION 3: GENERAL GEOLOGY, TECTONICS, GEOLOGICAL EVOLUTION

Geology and stratigraphy of Sri Racha area, Chonburi Province,  
Eastern Thailand

M. Taiyaqpt, P. Charusiri & W. Pongsapich

Geological framework of Bangladesh

Abdul Halim Quazi

Preliminary synthesis of the geology of Bangka Island, Bangka  
U Ko Ko

Geological evolution of the Indonesian Archipelago

H.M.S. Hartono & S. Tjokrosapoetro

Geology and tectonics of Arakan Yoma - a reappraisal

D.R. Nandy

Geologic transport directions in Peninsular Malaysia

H.D. Tjia

Cathaysia, Gondwanaland and the Palaeotethys in the evolution of  
continental Southeast Asia

Yuri G. Gatinsky & C.S. Hutchison

Formation of marginal seas by rifting of the Chinese and Australian  
continental margins and implications for Borneo region

C.S. Hutchison

Mesozoic and Cenozoic regional tectonics and metallogenesis in  
Mainland S.E. Asia

A.H.G. Mitchell

SECTION 4: STRATIGRAPHY, SEDIMENTOLOGY, PALAEOLOGY

Conodont biostratigraphic studies in Sumatra: Preliminary results

I. Metcalfe

On the evaporite deposits in Bamnet Narong area, northeastern  
Thailand

Sombat Yumuang, Chaiyudh Khantaprab & Malatee Taiyaqpt

New lights on human evolution in Southeast Asia

S. Sartono

Discovery of stone age tools from Tripura and its relevance to the  
Prehistory of Southeast Asia

N.R. Ramesh

The Kanchanaburi supergroup of Peninsular and Western Thailand

C.K. Burton

Late Paleozoic glacial marine facies in Southeast Asia and its  
implications

Peter H. Stauffer & Lee Chai Peng

SECTION 5: MINERALOGY, PETROLOGY, GEOCHEMISTRY, GEOCHRONOLOGY

Distribution of major and some trace elements of some granites from Bangka, Indonesia

J.M. Sitaggang

Age determination on the Kuantan granite and dolerite dykes

F.L. Yap

Tin-tungsten mineralized granite at Mae Chedi area, Wiang Pa Pao District, Chiang Rai Province, Northern Thailand

R. Hansawek, W. Pongsapich & S. Vedchakanchana

Metamorphic mineral assemblages of gneisses along Doi-Inthanan Highway, Northern Thailand

Panjawan Mongkoltip

Age, petrology and mineralisation associated with two Neogene intrusive types in the Eastern Highlands of Papua New Guinea

R. Rogerson & A. Williamson

Petrochemistry of gem-bearing basalt in Nong Bon area, Trat Province, Eastern Thailand

Theerapongs Thanasuthipitak & Thanawut Sirinawin

SECTION 6: ECONOMIC GEOLOGY, EXPLORATION

Metallogeny of Hoang Lien Son subduction zone

Le Thac Xinh

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

Tin/tungsten-bearing granites in South China and their metallogenetic relations

Xu Keqin & Zhu Jinchu

Geology and exploitation of kaolin deposits in the Bidor area, Peninsular Malaysia

P.C. Aw

Application of the Zeiss TGA 10 particle-size analyzer in the exploration of stanniferous placers

W.W.-S. Yim

Status of uranium exploration in Peninsular Malaysia

Chu Ling Heng & Fateh Chand

Coal potential and exploration in Sarawak

Chen Shick Pei

Gold investigation in the Sg. Luit Area, Mengapur Base Metal District, Pahang

W.S. Ong & A.K. Lee

Behaviour of tin and associated elements in a mountain stream,  
Bujang Melaka, Perak, Malaysia  
W.K. Fletcher, P.E. Dousset & Yusoff bin Ismail

SECTION 7: QUATERNARY GEOLOGY, GEOMORPHOLOGY, SOILS, CLAYS

Geomorphology and soils of the Padang Terap District, Kedah,  
Peninsular Malaysia

M. De Dapper & J. Debaveye

Quaternary stratigraphy and prospects for placer tin deposits in  
the Kuantan area, Pahang

T. Suntharalingam

Catchment geomorphology and its relationship with streamflow

- a case study of selected drainage basins in Peninsular Malaysia  
C.H. Peh

SECTION 8: ENGINEERING GEOLOGY, ENERGY, GEOPHYSICS, HYDROLOGY

Slope stability problems in part of western Singapore

John Pitts

Hydrogeological activities in Peninsular Malaysia and Sarawak

F.S. Chong and Denis N.K. Tan

A study of altimeter height control in a gravity survey around  
Kuala Pilah, Central Malaysia

C.A. Foss

The integration of remote sensing, terrain evaluation and  
engineering geology in Southeast Asia

T.E. Beaumont & T. Hunt

Engineering geology of Sungai Piah Hydro-Electric Project, Perak,  
Peninsular Malaysia

Saim Suratman

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## KEAHLIAN (MEMBERSHIP)

The following applications for membership were approved:

### Full Members

1. James M. Otta, Geological Survey, P.O. Box 11110, 50736 Kuala Lumpur.
2. Zulkiflee Mat Zain, 19-G Kg. Alor Melaka, 16600 Pulau Chondong, Kelantan.
3. Alan J. Burley, Geological Survey, P.O. Box 1015, 30820 Ipoh, Perak.

### Associate Member

1. Hamidan Mat Wajib, Kiso-Jiban Consultants, 115-1, Jalan Mega Mendung,  
Kompleks Bandar, Off Bt. 5, Jalan Kelang Lama, 58200 Kuala Lumpur.

Student Member

1. Wong Chin Khang, K3L-312, Kom AII, 43600 Universiti Kebangsaan Malaysia, Bangi.

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PERTUKARAN ALAMAT (CHANGE OF ADDRESS)

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

1. Home Energy Company Ltd., P.O. Box 666, Nedlands, W.A. 6009.
2. R.F. Ollington, 1 Dragon Close, Burnham-On-Crouch, Essex, CMO 8PW.
3. Howard Dewhurst, Petroalbion Pty. Ltd., 44 Tryon Road, Lindfield, N.S.W. 2070.
4. Lim Peng Siong, Jabatan Kajibumi Sabah, Jalan Penampang, Beg Berkunci 2042, 88999 Kota Kinabalu.
5. Bahagian Perolehan Perpustakaan, Universiti Teknologi Malaysia, Sekudai, Karung Berkunci 791, 80990 Johor Bahru, Johor.

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PERTAMBAHAN BARU PERPUSTAKAAN (NEW LIBRARY ADDITIONS)

The Society has received the following publications:

1. U.S. Geological Survey Professional Paper, 1988: 1241-B, 1336-C, 1408-D.
2. Proceedings of the Geological Society of China, vol. 31, no. 2, 1988, vol. 32, no. 1, 1989.
3. U.S. Geological Survey Circular, (1988) 1021, 1022, 1019.
4. Berliner geowissenschaftlichen abhandlungen, band 92-104, 1988.
5. Memoirs of the Ehime University, vol. XI, no. 1, 1988.
6. AGID News, no. 57, 1989.
7. Geophysical Research Bulletin vol. 26, no. 4, 1988.
8. National Geophysical Research Institute, Annual Report 1987-88.
9. Proceedings of the Sixteenth Session, (CCOP/SOPAC), Lae, Papua New Guinea, 12-21 Oct. 1987.
10. AAPG Explorer, Nov. 1988 & Feb. 1989.
11. Journal of the Faculty of Science, The University of Tokyo, vol. 21, no. 5, 1988.
12. The Science Reports of the Tohoku University, vol. 59, no. 2, 1988.
13. Bulletin of the Institution of Mining & Metallurgy, no. 986, 1989.
14. The University of Kansas Paleontological Contributions no. 121-123, 1988.
15. U.S.G.S. Bulletin no. (1988): 1832, 1790, 1776, 1750, 1757-D, 1819, 1841, 1862, 1870, 1818, 1839-A-D, 1820, 1857-A, 1762.
16. National Library, Singapore. Southeast Asia Collection, March 1989.

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## BERITA - BERITA LAIN ( OTHER NEWS )

### PROJECT WORKSHOP ON TIN-BEARING AND TIN-BARREN GRANITES, PRIMARY TIN MINERALIZATION

The above Workshop jointly organised by the Geological Survey of Malaysia and the Federal Institute for Geosciences and Natural Resources (BGR) of the Federal Republic of Germany in co-operation with the Department of Mineral Resources, Thailand; Directorate of Mineral Resources, Indonesia; and SEATRAD Centre, Ipoh was held from 6 to 10 March, 1989 at the Geological Survey of Malaysia, in Ipoh.

The findings of the studies carried out during the last five years (1984-1988) in Thailand, Malaysia and Indonesia were presented and discussed by thirty-four participants from the Federal Republic of Germany, Indonesia, Thailand, Malaysia, the United Kingdom and the United States of America. A total of 21 technical papers, including two keynote papers were presented during the Workshop. Based on mineral occurrences, rock types and tectonic setting, the Southeast Asian granitic (tin) belt was more accurately delineated.

The participants also took part in a field excursion from 11 to 15 March, 1989 to examine the various types of granitoids in the Kinta Valley, Cameron Highlands, Lumut area and in Pangkor Island.

Askury Abd. Kadir  
Geological Survey of Malaysia,  
Ipoh



## SHELL SPONSORS GEOLOGICAL STUDENTS' FIELDWORK

Sarawak Shell Berhad/Sabah Shell Petroleum Company (SSB/SSPC) presented a 15,760 ringgit cheque to Universiti Malaya Geology Department on 29 March 1989. The donation will enable eight final year geology students to undertake their field projects in Sabah and Sarawak.

The money will meet the costs of airfares, accommodation, allowances and other costs incurred by the students during their field work.

Shell Exploration Manager Dr. Peter J.C. Nagtegaal presented the cheque to the University's Dean of Science (Representative of Vice Chancellor) Prof. Madya Othman Mohd. Nor at the university's campus at Jalan Pantai.

Also present at the presentation ceremony were SSB/SSPC Head of Recruitment Jeli Bohari Biha, academic staff and undergraduates of Geology Department, Universiti Malaya.

Speaking before presenting the cheque, Dr. Nagtegaal said that the company provided similar sponsorships in the past.

"We are happy to be of help to the students. This is part of our corporate objectives of enhancing educational excellence amongst Malaysian undergraduates. Their project could also be useful for our operations," he said.

The students will carry out their assignments at various locations in Sabah and Sarawak. They will be involved in geological activities to study sedimentology, stratigraphy, structures, ophiolite zones and formations.

Shell will provide consultancy and logistical services while the university will carry out the day-to-day administration of the students' activities. This is Shell's biggest sponsorship to the university to date.

Thanking Shell for responding to the university's appeal for sponsorship, Encik Mohd. Ali Hassan, Acting Head of the Geology Department said Shell has a long association with the university.

"Shell has also responded to our request for vacation training for selected students from time to time. This rapport has benefitted the students and I earnestly hope that such cooperation will continue to prevail," he added.

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## ISTILAH: BEBERAPA MASALAH YANG HARUS DISELESAIKAN

Dalam setiap sidang, pakar-pakar bidang bertemu, berbincang dan berusaha menyepakati padanan istilah yang dikemukakan oleh ketiga-tiga negara anggota. Tentunya, selain kesepakatan yang sukar dicapai, beberapa aspek tataistilah yang belum jelas, turut menjadi penghalang kelancaran perbincangan. Kelompok Khusus Kimia dalam Sidang Majlis Bahasa Brunei Darussalam-Indonesia-Malaysia (Mabbim) ke-27 yang lalu misalnya, menemukan masalah transkripsi gugus konsonan awal *yt* seperti dalam *yterbium* dan *ytergranate*; sama ada ditranskripsikan menjadi *iterbium* dan *itergranat*, atau dikekalkan ejaan sebagaimana yang terdapat dalam bahasa sumber. Masalah ini sebenarnya menyangkut masalah transkripsi beberapa gugus konsonan awal yang lain seperti *yl* (*ylide*), *yn* (*ynamine*) dan *ys* (*ysopol*). Kelompok Khusus Fizik dalam Sidang Pakar Mabbim ke-2 pula, menemukan masalah kedudukan imbuhan asing, misalnya kedudukan 'eigen' dalam *eigenfunction* dan *eigenvalue*; sama ada dipadankan menjadi *fungsi eigen* dan *nilai eigen*, atau *eigenfungsi* dan *eigennilai*. Masalah ini juga menyangkut masalah kedudukan imbuhan-imbuhan asing yang lain, seperti *auto* (*auto-oxidation*); sama ada *autopengoksidaan*, *pengautooksidaan*, atau *pengoksidaan auto*, dan *micro* (*microdiffusion*); sama ada *mikropembauran*, *pemikrobauran* atau *pembauran mikro*. Begitu juga dengan penggunaan akhiran *ic*, dan sebagainya yang sehingga kini masih menjadi masalah utama.

Menyedari hal ini, Majlis telah menerima kemungkinan-kemungkinan berikut:

1. bentuk *-ic* yang terdapat dalam kata-kata nominal menjadi bentuk *-ik*  
contoh:  
epic - epik  
cosmetic - kosmetik
2. bentuk *-ical* dalam kata sifat menjadi *-is*  
contoh:  
economical - ekonomis  
practical - praktis
3. bentuk *-ic* yang terdapat dalam kata sifat menjadi *-ik*  
contoh:  
academic year - tahun akademik  
electronic device - perantis elektronik

Walau bagaimanapun, masalah ini masih menghantui pakar-pakar bidang. Justeru, kelompok Khusus Kimia cuba mencari penyelesaian sementara dengan mengkhususkan penggunaan akhiran *ic* ini; *ic* menjadi *ber* jika mendukung maksud *mempunyai* (mungkin *berasid/acidic catalyst*, neraca *beranalisis/analytical balance*), *ic* menjadi *ik* jika mendukung maksud bersifat (*alkohol aromatik/aromatic alcohol*, bendalir *klasik/classical fluid*), atau hanya mengambil kata dasar jika kata dasar telah dapat menerangkan makna istilah (*bom kalori/calorific bomb*, anion *sfera/spherical anion*).

Bagi mengelakkan masalah ini berterusan, Mabbim harus menyelesaikan masalah-masalah yang *tampak kecil tetapi besar*, *tampak remeh tetapi penting* dan *tampak mudah tetapi rumit* ini dengan segera, agar dapat membantu kerja-kerja peristilahan di negara-negara anggota.

Dipetek dari: °  
Berita Mabbim Mac, 1989

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## REPORT OF IGCP SECRETARY ON 1988

### IGCP Projects (Title, Project leader(s), duration of project)

- 165 Regional stratigraphic correlation of the Caribbean; J.L. Yparraguirre, 1983-1989.
- 196 Calibration of the Phanerozoic time scale; G.S. Odin, A.J. Hurford, 1983-1988 (OET 1989).
- 206 Comparison of major active faults; R.C. Bucknam, G.Y. Ding, Y.M. Zhang, 1983-1989.
- 210 Continental sediments in Africa; C.A. Kogbe, E. Klitzsch, J. Lang, 1983-1987 (OET 1988 & 1989).
- 211 Late Paleozoic of South America; A.J. Amos, S. Archangelsky, 1984-1989.
- 215 Proterozoic fold belts; R. Caby, 1984-1989.
- 216 Global biological events in Earth history; O.H. Walliser, 1984-1989.
- 217 Proterozoic geochemistry; K.C. Condie, 1985-1989.
- 219 Comparative lacustrine sedimentology through space and time; K. Kelts, 1984-1989.
- 224 Pre-Jurassic evolution of eastern Asia; K. Ichikawa, 1985-1989.
- 226 Correlation of manganese deposits to paleoenvironments; S. Roy, B.R. Bolton, 1986-1990.
- 227 Magmatism and evolution of extensional regions of the African plate; A.B. Kampunzu, R.T. Lubala, 1985-1989.
- 233 Terranes in the Circum-Atlantic Paleozoic orogens; J.D. Keppie, R.D. Dallmeyer, 1985-1989.
- 234 Precambrian volcano-sedimentary complexes in West Africa, relationship with those occurring elsewhere in the world; I. Yacé, 1989-1993.
- 235 Metamorphism and geodynamics; L.L. Perchuk, M. Brown, 1985-1989.
- 236 Precambrian events in the Gondwana fragments; D.J. Ellis, 1985-1989.
- 237 Floras of the Gondwanic continents; O. Rosler, 1986-1990.
- 239 Exploration of IGBADAT; J. Frizado, 1985-1989.
- 242 Cretaceous of Latin America; W. Volkheimer, J.A. Salfity, 1986-1990.
- 245 Non-marine Cretaceous correlations; N.J. Mateer, Chen Pei-ji, 1986-1990.
- 246 Pacific Neogene events in time and space; R. Tsuchi, 1986-1990.
- 247 Precambrian ore deposits related to tectonic styles; G. Gaal, S.C. Sarkar, 1986-1990.
- 249 Andean magmatism and its tectonic setting; M.A. Parada, C. Rapela, 1986-1990.
- 250 Regional crustal stability and geological hazards; Chen Qingxuan, 1986-1989.
- 252 The past and future evolution of deserts; N. Petit-maire, 1987-1991.
- 253 Termination of the Pleistocene; J. Lundqvist, 1989-1992.
- 254 Metalliferous black shales; J. Pasava, 1987-1991.
- 255 Kibaran metallogeny; W. Pohl, J. Klerkx, 1987-1991.
- 256 Ophiolite genesis and evolution of oceanic lithosphere; L. Beccaluva, 1988-1992.
- 257 Precambrian dyke swarms; H.S. Halls, 1987-1991.
- 259 International geological mapping; A.G. Darnley, 1988-1992.
- 260 Earth glacial record; M. Deynoux, 1987-1991.
- 261 Stromatolites; R.V. Burne, 1987-1991.

- 262 Tethyan Cretaceous correlation; G. Csaszar, H.A. Kollman, 1987-1991.
- 264 Remote sensing spectral properties; G.L. Raines, 1987-1991.
- 267 Paleozoic Terrains in the Circum-Pacific Orogens; M.J. Rickard and Guo Lingzhai, 1989-1993.
- 269 A global database in sedimentary petrology; N. Nishiwaki-Nakajima, 1988-1992.
- 270 Early Paleozoic events in Latin America for the Gondwana genesis; F.C. Acenolaza, O.L. Bordonaro, 1988-1992.
- 271 South American Paleozoic conodontology; M.A. Hunicken, 1988-1992.
- 272 Late Paleozoic and early Mesozoic Circum-pacific events; J.M. Dickins, Yong Zungi, 1988-1992.
- 273 The Archean rocks of the Kasai craton; B.T. Rumvegeri, D. Kapenda, 1988-1992.
- 274 Coastal evolution in the Quaternary; O. van de Plassche, 1988-1992.
- 275 Deep geology of the Baltic Shield; F.P. Mitrofanov and R. Gorbatshev, 1989-1993.
- 276 Paleozoic in the Tethys; D. Papanikolaou, 1988-1992.
- 277 Phanerozoic oolitic ironstones; F.B. van Houten, 1988-1990.
- 279 Terranes in Latin America; F. Herve, G.F. Toussaint, 1988-1992.
- 280 The oldest rocks on Earth; A. Kroner, B.M. Jahn, S. Moorbath, 1988-1992.
- 281 Quaternary Climates of South America; J. Orgollo B., 1989-1993.
- 282 Rare Metal Granitoids; Zhu Jinchu and P.J. Pollard, 1989-1993.
- 283 Evolution of the Paleo-Asian Ocean; Xiao Xuichang, He Guoqin, N.L. Dobretsov and R.G. Coleman, 1989-1993.
- 287 Tethyan Bauxites; I. Jurkovic and A. Mindszenty, 1989-1993.
- 291 Metamorphic Fluids and Mineral Deposits; W. Frank and W. Prohaska, 1989-1993.
- 294 Very Low Grade Metamorphism; R.E. Bevins, and D. Robinson, 1989-1993.
- 296 Quaternary in the Asia/Pacific Region; Jon L. Rau, 1989-1993.
- 297 Geocryology of the Americas; Arturo E. Corte, 1989-1993.

Altogether 55 projects (2 OET, 41 ongoing, 12 new ones).

In addition, the subprogramme 'Quaternary Geosciences and Human Survival' is operative since 1987.

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## CENTENARY OF INDIAN PETROLEUM INDUSTRY

Oil India Limited,  
17 Sansad Marg Allahabad Bank Building, Post Box No. 203, New Delhi-11001.  
Telephone: 310841, 310678. Telex: 031-62024 OILD IN CABLE: "OILDEL".

To celebrate A Hundred Years of Oil in India a National Seminar is being organised in New Delhi on January 24, 1990 as detailed below:

Subject: Petroleum Technology for the Future

- Topics:
- (i) Recent Trends in Petroleum Exploration, Data Processing and Interpretation (Computer Aided Exploration, Basin Modelling, etc.)
  - (ii) New Drilling and Workover Techniques (Deep and Horizontal Drilling, Measurement while Drilling, Downhole Tools, etc.)
  - (iii) Emerging Technology in Production and Enhanced Oil Recovery (Deep Water Production Systems, etc.).

There will be no fee for participation in the day-long Seminar including lunch, but all expenses incurred by delegates relating to international travel, hotel, taxis, etc. in India will need to be borne, or arranged for, by the delegates themselves.

### Programme

January 24, 1990: Seminar in New Delhi

January 25, 1990: A trip to Agra to see the Taj Mahal or a trip to Jaipur, Rajasthan.

January 26, 1990: An official invitation to see the Indian Republic Day Programme in New Delhi.

Contact: Chairman & Managing Director

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# GEOTROPIKA '90 SEMINAR KEBANGSAAN - MASALAH-MASALAH GEOTEKNIK SEMASA DI RANTAU TROPIKA

20 & 21hb Februari 1990

Universiti Teknologi Malaysia, Skudai, Johor Darul Ta'zim.

## Objektif

Memandangkan masalah-masalah geoteknik di rantau Tropika agak berbeza dengan lain-lain kawasan di dunia maka adalah perlu untuk mendapatkan kaedah-kaedah penyelesaian yang lebih khusus dan sesuai untuk masalah-masalah tersebut. Di samping itu masalah-masalah seumpama ini juga masih kurang di perbincangkan di peringkat kebangsaan mahupun antarabangsa. Dengan adanya seminar ini, bolehlah kita sama-sama bertukar-tukar pengalaman bagi mendapatkan kaedah-kaedah penyelesaian yang praktikal dan terkini untuk masalah-masalah geoteknik di rantau Tropika, khasnya di negara kita Malaysia.

## Pertanyaan

Sebarang pertanyaan dan surat menyurat berkenaan dengan seminar ini bolehlah berhubung terus kepada:-

Setiausaha,  
Seminar Geotropika '90,  
Fakulti Kejuruteraan Awam,  
Universiti Teknologi Malaysia,  
Karung Berkunci 791,  
80990 Johor Bahru.

(u/p: En. Mahadzer Mahmud)

Tel. : (07)-576160/1/2/3 samb. 3012/3081  
Telex : MA 30090  
Fax : (07) 572555  
Kawat : UNITEKMA

## Tarikh dan tempat

Seminar ini akan diadakan di Universiti Teknologi Malaysia, Skudai, Johor Darul Ta'zim pada 20 & 21 Februari 1990.

## Senarai awal kertas kerja (Tentative papers)

1. A Model Study of The Frictional Resistance of Pile in Sand. Zainab Mohd. & Ariffin Ismail (ITM)
2. Reinforced Earth - An Investigative Model Study. Zainab Mohd. & Ariffin Ismail (ITM)
3. Design and Construction of Embankments on Weak Subsoil. Werner G. Resk S (Polyfelt GESmbh)

4. Retaining Structures Using Nonwoven Geotextiles. Werner G. Resl S (Polyfelt GESmbH).
5. Development of Data Base for Marine Geotechnical Information Offshore Malaysia. Shahrul Faiz M.A. & Prof. M. Golan (Petronas PRI).
6. Hydraulic Conductivity Measurement of the Fine-Grained Soil in A Flexible Wall Permeater. Abu Bakar Hamidon *et al.* (UM).
7. Instrumentation of Reinforced Earth Structures. P.M.Dr. Faisal H.A. *et al.* (UM).
8. Laboratory Determination and Use of Simple Creep Parameters of Soils. Dr. Roslan Hashim *et al.* (UM).
9. Limiting Porosities of Some Malaysian Sands. Ideris Z. & Soezyawati (ITM).
10. Problems of Road Construction in Hilly Region. Hasanah Mohd. Nor (UTM).
11. The Effect of Palm Oil Sludge on The Strength Properties of Lateritic Soil. Dr. Walid Jaber (UTM).
12. Undisturbed Sampling of Residual Soils From Kajang Formation, Bangi, Malaysia. H. Todo *et al.* (Kiso-Jiban Consultants Co.).
13. Use of Reinforced Earth on Soft Ground in Taiping. Ir. Lee C.H. & Ir. Alex Wong (Reinforced Earth S.E.A. Pte. Ltd.)
14. Kekuatan Mampatan Tak Kekang dan Kekuatan-Tegangan Batu-batu Kapur Lembah Kinta. Mohd. Razip Selamat *et al.* (USM).
15. Kelakuan Bersalir Tanah Baki. Mohd. Raihan Taha (UKM).
16. Pemantapan Tanah Menggunakan Kaedah Elektro Osmosis. M. Zahry Othman & Faridah Shafii (UTM).
17. Pencirian Profil Luluhawa Granit Sepanjang Lebuhraya Ipoh-Changkat Jering, Perak Darul Redzuan. Ong Chu Yin *et al.* (UKM).
18. Penentuan Kestabilan Permukaan Lombong Dengan Kaedah Fotogrametri. Azmi Hassan & Mustofa Din (UTM) Kamaruddin Salim (MRI, Ipoh).

#### Penginapan

Pihak penganjur telah mendapatkan tempat penginapan di asrama UTM, Skudai. Kepada yang berminat untuk menginap di asrama UTM, bolehlah berhubung dengan pihak penganjur untuk maklumat-maklumat lanjut. Pengangkutan dari tempat penginapan ke Dewan Seminar akan disediakan.

#### Tarikh-tarikh penting

Penerimaan akhir kertas kerja	15hb Disember 1990
Penerimaan akhir borang pendaftaran	20hb Januari 1990

### Pendaftaran

Yuran pendaftaran bagi peserta adalah sebanyak M\$150.00. Pembentang kertas kerja akan diberikan potongan sebanyak 30% (M\$105.00). Peserta-peserta yang telah mendaftar akan mendapat kemudahan-kemudahan berikut:-

- Menghadirkan diri ke semua sesi pembentangan kertas kerja.
- Satu set kertas-kertas kerja seminar bercetak dan beg seminar.
- Makan tengahari dan jamuan ringan sepanjang seminar.

Kepada yang berminat untuk menghadiri seminar ini, sila penuhi borang pendaftaran yang dilampirkan. Borang yang telah siap diisi berserta dengan bayaran hendaklah sampai kepada setiausaha seminar sebelum 20hb Januari 1990. Cek/Kiriman Wang/Bank Deraf hendaklah dibuat atas nama Bendahari Universiti Teknologi Malaysia. Maklumat-maklumat lanjut akan diberikan setelah penerimaan borang pendaftaran.

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## REGIONAL SEMINAR ON MANAGEMENT AND UTILISATION OF AGRICULTURAL AND INDUSTRIAL WASTES

21-23 March 1990

Sponsored by: Institute for Advanced Studies, Universiti Malaya and  
UNESCO Regional Office for Science and Technology for  
Southeast Asia.

### Background

In furthering the efforts of the South East Asia and Pacific Regional Wastes network, the Institute for Advanced Studies of the Universiti Malaya is hosting a seminar on the Management and Utilisation of Agricultural and Industrial Wastes.

Malaysia as a major producer of palm oil and rubber, has been recognised internationally for the research and development work done on the management and utilization of agricultural wastes. With rapid industrialisation in the country, problems pertaining to the management of industrial and municipal wastes have led to research and development work on utilisation, treatment and control of industrial solid wastes, effluents and emissions.

The other countries of the region face similar problems. The seminar is intended to bring together researchers, managers and technical personnel to discuss issues related to waste management and utilization.

### Objectives

The Seminar aims to bring together researchers and managers working on the management and utilisation of agricultural, industrial and municipal wastes. It will give participants the opportunity to present papers/posters on their activities in the area and provide a forum for the exchange of information.

An exhibition will be mounted involving both scientists and industry on processes, methods, equipment, instruments and products on the subject.

Seminar topics

The Seminar will cover the following broad areas:-

- (a) Policies and Management
- (b) Process technology-covering fermentation and other biological processes, membrane and other physical/mechanical processes, chemical processes.
- (c) Utilisation-covering food, feed, fuel, fertilisers, chemicals and others.

Call for papers

A group of invited speakers will present keynote and guest addresses. Contributions from other authors are welcomed.

Submission of abstracts (300 words):	30 September 1989.
Notification of acceptance of papers:	31 October 1989.
Submission of full papers:	31 December 1989.

Language

The language of the Seminar is English.

Registration

Registration fee before 31 January 1990:	MR200/-	(US\$80/-)
Registration fee after 31 January 1990:	MR230/-	(US\$92/-)
Registration fee for students:	MR 70/-	(US\$28/-)

All payment should be made payable to the Bursar, Universiti Malaya.

Registration fee covers seminar materials, tea and lunches and is not refundable.

Further information

For further information please contact:

1. Chairman,  
Organising Committee,  
Regional Seminar on the Management and Utilisation of  
Agricultural and Industrial Wastes,  
Institute for Advanced Studies,  
Universiti Malaya,  
59100 Kuala Lumpur,  
Malaysia.

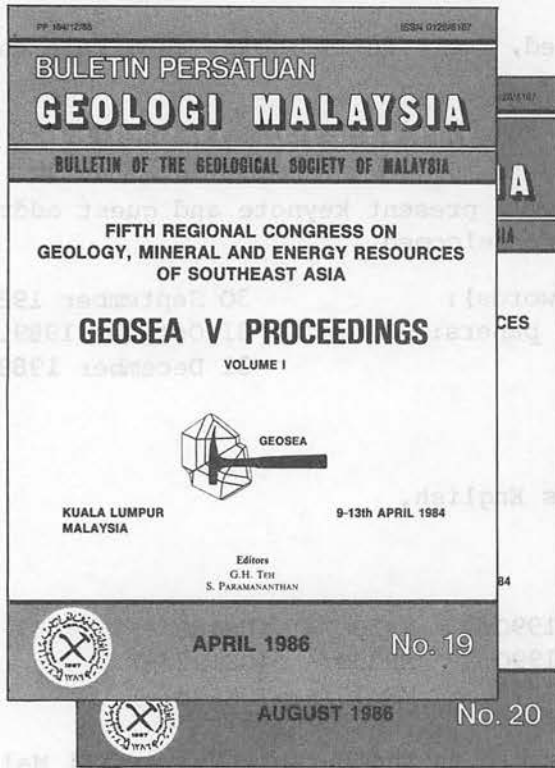
Tel: 03-7577000  
Telex UNIMAL MA 39845  
Fax: 03-7573661

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GEOLOGICAL SOCIETY OF MALAYSIA

# GEOSEA V PROCEEDINGS

VOLUMES I & II  
(Bulletin Geological Society of Malaysia Nos. 19 & 20)



Some of the articles appearing include:-

Massive sulphide deposits and their possible significance to other ores — R.W. Hutchinson; Palaeogeographic development of west Sarawak — Denis N.K. Tan; Geological evolution of the Southern Philippines — C.K. Burton; Southeast Asia as a part of an early Palaeozoic Australian Gondwanaland — C. Burrett & B. Stait; Tertiary basins of S.E. Asia — their disparate tectonic origins and eustatic stratigraphical similarities — C.S. Hutchison; Late Palaeozoic palaeogeography of Southeast Asia: some stratigraphical, palaeontological and palaeomagnetic constraints — I. Metcalf; The REE geochemistry of Lingshan W-Sn-bearing granites and their applications to petrogenesis of the granites — Yuan Zhongxing *et al.*; Chromite deposits of Papua New Guinea — P.M. Afenya; Recent advances in exploration modelling for tin deposits and their application to the SE Asian environment — R.G. Taylor & P.J. Pollard; Some thoughts on the development of the alluvial tinfields of the Malay-Thai Peninsula — D. Taylor; Base metal exploration in Sabah — David T.C. Lee & H.S. Weber; The nature and potential of gold mineralisation in Kelantan — L.H. Chu & D. Santokh Singh; Quaternary deposits of Thailand — P. Dheeradolok & W. Kaewyana; Soil landscapes in Peninsular Malaysia — S. Paramananthan & S. Zauyah; Aspects of the geochemistry of Malaysian cassiterites — W. Fuad Hassan; Geological evolution of the Indonesian Archipelago — H.M.S. Hartono & S. Tjokrosapoetro; The nature, distribution and genesis of certain authigenic minerals in the stanniferous alluvial deposits of S.E. Asia — K.F.G. Hosking; Global tectonics and resources — W.S. Fyfe; Tin/tungsten-bearing granites in S. China and their metallogenic relations — Xu Keqin & Zhu Jinchu; Hydrogeological activities in Peninsular Malaysia and Sarawak — F.S. Chong & Denis N.K. Tan; Status of uranium exploration in Peninsular Malaysia — L.H. Chu & F. Chand; Directions of geologic transport in Peninsular Malaysia — H.D. Tjia; Cathaysia, Gondwanaland and the Palaeotethys in the evolution of Continental S.E. Asia — Y.G. Gatinsky & C.S. Hutchison; Marginal sea formation by rifting of the Chinese and Australian Continental Margins and implications for Borneo — C.S. Hutchison; Mesozoic and Cenozoic regional tectonics and metallogenesis in Mainland S.E. Asia — A.H.G. Mitchell; Coal potential and exploration in Sarawak — S.P. Chen; The succession of vertebrate faunas in the continental Mesozoic of Thailand — E. Buffetaut & R. Ingavat; Regional controls of hydrothermal ore localization in northern Thailand — P. Asnachinda & S. Chantaramee; Late Palaeozoic glacial marine facies in S.E. Asia and its implications — P.H. Stauffer & C.P. Lee; Cretaceous melange in West Kalimantan and its tectonic implications — P.R. Williams *et al.*; Recent advances in the knowledge of geology, mineral and energy resources of Singapore since 1981 — Anasfur Rahman & P.P. Wong; The integration of remote sensing, terrain evaluation and engineering geology in Southeast Asia — Beaumont, T.E. & Hunt, T.; Recent advances in the knowledge of geology and mineral resources of Vietnam since 1981 — Le Thai Xinh & Nguyen Xuan An.

This 2-volume GEOSEA V PROCEEDINGS of about 500 pages each contains 95 articles presented at the Fifth Regional Congress on Geology, Mineral and Energy Resources of Southeast Asia held in Kuala Lumpur, April 1984.

To: Hon. Assist. Secretary  
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## KURSUS-KURSUS LATIHAN & BENGKEL-BENGKEL (TRAINING COURSES & WORKSHOPS)

### 1989

September - October, 1989

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, Rechbauerstrasse 12, A-8010 Graz, Austria.

September - October, 1989

REMOTE SENSING AND DIGITAL IMAGE ANALYSIS (Sioux Falls, South Dakota, U.S.A.). U.S. Geological Survey training course for non-U.S. natural scientists on manual interpretation and digital analysis of remotely sensed data. For Information: Training Section, Office of International Geology, U.S. Geological Survey, 917 National Center, Reston, VA 20092, U.S.A.

September 1989 - July 1990

PETROLEUM EXPLORATION GEOLOGY (Headington, Oxford, U.K.). An annual diploma course designed by Oxford Polytechnic to prepare post-graduate geologists for the duties of geologists in oil exploration teams. For Information: M. Hoggins, Dept. of Geology and Physical Sciences, Oxford Polytechnic, Headington, Oxford OX3 0BP, U.K.

September 1989 - August 1990

MINERAL EXPLORATION AND EXPLORATION GEOPHYSICS (Delft, The Netherlands). Annual diploma courses organized by the International Institute for Aerospace Survey and Earth Sciences with Unesco. Language: English. For Information: ITC Student Registration Office (ME), P.O. Box 6, 7500 AA Enschede, The Netherlands.

October 1989 - August 1990

HYDROLOGY AND HYDROGEOLOGY (Belgium). Language: French. For Information: Professeur Dr. ir. A. Monjoie, Directeur des Laboratoires de Géologie de l'Ingénieur, d'Hydrogéologie et de Prospection géophysique - Batiment B19, Faculté des Sciences Appliquées, Université de Liège - SART TILMAN, B-4000 Liège, Belgium.

October 1989 - July 1990

ENGINEERING HYDROLOGY (Galway, Ireland). Annual diploma and post-graduate courses organized by the Department of Engineering Hydrology, University College, Galway, Ireland. Sponsored by Unesco-IHP and the World Meteorological Organization. For Information: Prof. J.E. Nash, Department of Engineering Hydrology, University College Galway, Galway, Ireland.

October 1989 - September 1991

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. Language: English. For Information: Prof. Dr. R. Paepe, Director of IFAQ, Kwartairgeologie, Vrije Universiteit Brussel, Pleinlaan 2, B-1050, Brussels, Belgium.

November 1989 - December 1989

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

### 1990

January - July, 1990

GENERAL AND APPLIED HYDROLOGY (Madrid, Spain). An annual, 6-month course sponsored by Unesco. Language: Spanish. For Information: Centro de Estudios y Experimentación de Obras Públicas y Urbanismo, Alfonso XII, Num. 3, Madrid 7, Spain.

January - July, 1990

GROUNDWATER HYDROLOGY (Barcelona, Spain). An annual 6-month, post-graduate course sponsored by Unesco. Language: Spanish. For Information: Curso Internacional de Hidrología Subterránea, Calle Beethoven, 15, 3<sup>o</sup>, 08021 Barcelona, Spain.

February 1990

METALLOGENY (Quito, Ecuador). Annual 3-week training course for Latin Americans organized by Central University of Quito, the Autonomous University of Madrid (Spain), and Unesco. Language: Spanish. For Information: Director, Curso Internacional de Metalogenia, Escuela de Geología, Minas y Petróleos, División de Post-grado, Universidad Central, Apartado Postal 8779, Quito, Ecuador.

February - March 1990

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

February - July, 1990

HYDROLOGY (Budapest, Hungary). An annual six-month, post-graduate course organized by the Research Centre for Water Resources Development (Budapest) and sponsored by Unesco. Language: English. For Information: VITUKI International Post-Graduate Course on Hydrology, 11-1453 Budapest, Pf. 227 Hungary.

February - August, 1990

HYDROLOGY (Padova, Italy). An annual, 6-month, postgraduate course sponsored by Unesco. Language: English. For Information: Professor A. Ghetti, Centro Internazionale di Idrologia "Dino Tonini," via sette Chiese, 35043 Monselice, Italy.

February - November, 1990

PHOTOINTERPRETATION APPLIED TO GEOLOGY AND GEOTECHNICS (Bogota, Colombia). Forty-week course organized by the Government of Colombia, the Interamerican Centre of Photointerpretation (CIAF), International Institute for Aerial Survey and Earth Sciences (The Netherlands) and Unesco. Language: Spanish. For Information: Academic Secretariat of the CIAF, Apartado Aereo 53754, Bogota 2, Colombia.

March - April, 1990

MINERAL EXPLORATION (Paris, France). A 4-week annual course organized by the Ecole Nationale Supérieure des Mines and sponsored by Unesco. Language: French. For Information: Prof. K.D. Khan, Ecole des Mines, 35 rue St. Honoré, 77305 Fontainebleau Cedex, France.

March - November, 1990

PHOTOINTERPRETATION APPLIED TO GEOLOGY AND GEOTECHNICS (Bogota, Colombia). Annual post-graduate diploma courses organized by the Government of Colombia, Centro Interamericano de Fotointerpretacion, International Institute for Aerial Survey and Earth Sciences and Unesco. Language: Spanish. For Information: Academic Secretariat of the CIAF, Apartado Aereo 53754, Bogota 2, Colombia.

June - August, 1990.

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 Center, Reston, VA 22092, U.S.A.

July - August, 1990

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: Departamento de Geologia y Geoquímica, Facultad de Ciencias, Universidad Autonoma de Madrid, Canto Blanco, Madrid 34, Spain.

October 1990 - September 1992

GEOLOGICAL EXPLORATION METHODS (Nottingham, U.K.). Two-year MSc course starting every other year with emphasis on applied methodology, data acquisition and interpretations). For Information: Dr. M.A. Lovell, Department of Geology, University of Nottingham NG7 2RD, U.K.

December 1990 - January 1991

METHODS AND TECHNIQUES IN EXPLORATION GEOPHYSICS (Hyderabad, India). Diploma course organized every second year 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.

#### 1991

February - March, 1991

STRUCTURAL GEOLOGY (Dehra Dun, India). A six weeks training course organized every second year by the Wadia Institute of Himalayan Geology, sponsored by the Government of India and Unesco. Language: English. For Information: The Organizer of the Regional Training Course in Structural Geology, Wadia Institute of Himalayan Geology, 33 General Mahadev Singh Road, Dehra Dun 24 8001, India.

May - November 1991

GENERAL HYDROLOGY with emphasis on groundwater (Buenos Aires, Argentina). A six-month post-graduate diploma course organized every other year and sponsored by Unesco. Language: Spanish. For Information: Comité Nacional para el Programa Hidrológico Internacional de la Republica Argentina, Av. 9 de Julio 1925 - 15<sup>o</sup> piso, 1332 Buenos Aires, Argentina.

August - October, 1991

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: GEOCHIM Unesco CSSR, Geological Survey of Prague, Malostranské nám. 19, 11821 Prague 1, Czechoslovakia.

## KALENDAR (CALENDAR)

1989

September 14-15, 1989

PETROLEUM MIGRATION (Meeting), London, U.K. (W. England, Exploration and Production Division, BP Research International, Chertsey Road, Sunbury-on-Thames, Middlesex TW16 7LN, U.K.).

September 14-19, 1989

EDITING INTO THE 90's (Joint CBE, EASE, AESE Meeting), Ottawa, Canada. (Conference Office, National Research Council of Canada, Ottawa, Ontario, Canada K1A 0R6).

September 17-24, 1989

AGGLUTINATED FORAMINIFERA (3rd International Workshop), Tübingen, F.R.G. (Dr. C.H. Leben, Geologisches Institut der Universität, Sigwartstrasse 10, D-7400 Tübingen, Federal Republic of Germany).

September 17-24, 1989

ENERGY (14th World Congress), Montreal, Quebec, Canada. (World Energy Conf., 34th St. James's Street, London SW1A 1HD, U.K.).

September 18-22, 1989

ORGANIC GEOCHEMISTRY (14th International Congress). Paris, France. (Ms. Yolande Rondot, Institut Francais du Petrole, B.P. 311, 92506 Rueil-Malmaison Cedex, France).

September 24-30, 1989

CARBONIFEROUS STRATIGRAPHY (IUGS Subcommittee Biennial Field and General Meeting), Utah/Nevada, U.S.A. (Walter L. Manger, Department of Geology, University of Arkansas, Fayetteville, AK 72701, U.S.A.).

September 25-28, 1989

MINING LATIN AMERICA (IMM Conference and Exhibition), Rio de Janeiro, Brazil. (The Institution of Mining and Metallurgy, 44 Portland Place, London W1N 4BR, U.K.).

September 28-30, 1989

GEOENGINEERING (International Congress), Turin, Italy. (Suolosottosuolo, Associazione Mineraria Subalpina, c/o Dipartimento di Georisorse e Territorio del Politecnico, corso Duca degli Abruzzi 24, I-10129 Torino, Italy).

October 1989

MINERAL EXPLORATION PROGRAMMES '89 (International Symposium), Madrid, Spain. (Derek Morris, MEP '89, c/o International Mining, 4 Brandon Road, London N7 9TR, U.K.).

October 1989

GEODESY AND SEISMOLOGY: DEFORMATION AND PROGNOSIS (Meeting), Erevan, Armenian S.S.R., U.S.S.R. (V.A. Sidorov, Soviet Geophysical Committee, Molodezhnaya 3, Moscow 117 296, U.S.S.R.).

October 1-4, 1989

SINKHOLES AND THE ENGINEERING AND ENVIRONMENTAL IMPACTS OF KARST (3rd Multidisciplinary Conference), St. Petersburg, Florida, U.S.A. (Conference, Florida Sinkhole Research Institute, University of Central Florida, Orlando, FL 32816, U.S.A.).

October 1-6, 1989

GEOCHEMICAL EXPLORATION (13th International Symposium) and BRAZILIAN GEOCHEMICAL CONGRESS (2nd), Rio de Janeiro, Brazil. Co-sponsored by AEG. Languages: Symposium - English; Congress - Portuguese. (D.C. Bruni, 13th IGES, P.O. Box 2432, 20010, Rio de Janeiro, R.J., Brazil).

October 2-4, 1989

FLUVIAL SEDIMENTOLOGY (4th International Conference), Barcelona, Spain. (C. Puigdefàbregas, Servei Geologic de Catalunya, carrer Diputacio 92, 08015 Barcelona, Spain).

October 2-5, 1989

BOREHOLE GEOPHYSICS FOR MINERALS, GEOTECHNICAL, AND GROUNDWATER APPLICATIONS (3rd International Symposium), Las Vegas, Nevada. (Mark Mathews, c/o Las Alamos National Laboratory, P.O. Box 1663, MS C335, Las Alamos, NM 87545, U.S.A.).

October 2-5, 1989

GROUNDWATER MANAGEMENT: Quantity and Quality (International Symposium), Benidorm, Alicante, Spain. Language: English. (Secretary General, IAHS, Institute of Hydrology, Wallingford, Oxon, OX10 8BB, U.K.).

October 2-6, 1989

REMOTE SENSING FOR EXPLORATION GEOLOGY (7th Thematic Conference), Calgary, Alberta, Canada. (Robert H. Rogers, ERIM, P.O. Box 8618, Ann Arbor, MI 48107-8618, U.S.A.).

October 13-14, 1989

MINERAL-RESOURCE ASSESSMENT (18th Geochautauqua), Newark, Delaware. Co-sponsored by IAMG. (J.H. Schuenemeyer, Dept. Mathematical Sciences, University of Delaware, Newark, DE 19716, U.S.A.).

October 13-15, 1989

INSTITUTE FOR TERTIARY-QUATERNARY STUDIES (Meeting), Fort Collins, Colorado. (Frank G. Etheridge, Department of Earth Resources, Colorado State University, Fort Collins, CO 80523, U.S.A.).

October 16-20, 1989

MATHEMATICAL METHODS IN GEOLOGY (IAMG Symposium), Pribram, Czechoslovakia. Sekretariat symposia, Hornicka Pribram ve Vede a Technice, post. schr. 41,261 02 Pribram, Czechoslovakia).

October 16-27, 1989

REGIONAL MINERAL RESOURCE ASSESSMENTS (Workshop for international participants), Reston, Virginia. (U.S. Geological Survey, Office of International Geology, 917 National Center, Reston, VA 22092, U.S.A.).

October 18-20, 1989

STRUCTURAL AND TECTONIC MODELLING AND ITS APPLICATION TO PETROLEUM GEOLOGY (Meeting), Stavanger, Norway. (Norwegian Petroleum Society, P.O. Box 1897 - Vika, 0124 Oslo, Norway).

October 22-25, 1989

WORLD GOLD '89 (Meeting), Reno, Nevada, U.S.A. (Society of Mining Engineers, P.O. Box 625002, Littleton, CO 80162, U.S.A.),

October 23-27, 1989

COAL SCIENCE (International Conference), Tokyo, Japan. Language: English. (Secretariat for ICCS, Coal Conversion Department, New Energy Development Organization (NEDO), Sunshine 60 Building, 1-1, Higashi-Ikebukuro 3-chome, Toshima-ku, Tokyo 170, Japan).

November 10-13, 1989

RARE METAL GRANITOIDS (IGCP-282 Meeting), Nanjing, P.R. China. (Prof. Zhu Jinchu, Department of Earth Science, Nanjing University, Nanjing 210008, P.R. China).

November 13-15, 1989

MINERAL EXPLORATION PROGRAMME '89 (Symposium), Madrid, Spain. (MEP '89, 4 Brandon Road, London N7 9TR, England, U.K.).

November 14-16, 1989

ASEAN COUNCIL ON PETROLEUM (Meeting), Singapore. (Salk International, 2950 Airway Avenue, Suite D-1, Costa Mesa, CA 92626, U.S.A.).

November 14-16, 1989

WORLD WATER (Conference), Wembley, London, U.K. (World Water '89, Institution of Civil Engineers, 1-7 Great George Street, Westminster, London SW1P 3AA, U.K.).

November 20-21, 1989

MODERN EXPLORATION TECHNIQUES (Symposium), Regina, Saskatchewan. (Bob Troyer, Saskatchewan Geological Survey, P.O. Box 234, Regina, Sask., Canada S4P 2Z6).

November 23-24, 1989

MESOZOIC EUSTASY RECORD ON WESTERN TETHYAN MARGINS (Meeting), Lyon, France. (Prof. P. Cotillon and Dr. S. Ferry, Université Claude Bernard, Institut TOAEE, Centre des Sciences de la Terre, 29-43 Blvd. du 11 novembre, F-69622 Villeurbanne Cédex, France).

December 4-5, 1989

PETROLEUM GEOLOGY SEMINAR '89, Kuala Lumpur, Malaysia (c/o Organizing Chairman, Geological Society of Malaysia, Geology Department, University of Malaya, 59100 Kuala Lumpur, Malaysia).

December 18-20, 1989

GEO THERMOMETRY AND GEOBAROMETRY (Session in Conference, The Stability of Minerals), London, U.K. (Dr. B.W.D. Yardley, Department of Earth Sciences, University of Leeds, Leeds LS2 9JT, U.K.).

## 1990

January 29-30, 1990

ADVANCES IN RESERVOIR GEOLOGY (Meeting), London, U.K. (Dr. Ashton, Badley, Ashton & Associates Ltd., Winceby House, Winceby, Horncastle, Lincs. LN9 6PB, U.K.).

February 4-9, 1990

GONDWANA, TERRANES AND RESOURCES (10th Australian Geological Convention), Hobart, Australia. (10th AGC, c/o P.O. Box 56, Rosny Park, Tasmania TAS 7018, Australia).

February 5-9, 1990

BRACHIOPODS (2nd International Congress), Dunedin, New Zealand. (J.D. Campbell, Geology Department, University of Otago, P.O. Box 56, Dunedin, New Zealand).

February 12-14, 1990

PNG PETROLEUM CONVENTION (Conference), Port Moresby, Papua New Guinea. (Mr. M. McWalter, First PNG Petroleum Convention, c/o PNG Chamber of Mines and Petroleum, P.O. Box 7059, Boroko, Port Moresby, Papua New Guinea).

March/April 1990

ENGINEERING GEOLOGY PROBLEMS IN RESIDUAL SOILS (International Symposium), Abidjan-Yamassoukro, Ivory Coast. Sponsored by IAEG. English and French. (G. Cougny, Laboratoire du Bâtiment et des Travaux Publics, O4BP3 Abidjan O4, Ivory Coast).

March 14-17, 1990

ASIA/PACIFIC MINING (2nd Conference), Jakarta, Indonesia. (Asia/Pacific Mining Conference Secretariat, c/o Cahners Exposition Group (S) Pte. Ltd., 1 Maritime Square, #13-02 World Trade Centre, Singapore 0409).

April 4-6, 1990

THRUST TECTONICS (International Conference), Egham, U.K. (Dr. K. McClay, Department of Geology, Royal Holloway and Bedford New College, Egham, Surrey TW20 OEX, U.K.).

May 7-8, 1990

ANNUAL CONFERENCE '90, GEOLOGICAL SOCIETY OF MALAYSIA, Ipoh (Organising Chairman, Geological Society of Malaysia, c/o Geology Department, University of Malaya, 59100 Kuala Lumpur, Malaysia).

May 6-12, 1990

PACIFIC RIM 90 (International Congress), Gold Coast, Queensland, Australia. (The AusIMM-Pacrim 90, P.O. Box 731, Toowong, Qld 4066, Australia).

May 14-18, 1990

WORLD MINING (14th Congress), Beijing, P.R. China. (14th World Mining Congress, 54 Sanlihe Road, Beijing, P.R.C.).

June 1990

GEOCHEMISTRY OF WEATHERING (2nd International Symposium), Aix-en-Provence, France. Sponsored by IAGC. (B. Hitchon, Alberta Research Council, Box 8330, Station F. Edmonton, Alberta, Canada T6H 5X2).

June 2-6, 1990

GEOANALYSIS 90 (International Symposium), Muskoka area, Canada. (Dr. A. Vander Voet, Ontario Geological Survey, 77 Grenville Street, Toronto, Ontario, Canada M7A 1W4).

June 28 - July 3, 1990

INTERNATIONAL MINERALOGICAL ASSOCIATION (15th General Assembly), Beijing, P.R. China. (Prof. Huang Yunhui, c/o Institute of Mineral Deposits, Chinese Academy of Geological Sciences, Baiwan-zhuang Road 26, Fuchengmenwai, Beijing, P.R. China).

July 1990

CAMBRIAN SYSTEM (3rd International Symposium), Novosibirsk, U.S.S.R. (Dr. J.W. Cowie, Department of Geology, University of Bristol, Queen's Building, University Walk, Bristol BS8 1RJ, U.K.).

July 2-6, 1990

GEOLOGY AND MINERAL RESOURCES OF CONTINENTAL MARGINS: ANCIENT AND MODERN (23rd Earth Science Conference, Geological Society of South Africa), Cape Town, South Africa. (Dr. P.G. Gresse, Geological Survey, P.O. Box 1739, Bellville, 7530, South Africa).

July 2-6, 1990

MINERALS, MATERIALS & INDUSTRY (IMM 14th Congress), Edinburgh, Scotland, U.K. (Secretary, Institution of Mining and Metallurgy, 44 Portland Place, London W1N 4BR, U.K.).

July 2-6, 1990

BASEMENT TECTONICS (9th International Conference), Canberra, Australia. (91BT ACTS, GPO Box 2200, Canberra, ACT 2601, Australia).

July 9-13, 1990

GROUNDWATER IN LARGE SEDIMENTARY BASINS (International Conference), Perth, Western Australia. (Groundwater Conference, University of Western Australia, Nedlands, Western Australia 6009).

July 19-28, 1990

INTERNATIONAL UNION OF CRYSTALLOGRAPHY (15th Congress), Bordeaux, France. (Stefan S. Hafner, University of Marburg, 3550 Marburg, Federal Republic of Germany).

July 29 - August 3, 1990

CIRCUM-PACIFIC ENERGY AND MINERALS RESOURCES (Conference), Honolulu, Hawaii. (Mary Stewart, Circum-Pacific Council on Energy and Mineral Resources, 5100 Westheimer Road, Houston TX 77056, U.S.A.).

August 6-10, 1990

INTERNATIONAL ASSOCIATION OF ENGINEERING GEOLOGY (6th International Congress), Amsterdam, The Netherlands. English and French. (Dr. L. Primel, L.C.P.C., 58 Blvd. Lefebvre, 75732 Paris Cedex 15, France).

August 12-18, 1990

INTERNATIONAL ASSOCIATION ON THE GENESIS OF ORE DEPOSITS (8th Symposium), Ottawa, Canada. (Dr. L.M. Cumming, 601 Booth Street, Ottawa, Canada K1A 0E8).

August 12-18, 1990

MINERAL DEPOSIT MODELING (International Conference), Ottawa, Canada. Held with 8th IAGOD Symposium. Sponsored by IUGS and Unesco. (R.V. Kirkham, Geological Survey of Canada, 601 Booth Street, Ottawa, Ontario, Canada K1A 0E8).

August 25-31, 1990

GEOCHEMICAL EXPLORATION (14th International Symposium), Prague, Czechoslovakia. (Geological Survey/UUG, Symposium on Geochemical Prospecting, Malcstranske nam. 19, 118 21 Prague 1, Czechoslovakia).

August 26 - September 1, 1990

SEDIMENTOLOGY (13th International IAS Congress), Nottingham, U.K. (I.N. McCave, Dept. Earth Sciences, Cambridge University, Downing Street, Cambridge CB2 3EQ, U.K.).

August 26 - September 8, 1990

LATIN AMERICAN CONODONT SYMPOSIUM, La Paz, Bolivia and San Juan, Argentina. (M. Hunicken, Academia Nacional de Ciencias, Casilla Correo 36, 5000 Cordoba, Argentina).

September - October, 1990

IPA GRAPTOLITE WORKING GROUP (4th International Conference), Nanjing, P.R. China. (Chen Xu, Nanjing Institute of Geology and Palaeontology, Academia Sinica, Chi-Ming-Ssu, Nanjing, P.R. China).

September 17-18, 1990

GEOCHEMISTRY OF CLAY-PORE FLUID INTERACTIONS (meeting), London, U.K. (D. Savage, Fluid Processes Research Group, British Geological Survey, Keyworth, Notts. NG12 5GG, U.K.).

September 17-21, 1990

ARCHEAN (Symposium), Perth, Australia. (D.I. Groves, Department of Geology, University of Western Australia, Nedlands, Western Australia 6009).

September 18-20, 1990

HYDROGEOLOGY: Parameter Identification and Estimation for Aquifer and Reservoir Characterization (5th Canadian-American Conference), Calgary, Alberta. (S. Bachu, Alberta Research Council, Box 8330, Station F, Edmonton, Alberta, Canada T6H 5X2).

September 24-29, 1990

GECHRONOLOGY, COSMOCHRONOLOGY AND ISOTOPE GEOLOGY (7th International Conference), Canberra, Australia. (Organizing Committee, ICOG 7, Research School of Earth Science, Australian National University, GPO Box 4, Canberra, ACT 2601, Australia).

September 28 - October 2, 1990

BENTHIC FORAMINIFERA (4th International Symposium), Sendai, Japan. (Dr. Yokichi Takayanagi, Institute of Geology and Paleontology, Tohoku University, Sendai, 980 Japan).

### 1991

March 1991

ECONOMIC EVALUATION OF MINERAL RESOURCES (International Conference), Kosice, Czechoslovakia. Languages: Russian and English. (Intergeoeokonmika 1991 CSSR, GEOFOND, Eng. St. Richter, Garbanova 1, 040 11 Kosice, Czechoslovakia).

April 26 - May 1, 1991

ASSOCIATION OF EXPLORATION GEOCHEMISTS (15th International Geochemical Exploration Symposium), Reno, U.S.A. (Richard B. Jones, Nevada Bureau of Mines and Geology, University of Nevada, Reno, Nevada 89557-0088, U.S.A.).

May 1991

QUANTITATIVE METHODS OF INVESTIGATION OF THE STRUCTURE OF SOILS AND ROCKS (IAEG International Symposium), Moscow. (Dr. M. Primel, LCPC, 58 Bd. Lefebvre, 75732 Paris Cedex 15, France).

August 2-9, 1991

QUATERNARY RESEARCH (13th INQUA International Congress), Beijing, P.R. China. (Secretariat, 13th INQUA Congress, Chinese Academy of Sciences, 52 Sanlihe, Beijing 100864, People's Republic of China).

September 16-20, 1991

ROCK MECHANICS (7th International Congress), Aachen, F.R. Germany. (Deutsche Gesellschaft für Erd- und Grundbau, Kronprinzenstrasse 35a, D-4300 Essen 1, F.R.G.).

September 22-27, 1991

CARBONIFEROUS-PERMIAN STRATIGRAPHY AND GEOLOGY (12th International Congress), Buenos Aires, Argentina. Language: English. (Dr. S. Archangelsky, Museo Argentino de Ciencias Naturales, Av. A. Gallardo 470, Buenos Aires 1405, Argentina).

### 1992

June 1992

WORLD MINING (15th Congress), Seville, Spain. (World Mining Congress, Al Ujazdwskie 1-3, PL-00583, Warsaw, Poland).

June 28 - July 1, 1992

PALEONTOLOGY (5th North American Convention), Chicago, U.S.A. (Dr. Peter R. Crane, Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, Chicago, IL 60605-2496, U.S.A.).

# GEOLOGICAL SOCIETY OF MALAYSIA PUBLICATIONS

## General Information

The Society publishes the *Buletin Geologi Malaysia* (Bulletin of the Geological Society of Malaysia) and the *Warta Geologi* (Newsletter of the Geological Society of Malaysia) which is issued bimonthly.

Papers of general interest or on the geology of the Southeast Asian region (South China, Burma, Thailand, Indochina, Malaysia, Singapore, Indonesia, Brunei and the Philippines) and also marine areas within the region are welcome for publication in the *Bulletin*. Short notes, progress reports and general items of information are best submitted to the *Warta Geologi*.

Papers should be as concise as possible. However, there is no fixed limit as to the length and number of illustrations. Therefore, papers of monograph length are also welcome. Normally, the whole paper should not exceed 30 printed pages and it is advisable that authors of papers longer than 30 printed pages should obtain the consent of the Editor before submission of the papers.

The final decision of any paper submitted for publication rests with the Editor who is aided by an Editorial Advisory Board. The Editor may send any paper submitted for review by one or more reviewers. Scripts of papers found to be unsuitable for publication may not be returned to the authors but reasons for the rejection will be given. The authors of papers found to be unsuitable for publication may appeal only to the Editor for reconsideration if they do not agree with the reasons for rejection. The Editor will consider the appeal together with the Editorial Advisory Board.

Unless with the consent of the Editor, papers which have been published before should not be submitted for consideration.

Authors must agree not to publish elsewhere a paper submitted to and accepted by the Society.

Authors alone are responsible for the facts and opinions given in their papers and for the correctness of references etc.

Twenty-five reprints of each paper are free-of-charge. Contributors should notify the Editor of extra reprints (which are of non-profit costs) required.

All papers should be submitted to the Editor, Geological Society of Malaysia, c/o Department of Geology, University of Malaya, 59100 Kuala Lumpur, MALAYSIA

## Script Requirements

Scripts must be written in Bahasa Malaysia (Malay) or English.

Two copies of the text and illustrations must be submitted. The scripts must be typewritten double-spaced on papers not exceeding 21 × 33 cm. One side of the page must only be typed on.

Figure captions must be typed on a separate sheet of paper. The captions must not be drafted on the figures.

Original maps and illustrations or as glossy prints should ideally be submitted with sufficiently bold and large lettering to permit reduction to 15 × 22 cm: fold-outs and large maps will be considered only under special circumstances.

Photographs should be of good quality, sharp and with contrast. For each photograph, submit two glossy prints, at least 8 × 12 cm and preferably larger. Use of metric system of measurements (ISU) is strongly urged wherever possible.

Reference cited in the text should be listed at the end of the paper and arranged in alphabetical order and typed double-spaced. The references should be quoted in the following manner:

Suntharalingam, T., 1968. Upper Palaeozoic stratigraphy of the area west of Kampar, Perak. *Geol. Soc. Malaysia Bull.*, 1, 1 – 15.

Hosking, K.F.G., 1973. Primary mineral deposits. In Gobbett, D.J. and Hutchison, C.S. (Eds), "*Geology of the Malay Peninsula (West Malaysia and Singapore)*". Wiley-Interscience, New York, 335 – 390.

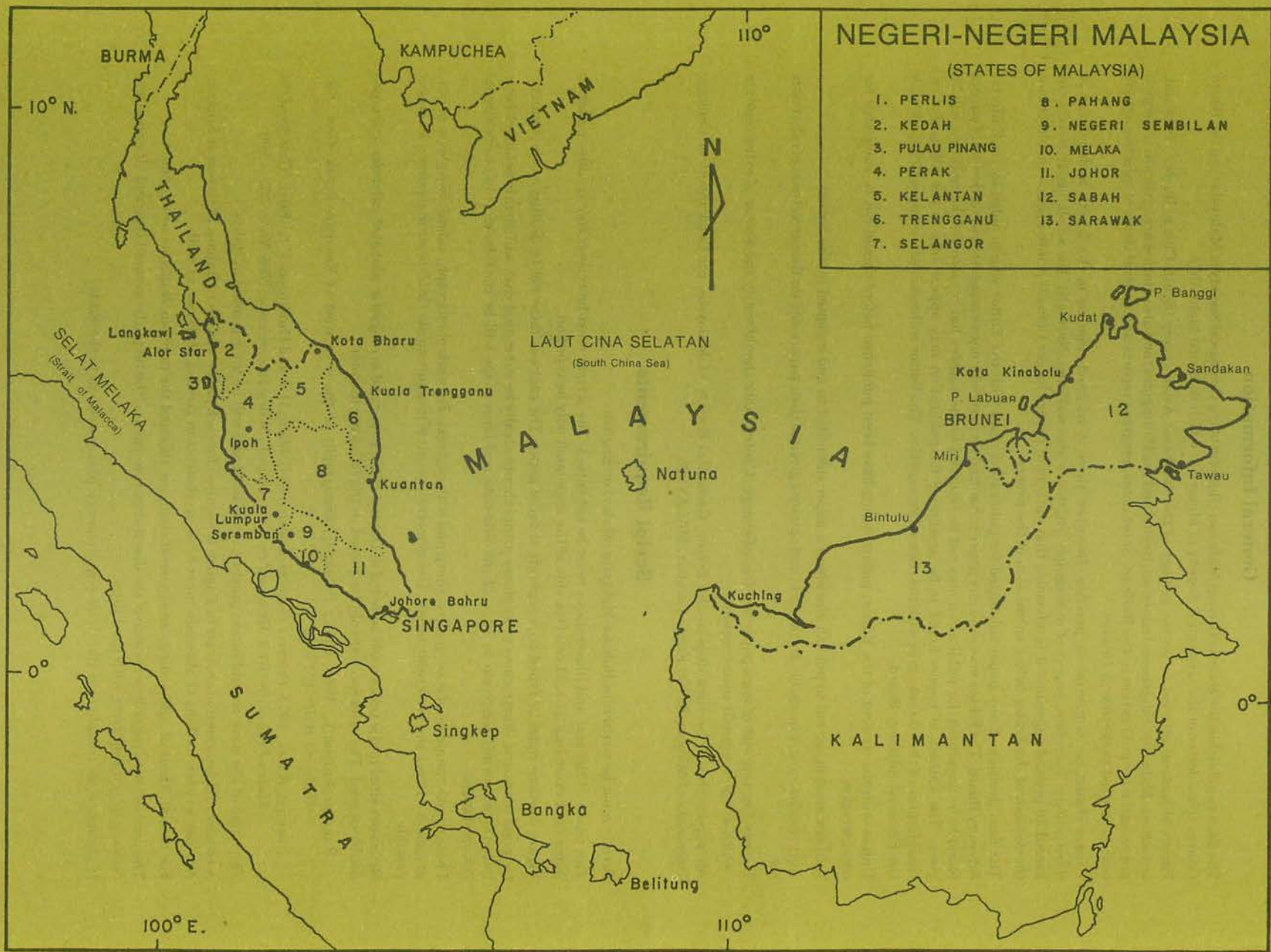
The name of the book or publication must be underlined and will be later printed in italics.

A concise and informative abstract in English is required for each paper written in Bahasa Malaysia or English. A paper written in Bahasa Malaysia must have an abstract in Bahasa Malaysia as well.

For format, kinds of subheadings and general style, use this and the previous *Bulletins* as a guide.

The final decision regarding the size of the illustrations, sections of the text to be in small type and other matters relating to printing rests with the Editor.

If authors have trouble over the script requirements, please write in to the Editor.



# NEGERI-NEGERI MALAYSIA

(STATES OF MALAYSIA)

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| 1. PERLIS       | 8. PAHANG          |
| 2. KEDAH        | 9. NEGERI SEMBILAN |
| 3. PULAU PINANG | 10. MELAKA         |
| 4. PERAK        | 11. JOHOR          |
| 5. KELANTAN     | 12. SABAH          |
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