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CATATAN GEOLOGI (GEOLOGICAL NOTES)

AN INTRUSIVE SWARM NEAR MENTAKAB, PAHANG: A PROBABLE VOLCANIC CENTRE

Law Seong Fook and H.D. Tjia, Dept. of Geology, Universiti Kebangsaan Malaysia, Bangi, Selangor.

The recently constructed Mentakab-Temerloh bypass and upgraded access roads (Fig. 1) have revealed a host of geologically interesting outcrops. Metcalfe and Chakraborty (1983) reported on the occurrence of a thick intraformational conglomerate horizon in the predominantly turbidite sequence of claystone-siltstone-tuff known as the Semantan Formation. The formation name was given by Jaafar Ahmad (1976) who includes in this formation rare limestone lenses in its lower and upper parts, further rare arenite and carbonaceous chert layers. Based on the coarser grain size of the pyroclastic beds (rare occurrences of lapilli tuff grading to agglomerate) in the Mentakab area, Jaafar Ahmad (p. 45) has suggested that their source may be located to the northeast at no great distance.

In the vicinity of Mentakab, new roadcuts expose weathered sandstone-like rock in positions that range from perfectly parallel to adjacent claystone-siltstone layers to those that clearly transect sedimentary layering. This rock is fine to medium grained, sometimes containing lath-like specks of weathered feldspars, usually of brown and occasionally of moderate red (5R 4/2) to very dark red (5R 2/6) colours according to the Munsell colour scheme. Microscopically reddish brown opaque material clouds at least 60% of the field of view and a microporphyrict texture is sometimes apparent. Chloritisation and sericitisation are usual. This rock type may range in thickness from a few decimetres up to 7 metres. The dark colours of the weathered rock and field relations to be described below suggest the sandstone-like rock to represent intermediate to mafic intrusive rock. In the same area are genuine clastic sandstone interbeds, usually less than 40 cm thick and under the microscope exhibiting clastic texture, while its opaque material occupies less than 50% of the field of view. Its Munsell colour is pale red (10R 6/2). In spite of these differences, in the field it may be difficult to lithologically differentiate between the interpreted intrusive igneous rock and the sedimentary sandstone. However, field relations are often definitive; three examples are given.

At locality 1, roadcuts expose an eastward plunging open anticline (Fig. 2). A 1.4 m thick sandstone-like layer, partly parallel to bedding, proved to represent a sill by transecting and offsetting a traceable sedimentary layer (stippled). Although deeply weathered, at the base of the sill different colour and compactness in a zone a few cm thick suggest a chilled margin. No such feature was seen in the upper part of the sill. However, this rock body can not possibly represent a lava flow, since it has locally cut across the stratification. The right hand part of fig. 2 has been projected from the cut across the road and shows the sill to have been intruded before the folding. Facing in the roadcuts is shown by graded bedding and convolute lamination.

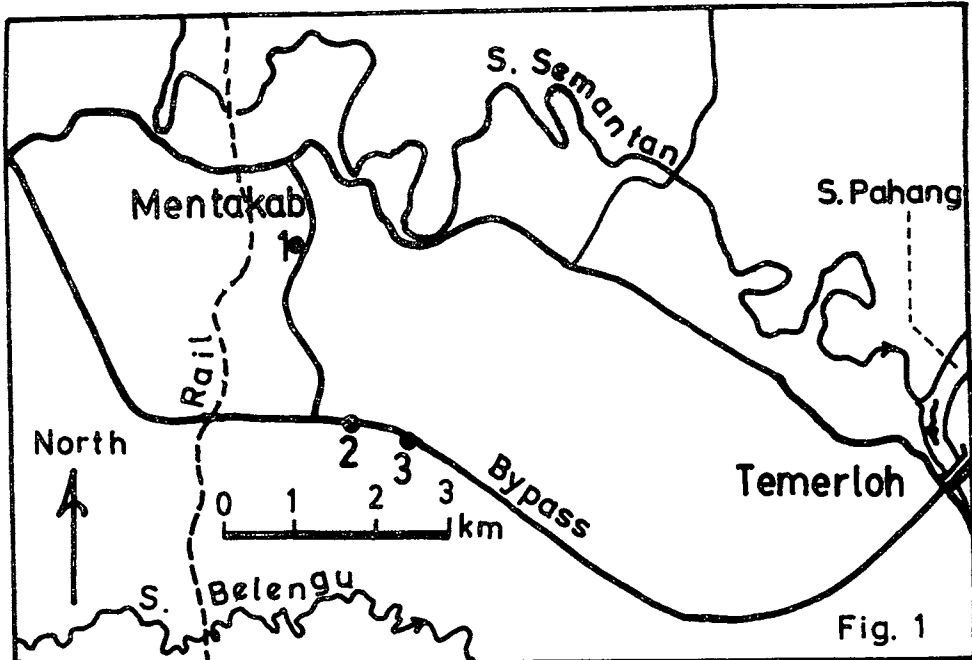


Fig. 1. Index map of localities described in this note.

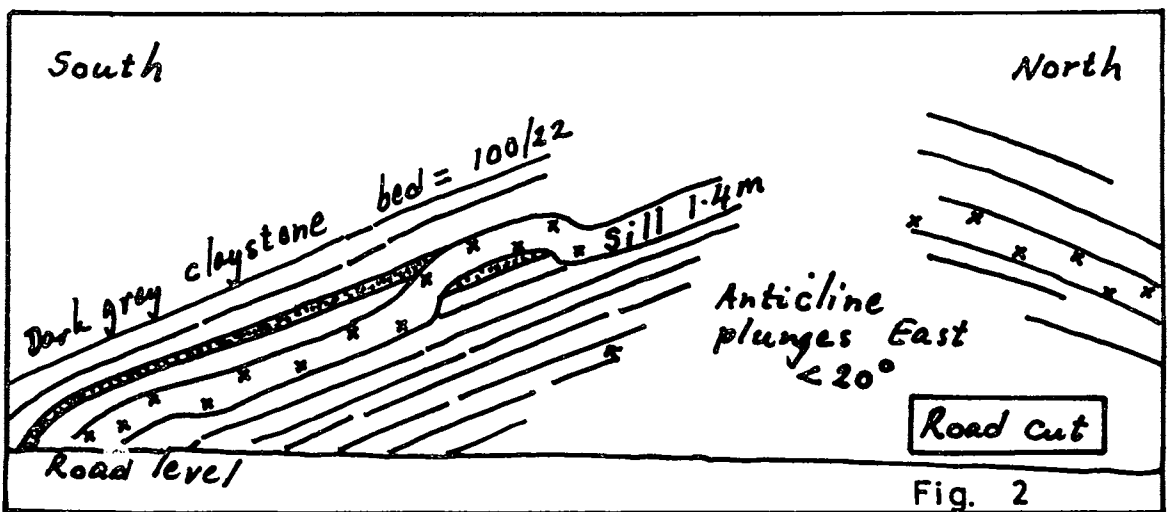


Fig. 2. Roadcuts expose a weathered sill that locally transects adjacent sedimentary layers. Sill intrusion took place before folding; small arrow head indicates stratigraphic facing. Locality 1.

At locality 2, a sandstone-like central mass extends laterally as two parallel sills. Draping of sediments around the central mass and its roughly concave-convex upper and lower boundaries suggest the main body to represent a phacolith (Fig. 3). Quartz-impregnated rock occurs podlike near the intrusion-sediment contact. The interpreted igneous rock was probably of intermediate to mafic character as its dark colour suggests.

At locality 3 several sills, now weathered into very dark red material, form bands up to 2 metres wide. White zones, 20-30 cm thick and apparently

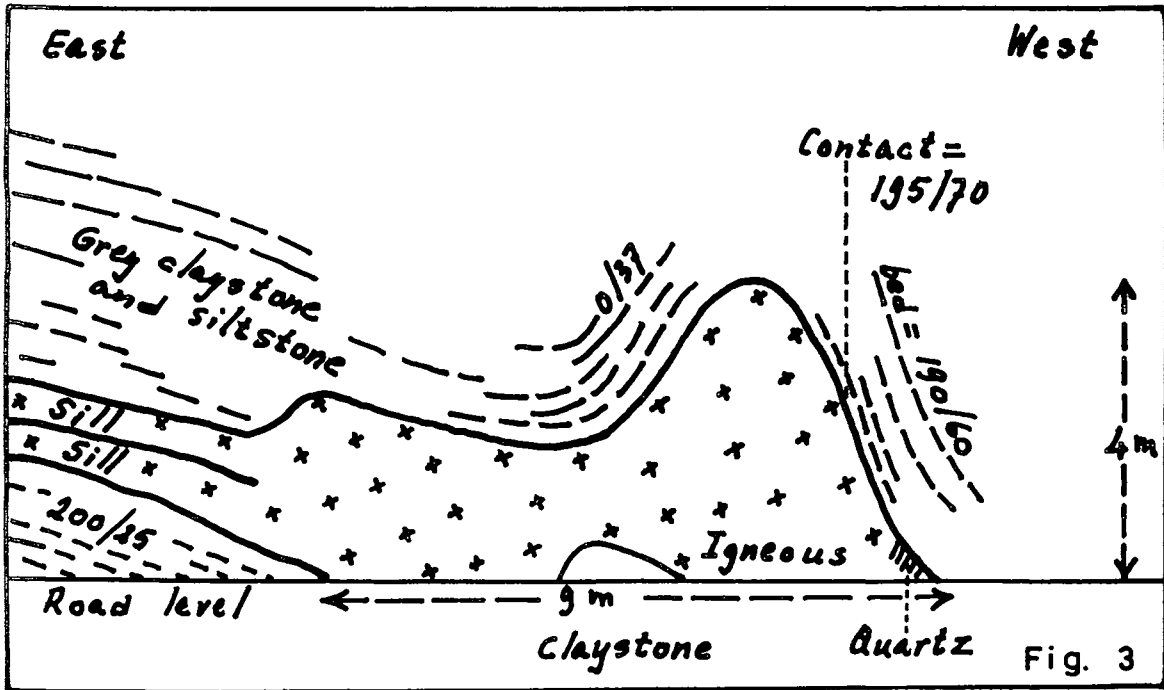


Fig. 3. Road cut exposure of a phacolith and two sills; both intrusive types are conformable with structure in the country rock. Locality 2.

developed by leaching, rim the dark red bands on both sides. Such symmetrical zones of leaching and the dark red colour suggest the rock to represent an igneous sill.

The borders of the interpreted igneous bodies are generally conformable with the stratification in the country rock. This situation suggests that intrusions occurred at relatively deep levels. Closer to the surface, the country rock would have been brittle and fractures would have facilitated the development of dykes rather than sills and other conformable intrusive masses. On the other hand, a reviewer of this note believes that ductility was most likely achieved through hydroplasticity of the country rock at shallow depth. We think, however, that at shallow depth more instances of vertically elongated (or rather elongated normal to bedding) intrusions should have been observed than the predominantly higher number of bedding-parallel igneous masses. Fossils indicate the Semantan Formation to have been deposited in Middle to Late Triassic time (Jaafar Ahmad, 1976). In Peninsular Malaysia a strong deformation episode took place in the Late Triassic to Early Jurassic time. The roadcut at locality 1 shows that the sill was intruded before folding was completed. In other words, intrusions very probably took place during the Late Triassic. The occurrence of a swarm of intrusions south of Mentakab further suggests that the area may be a centre of volcanic activity, whose surface products were eroded away together with part of the Semantan Formation. The pyroclastic facies of both the Semantan and Upper Triassic Kaling formations have been reported as rhyolitic in character, while dark appearance of the weathered intrusives of the Mentakab area is more consistent with an intermediate or mafic character.

Acknowledgement

We are grateful to a reviewer who pointed out a mistake in our earlier interpretation of Figure 3, and who also offered us the opportunity to expand somewhat on our views concerning the depth of igneous emplacement.

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OCCURRENCE OF BLUESCHIST IN THE NAN RIVER MAFIC-ULTRAMAFIC BELT, NORTHERN THAILAND

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Geological Setting

Recent reconnaissance mapping in the Doi Phuk Sung area, Nan Province, Northern Thailand (Fig. 1) has revealed the occurrence of crossite schists (blueschists). They occur in close spatial association with metagabbro, hornblendite, pyroxenite, garnet amphibolite, and serpentinite (Fig. 2). The complex consists of a sequence of sheet-like units, dipping SSW, which may have been repeated by thrusting. On the west the complex is in faulted contact with a Late Paleozoic (?) greywacke, argillite, and limestone sequence and with a Mesozoic(?) coarse redbed sequence. The other margins of the complex have not yet been defined.

Petrography

The unit containing the crossite schists consists mainly of green chlorite-quartz schists, with which the crossite schists are interbedded. The crossite schist horizons appear to be 3 to 5 m in thickness. They contain 15-30% blue amphibole which has been identified as crossite on the basis of its petrographic features and X-ray diffraction pattern (Table 1). Other minerals present are epidote, quartz, white mica, and small amounts of albite or chlorite. The rocks are fine-grained, with a well developed phyllitic to schistose foliation which is strongly deformed by minor folding and crumpling.

The associated mafic and ultramafic units closely resemble those found farther southwest along the Nan River (Thanasuthipitak, 1978; Macdonald & Barr, 1984), except that in those areas they are in part overlain by metabasalt which were not observed in the Doi Phuk Sung map area. The metagabbros consist of albite, zoisite, clinzoisite, and chlorite (after plagioclase) and either clinopyroxene or hornblende. Much of the hornblende is subhedral in shape and coarse-grained, and maybe of magmatic origin. Well developed layers of hornblendite (from 1 cm to several metres in width) within the gabbro may also be of primary origin, although foliation in the metagabbro appears to parallel such compositional layering. Clinopyroxenite and garnet amphibolite occur locally, the latter similar to garnet amphibolite found farther south (Macdonald & Barr, 1984).

The serpentinites consist mainly of serpentine with minor brucite, magnesite, and bastite (after orthopyroxene). Chromite is scattered throughout and locally forms chromitite layers. Magnesite bodies in the area probably formed by localized low temperature carbonation reactions within the ultramafic rocks (e.g. Winkler, 1976, p. 153). They are currently being investigated for possible commercial exploitation.

Implications

The Doi Phuk Sung blueschist-mafic-ultramafic complex is part of the Nan River belt (Macdonald and Barr, 1984) which extends from the Uttaradit area northeast into Laos. Hutchison (1975) referred to this belt as the

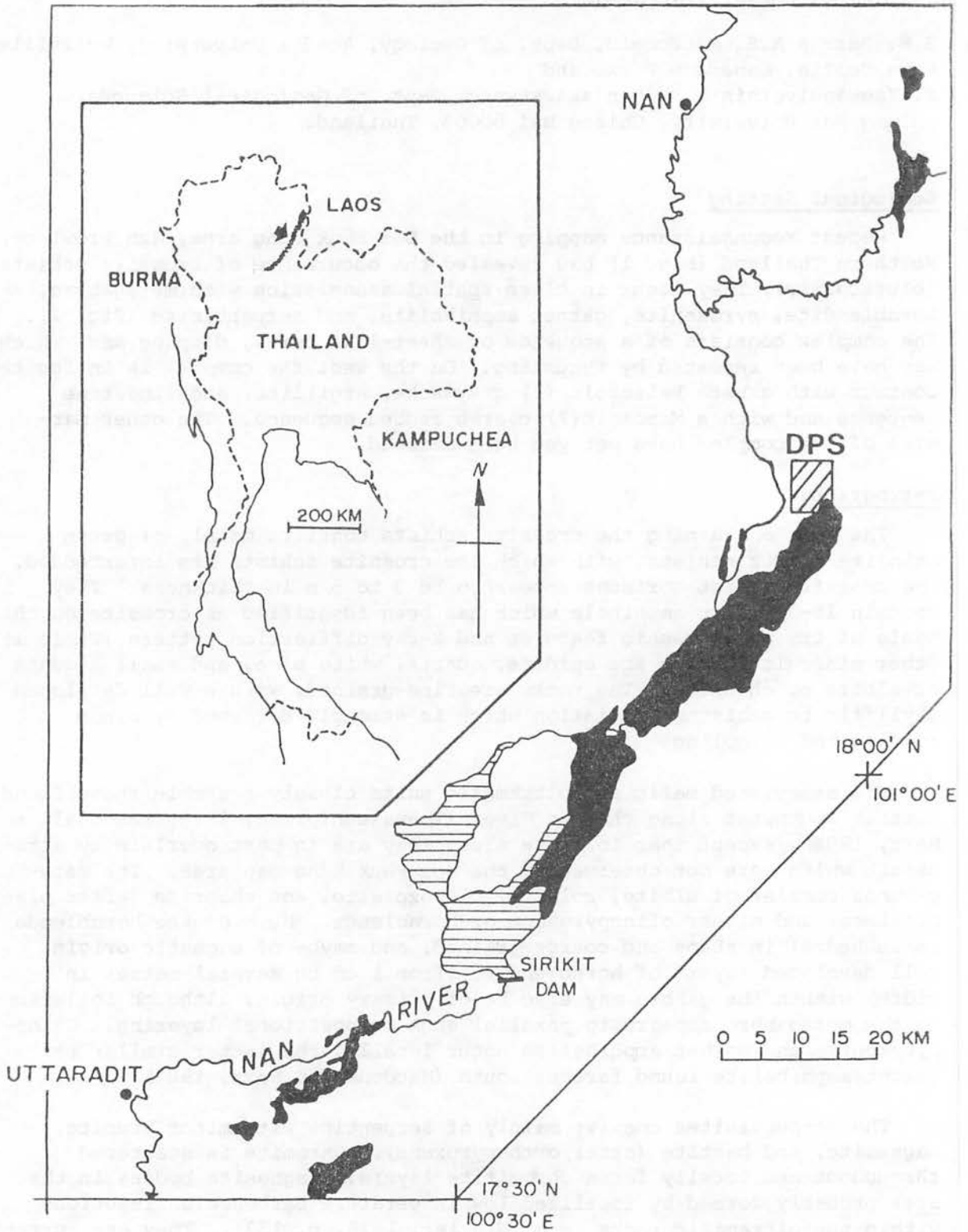


Fig. 1. Location of the Nan River mafic-ultramafic belt showing the Doi Phuk Sung map area.

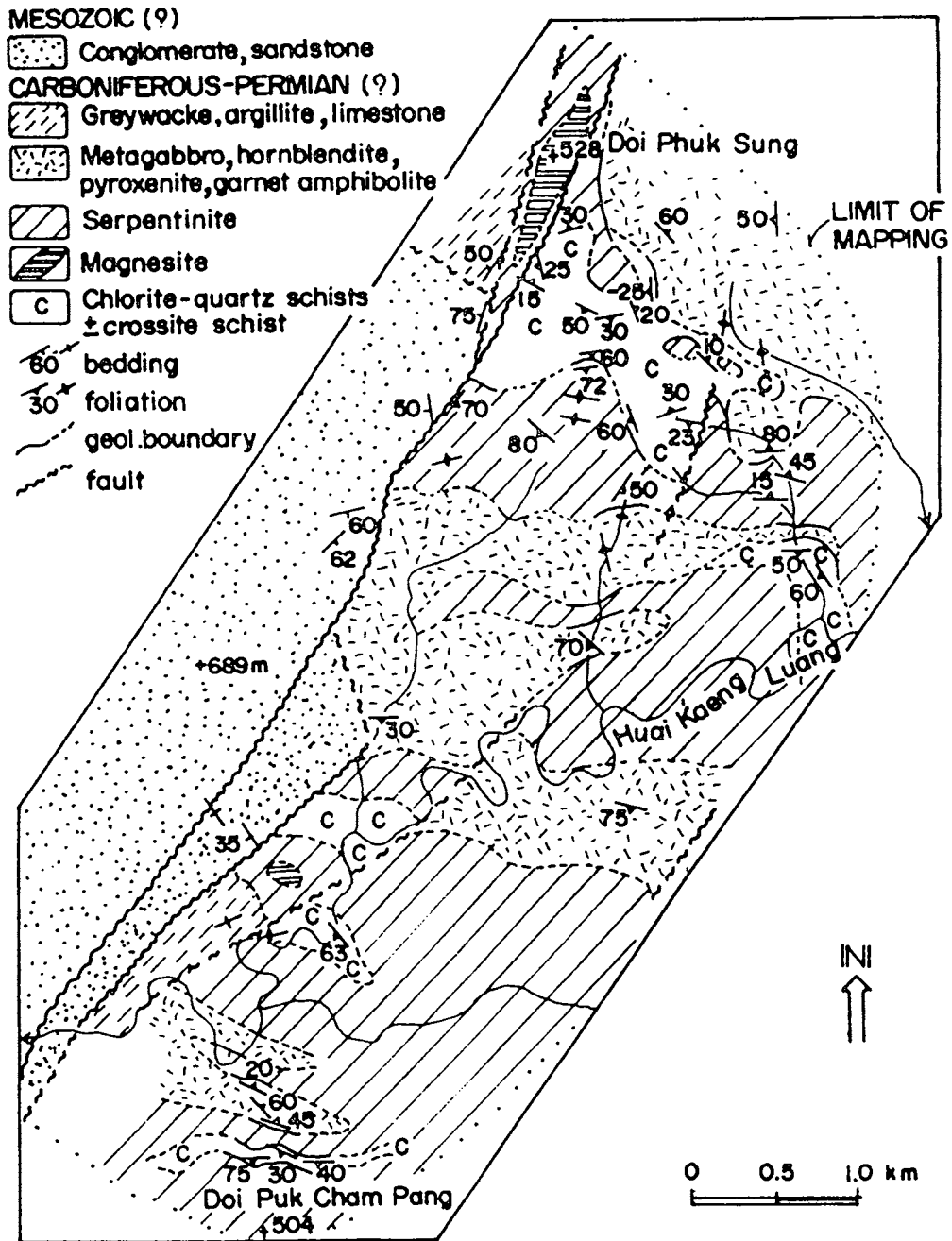


Fig. 2. Geological map of the Doi Phuk Sung area.

Luang Prabang - Uttaradit belt, designated an 'uncertain ophiolite'. Most tectonic reconstructions of the region have inferred that the mafic-ultramafic rocks of the belt are indeed ophiolitic, and that they mark the suture between the Shan - Thai cratonic block to the west and the Indosinian cratonic block to the east (e.g. Bunopas and Vella, 1978, 1983; Hutchison, 1983). The occurrence of blueschist provides independent evidence for the interpretation of the Nan River belt as a cryptic suture.

However, it has yet to be proven that the associated mafic-ultramafic rocks are ophiolitic. The characteristic ophiolitic elements, pillowed

basalts and sheeted dykes, have not been found. Preliminary geochemical studies of the mafic rocks suggest that they (and presumably the accompanying ultramafic rocks) may have formed in a volcanic arc environment (Macdonald and Barr, 1984). If this interpretation is correct, the close association of these rocks with blueschists in the Doi Phuk Sung area reflects tectonic juxtaposition of arc and trench, probably the result of collision of the Shan - Tahi and Indosinian blocks, or of at least one of these blocks with an island arc. The timing of this event is not well constrained but may have occurred by the end of the Permian (Helmcke and Lindenberg, 1983).

Sample	d-spacing and relative intensity				
Doi Phuk Sung	8.35 (100)	*	3.10 (60)	2.72 (20)	-
20-376**	8.31 (100)	4.48 (25)	3.08 (75)	2.71 (40)	2.53 (25)
20-470**	8.44 (100)	4.52 (12)	3.15 (90)	2.73 (25)	2.60 (14)

Table 1. X-ray diffraction data for blue amphibole from Doi Phuk Sung and for reference crossite samples.

* obscured by muscovite peak

** from Mineral Powder Diffraction File Data Book, JCPDS-International Centre for Diffraction Data, 1980.

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LIPATAN BERGANDA DALAM FORMASI CROCKER, SABAH

Zaiton Harun & H.D. Tjia, Jabatan Geologi, Universiti Kebangsaan Malaysia, Bangi, Selangor.

(Refolded Fold in the Crocker Formation, Sabah)

Abstract

A moderately large-sized refolded fold is exposed near Kundasang and involves thick-bedded turbidite of the Palaeocene-Eocene Crocker Formation. With the known post-Crocker deformational history in mind, we interpret the steeply inclined, tightly folded structure on the right-hand side of Fig. 1 as probably of syndepositional origin. Thin to metres-wide slump intervals are indeed common within the Crocker sediments. Middle Miocene refolding of the earlier fold resulted in the structure exhibited by the outcrop, in which the axis of the syndepositional fold trends 179° and plunges steeply at 79 degrees (Fig. 2) while the axis of the tectonic fold strikes/plunges $148/13$ (according to the Beta-diagram) and was approximated at the outcrop as 150° /almost horizontal.

Pada satu keratan jalan di antara Taman Negara Kinabalu dan Ranau, tersingkap suatu jujukan turbidit Formasi Crocker yang nampaknya telah mengalami dua kali perlipatan. Singkapan ini terletak kira-kira 3 km di timur Kundasang.

Lipatan condong (inclined fold) yang ketat di bahagian selatan singkapan mempunyai sayap-sayap yang berubah kemiringannya dari hampir landai (anggaran) di bahagian dekat rabung kepada curam dan kedua sayap adalah hampir selari. Struktur sedimen seperti lapisan bergred pada kedua sayap lipatan jelas menunjukkan bahawa lipatan ini masih pada kedudukan normal seperti yang ditunjukkan oleh anak panah dalam rajah 1. Satah paksi lipatan ini berkemiringan curam dan nampaknya seolah-olah telah mengalami perlipatan sekali lagi sesuai dengan gaya struktur lipatan di sebelah utaranya. Dengan analisis gambarajah Beta, paksi lipatan bahagian selatan menunjam ke arah 179° sebesar 79° (Rajah 2).

Lipatan pada bahagian utara singkapan mempunyai sayap-sayap yang sederhana hingga curam kemiringannya dengan paksi yang menunjam ke arah 148° (analisis gambarajah Beta) hingga 150° (bacaan lapangan) sebesar 13 darjah (analisis gambarajah Beta). Tanda-tanda alat (tool marks) yang terpamer pada permukaan lapisan jelas menunjukkan bahawa lapisan ini telah terbalik dan ini sesuai pula dengan kedudukan halamuda jujukan terubidit di selatannya. Oleh itu lipatan terbalik ini boleh ditafsirkan sebagai sinklin terbalik. Suatu hal yang menarik di sini ialah tidak ada tanda yang menunjukkan penyesaran pada sela antara kedua lipatan.

Setakat ini mengikut sejarah diastrofisme kawasan ini, gangguan tektonik Miosen Tengah (T_5) sahaja yang mematerikan kesan terbesar seperti penyesaran sungkup dan perlipatan rebah dalam sedimen Formasi Crocker. Gangguan berikutnya, iaitu semasa Pliq-Pleistosen lebih mewakili canggaaan rapuh bagi kawasan ini. Oleh yang demikian, lipatan condong ketat ini mungkin mewakili perlipatan sinsedimen semasa mendapan masih lagi dalam keadaan belum terkonsolidasi yang mungkin berlaku lebih kurang sebaya dengan perlipatan sinklin terbalik oleh gangguan tektonik. Ini seharusnya tidak menghairankan oleh kerana dalam formasi ini selalu terdapat sela-sela mendapan nendat yang lebar-lebar.

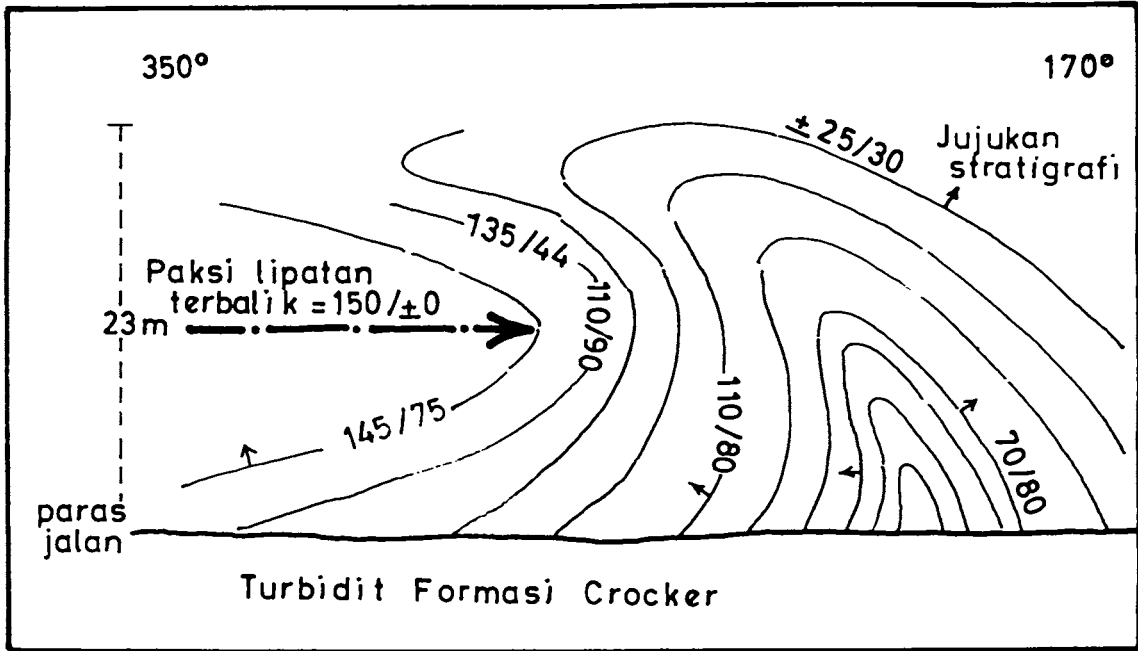
Liechti (1960) pernah melaporkan bahawa Formasi Crocker Timur terlipat curam sekitar 60° dan dalam laporan diselitkannya sekeping foto (Plate 28) yang menunjukkan lipatan tak simetri dalam Formasi Crocker Barat yang mirip lipatan condong ketat pada singkapan yang sedang dibincang.

Apabila diperhatikan arah mampatan mengufuk yang boleh menerbitkan kedua-dua jenis lipatan tersebut, didapati agak biasa ditemui arah mampatan mengufuk timur-barat dan arah timur laut - barat daya dalam formasi ini pada sepanjang singkapan keratan jalan Kundasang - Ranau (lihat Fig. 22, Tjia, 1974). Dari rajah itu juga didapati bahawa arah-arrah tersebut terletak berhampiran dan ada juga beberapa tafsiran angkutan tektonik ke timur yang menyilangi arah mampatan mengufuk timur laut - barat daya yang amat ber-sesuaian pula dengan tafsiran yang sama bagi lipatan sinklin terbalik di sini. Jika penafsiran kedua ini boleh ditimbang, pada masa bilakah gangguan tektonik yang sesuai untuk memungkinkan pembentukan kedua-dua jenis lipatan tersebut? Ini adalah satu pandangan awal tentang satu di antara masalah dalam Formasi Crocker yang memerlukan pengkajian akan datang yang lebih terperinci.

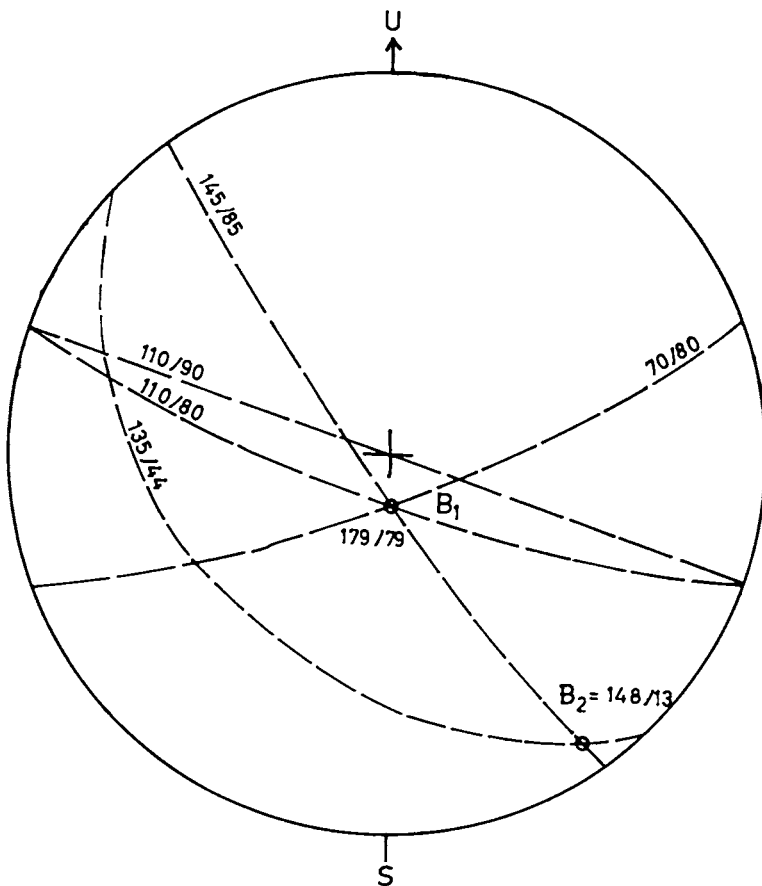
Bahan Rujukan

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Manuscript received 23 March 1985



Rajah 1. Singkapan besar daripada sedimen Formasi Crocker yang terlipat dua kali. Tempat 3 km di timur Kundasang sepanjang jalan ke Ranau.



Rajah 2.

Gambarajah Beta daripada kedudukan lapisan yang ditunjuk dalam rajah 1. B_1 dan B_2 masing-masing mewakili paksi lipatan sebelah selatan dan sebelah utara pada singkapan.

A PROBABLE TECTONIC OVERTHRUST IN SELANGOR

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Until now, lateral tectonic transport in Peninsular Malaysia has been deduced from overturned to recumbent folds and from reverse faults to moderately angled (10 - 30 degrees dip) faults. Low-angled (less than 10 degrees dip) thrusts or overthrusts have also been reported but consist of only single breaks or narrow shear zones and have been traced over limited distances. Their limited extent and the narrowness of the shears could be used as indicators that the said structures only represent local deformation and might have been the result of non-tectonic or only partially tectonic events (syndimentary slumping, detachment faulting). Their limited traceable extent is very probably inherent to the outcrop size and the low dips of the thrust planes.

This note records thick mylonite underlying a systematically undulating, generally very gently dipping fault surface that is exposed in two opposite roadcuts near Kampung Teras Jernang near Bangi, Selangor (Fig. 1).

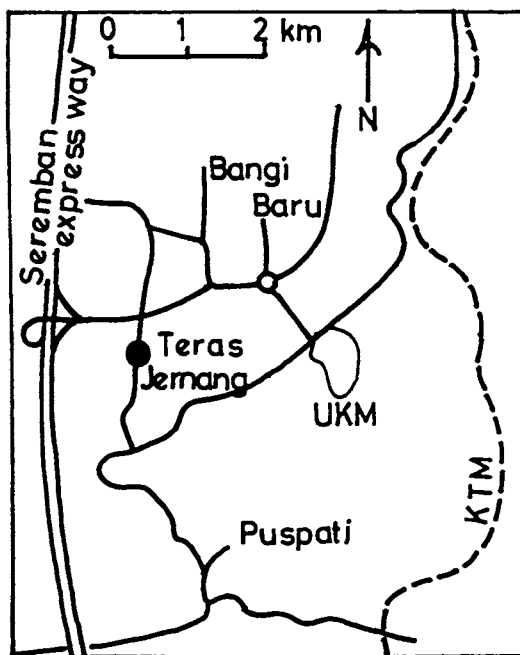


Fig. 1.

Locality map. Roadcuts in Figure 2 are located at the solid circle.

Figure 2 shows the two roadcuts; the upper cut representing the reversed section on the east side of the road, the lower cut showing the true section of the west side. Essentially three fault groups can be distinguished. On the lower road section is shown fault 260/27 (strikes 260 and dips 27 degrees towards north). It is straight and occurs within the thick mylonite to be described later. This structure is probably a reverse fault as the outcrop suggests, but no real indication of movement could be determined. The second group is represented by three faults in the upper road section, with attitudes 50/46 and 50/52. They form the border and also cut into a patch of weathered rock that may have been schist or metasandstone. Apart from their cross-cutting relationship with the main fault zone, no clear indications of motion sense could be determined along the three faults.

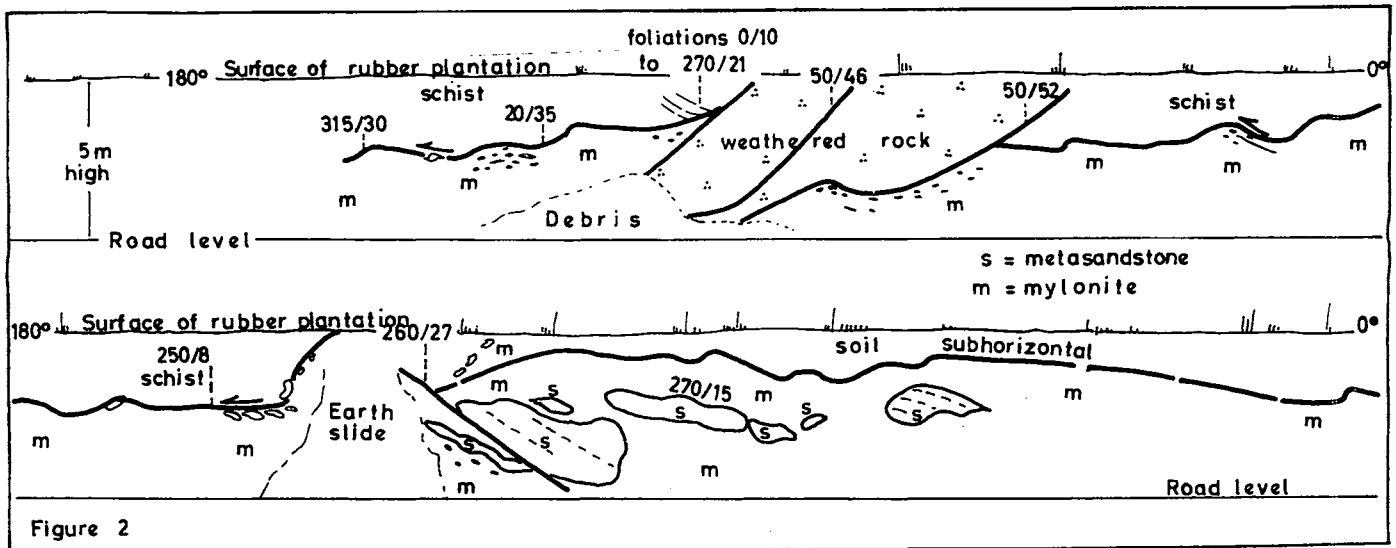


Fig. 2. The two roadcuts near Kampung Teras Jernang showing the Bangi Overthrust that consists of the subhorizontal to moderately dipping, continuous heavy solid line and underlying mylonite (m) with large and small fragments in a phyllonite groundmass. Note that the upper section is a mirror image of the actual roadcut on the east side of the road.

The oldest and main fault consists of the thick mylonite capped by 10-20 cm thick iron-impregnated zone and is sub-horizontal to moderately dipping in easterly direction. The various attitudes of the capping surface suggest it to be curving convexly upward with moderate dips towards east and gentle dips towards north. Smaller undulations characteristically exhibit steeper south-facing sides. At the loci of half-tipped arrows, the sense of motion has been determined by drag folding in the underlying phyllonite foliation, sigmoid lenses of weathered material (believed to have behaved in a ductile manner during deformation), and fault plane markings (striations plus bruised and accretion steps). The sense of movement so determined indicates transport towards 160 to 180 degrees of the overlying schist. Below this fault surface is exposed at least 4½ metres thick fault breccia consisting of a black to dark gray phyllonite groundmass (often weathered to yellowish brown or to a 'bleached' appearance) in which locally are embedded angular to sigmoidal fragments of quartz, quartzite and other rock types. A single, light coloured, ductile appearing weathered clast of about 0.7 m diameter may have been an igneous rock. Other large fragments consist of metasandstone (lower road section). Most of the clasts are pebble-sized or smaller. Small drag folds within the mylonite indicate on very rare occasions transport towards north.

This thick mylonite zone with the capping fault surface is interpreted to represent a major reverse fault zone. Its size, moderately dipping to subhorizontal attitudes, and sense of movement all suggest it to be an overthrust which transported the overlying schist (Kajang Schist?) in southerly direction. About 2 kilometres east of the roadcut at the Bandar Baru Bangi roundabout, a large outcrop of overturned and isoclinal folds in phyllite and metasandstone also indicate transport in southerly direction (towards southeast according to work in progress). Smaller outcrops of black mylonite are known in the general area near the Seremban Expressway - Serdang intersection, some 6 km to the north of Bangi. These may be part of the overthrust zone which is tentatively named the BANGI OVERTHRUST.

PERTEMUAN PERSATUAN (MEETINGS OF THE SOCIETY)

TECHNICAL TALKS

D.W. Waples: New surface prospecting techniques in hydrocarbon exploration

Dr. D.W. Waples, manager of the geological and geochemical studies group in Brown and Ruth Laboratories, Denver, USA, gave a talk on the new surface prospecting techniques for hydrocarbon on March 7, 1985. 16 members attended the talk.

According to Dr. Waples, surface prospecting techniques have a long history beginning with the simple method of looking for surface hydrocarbon seeps. In the 1930's the Russians developed a technique of looking into trace amounts of light hydrocarbon in the surface soils. This technique proved too inaccurate in locating hydrocarbon pools as the technology at that time was not well developed. Present day technology has improved significantly and as a result, surface prospecting techniques has become an important tool in highgrading areas for hydrocarbon exploration.

Dr. Waples listed several geochemical indicators of petroleum including hydrocarbon consuming bacteria, stunted vegetation, radiometric, helium, iodine, carbonate cement, induced polarisation and magnetic anomalies. In the case of magnetic anomalies, he proposed a mechanism whereby the oxidation of hydrocarbon by bacteria at or near the surface cause the oxygen level to be lowered; resulting a drop in Eh levels and the conversion of ferric iron to the ferrous (soluble) state. Iron oxides in the ground is mobilised in the soluble ferrous form and is reprecipitated when the oxygen level is restored to its previous level. This process occurs in areas not affected by hydrocarbon leakage. Outcropping sandstone reservoirs that had acted as channels for leaking hydrocarbons would appear bleached, and the surrounding sandstones would be stained with anomalously high levels of iron oxide.

Dr. Waples also outlined a K-V finger print technique, presently marketed by the PETREX Company. This technique involves the use of charcoal to absorb over a period of time any hydrocarbons that leaked to the surface. The charcoal is then heated in the laboratory and a mass spectrum is taken on the hydrocarbons liberated from the charcoal. This technique is able to detect hydrocarbons as heavy as C_{10} to C_{15} ; which is a tremendous improvement as compared to the detection range of C_1 to C_{10} offered by previous technique. The K-V fingerprint technique is strictly an onshore tool, and cannot be used offshore.

In conclusion, Dr. Waples stressed that the use of surface prospective techniques if used in conjunction with geological and geophysical techniques can be useful in the detection and deliberation of hydrocarbon pools in the subsurface.

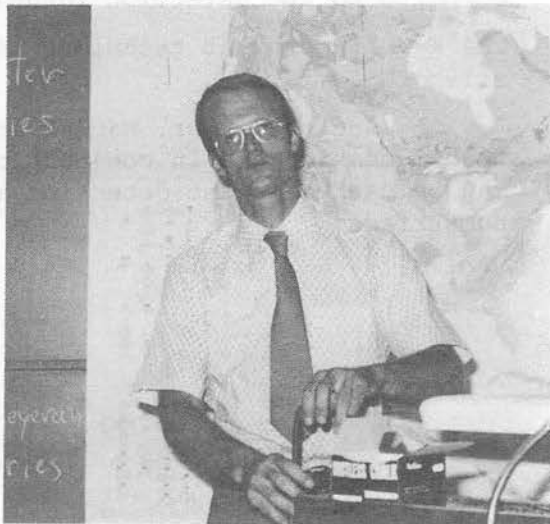
James R. Jennings: Fossil plants from the Upper Mississippian in the Illinois Basin, USA.

Paleobotanists are a rare breed even among the paleontologists. Hence, we were most fortunate to come across Dr. James Jennings while he was on a short teaching contract with a local college which prepares students for further studies at Southern Illinois University. Not only did he join the GSM as a member but he also agreed to give a talk on his paleobotanical research on the Chester Series of the Illinois Basin. About a dozen interested geologists attended his talk held at the Geology Lecture Hall of the University of Malaya on 18th March 1985. An extended abstract of his talk is given below but much more could have been gleaned if one had seen the excellent slides which he used to illustrate his talk. There was enthusiastic response from the floor during question time and some even remained behind for further discussions after the meeting.

Abstract

The Chester Series constitutes the upper part of the Mississippian System (Lower Carboniferous) in the Illinois Basin, its type area. It conformably overlies thick carbonates of the Meramecian, and is unconformably overlain by Lower Pennsylvanian clastic sediments. The magnitude of the unconformity decreases southward; and the Chester Series attains its maximum thickness of about 1,400 feet along the southern border of the Illinois Basin. It consists of about $\frac{1}{2}$ shale, $\frac{1}{4}$ limestone and $\frac{1}{4}$ sandstone, and is divided into individual formations which are composed alternately of limestone and shale or sandstone and shale. Fossil plants are associated with all of the major clastic-dominated units and are most commonly encountered near the top in geographic regions where the sandstone is thickest. Commonly, thin coals are also present in conjunction. The fossil plants are preserved as impressions, compressions and petrifications. The petrifications are mostly preserved in pyrite or marcasite but calcareous petrifications also occur. The fossil plants include lycopods, arthropytes, ferns, and seed ferns. The lycopods are the most abundant plant group numerically, and *Lepidodendron volkmarnianum* and *L. veltheimii* are common along with *Stigmaria stellata*, *S. ficoides*, and various leaves and cones. The arthropytes are almost entirely referable to *Archaeocalamites*, although a few specimens of *Sphenophyllum tenerrimum* and *Calamites* are also present. The most common of the ferns is *Senftenbergia* which is a frond that was produced by some ankyropterids. The seed ferns are the most diversified group and includes both highly dissected, 'Rhodea'-type forms and various forms with laminated pinnales. Pollen organs (e.g. *Telangium* and *Potoneia*) and seeds (e.g. *Rhyhchogonium*, *Trigonocarpus*, and *Gnetopsis*) are present with the fronds. Detailed biostratigraphy is now possible utilizing the fossil plants. Floristic change is gradual throughout the Chester Series, but there is an abrupt change at the top of the Chester Series which is the Mississippian/Pennsylvanian boundary.

Footnote: Dr. Jennings has made several trips to the East Coast (alone and also with C.P. Lee of UM) to collect and study the plant fossils, especially those of Carboniferous age, while he was here.



ANNUAL GENERAL MEETING 1985

The Society's AGM this year was held on Saturday 13th April 1985 at Hotel Dayang, at 2.30 p.m. The meeting was attended by 18 members.

This year's AGM was a relatively tame affair with no controversies being raised by Members. The main problems facing the in-coming Council was to fill the vacancies in the new Council and decide on the Petroleum Seminar as ASCOPE Meeting will be held around the same time. Members felt that our Seminar should be held following the ASCOPE Meeting so that those attending the ASCOPE Meeting can also attend the Seminar.

With the view of cutting costs the Council decided to include the Minutes of the 18th Annual General Meeting, Presidential Statement, Honorary Secretary's, Editor's, Honorary Treasurer's and Honorary Auditor's Reports in the WARTA.

Minutes of the 18th Annual General Meeting held at the Department of Geology, University of Malaya at 2.30 p.m. on 28th April 1984.

The meeting was called to order by the President, Dr. Khoo Teng Tiong.

Present: Khoo Teng Tiong (Chairman)	Nuraiteng Tee Abdullah
I. Metcalfe	J.K. Raj
C.S. Hutchison	Choo Mun Keong
C.A. Foss	Andrew Spykerman (Secretary from Editor's Report)
G.H. Teh	K.R. Chakraborty
Syed Sheikh Almashoor	Idris Mohamad
Ibrahim Komoo	S. Paramanathan
H.D. Tjia	Leong Khee Meng
B.K. Tan	S. Sandrasegaram
Tan Boon Kong	Koh Tuck Wai (Secretary till Editor's Report)
Azhar Hj. Hussein	
Ahmad Said	

Absent with apologies: Mohamad Ali Hasan

1. Confirmation of the minutes of the previous AGM

The minutes of the 17th AGM were confirmed by Mr. Choo Mun Keong and seconded by Mr. Koh Tuck Wai, with the following amendments:

- (1) P. 3 - 2nd last paragraph line two '.... should be aided in the Society's account' should read '... should be added in the Society's account as regards committed expenditures'.
- (2) P. 8 - 3, paragraph 2, '.... suggested another package deal in GEOSEA V', should read '.... suggested another package deal for sale of publications in GEOSEA V'.

2. Matters arising

There were no queries or comments from the floor.

3. President's Report

Dr. T.T. Khoo presented his report, in which he highlighted the Society's activities for the year ending April 1984. On the whole, reported the President, the year 1983/84 proved to be another eventful year for the Society in organising various technical talks, seminars, training courses, GEOSEA V and others (as reported).

Prof. H.D. Tjia suggested that Kalimantan - Malaysia Correlation Workshop would be better than the Sumatra - Malaysia Workshop. This idea was supported by Mr. Leong Khee Meng that joint efforts should be made to discuss the geology of Sabah, Sarawak, S. Philippines and Kalimantan.

To a question by Mr. Choo Mun Keong, the President replied that field-trip to mine areas were included in KL-Genting Field Trip.

Prof. Hutchison suggested that 'the Society do not get too peripheral with non-geological topics' and felt that the Geological Society is a specialist society.

The President responded that the meaning of 'special' is just like the Paleontological Society, etc. and thus we should cater or take into considerations of others and that is the reason GSM created the 'Evening/Malam series'.

Mr. Tan Boon Kong then question on the formation (system) of GEOSEA Union. The President replied that the GEOSEA Union was suggested by Jesus Gallang (the President of the Philippines Geological Society) and nominated B.K. Tan as Chairman. GSM only agreed in principle to join the Union because it has to clear with the Registrar of Societies first. The Union's aim is to promote geoscience in Southeast Asia.

On a question from Dr. Paramanathan, funding was initially given by the UNESCO in Jakarta at \$100 per country.

On a question of the Constitution of GEOSEA Union by Dr. Nuraiteng Abdullah, Dr. G.H. Teh suggested printing it in Warta Geologi. The Chairman agreed to the said suggestion.

Dr. Azhar felt that Members should approved the matter before GSM can agree to join the GEOSEA Union, as such he prefers members to be involved in decision making rather than being informed later.

Prof. Tjia asked 'who are the members of GEOSEA Union?'. The Chairman replied: 'The National Geological Society'.

Dr. Paramanathan suggested that members should be given referendum whether to join the GEOSEA Union and proposed that the Incoming Council should seek referendum from members by postal ballot. This suggestion was seconded by Dr. Azhar.

Dr. J.K. Raj then asked 'How can we reject when agreement in principle was given?' At this juncture, Dr. B.K. Tan then explained the formation of GEOSEA Union.

Mr. Tan Boon Kong proposed that 'Members should be informed first before major steps are taken by the Council'. This proposal was seconded by Dr. Nuraiteng.

Dr. Paramanathan withdrew earlier proposal.

Prof. Hutchison reminded Members present that Section 4, Art 6 of the GSM Constitution does not give mandate to Council to join other societies. Mr. Choo Mun Keong felt that it is alright by the Council to just 'agree in principle'.

Dr. Syed Sheikh Almashoor proposed that the word 'first' in line 10 of P. 3 be replaced by 'protem' in President's Report. The floor unanimously agreed on this proposal.

The report was then accepted on the proposal of Dr. Paramanathan and Dr. B.K. Tan seconded the motion.

4. Honorary Secretary's Report

The Honorary Secretary's Report was presented by Mr. Koh Tuck Wai (on behalf of Mr. Mohamad Ali Hasan). The report outline the major activities during the year and the state of membership of the Society.

Dr. J.K. Raj proposed the report to be accepted and seconded by Dr. Paramanathan with the following amendments (and additions):-

P. 2, no. 9 (3), Tan Boon Kong is independent representative to SIRIM Engineering Standards and not as GSM representative.

Lampiran 1 - headings 'Penganjur Bersama' should read 'Penganjur'.

Lampiran II - additions (Tambahan)

1 (a) 28 July 1983 'Bangkok Subsidence' by Prof. P. Nutalaya

(a) 19 July 1983 'Comparison of Malaysia and Indonesian granites' by E.J. Cobbing.

9 14 April 1984 'Terrane Analysis as a process generation for tin/tungsten ...' by Taylor & Pollard.

5. Honorary Assistant Secretary's Report

Mr. Koh Tuck Wai presented the Honorary Assistant Secretary's report. The report outlined the status of the Society's publications re, advertisements, reviews, exchange of publications and details of sales for the year 1983/84. As there were no comments or questions from the members present, Dr. Chakraborty proposed the report to be accepted.

This was seconded by Dr. Idris Mohamad.

6. Editor's Report

The Editor, Dr. G.H. Teh presented his report on the Society's publication activities and thanked all contributors, reviewers, members of the Editorial Advisory Board and donors who have constantly helped in one way or another have supported the Society's publications.

On a question from Prof. Hutchison on why there was no regular appearance of the Warta, the Editor presented viewgraph on his lengthy explanations.

Mr. M.K. Choo suggested that sensitive issues should be discussed by the Council before printing.

At this juncture, Dr. Azhar requested to inspect the minutes of the Council meetings which were then given.

Dr. Paramanathan proposed that members should consider 'what has passed had passed' and suggested instead that members give guidelines to the Editor and the Council.

Dr. S.S. Almashoor then gave explanations on the Council's approval of minutes (Council's) of August 1983.

Dr. B.K. Tan suggested that publications in 1984 for 1983 should be dated as 1984.

Dr. J.K. Raj proposed the acceptance of the report, and this was seconded by Dr. Paramanathan.

7. Honorary Treasurer's and Honorary Auditor's Reports

Prof. Hutchison queried on the sudden drop of excess income over the previous year's expenditure, full breakdown of the Border Correlation Workshop and Speakers' Fund.

Mr. Choo further suggested that major expenditure items to have notes (or footnotes) to explain the said expenditure (or income).

Since the Treasurer is unavailable to be around, reports were then differed to another meeting.

Dr. J.K. Raj proposed adjournment of the meeting. This was seconded by Mr. Choo Mun Keong and agreed unanimously by the floor. It was also agreed that readjournment should be made as soon as possible on the advice of the Registrar of Societies Malaysia. Mr. Choo Mun Keong also proposed that continuation of the AGM to be called within a month or so. This was seconded by Dr. Paramanathan.

The meeting adjourned at 5.30 p.m.

5 April 1985

Minutes of the Continuation of the 18th Annual General Meeting which was adjourned on 28 April 1984 and held at 5.00 p.m. on Friday, 25 May 1984 at the Merlin Hotel, Kuala Lumpur.

The meeting was chaired by the Acting President, Mr. Leong Khee Meng.

Members present were:

Leong Khee Meng (Chairman)	Tan Boon Kong
Gan Ah Sai	B.K. Tan
Choo Mun Keong	Hugh Smith
Andrew Spykerman	K.R. Chakraborty
Yip Foo Weng	C.A. Foss
C.S. Hutchison	I. Metcalfe
Mohd. Zaki Othman	Yin Ee Heng
Alias Hj. Salleh	Mohd. Shah Abdullah
Samsuddin Ab. Hamid	J.K. Raj
Mohd. Shaari Hj. Abd. Rahman	Teh Guan Hoe
Tan Chin Fong	Mohd. Ali Hasan (Secretary)

7. Honorary Treasurer's and Honorary Auditor's Reports

Mr. Gan Ah Sai presented both the above reports. The Honorary Treasurer's reported that for the year GSM excess income over expenditure amounting to \$34,519.07. There were a number of queries (and contributions) from the floor as follows:

- (i) Prof. Hutchison asked about the expenses of Border Correlation which amounted to \$9,979.84. The Chairman replied that that amount include expenses for 3 sponsored key speakers, 750 copies of proceedings, dinner for the host, postage and telex expenses.
- (ii) On a question from Dr. Metcalfe whether other members should benefit, the Chairman replied that facilities, opportunities were also given to other members individually to take part in the Workshop.
- (iii) Mr. Mohd. Shah agreed that Proceedings of the Correlation Workshop will undoubtedly benefit members of GSM.
- (iv) Prof. C.S. Hutchison suggested that in future all seminars should be self supporting includes all social functions (currently only Petroleum Geology Seminar generates income to the Society).
- (v) Dr. K.R. Chakraborty asked whether there were any precedents in sponsoring members to GSM organised seminars? The Chairman replied none.

The reports were then accepted at the proposal of Dr. B.K. Tan. The motion was seconded by Mr. Andrew Spykerman.

8. Election of Honorary Auditor

Mr. Gan Ah Sai informed the members present that Mr. Peter Chew has agreed again to be GSM Hon. Auditor for the coming 1984/85 year. Mr. Yin Ee Heng then proposed the motion, which was seconded by Dr. B.K. Tan.

9. Any other Business

1) Prof. C.S. Hutchison's letter dated 30th March 1984

Matters discussed were as follows:

a) Postal ballot to amend the Constitution Article V

After deliberations 11 members agreed to the amendment and 3

against. The other problem that crops up as whether the Council should endorse the candidature and when voting took place, 9 agreed whereas 7 did not agree to the Council's endorsement of the candidature.

b) Changes to By-Law 3 regarding publications

- 1) Dr. Metcalfe proposed that the Council should set up a Publication Fund. The Chairman responded that the Council has try its level best to honour the needs of the majority to publish as many bulletins as possible.
- 2) After deliberations a vote was done on the following amendments (By-Law 3):
should now read '... publication and special publications (reduced price or free)' .
During voting 11 agreed and 4 against the above amendments.

c) GEOSEA V Proceedings

- 1) Dr. Chakraborty clarify the meaning of the phrase 'The Society intends to publish the Proceedings'.
- 2) Mr. Mohd. Shah Abdullah suggested the Council to consider the legal perspectives when other organisations intend to publish the proceedings.
- 3) On a question from Mr. Tan Boon Kong, the Chairman replied that the Society has not committed or spend anything on the Proceedings.
- 4) Finally members agreed on the arrangement that a sub-committee is to be formed to investigate and report back to the Council (within a month) on the feasibility of GSM publishing the Proceedings. Mr. Choo Mun Keong proposed Mr. Yin Ee Heng to be elected Chairman of this Subcommittee, seconded by Dr. J.K. Raj and agreed upon by members present.

2) Editor's 'Words of Apology' in Warta Geologi

The following discussions took place

- a) The Chairman clarified that the statement do not reflect the Council's opinion and therefore should be retracted.
 - b) Dr. J.K. Raj could not accept the statements and proposed that the Editor to retract them.
 - c) Mr. Tan Boon Kong felt that the statement did not portray any grave situation has taken place in the Society.
 - d) Mr. Mohd. Shah Abdullah suggested that the publication should not publish individual's sentiments.
 - e) The Editor remained silent on the issue and the Chairman deplored his action of inserting the apology in the Warta.
- 3) Apparently, a member present observed that the Editor was not involved in the Border Correlation Proceedings and suggested that the incoming Council and individuals should be more 'open' and 'sensitive' to the public/members suggestions.

4) Young Geoscientist Award

The Secretary, on behalf of the Chairman of the Young Geoscientists Award Committee, Dr. Syed Sheikh Almashoor, announced the recipient, Mr. Hee Kong Hin as the winner of the award. The presentation of certificate and a cheque worth \$150 will take place at a later date.

5) Increase in subscription and advertisements in Bulletin

1) Members present agreed that the new subscriptions to GSM membership be as follows (effective 1985/86)

Full Member:	\$40
Associate Member:	\$40
Student Member:	no change
Entrance fee:	\$20
Institutional Member:	\$100
Professional Member:	\$50 (Processing fee - no change)
Life Member:	\$400

2) With regards to having advertisements in Bulletin, voting was carried out as follows: For: 12; Against: 0

6) Professional Membership/Institute of Professional Geologists

The Chairman informed the Members present that the above matter will be re-activate to the fullest.

10. Announcement of the New Council (1984/85)

The Chairman announced the following members who make up the 1984/85 Council and also thank the previous Council for the previous works done.

President:	Leong Khee Meng
Vice President:	John Kuna Raj
Honorary Secretary:	Mohamad Ali Hasan
Honorary Assistant Secretary:	Koh Tuck Wai
Honorary Treasurer:	Gan Ah Sai
Honorary Editor:	Teh Guan Hoe
Immediate Past President:	Khoo Teng Tiong
Councillors (2-years):	E.H. Yin Abdul Hamid Mohamad S. Paramanathan Michael Leong
(1-year):	Andrew Spykerman Choo Mun Keong Syed Sheikh Almashoor Yeap Ee Beng

There being no other business, the meeting adjourned at 8.02 p.m.

5 April 1985

PRESIDENT'S STATEMENT
(LEONG KHEE MENG)

The 1984/85 term was a year of consolidation for the GSM.

There were 3 main priorities :-

1. To get Council moving as one cohesive body.
2. To ensure a healthy financial standing.
3. To get publications moving regularly.

These priorities are now elaborated :-

1. It was important for the Council to be united in all its actions otherwise the Society will slowly disintegrate. Your Council has achieved cohesiveness in the past year. Every officer and councillor know that he, including the President, was not above the Council.
2. As at 31/12/84, the Society has an excess income of over \$50,000 over expenditure, representing more than 100% improvement over the previous year. The Fixed Deposits have also increased considerably. The healthy financial situation is due to prudent and controlled spending. At the same time, we managed to maintain the objective of the Society i.e. to promote the geological sciences especially in Malaysia.
3. In its scientific endeavours for the promotion of the advancement of geological sciences particularly in Malaysia and the dissemination of geological knowledge and the effort to get geoscientists together in fellowship, the Society held the very successful Petroleum Geology Seminar.

It also arranged very high standard technical talks ranging from speakers like Prof. of Geology from Princeton University and the Colorado School of Mines to our own graduates from Universiti Malaya. A decision was also made regarding the publication of the Geosea V papers. We have agreed to allocate a maximum sum of \$20,000 for the publication. The Society's publications have come out in good time. Bulletin 17 should be out anytime now.

I now have a few words on the other GSM activities during the past year.

The Working Committee for the setting up of the Malaysia Institute of Professional Geologist has worked hard and they shall be going full swing in 1985. I am glad to inform you that at the Petroleum Geology Seminar, the Chairman of PETRONAS, Y M Raja Tan Sri Mohar bin Raja Badiozaman has openly voiced PETRONAS support for its formation. The Working Committee has now to work hard in 1985 to get similar support from the Ministry of Primary Industry, the Geological Survey of Malaysia and the Malaysia Mining Corporation.

There were several firsts initiated by your Council. For the first time a prominent Malaysian geologist has been recommended for a Federal Award. For the first time, Honorary Members will now receive distinctive certificates, the first being Mr Chung Sooi Keong, former Director-General of the Geological Survey of Malaysia. The Young Geoscientist Award will also be presented at the Annual Dinner.

In spite of several transfers/resignations of both council officers and councillors, the Society managed to perform well. For the success of this year Council, I would like to thank my fellow officers and council members for their dedication and co-operation and bright ideas. I must single out Dr Paramanathan for the appreciation, who took on the dual role of Editor and Secretary - the two most demanding positions. Thank you.

I would also like to thank all those who have contributed, especially to oil companies and petroleum service companies for both their financial and moral support.

What are in store for the new Council?

First the facts; for the Society to publish every year 6 issues of the Warta and 2 issues of Bulletins, the estimated cost is about \$25,000. The income from subscriptions based on the paying membership of 500 at \$40 each comes to only \$20,000. Therefore, financially, there is not enough for the publications.

For the 1984 Petroleum Geology about \$40,000 was donated. After expenses, the Society net about \$25,000. So we can see how important the Petroleum Geology Seminar is, not only for the financial life of the Society to enable it to maintain publications, but also for the dissemination of the knowledge of geology especially the offshore area. The 9th Petroleum Geology Seminar will not be held this year, so as not to clash with ASCOPE. Hopefully, it will be held in January 1986. This will surely affect the Income/Expenditure and the Balance Sheet for 1985.

I have earlier mentioned that a maximum sum of \$20,000 has been allotted for the publication of the Geosea V Congress Papers. The proceeds from the sales of the first volume will go into paying for the publication of the 2nd volume. Over 90 papers have been received. It will be for the new Council to work out to how to accommodate the publication of these papers within the allotted budget of \$20,000.

The new Council through the Working Committee must strive ahead this year to make the Malaysian Institute of Professional Geologists a reality. In this connection, I must make it clear that the professional members of the Geological Society of Malaysia may not automatically become professional geologists of the proposed Institute. More details will be known when the Working Committee has drawn up the constitutions and the Bylaws. At this point of time I do not wish to raise false hopes or expectations for the Societies' professional members, whose membership was primarily formed for the practice of the restricted field of mineral engineering.

Your Council held meetings/talks at various places from the staff room/ lecture room of the Geology Dept., Universiti Malaya to which we expressed our appreciation to the university authorities especially Prof. B K Tan - to the Staff Association premises. The new Council may like to find a more permanent place for the Society's meetings/ talks.

With this summary of the modest but yet significant achievements of the outgoing Council, we wish officers and members of the new Council all the best.

A.G.M.

13 April 1985.

HONORARY SECRETARY'S REPORT

(May 1984 - March 1985)

1. Council

The Council of the Geological Society of Malaysia (GSM) for the 1984/85 term was as follows:

President:	Mr. Leong Khee Meng (Petronas)
Vice-President:	Dr. John K. Raj (University of Malaya)
Honorary Secretary:	Mr. Mohd. Ali Hasan (University of Malaya) (till 9th November 1984) Dr. S. Paramanathan (Universiti Pertanian Malaysia) (from 10th November 1984)
Honorary Asst. Secretary:	Mr. Koh Tuck Wai (Petronas-Carigali).
Honorary Treasurer:	Mr. Gan Ah Sai (Geological Survey Malaysia)
Editor:	Dr. Teh Guan Hoe (University of Malaya) (till 7 December 1984) Dr. S. Paramanathan (Universiti Pertanian Malaysia) (from 8 December 1984)
Immediate Past President:	Dr. Khoo Teng Tiong (University of Malaya)
Councillors (1984-1986):	Dr. Abdul Hamid Mohamad (Universiti Kebangsaan Malaysia) (till 9th November 1984) Mr. Michael Leong (Petronas) Dr. S. Paramanathan (Universiti Pertanian Malaysia) Mr. Yin Ee Heng (Geological Survey Malaysia)
Councillors (1984-1985):	Mr. Andrew Spykerman (Malaysia Mining Corp.) Mr. Choo Mun Keong (Malaysia Mining Corp.) Dr. Syed Sheikh Almashoor (Universiti Kebangsaan Malaysia) Dr. Yeap Ee Beng (University of Malaya) Dr. Idris Mohamad (University of Malaya) (Councillor from 10th November 1984, replacing Dr. Abdul Hamid Mohamad)

2. Resignation

Mr. Mohd. Ali Hasan, the Honorary Secretary resigned his post on 9th November 1984 due to his being granted study leave in the United Kingdom. Dr. S. Paramanathan was elevated to replace him. Dr. Abdul Hamid Mohamad also resigned as Council Member on the 9th November 1984. Dr. Idris Mohamad was appointed by Council to replace him.

3. Council Meetings

The GSM Council 1984/85 met twelve (12) times over the last year. Meetings were normally held on the first Friday of every month. As required the Council established a number of Sub-Committees such as the Nominations Committee, Young Geoscientist Publication Award, etc.

4. Membership

The total membership of the Society as of 31st March 1985 was 590. A breakdown of the membership is given in Table 1.

Table 1: Membership of the Society

Country	Institutional	Full	Student	Associate	Life	Honorary	Total	Professional
Africa	1						1	
Australia	2	37			1		40	7
Brunei		1					1	
Canada		7					7	
Europe	9	27	2	1	2	1	42	
Hong Kong		2					2	
Indonesia	1	11				1	13	
Japan	1	11				1	13	
New Zealand		2					2	
Philippines		1					1	
South America		1					1	
Singapore	4	30					34	
Taiwan		1					1	
Thailand	1	14	1		1	1	18	
Turkey		1					1	
USA	1	30	3	1	1		36	1
Malaysia	13	287	50	18	9		377	33
Grand total	33	463	56	20	14	4	590	41

5. Activities of the GSM

After a very successful GEOSEA V Congress held just before the AGM this year, the activities of the Society were somewhat reduced. In spite of this, the GSM has been one of the more active professional societies in Malaysia. The activities of the GSM for the period from May 1984 to April 1985 are listed in Table 2.

6. Publications

The sales of the Society's publications during the year has been rather slow. Sales of the earlier bulletins has still been the main bulk of the purchases. The Society is still carrying a large amount of stock and the incoming Council should seriously consider ways and means to reduce this stock. The Council should also seriously consider printing less copies so that the stock carried would be less. This slow sales can be expected to become more serious when members are charged for bulletins in the future.

The Society continues to have exchange of publications with many National Libraries.

The stock as of 31st March 1985 and sales in 1984/85 are given in Table 3.

Table 3: Stock of publications

Bulletin no.	Sales 1984/85	Stock remaining
1	7	204
2	7	520
3	7	553
4	7	517
5	7	260
6	12	892
7	7	660
8	7	259
9	4	180
10	5	175
11	10	435
12	4	298
13	4	205
14	5	298
15	7	240
16	663*	336
Field Guide 1	7	226
Abstracts (Bulletin 6)	3	40
Stratigraphic Correlation	22	728

* inclusive of free copies to members

7. Regional Representatives

The following members were appointed as the GSM Regional Representatives:

- i) Mr. Aw Peck Chin (Ipoh)
- ii) Mr. Denis Tan (Sarawak, till 7th Dec. 1984)
Mr. Victor Hon (Sarawak, from 8th Dec. 1984)
- iii) Mr. Lim Peng Siong (Sabah)
- iv) Mr. Loke Meng Heng (P. Pinang)

Table 2: Activities of the Geological Society of Malaysia (May 1984-April 1985)

Date	Activity	Organisers/Speakers	Place
<u>A. Seminars</u>			
December 3 & 4 1984	Petroleum Geology Seminar	GSM	Merlin Hotel
<u>B. Technical Talks</u>			
1. August 22 1984	Structure and mechanics of the active Taiwan Fold and Thrust Belt	Prof. J. Suppe (Princeton Univ., USA)	Universiti Malaya
2. August 29, 1984	Graduates/Young Scientists Evening a) Tertiary basins of the Bukit Garam District, Sabah and their regional implications b) Sedimentology of the Crocker Formation and its regional implications	K.C. Tham (Universiti Malaya) S. Sivagnanam (Universiti Malaya)	Universiti Malaya
3. October 22 1984	Uranium Mineralization	Dr. Allan Miller (Geological Survey Canada)	Universiti Malaya
4. November 6 1984	Application of Geology in the Construction Industry	Prof. J. Knill (Imperial College, UK)	Universiti Malaya
5. December 14 1984	Microscopic aspects of Mineral Weathering	Prof. G. Stoops (Belgium)	Universiti Malaya
6. January 8 1985	Hydrogeology of Limestone	Dr. D.I. Smith (ANU, Australia)	Universiti Malaya
7. March 7 1985	New surface prospecting techniques in hydrocarbon exploration	Dr. Warples (Texas, USA)	Universiti Malaya
8. March 18 1985	Fossil plants from the Upper Mississippian in the Illinois Basin, USA	Dr. J.R. Jennings (Southern Illinois University, USA)	Universiti Malaya

8. Matters arising from the AGM

a) Amendments to the Constitution

Subsequent to the decision at the AGM a postal ballot was held to amend Article V of the Constitution. This amendment was approved by the Members.

b) GEOSEA V Proceedings

As recommended at the AGM a sub-committee was formed to look into the matter and as members are aware the GSM will now be publishing the papers as Bulletin nos. 18 and 19. Over 90 papers have been received and these are now being reviewed. These two special bulletins are expected to be published by September 1985.

c) Professional Membership/Institute of Professional Geologists

The Council appointed a sub-committee to look into this matter. This Committee chaired by Mr. Koh Tuck Wai has submitted its report and the next in-coming Council will be asked to act on it.

9. GSM Representatives for various Committees/Organization

1. COSTAM (Confederation of Scientific and Technical Association of Malaysia) (Dr. T.T. Khoo and Mr. Mohd. Ali Hasan)
2. SIRIM - Clay (Dr. J.K. Raj)
3. AAPG House of Delegates (Mr. Leong Khee Meng)
4. GEOSEA Union (Mr. Leong Khee Meng)

10. Summary and Appreciation

In general, the Society has been less active than the previous year. This 1984/85 year has been a year of consolidation and a lot of effort has been placed to try to bring the Society's publications on time. This has been a successful year.

The Council would like to take this opportunity to thank all sponsors/organisers who assisted in seminar/workshops, etc. Thanks are also due to the many donors who have continued to support the Society with financial assistance.

The Society wishes also to place on record the appreciation and thanks for the support given by many organisations (in particular, the Department of Geology, University of Malaya) and individuals without whose support the Society could not carry out its activities successfully. Last but not least, thanks to all members of the GSM who have continued to support the activities of the Society.

Dr. S. Paramanathan
Hon. Secretary

5 April 1985

EDITOR'S REPORT

During the year 1984/85 the main attempts by the Editor was to attempt to clear the backlog of publications and to try to bring the publications out on time. The bimonthly WARTA GEOLOGI has been released regularly. In fact the slight delay in it being released is due to delays at the printing stage. Attempts are being made to overcome this. Warta, Vol. 11, No. 1 (Jan-Feb 1985) has been circulated to members.

The long overdue Bulletin 16 was finally released and Bulletin 17 which was another voluminous issue was also sent to the printers in Nov/Dec 1984 but was only printed in March 1985. The Editor is also glad to inform members that the papers presented at GEOSEA V will now be published as Bulletin nos. 18 and 19. Over 90 papers have been received and their reviews are currently in progress. The Editor is confident that both these volumes will be released by September 1985. Unfortunately due to increasing publication costs, members would have to pay for these Bulletins.

The GSM Council also decided to publish Vol. 11 of the Thailand-Malaysia Border Correlation - consisting of late papers and discussions. This publication is the result of a commitment made by the Society to the Geological Society of Thailand. This is currently in the printing stage.

The GSM Council has also decided to publish a special volume on Petroleum Geology and already 2 papers have been received and are currently being reviewed. This publication will be released by November 1985 before the next Petroleum Geology Seminar.

The Editor would like to thank Schlumberger Overseas S.A. for taking up advertisement space, all our reviewers for their excellent work and the Editorial Advisory Board for assisting and supporting the Editor on editorial procedures and maintaining the high standard of the Society's publications. Last, but not least, I would like to thank all contributors and all those who have constantly helped in one way or another, and not forgetting the many donors who have supported the Society's publications.

Dr. S. Paramanathan
Acting Editor

5 April 1985

Honorary Treasurer's Report
1984

The excess income over expenditure for 1984 is M\$53,294.04. There is an appreciable increase in income derived from the fixed deposit interests, advertisements in our publications and the Petroleum Geology Seminar. Income derived from sales of publications decreased by 45%. Membership subscriptions showed a slight decrease due to late payment by members.

Your Society is still financially sound and healthy as at 31st December 1984. To all the donors and all members of the Society, we wish to acknowledge your kind gestures and support during the year.

I wish to take this opportunity also to thank the Society's Honorary Auditor, Mr. Peter Chew for his excellent services given to the Society.

GAN AH SAI
Honorary Treasurer

5 April 1985

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

To 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 1984 give a true
and fair view of the state of the
Society's financial affairs.



CERTIFIED PUBLIC ACCOUNTANTS
AUDITORS

Date: 26 February 1985

Kuala Lumpur

BALANCE SHEET AS AT 31 DECEMBER 1984

<u>FIXED ASSETS</u>	<u>1983</u>	<u>1984</u>	
Office equipment	\$ 24,099.02	\$ 24,099.02	
Less: Accumulated depreciation	11,383.00	13,792.00	
	<u>\$ 12,716.02</u>		\$ 10,307.02
<u>CURRENT ASSETS</u>			
Fixed deposits	\$ 93,162.95	\$105,386.82	
Expenses prepaid:			
Geosea V	6,207.47	-	
Telephone deposit	300.00	300.00	
Cash at bank	39,331.84	90,761.81	
Petty cash	206.25	-	
	<u>\$139,208.51</u>	<u>\$196,448.63</u>	
<u>LESS CURRENT LIABILITIES</u>			
Subscriptions in advance	\$ 1,807.35	\$ 396.00	
Petty cash	-	200.52	
Geosea V	-	6,532.65	
	<u>\$ 1,807.35</u>	<u>\$ 7,129.17</u>	
	<u>\$137,401.16</u>		<u>\$189,319.46</u>
	<u>\$150,117.18</u>		<u>\$199,626.48</u>
Represented by			
<u>CAPITAL FUND</u>			
Balance as at 1.1.84.	\$ 77,018.99	\$100,538.06	
Add: excess of income over expenditure	23,519.07	53,294.04	
	<u>\$100,538.06</u>		<u>\$153,832.10</u>
Student Loan Fund	9,801.91	10,101.91	
Petroleum Geology Seminar 1984	37,768.79	33,684.05	
Young Geoscientist Award	2,008.42	2,008.42	
	<u>\$150,117.18</u>		<u>\$199,626.48</u>

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31 DECEMBER 1984

<u>INCOME</u>	<u>1983</u>	<u>1984</u>	
Entrance fee	\$ 449.80	\$ 550.00	
Subscriptions	16,275.10	15,269.59	
Fixed deposits interest	4,574.05	12,223.87	
Advertisements	200.00	1,500.00	
Sales of publications	8,021.41	4,385.71	
Professional Membership	850.75	300.00	
Petroleum Geology Seminar 1983	31,652.49	39,929.79	
Rockcon books	470.00	-	
Xerox	1,217.00	224.15	
Rockcon/Border Workshop	3,740.97	23.00	
Economic Geology Seminar	105.00	-	
	<u>\$67,556.57</u>		<u>\$74,406.11</u>
<u>LESS EXPENDITURE</u>			
Bank charges	\$ 476.65	\$ 489.75	
Depreciation on office equipment	2,409.00	2,409.00	
Honorarium	2,745.00	3,111.00	
Postage	4,303.01	3,337.22	
Printing & Stationary:			
Misc.	\$ 650.80	3,689.15	
Newsletters	7,939.50	5,064.35	
Bulletin 15	-	9,180.00	
Refreshments	-	8,590.30	
Subscription to Professional bodies	116.66	101.50	
Sundry expenses	409.80	-	
Annual General Meeting	75.00	460.60	
Border Workshop	9,979.84	348.00	
Telephone expenses	851.80	-	
Speakers' account	1,032.07	400.50	
Geoscience Education Project	2,907.83	1,341.55	
Geosea IV	797.34	522.65	
	<u>\$44,037.50</u>		<u>\$21,112.07</u>
EXCESS OF INCOME OVER EXPENDITURE	<u>\$23,519.07</u>		<u>\$53,294.04</u>

BERITA - BERITA PERSATUAN
(NEWS OF THE SOCIETY)

GSM COUNCIL 1985/86

A number of changes have been made to the Council for 1985/86 from that proposed by the Nomination Committee (see Warta Geologi, Vol. 10, no. 5). This was necessary as a number of Council Members who agreed to serve on the 1985/86 Council had since left for overseas and have tendered their resignation. Thus in accordance with Article VI, Section 2 of the Constitution the Council (1985/86) at its first meeting filled the vacancies thus created. The new Council for 1985/86 is now as follows:

Presiden (President)	: John Kuna Raj, Jabatan Geologi, Universiti Malaya, Kuala Lumpur
Naib Presiden (Vice-President)	: Yin Ee Heng, Jabatan Penyiasatan Kaji- bumi, Kuala Lumpur
Setiausaha Kehormat (Honorary Secretary)	: S. Paramanathan, Jabatan Sains Tanah, Universiti Pertanian Malaysia, Serdang
Penolong Setiausaha Kehormat (Honorary Assistant Secretary)	: Koh Tuck Wai, Petronas-Carigali, P.O. Box 12407, Kuala Lumpur
Bendahari Kehormat (Honorary Treasurer)	: Chow Weng Sum, Jabatan Penyiasatan Kajibumi, Kuala Lumpur
Pengarang (Editor)	: Teh Guan Hoe, Jabatan Geologi, Universiti Malaya, Kuala Lumpur
Presiden Yang Dahulu (Immediate Past President)	: Leong Khee Meng, Petronas, P.O. Box 12444, Kuala Lumpur
Ahli-ahli Majlis 1985-87 (Councillors 1985-87)	: Abdullah Hasbi Hj. Hassan, SEATRAD Centre, Tiger Lane, Ipoh, Perak Ahmad Said, Petronas, P.O. Box 12444, Kuala Lumpur Azhar Hussein, Jabatan Geologi, Universiti Malaya, Kuala Lumpur Albert Loh, Malaysia Mining Corp., P.O. Box 10300, Kuala Lumpur
Ahli-ahli Majlis 1985-86 (Councillors 1985-86)	: Michael Leong, Petronas, P.O. Box 12444, Kuala Lumpur Idris Mohamad, Jabatan Geologi, Universiti Malaya, Kuala Lumpur Hamzah Mohamad, Jabatan Geologi, Univer- siti Kebangsaan Malaysia, Bangi Wan Fuad Wan Hassan, Jabatan Geologi, Universiti Kebangsaan Malaysia, Bangi
Juruodit Kehormat (Honorary Auditor)	: Peter Chew

SOCIETY'S PUBLICATIONS - PROGRESS REPORT

1. GEOSEA V Proceedings (Bulletin nos. 18 & 19)

All the 94 papers received have been reviewed. The final round of editing is now in progress. However it has yet to be decided which articles would be in Bulletin 18 and 19 respectively. This decision has been delayed to give authors of papers more time to reply to reviewers' comments. In attempting to decide which paper should be in which volume the Editorial policy would be to 'balance' both volumes so that the sales of both volumes will be equal. All authors can expect to be informed by June as to which volume their paper would be published. The publication date for both the volumes however is still expected to be August 1985 and we are hopeful that this date can be met as some papers are already ready for type-setting by the printers.

2. WARTA GEOLOGI

The delay in the release of Warta Vol. 11, No. 1 (Jan-Feb) 1985 was unavoidable due to some technical problems. However this issue (Vol. 11, no. 2, Mar-Apr 1985) will be released on time.

The Editor would also like to appeal for more geological notes for inclusion in the WARTA. Every attempt is being made to minimise the time lapse between submission and publication of the articles (see for example this issue).

3. Border Correlation - Volume II

There is a delay in the publication of the above volume due to some of the reports of the various committees being unavailable. We are hopeful however that this matter will be resolved shortly. If all goes well we should be able to publish this volume by July 1985.

4. Special Bulletin on Petroleum Geology

To-date seven papers have been received for consideration of publication in this special volume. The papers received to-date are:

1. Houba, Wolfgang: Aspects to the resolving power of 3D seismic surveys
2. Somturk, A.R. & Des Ligneris, S.: 'Litho' A computerized approach to lithofacies identification
3. Liu, C.H. & Pan, C.S.: Seismic evidences of relative changes of sea level in the Tertiary depositional sequences near Taiwan
4. Buttkus, Burkhard: Seismic HC reservoir prediction. A (critical) review on the determination of lithological parameters from seismic data.
5. Wood, B.G.M.: The mechanics of progressive deformation in crustal plates - a working model for Southeast Asia
6. Abdul Halim Quazi: Direct detection of hydrocarbon by electaflex method
7. Level, B.K. & Awang Kasumajaya: Slumping at the Late Miocene Shelf - Edge, Offshore West Sabah: a view of a turbidite basin margin.

Editorial reviews of the above papers are already in progress and the authors will be informed in due course. The Editor is still prepared to receive a few more papers for this Special Bulletin which we hope to publish by September 1985.

S. Paramanathan
Acting Editor

YOUNG GEOSCIENTIST AWARD 1985

Please be informed that nominations of author(s) for the above award are now invited from all Members of the Society except Student and Associate Members. Nominations should be of young geoscientist(s) who have published papers in the previous calendar year (1984). Relevant excerpts concerning the nomination of young geoscientist(s) and conditions of award are listed below:

Eligibility

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

Procedure

8. (1) Nominations for an award must be made by a member who is not a Student or Associate Member
 - (2) an author cannot nominate himself for the award
 - (3) the written consent of the author is required.
9. (1) The award, in the opinion of the Board, shall be made to the author of the best paper in geology about Malaysia or the region and/or should be of general interest to the local community of geoscientists.
 - (2) Papers with joint authorship may be considered, if a statement as to the relative responsibility of the authors, signed by all the authors, is attached
 - (3) In the case of joint authorships, the Board may make the award to one author, or to two or more authors, provided these qualify under subsection 5(1).

Nominations should be on prescribed forms that be obtained from the Hon. Secretary of the Society. Nominations should be received by the Chairman, Dr. Azhar Hj. Hussein, Young Geoscientist Publication Award Committee, c/o Dept. of Geology, University of Malaya, Kuala Lumpur 22-11, before the 31st of December 1985.

KEAHLIAN (MEMBERSHIP)

The following membership applications were approved by the Council:

Full Members

1. Barry G.M. Wood, c/o Marathon International, 174 Marylebone Road, London NW15AT, England
2. William A. Lau, Gaffney, Cline & Associates, 21 Pandan Road, Jurong Industrial Estate, Singapore 2260

3. Geoffrey Wee, Rahman Hydraulic Tin Bhd., P.O. Box WD1, Klian Intan, Upper Perak.

Associate Member

1. Liew Yee Yow, Malaysia International Consultants Sdn. Bhd., 14, Jalan 20/16A, Paramount Garden, Petaling Jaya, Selangor

Student Members

1. Soo Meng Fook, 26 Jalan Wayang Gambar, Taiping, Perak
2. Che Aziz b. Ali, Jab. Geologi, Universiti Kebangsaan Malaysia, Bangi.

Professional Member

This is to inform you that Mohd. Zailon Ramli of Geological Survey of Malaysia, P.O. Box 560, Kuching, Sarawak, has been provisionally approved by the GSM's Board of Professional Members. If any Member has any objection to his being made a Professional Member, he/she should write to the Hon. Secretary stating the reasons for the objection. The objection should reach the GSM not later than 30 June 1985.

PERTUKARAN ALAMAT (CHANGE OF ADDRESS)

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

1. Hugh A. Smith, Rockfall Asia Sdn. Bhd., 12 Pesiaran Hampshire, Off Jalan Ampang, Kuala Lumpur
2. Joseph E. Friend, Diamond Shamrock, 456 Alexandra Road O7-02, Singapore 0511
3. Tamotsu Nozawa, Geology Department, Faculty of Science, University of Shimane, 1060 Nishikawatsu, Matsue, Japan 690
4. A.L. Scholtens, Lupineweg 58, The Hague, Netherlands
5. Wilson S. Fontanelli, a/c Mineracao Oriente Novo S/A, Rua Alexandre Guimaraes no. 1927, Porto Velho-Rondonia, CEP 78.900, Brazil.

PERTAMBAHAN BARU PERPUSTAKAAN (NEW LIBRARY ADDITIONS)

The following publications were added to the Library:

1. Bulletin Sc. & Technology Malaysia, vol. 3, nos. 3 & 4, 1984
2. A directory of SIRIM certified products 1983/84
3. Grondbooen hamer, nos 3 & 4, 1984
4. Mollusken uit het mioceen van winterswijk - miste by A. W. Janssen
5. Acta Palaeontologica Sinica, vol. 23, nos. 4-6, 1984
6. Journal of Stratigraphy, vol. 8, nos. 2-3, 1984
7. AAPG Explorer, Jan-March 1985
8. Journal of the Faculty of Science, The University of Tokyo, Section II-Geology, Mineralogy, Geography, Geophysics, vol. 21, no. 1, 1984.
9. Bibliography of Geology and Geophysics of the South Pacific, 1983
10. Contributions to the Geology of the Great Australian Basin in NSW by J.M. Hawke & J.N. Cramsie, 1984
11. Jurutera Galian, no. 17, 1985
12. Commonwealth Science Council, Nov-Dec 1984 & Mar-Apr 1985
13. Tin, vol. 12, no. 1, 1985
14. Seatrad Bulletin, vol. v, nos. 3 & 4, 1984
15. Asian Oil and Gas, Nov & Dec 1984 & Feb 1985
16. Episodes, vol. 7, no. 4, 1984

17. Oklahoma Geological Survey, Bull. 136, 1984
18. Petroleum News, vol. 15, no. 12, 1984 & vol. 16, no. 1, 1985
19. National Library Singapore, Adult Reference Collections, accession list, Jan, 1985
20. Bulletin of the American Museum of Natural History, vol. 179, article 1, 1984
21. American Museum, Novitates, Nos. 2800, 2799, 2796, 2795, & 2793, 1984
22. Acta Micropalaeontological Sinica, vol. 1, nos. 1 & 2, 1984
23. Memoirs of Nanjing Institute of Geology & Palaeontology, nos. 19 & 20, 1984
24. Palaeontologia Sinica, new series A, no. 8, 1983
25. Palaeontologia Sinica, new series B, nos. 19 & 20, 1983
26. Institution of Mining & Metallurgy Bulletin nos. 939 & 940, 1985
27. Memoirs of the Ehime University, vol. X, no. 1, 1984
28. Annual Report, Institute of Geoscience, The University of Tsukuba, no. 10, 1984
29. Geophysical Research Bulletin vol. 22, no. 4, 1984
30. AGID News, no. 42, 1985
31. Institution of Mining & Metallurgy, Transactions, Section A, vol. 93, Oct. 1984
32. Scripta Geologica, nos. 73, 74 & 75, 1984
33. Bulletin of the Kitakyusku Museum of Natural History, no. 5, 1984
34. Bulletin National Science Museum, vol. 10, no. 4, 1984

B E R I T A - B E R I T A L A I N (O T H E R N E W S)

NEW PUBLICATIONS

GEOLOGY TODAY - A REVIEW

Published 6 times a year by Blackwell Scientific Publications, P.O. Box 88, Oxford, England. Annual subscriptions to overseas readers is £14.50. Special rates to fellows of the Geol. Society of London.

Volume 1 (No. 1) (Jan-Feb) appeared this year. This 32 page issue has soft covers and is of size 28 x 21 cm. The cover has a colour photograph of a famous geological locality, in this issue of the world's largest natural arch in Utah.

GEOLOGY TODAY will reflect the breadth of the science of geology at a non-specialist level and will include 'a variety of main articles, shorter notes, field excursion guides and news items covering all aspects of pure and applied geology'. Each issue will have an opinion page. The magazine will 'seek to bring the subject of geology to those who have yet to discover its pleasures'.

The first issue has news and comment on the Natural Environment Research Council (NERC), and the British Earthquake of July 1984. An amusing Opinion section by Derek Ager pokes gentle fun at geological terminology. Most of us would know that the Institute of Geological Sciences (IGS) has recently been renamed the British Geological Survey (BGS). However the acronyms are more widely known as 'International Geranium Society' and 'British Geriatric Society' or 'British Goat Society'. Southeast Asian readers should take heed of this warning. What do you mean by GSM, for example?

A section named GEODIGEST gives present developments on continents/oceans, a situation where the Law of Superposition does not apply, mantle plumes, and pitchstone localities in Scotland. There is a report on the International Geological Congress held in Moscow in August last year.

Major articles are on the Carboniferous crustaceans by E.N.K. Clarkson, marine mineral resources by D.S. Cronan, and a geological tour of the S.W. United States by T.D. Ford. All these papers are well illustrated in black-and-white.

Regular features will be Fossils Explained (Part 1 is on Brachiopods), Minerals Explained (Part 1 is on fluorite), and a Museum File (Part 1 is on the Ulster Museum Geology Department).

Number 1 of this interesting new magazine ends with several book reviews and a diary of meetings to be held in Britain which should be of general interest.

This new magazine should have its greatest appeal to British readers but the editors stress that future writers will be drawn internationally. It is a magazine for the non-specialist, for readers who are interested in the complete spectrum of geology at the non-specialist level. This magazine has a definite place in all school libraries where geology is taught. It should also have a definite appeal for geology undergraduates, not so much on the periodical shelves of the main library, but in the class reading room where students have more free access. I hope that teachers of first year classes can make this new and interesting magazine available to their students. I cannot seriously recommend it to the professional geologist. At £14.50 a year, postpaid, the magazine is not exactly at give-away price, but is attractive if it finds its way in the hands of the greatest number of university undergraduates and high school students.

Prof. C.S. Hutchison

GALUNGGUNG - THE 1982-1983 ERUPTION - J.A. Katili & Adjat Sudradjat

Limited stocks of this new book are available from the Indonesian Petroleum Association. The 100 page book in English is lavishly illustrated with colour photographs and field sketches but is also pitched at a scientific level.

The price is Rp. 20.000, - per copy and all the money will go the GEOSEA Union (Geological Association of S.E. Asia) donated by Mr. Katili who is the first president of the fledgling organisation.

SAINS MALAYSIANA (EARTH SCIENCES) - CALL FOR PAPERS

Sains Malaysiana began to appear in mid-1972 as a scientific journal published by the Universiti Kebangsaan Malaysia. Initially the journal contained a collection of articles of natural sciences, life sciences and mathematics. Since Volume 12 in 1983, one special issue on Earth Sciences has been published each year. Sains Malaysiana (Earth Sciences) of Volume 14, Number 1, 1985, will be published shortly and contains articles as listed below.

It has been the policy of the Editorial Board to invite and publish suitable articles from contributors outside UKM. This practice has been maintained as the contents of past issues attest.

The Editorial Board (Earth Sciences) is now planning for the Volume 15 issue to be published in early 1986 and would cordially like to invite contributors to send articles to the Editorial Board. Each article needs synopses in Bahasa Malaysia and English, but the main texts may be written in either language. For style, please consult the published issues. For further information, please write to Sains Malaysiana, Editorial Board Earth Sciences, Dept. of Geology, Universiti Kebangsaan Malaysia, Locked Bag 13, Bangi, Selangor.

Back issues can be ordered from the Penerbit, Universiti Kebangsaan Malaysia, Bangi, Selangor.

GEOLOGY OF THE TAURUS BELT

This publication is a collection of 31 papers presented at the International Symposium on the Geology of the Taurus Belt held in Ankara, Turkey in September 1983. It contains papers on the geology and mineral resources of the Taurus Orogenic Belt which represents a key region of the Alp-Himalaya system in the Eastern Mediterranean. Papers are mostly regional geologic studies furnished by detailed maps but specific studies on ophiolites and some ore deposits are also included.

Price: US\$55/- hardback (including postage)
US\$45/- Paperback

All orders must be accompanied by a copy of bank draft addressed to: Etibank Ankara Merkez Subesi, Ankara, Turkey. Account No. 5102.

Order from: Dr. Guner Unalan, ISGT Secretary, Petrol ve Jeotermal, Enerji Dairesi, MTA Genel Mudurlugu, Ankara, Turkey.

EMPLOYMENT CORNER

Mr. Zaizakrani b. Md. Salleh, 27 Lorong Bayu, Jalan Sultanah, Alor Setar, Tel. 04-726185. Mr. Zaizakrani is a recent graduate of Carleton University, Ottawa, Canada, majoring in Geology. Has some undergraduate working experience and also knowledge of computers. Anyone interested in employing En. Zaizakrani please contact him direct.

XITH INTERNATIONAL CONGRESS OF CARBONIFEROUS STRATIGRAPHY AND GEOLOGY, BEIJING, CHINA, SEPT 7-11 1987

Topics: Palaeontology, Palaeogeography, and Palaeoecology
Coal Petrography
Economic Geology
Sedimentary Petrography
Geotectonics

Special symposia will be organized at the request of the International Committee or Working Groups on the following topics:

Carboniferous - Permian Boundary
Devonian - Carboniferous Boundary
Subdivision of the Carboniferous
Carboniferous and Permian of Gondwanaland
Evolution of Tethys during Carboniferous and Permian

Languages: The working languages will be English and Chinese.

Pre- and Post-Congress Field Excursions: Field excursions to some important sections of the Carboniferous and the Permian in South and North China will be arranged by Chinese Geological Society and Palaeontological Society.

Registration Fee: US\$300 (subject to change)

Abstracts: The deadline for abstracts to be received is March 15th, 1986. Each abstract should be written in English with no more than 500 words. The Permanent Committee and the Chinese Organizing Committee will be responsible for selecting papers and publishing the proceedings of the Congress.

Meetings of IUGS Subcommissions and Committees: There will be time available for IUGS Subcommittee on Carboniferous, IUGS Subcommittee on Permian and the International Committee of Coal Petrography to hold their respective meetings during the Congress. Programs for these meetings will be circulated by the Subcommissions and Committees concerned.

Further Information: Prof. Yang Jingzhi, Chairman of the Chinese Program Committee, Nanjing Institute of Geology and Palaeontology, Academia Sinica, Nanjing, China.

SEMINAR ON EXPLORATION TECHNIQUES FOR PRIMARY TIN DEPOSITS

September 5-6, 1985
Tambun Inn, Ipoh, Malaysia
Registration fee: M\$100

The Southeast Asia Tin Research and Development (SEATRAD) Centre with assistance and cooperation of the Geological Survey of Malaysia and the tin mining industry in Indonesia, Malaysia and Thailand will organize a seminar on exploration techniques for primary tin deposits which will be held at Tambun Inn, Ipoh on 5-6 September 1985.

Objective

The seminar is aimed at providing basic knowledge on geology and exploration for primary tin deposits for the benefit of practising miners who are familiar with alluvial tin exploration and mining techniques but have little knowledge of primary tin exploration.

Topics

The seminar will be organized in the form of a teaching workshop, with selected speakers who will present lectures on various aspects of primary tin exploration. The following topics will be covered:

- 1) Types of primary tin deposits
- 2) Selection of favourable target areas based on geology and literature survey.

- 3) Geochemistry, heavy mineral survey and follow-up techniques:
 - stream sediment
 - heavy minerals and rocks
 - soils including pitting, trenching and drilling
 - analytical techniques
- 4) Geophysics
- 5) Exploration costs
- 6) Case studies

Participation

All interested participants are invited to attend. Each person wishing to attend the seminar should fill in the registration form (obtainable from SEATRAD Centre) and sent it together with the registration fee to SEATRAD Centre.

Registration Fee

The registration fee for the seminar is M\$100. Payment of the fee will entitle registrants to:

- . receive a volume of papers covering the seminar topics
- . attend the workshop sessions
- . tea/coffee during the breaks
- . lunches during the the two-day sessions and
- . field trip (own transport for Malaysian participants)

Payment should be made in bank draft in Malaysian Ringgit, payable to SEATRAD Centre. Please use one registration form per participant only. Photocopies forms for additional participants are acceptable.

Field Trip

A half-day field trip to primary tin deposits around Ipoh will be organized for interested participants on 7 September 1985. Transportation will be provided for non-Malaysian participants.

Accommodation

Since the workshop will be held at Tambun Inn, arrangements for accommodation at the hotel will be made for interested participants at the following special rates:

Single Room: M\$59.00 (nett)
Double Room: M\$64.00 (nett)
Deluxe Room: M\$70.00 (nett)

For further information: The Director
Southeast Asia Tin Research and Development
(SEATRAD) Centre
Tiger Lane
Ipoh, Malaysia.

KURSUS-KURSUS LATIHAN DAN BENGKEL-BENGKEL (TRAINING COURSES AND WORKSHOP)

THE ORIGIN AND EVOLUTION OF SEDIMENTARY BASINS

In Houston, Texas - April 23, 24, 25, 1985

In London, England - September 24, 25, 26, 1985

Summary: This is an intensive advanced short course for those with a background in exploration geology and/or geophysics, designed to provide an in-depth view of recent developments toward understanding the geology and geophysics of basin formation. The role of plate tectonics as an exploration framework and critical tool in basin evaluation is stressed. Emphasis will be placed on the mechanical and thermal evolution of sedimentary basins and on potential hydrocarbon maturation and migration as a function of time and depth in the basins. For further information please write:

John F. Dewey/Walter C. Pitman III
TECTAN INC.

Box 21, Piermont, N.Y. 10968, USA

or call Walter Pitman at (914) 359-2900 ext. 397

or John Dewey (England) (385) 64971

PETROLEUM AND GEOLOGICAL ENGINEERING INC. OIL AND GAS TRAINING PROGRAMS: SUMMER 1985

Natural Gas Operations - Production, Reinjection and Storage - applies technology of natural gas production, reinjection and storage to effective management of natural gas resources. Singapore - June 17-21.

Drilling Fluids and Related Hole Problems - provides the latest drilling concepts and techniques for reducing drilling costs. Some solutions prepared on a micro-computer are used. Singapore - June 24-28.

Basic Reservoir Management Practices - offers basic coverage of the concepts needed to understand the performance of reservoirs and their response to various operating practices. Singapore - June 24-28.

Crude Oil Dehydration and Desalting - concentrates on processes and equipment used in field treatment of crude oil emulsions, foamy crudes and crudes containing salt impurities. Jakarta, Indonesia - July 8-12.

Oil and Gas Well Testing - teaches the practical design, analysis, and application of oil and gas well tests. Consistent and logical methods for applying test results are presented. Jakarta, Indonesia - July 15-19.

Applications of Petroleum Fluid Data - emphasizes the applications of petroleum fluid data to production and reservoir flow systems. The viewpoint is practical not theoretical. Jakarta, Indonesia - July 22-26.

Total Optimization of Production Systems - is organized to present practical methods of analyzing and optimizing production systems for both oil and gas wells. Jakarta, Indonesia - July 29-August 2.

Metallurgy for the Oil Field - offers a complete overview of metallurgy as it applies to material quality, fabrication, and applications in the oil field. Jakarta, Indonesia - August 7-9.

Corrosion Technology - offers comprehensive training in the fundamentals and oil field applications of corrosion technology including corrosion prevention and testing. Jakarta, Indonesia - August 12-16.

Gas Process Plant Operation - is planned to expand the experienced operator's understanding and basic approach to the solution of process and equipment operation problems. Singapore - September 9-13.

Process and Pipeline Safety Practices - is designed to train participants in the safety practices to be followed in process and pipeline operations, facility planning and operating conditions. Singapore - September 16-20.

For further information: Petroleum and Geological Engineering, Inc.,
1839 Rolling Hills, Norman, Ok. 73069, USA.

MINERAL PROCESS DESIGN

Postgraduate M.Sc. Course, Imperial College, Ryoal School of Mines

Course outline

The course trains the student to conduct a thorough evaluation, both technical and economic, of a proposed or existing mineral processing operation. This evaluation leads in the former case, to a feasibility study report or, in the latter case, to the achievement of optimum performance.

The course comprises lectures, practicals, tutorials and a process design project.

The lectures consist of

- a) Mineral Appraisal - a mineralogical and chemical investigation of the raw material to identify potential products, separation process design parameters, etc.
- b) Process selection and Testing - a review of the principles and limits of application of physical and chemical methods of separation. This includes, but is not limited to, comminution, solid liquid separation, sizing, gravity and magnetic concentration, flotation, leaching and solvent extraction. The correct selection of a process through testwork is aided by training in techniques of sampling, statistics, and design and analysis of experiments.
- c) Process Evaluation - included in the topic are lectures in operations research, costing and economics, process modelling and simulation, plant design and control of environmental pollution.

The process design project is a very important part of the course during which the student applies his/her training to the design of a process to exploit a given raw material or solve a particular process problem within an existing operation. Many suitable materials are available within the Department but the prospective student is invited to provide a sample and discuss their own proposals for a design project with the course organiser.

Time is made available for students to attend other lectures that may be of interest. Courses upon computing, control, particle-fluid mechanics and surface chemistry are a few examples of the subjects of these lectures.

Entry requirements

The basic requirement is of a second class degree (University of London standard) in a related discipline such as Mining, Metallurgy, Geology and Chemical Engineering. However, relevant industrial experience of 3 years or more duration will also be considered. Furthermore, for prospective students with certain lower qualifications, it is possible to pursue a one year preliminary course of study and gain admission to the M.Sc. by examination. Details are available from the course organiser.

Duration

The course is of twelve months duration beginning in October of each year. It is also possible to attend the course part-time over a two year period.

Scholarships

Details of scholarships tenable within the Department are available from the Registrar. The course organiser will inform applicants of any other sources of funds that may be available.

Further Information

The Registry will provide an application form and general information about the fees, the courses and the College.

The prospective student is also invited to contact the Course Organiser, Dr. M. Smith (ext. 6467) directly.

June 1985 - August 1985

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

June 1985 - August 1985

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

June 1985 - November 1985

GENERAL HYDROLOGY with emphasis on groundwater (Argentina). Post-graduate course organized every other year and sponsored by Unesco. Language: Spanish. For information: IHP National Committee of Argentina, Comite Nacional para el Programa Hidrologico Internacional de la Republica Argentina, Av 9 de Julio 1925 - 15^o piso, 1332 Buenos Aires, Argentina.

July 1985 - August 1985

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

July 1985 - September 1985

VOLCANOLOGY (Quito, Ecuador). Annual 10-week course organized for Latin Americans by the Latin American Organization for Energy with financial assistance from Unesco. Language: Spanish. For information: Organizacion Latinoamericana de Energia (OLADE), P.O. Box 119, Quito, Ecuador.

August 1985 - October 1985

GEOCHEMICAL PROSPECTING METHODS (Prague, Czechoslovakia). Certificate course organized every second year by the Geological Survey of Czechoslovakia and sponsored by Unesco, IAGC and Czechoslovakia. Language: English. For information: GEOCHIM Unesco CSSR, Geological Survey of Prague, Malostranske nam. 19, 11821 Prague 1, Czechoslovakia.

August 1985 - June 1987

SOIL SCIENCE AND WATER MANAGEMENT (Wageningen, The Netherlands). Two-year M.Sc. course designed for B.Sc graduates from developing countries. Language: English. For information: Director of Studies of the M.Sc. course in Soil Science and Water Management, P.O. Box 37, 6700 AA Wageningen, The Netherlands.

September 1985

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

September 1985 - October 1985

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

September 1985 - October 1985

REMOTE SENSING: FUNDAMENTALS OF APPLICATIONS AND ANALYSIS TECHNIQUES, 24th International Workshop. (Sioux Falls, South Dakota, USA). Program of training workshops organized by the US Geological Survey for non-U.S. scientists, engineers and resources managers. For information: Training Section, Office of International Geology, U.S. Geological Survey, National Center (917), Reston, VA 22092, USA.

September 1985 - November 1985

DRILLING OF GEOTHERMAL WELLS (Mexicali, Mexico). Annual 12-week seminar organized for Latin Americans by the Latin American Organization for Energy with financial assistance from Unesco. Language: Spanish. For information: Organizacion Latinoamericana de Energia (OLADE), P.O. Box 199, Quito, Ecuador.

September 1985 - November 1985

GEOTHERMAL RESERVOIR ENGINEERING (Mexicali, Mexico). Annual 9-week course organized for Latin Americans by the Latin American Organization for Energy with financial assistance from Unesco. Language: Spanish. For information: Organizacion Latinoamericana de Energia (OLADE), P.O. Box 119, Quito, Ecuador.

September 1985 - November 1985

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

September 1985 - August 1986

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

October 1985 - November 1985

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

Telegraphenberg, DDR 1500 Postdam, German Democratic Republic.

October 1985 - September 1986

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

October 1985 - September 1986

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

November 1985 - December 1985

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

November 1985 - December 1985

SMALL MINE POTENTIAL AND TECHNOLOGY (Leoben, Austria). Annual training course sponsored by Austria and Unesco. Language: English. For information: Prof. Wolfbauer, Forschungsgesellschaft Joanneum, Roseggerstrasse 15, A-8700 Leoben, Austria.

November 1985 for two 11-month sessions

ENGINEERING GEOLOGY (Delft, The Netherlands). New post-graduate diploma course leading to M.Sc. degree in Engineering Geology. For information: ITC Student Registration Office, P.O. Box 6, 7500 AA Enschede, The Netherlands.

December 1985 - January 1986

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

KALENDAR (CALENDAR)

May 27 - June 1, 1985

CORAL REEF CONGRESS: Reef and Man (5th International), Papeete, Tahiti. Sponsored by IGCP 200, INQUA, ICL and IGU. (The Organizing Committee, Coral Reef Congress, Sea-level Meeting, B.P. 562, Papeete, Tahiti, French Polynesia).

May 27 - June 1, 1985

IGCP - 200 (International Annual Meeting), Papeete, Tahiti, (Dr.

Paolo A. Pirazzoli, CNRS-INTERGEO, 191, rue St-Jacques 75005 Paris, France).

May 27 - June 2, 1985

TERRANES IN THE CIRCUM-ATLANTIC PALEOZOIC OCEANS (Penrose Conference), Liscombe Lodge, Nova Scotia, Canada. (J.D. Keppie, N.S. Depart. Mines and Energy, Box 1087, Halifax, N.S. B3J 2X1, Canada).

June 1985

SOIL DYNAMICS AND EARTHQUAKE ENGINEERING (2nd International Conference), on board the liner Queen Elizabeth 2. (Dr. C.A. Brebbia, Computational Mechanics Centre, Ashurst Lodge, Ashurst, Southampton, SO4 2AA, UK).

June 2 - 9, 1985

INTERNATIONAL MINERAL PROCESSING CONGRESS (15th), Cannes, France. Languages: French, English, German and Russian. (International Mineral Processing Congress Secretary, BRGM SGN/Mineralurgie, B.P. 6009-45060 Orleans Cedex, France).

June 3-7, 1985

GROUNDWATER AND MINERAL EXPLORATION (International Conference and Exhibition), Bangkok, Thailand. (GAME 85 Manager, P.O. Box 142, Chatswood, NSW 2067, Australia).

June 3 - 7, 1985

STOCHASTIC APPROACH TO SUBSURFACE FLOW (Symposium), Fontainebleau, France. (G. de Marsily, GRECO Hydrogeologie, Ecole des Mines de Paris, Centre d'Informatique Geologique 35 rue Saint-Honore, 77305 Fontainebleau Cedex, France).

June 4 - 7, 1985

EUROPEAN ASSOCIATION OF EXPLORATION GEOPHYSICISTS (47th Meeting), Budapest, Hungary. (E. van der Gaag, European Association of Exploration Geophysicists, P.O. Box 162, NL-2501 AN The Hague, The Netherlands).

June 4 - 7, 1985

MAFIC DYKE SWARMS (International Conference), Toronto, Ontario, Canada. Sponsored by IUGS, ILP, and GSC. (Dr. H.C. Halls, Erindale Campus, University of Toronto, Mississauga, Ontario, Canada L5L 1C6).

June 9 - 15, 1985

WATER RESOURCES (5th World Congress), Brussels, Belgium. (Dr. L.W. Debacker, c/o Brussels International Conference Centre, Parc des Expositions, Place de Belgique, B-1020 Brussels, Belgium).

June 10 - 14, 1985

MINING '85 (International Conference), Birmingham, U.K. (Institution of Mining Engineers, Danum House, South Parade, Doncaster DN1 2DY, U.K.).

June 12 - 13, 1985

FLUID FLOW IN SEDIMENTARY BASINS AND AQUIFERS (Meeting), London, U.K. (Geological Society of London, Burlington House, Piccadilly, London W1, UK).

June 16 - 21, 1985

SEISMICITY AND SEISMIC RISK (3rd International Symposium), Liblice, Czechoslovakia. (Dr. Z. Schenkova, Geophysical Institute, Bocni II, 14131 Prague 4, Czechoslovakia).

June 16 - 23, 1985

SEA-LEVEL CHANGES ON THE WEST NORWEGIAN COAST (Symposium and Field Excursion). INQUA Shorelines Commission and IGCP Project 200. (Prof. P.E. Kaland, Botanical Institute, University, P.O. Box 12, N-5014 Bergen - Universitetet, Norway).

June 17 - 19, 1985

DEGRADATION OF MATERIALS DUE TO ACID RAIN (Symposium), Arlington, Va., USA. (Nancy Hadlock, ACS 1155 16th Street NW, Washington, DC 20036, USA).

June 18 - 19, 1985

MARINE MINERALS IN EXCLUSIVE ECONOMIC ZONES (Meeting), London, U.K. (S.A. Moorby, Geology Dept., Imperial College, London SW7 2BP, UK).

June 19 - 30, 1985

EARTH'S OLDEST ROCKS (Workshop and Field Trip), Greenland. (Project Office, Lunar and Planetary Institute, 3303 NASA Road One, Houston, Tx. 77058-4399, USA).

June 24 - 28, 1985

RADIOCARBON (12th International Conference), Trondheim, Norway. (Pat Ueland, Studies and Academic Administration, Norwegian Institute of Technology, N-7034 Trondheim-NTH, Norway).

June 24 - July 1, 1985

SWISS LAKE, MIRE AND RIVER HISTORY (Joint Symposium INQUA Euro-siberian Subcommission for the Study of the Holocene and IGCP Projects 158 A and B), Hunigen/Berne, Switzerland. (Prof. Dr. G. Lang, Systematisch-Geobotanisches Institut, Altenbergrain 21, CH-3013 Bern, Switzerland).

June 26 - 28, 1985

ROCK MECHANICS (26th U.S. Symposium), Rapid City, South Dakota, USA. (Prof. Eileen Ashworth, South Dakota School of Mines and Technology, Rapid City, SD 57701-3995, USA).

June 28 - 29, 1985

SEDIMENTATION, CLIMATE AND HYDROLOGY OF THE AFRICAN CONTINENTAL BASIN (Conference), Marburg, F.R.G. (Dr. G. Matheis, Technische Universität Berlin, Sonderforschungsbereich 69, Ackerstrasse 71, D-1000 Berlin 65).

July/August, 1985

SEMINAR ON EXPLORATION TECHNIQUES FOR PRIMARY TIN DEPOSITS, Ipoh, Malaysia. Contact: Director, SEATRAD Centre, Tiger Lane, Ipoh, Perak, Malaysia.

July - August, 1985

GOLD IN MELANESIA (Workshop), Papua New-Guinea. (RMRDC, Jalan Jenderal Sudirman 623, Bandung, Indonesia).

July 7 - 9, 1985

IAHS (2nd Scientific General Assembly), Budapest, Hungary. (Dr. A. Szollosi-Nagy, VITUKI, H-1453, Budapest, Pf27, Hungary).

July 7 - 12, 1985

AUSTRALASIAN INSTITUTE OF MINING AND METALLURGY (Annual Conference), Queensland, Australia. (AusIMM, P.O. Box 310, Carlton South, Vic. 3053, Australia).

July 7 - 19, 1985

KARST WATER RESOURCES (International Symposium), Antalya/Ankara, Turkey. Sponsored by IAHS. (Prof. G. Gunay, Hydrogeological Engineering Dept., Hacettepe University, Beytepe, Ankara, Turkey).

July 8 - 10, 1985

HYDROLOGY (International Symposium), Port Collins, Colorado, USA. (H.W. Shen, Dept. of Civil Engineering, Hydrology and Water Resources Program, Foothills Campus, Colorado State University, Fort Collins, Co. 80523, USA).

July 8 - 12, 1985

MICROMORPHOLOGY OF SOILS (Meeting), Paris, France. (N. Fedoroff, I.N.A. - P.G., Dpt des sols, F-78850 Thiverval-Grignon, France).

July 10 - 12, 1985

STABLE ISOTOPES AND FLUID PROCESSES IN MINERALIZATION (International Conference), Brisbane, Australia. (Mary E. McGregor, UniQuest Conference Systems, University of Queensland, St. Lucia, Brisbane, QLD 4067, Australia).

July 10 - 12, 1985

GEOLOGICAL SOCIETY OF TRINIDAD AND TOBAGO (1st Conference), Port-of-Spain, Trinidad, West Indies. Language: English. (Mr. Winston Ali, Programme Chairman, Geological Conference of the G.S.T.F., c/o Geological Dept., Trinmar Ltd., Point Fortin, Trinidad, West Indies).

July 11 - 13, 1985

ANTARCTIC METEORITES (International Workshop) Mainz, R.R.G. (Ludolf Schultz, MPI fur Chemie, Saarstrasse 23, D-6500 Mainz, F.R.G.; or John O. Annexstad, Code SN2, NASA/Johnson Space Center, Houston, Tx 77058, USA).

July 14 - 30, 1985

MAGMATIC SULFIDES IN MAFIC ROCK (IGCP 161 - Field Conference 4), Ketchikan, Alaska to Duluth, Minnesota, USA. (Gerald K. Czamanske, M.S. 984, U.S. Geological Survey, Menlo Park, Ca. 94025, USA.)

July 16 - 23, 1985

CEPHALOPODS: PRESENT AND PAST (2nd International Symposium), Tubingen, West Germany. (Prof. Jurgen Kullman, Geol. -Palaont. Institut, Sigwartstrasse 10, D-7400 Tubingen, Federal Republic of Germany).

July 25 - 29, 1985

CONODONTS (4th International Symposium), Nottingham, U.K. (Dr. R.J. Aldridge, Dept. of Geology, The University, Nottingham, NG7 2RD, UK.)

July 27 - August 7, 1985

PLATINUM (4th International Symposium), Duluth, Minnesota, USA to Sudbury, Ontario, Canada. (A.J. Naldrett, Dept. of Geology, University of Toronto, Toronto, Ontario, Canada M5S 1A1).

July 28 - August 2, 1985

CLAY (8th International Conference), Denver, Colorado, USA. Sponsored by AIPEA. (Dr. A.J. Herbillon, Groupe de Physico-Chimie Minerale et de Catalyse, Univ. Catholique de Louvain, Place Croix du Sud 1, B-1348 Louvain-la-Neuve, Belgium).

July 29 - August 1, 1985

OSTRACODA (9th International Symposium), Shizuoka, Japan. (Dr.

Tetsuro Hanai, Institute of Geosciences, University of Shizuoka, Shizuoka, 422, Japan).

July 29 - August 9, 1985

TSUNAMI '85 (International Symposium), Victoria, British Columbia, Canada. (Tsunami '85, P.O. Box 2267, Sidney, B.D., Canada V8L 3S8).

August 1985

TECTONICS AND GEOCHEMISTRY OF EARLY TO MIDDLE PROTEROZOIC FOLD BELTS (Conference and Field Excursions), Darwin, Australia. Sponsored by IGCP and ILP. (Dr. M.A. Etheridge, Bureau of Mineral Resources, GPO Box 378, Canberra ACT 2601, Australia).

August 5 - 16, 1985

COMPARATIVE STUDIES OF THE INNER PLANETS AND THE EVOLUTION OF CLIMATE AS RELATED TO CO₂ (IAMAP/IAPSO Joint Assembly), Honolulu, Hawaii, USA. (Joint Assembly, American Geophysical Union, 2000 Florida Avenue NW, Washington, D.C. 20009, USA).

August 5 - 17, 1985

INTERNATIONAL ASSOCIATION OF GEOMAGNETISM AND AERONOMY (5th Scientific Assembly), Prague, Czechoslovakia. (Michael Gadsden, Natural Philosophy Dept., Aberdeen University, Aberdeen AB9 2UE, Scotland, UK).

August 5 - 17, 1985

MAGNETIC ANOMALIES OVER MARGINS OF CONTINENTS AND PLATES (IAGA Symposium), Prague, Czechoslovakia. (Mr. Vaclav Bucha, Geophysical Institute, Acad. Sco., Bocni 11, 141 31 Prague 4, Czechoslovakia).

August 6 - 10, 1985

SCIENCE AND TECHNOLOGY EDUCATION AND THE QUALITY OF LIFE (International Conference), Bangalore, India. Sponsored by ICSU/CTS (J. Lewis, Physics Dept., Malvern College, Malvern, Worcs. U.K.).

August 6 - 10, 1985

GROUND FREEZING (4th International Symposium), Sapporo, Japan. (ISGF 85, Institute of Low Temperature Science, Hokkaido University, Sapporo 060, Japan).

August 7 - 9, 1985

FLUVIAL SEDIMENTOLOGY (3rd International Conference), Fort Collins, Colorado, USA. (F.G. Ethridge, 3rd International Fluvial Sedimentology Conference, Colorado State University, Fort Collins, Co. 80523, USA).

August 11 - 15, 1985

INTERNATIONAL SOCIETY FOR SOIL MECHANICS AND FOUNDATION ENGINEERING (11th International Conference), San Francisco, California, USA. (K. Hyland, American Society of Civil Engineers, 345 East 47th Street, New York, NY 10017, USA).

August 12 - 14, 1985

HYDROTHERMAL REACTIONS (2nd International Symposium), University Park, Penn., USA. (Symposium on Hydrothermal Reactions, The Pennsylvania State University, Keller Conference Center, University Park, Pa 16802, USA).

August 13 - 16, 1985

PETROLEUM EXPLORATION IN THE SUBANDEAN BASINS (Symposium), Bogota, Colombia. (Roberto A. Leigh, Box 92500, Bogota, Colombia).

August 17 - 22, 1985

PRECAMBIRAN EXOGENIC PROCESS (International Symposium and Field Trip IGCP Project 160), Ottawa, Canada (A. Donaldson, Dept. of Geology, Carleton University, Ottawa, Canada K1S 5B6).

August 19 - 23, 1985

GONDWANA (6th Symposium), Columbus, Ohio, USA. Sponsored by IUGS and Geological Society of America. (D. Elliott, Institute of Polar Studies, Ohio State University, 103 Mendenhall, 125 South Oval Mall, Columbus, Oh 43210, USA).

August 20 - 29, 1985

TILL SYMPOSIUM 1985: GLACIGENIC DEPOSITS AS INDICATORS OF GLACIAL MOVEMENTS AND THEIR USE FOR INDICATOR TRACING IN THE SEARCH FOR ORE DEPOSITS, Finland. (INQUA-TILL Symposium, Geological Survey of Finland, SF-02150, Espoo, Finland).

August 21 - 23, 1985

PALEOENVIRONMENTAL RECONSTRUCTION OF THE LATE WISCONSIN DEGLACIATION AND THE HOLOCENE, Lethbridge, Alberta, Canada. (Dr. Rene W. Barendregt, Dept. of Geography, The University of Lethbridge, 4401 University Drive, Lethbridge, Alberta, Canada T1K 3M4)

August 22 - 26, 1985

COMPOSITION OF THE ARCHEAN MANTLE (NATO Workshop), Rudesheim, F.R.G. (Dr. N. Arnot, Max-Planck-Institute, Postfach 3060, 6500 Mainz, Federal Republic of Germany).

August 24 - September 2, 1985

GRAPTOLITES (3rd International Conference, Graptolite Working Group IPA), Helsingor, Denmark. (Dr. M. Bjerreskov, Institute of Historical Geology and Palaeontology, University of Copenhagen, Oster Voldgade 10, DK-1350, Copenhagen K, Denmark).

August 26 - 28, 1985

MODERN AND ANCIENT CLASTIC TIDAL DEPOSITS (Conference), Utrecht, The Netherlands. Co-sponsored by the IAS. (D.S. Nio, Comparative Sedimentology Division, Institute of Earth Sciences, Budapestlaan 4, 3508 TA Utrecht, The Netherlands).

August 26 - 29, 1985

CIRCUM-PACIFIC TERRANE (3rd Conference), Sydney, Australia. Sponsored by the Circum-Pacific Council for Energy and Mineral Resources. (Malcolm J. Lennox, Secretary, 3rd Circum-Pacific Terrane Conference, The Earth Resources Foundation, Edgeworth David Building, University of Sydney, NSW, Australia 2006).

August 27 - 30, 1985

INTERNATIONAL MINING HISTORY (Conference), Melbourne, Australia. (P. Richardson, Economic History Dept., University of Melbourne, Parkville, Vic. 3052, Australia).

September 1985

DEEP INTERNAL PROCESSES AND CONTINENTAL RIFTING (International Symposium), Chengdu, P.R. China. Co-sponsored by ICL and Chinese Lithospheric Committee. Languages: Chinese and English. (Claude Froidevaux, Universite Paris-Sud, Lab. Geophysique-Bat. 510, 91405 Orsay, France; Tan Tjong Kie, Institute of Geophysics, Academia Sinica, Beijing, People's Republic of China).

September - October 1985

KUROKO TYPE MINERALIZATION (Workshop), Tokyo and Akita, Japan. (RMRDC, Jalan Jenderal Sudirman 623, Bandung, Indonesia).

September 2 - 4, 1985

COASTAL GEOMORPHOLOGY SEDIMENTARY BUDGETS COASTAL AND RIVER HYDRAULICS (Symposium), Reykjavik, Iceland. (Guttormur Sigbjarnarson, National Energy Authority, Grensasvegur 9, IS-108 Reykjavik, Iceland).

September 2 - 4, 1985

ROLE OF ROCK MECHANICS IN MINING (International Symposium), Mexico City, Mexico (Sociedad Mexicana de Mecanica de Rocas AC, Camino a Santa Teresa 187, Villa Olimpica, MEX-14020 Mexico DF, Mexico).

September 3 - 5, 1985

EROSION DEBRIS FLOW AND DISASTER PREVENTION (IAHS International Symposium) Tsukuba, Japan. (Dr. S. Kobaski, ISEDD 1985, Dept. of Forestry, Kyoto University, Kyoto 606, Japan).

September 6 - 10, 1985

PROBLEMS OF THE STRATIGRAPHY AND PALEOGEOGRAPHY OF LOESSES (Joint Meeting INQUA Commissions on Loess and Paleogeographic Atlas), Lublin and Krakow, Poland. (Prof. Dr. H. Maruszczak, Dept. of Physical Geography, University Marie Curie-Sklodowska, Akademicka 19, PL-20-003, Lublin, Poland).

September 8 - 13, 1985

HYDROGEOLOGY IN THE SERVICE OF MAN (18th IAH Congress - International Symposium), Cambridge, U.K. (J. Day, Hydrogeology Unit, Maclean Building, Crowmarsh Gifford, Wallingford, OX10 8BB, U.K.).

September 9 - 12, 1985

EXTRACTION METALLURGY (International Symposium), London, U.K. (Conference Office, The Institution of Mining and Metallurgy, 44 Portland Place, London W1N 4BR, UK).

September 9 - 13, 1985

DEEP INTERNAL PROCESSES AND CONTINENTAL RIFTING (International Symposium), Chengdu, P.R. China. Co-sponsored by ICL and Chinese Lithospheric Committee. Languages: Chinese and English. (Claude Froidevaux, Universite Paris-Sud, Lab. Geophysique-Bat. 510, 91405 Orsay, France; Tan Tjong Kie, Institute of Geophysics, Academia Sinica, Beijing, People's Republic of China).

September 9 - 13, 1985

ADVANCED TECHNOLOGY FOR MONITORING AND PROCESSING GLOBAL ENVIRONMENTAL INFORMATION (International Conference), London, U.K. (CERMA, P.O. Box 2787, Springfield, VA 22152, USA).

September 9 - 13, 1985

INTERNATIONAL SOCIETY FOR MINE SURVEYING (6th International Congress), Harrogate, U.K. (Peter Gilbert, RICS, 12 Great George St., London, U.K.).

September 9 - 13, 1985

FOSSIL AND LIVING BRACHIOPODS (Meeting), Brest, France. (Congres Brachiopodes, Univ. Bretagne Occidentale, Laboratoire du Paleozoique-6, av. Le Gorgen, 29283 Brest Cedex, France).

September 10 - 11, 1985

NON-MARINE SOURCE ROCKS: ENVIRONMENTS OF DEPOSITION OF LACUSTRINE AND DELTACI SOURCE ROCKS (Joint Meeting of Petroleum Group and IGCP

Project 219), London, U.K. (K. Kelts, Geological Institute, ETH-Z, CH-8092 Zurich, Switzerland).

September 10 - 13, 1985

AFRICAN GEOLOGY (13th Colloquium), St. Andrews, Scotland, U.K. (Colloquium Secretary, Dept. of Geology, University of St. Andrews, Fife, KY16 9ST, Scotland, UK).

September 14 - 22, 1985

GRANITE-RELATED MINERAL DEPOSITS (International Symposium), Halifax, Nova Scotia, Canada. (Richard P. Taylor, Dept. of Geology, McMaster University, 1280 Main Street West, Hamilton, Ontario, Canada L8S 4M1).

September 15 - 20, 1985

FUNDAMENTALS OF ROCK JOINTS (International Symposium), Lapland, Sweden. (Fundamentals of Rock Joints, Centek Conference, 5-951 87 Lulea, Sweden).

September 15 - 20, 1985

BASEMENT TECTONICS (6th International Conference), Santa Fe, New Mexico, USA. (Dr. M. James Aldrich, Mail Stop D461, P.O. Box 1663, Los Alamos National Laboratory, Los Alamos, NM 87545, USA).

September 15 - 22, 1985

GEOMORPHOLOGY, RESOURCES, ENVIRONMENT AND THE DEVELOPING WORLD (International Conference), Manchester, U.K. Sponsored by INQUA. (Prof. Ian Douglas, School of Geography, University of Manchester, Manchester M13 9PL, UK).

September 16 - 20, 1985

ORGANIC GEOCHEMISTRY (12th International Meeting), Julich, F.R.G. (KFA Julich GmbH, Conference Secretariat, P.O. Box 1913, D-5170 Julich, Federal Republic of Germany).

September 16 - 21, 1985

GEOPHYSICAL AND PETROLOGICAL CONSTRAINTS TO MAGMA GENERATION including Symposia on Potassic Volcanism and Etna Volcano (IAVCEI Scientific Assembly), Catania, Italy. (G. Frazetta, Istituto Internazionale di Vulcanologia, Viale Regina Margherita 6, 95123 Catania, Italy).

September 22 - 26, 1985

HIGH HEAT PRODUCTION, GRANITES, HYDROTHERMAL CIRCULATION AND ORE GENESIS (Conference), St. Austell, Cornwall, U.K. (IMM, 44 Portland Place, London W1N 4BR, U.K.).

September 23 - 29, 1985

MAJOR NEW TRENDS IN QUANTITATIVE METHODS FOR PREDICTING AND RESOURCES EVALUATION OF MINERAL, OIL AND GAS DEPOSITS (International Symposium), Alma-Ata, Kazakh Soviet Socialist Republic. Cosponsored by IAMG. Languages: English and Russian. (A.N. Bugaets, Organizing Committee 'Symposium Alma-Ata - 1985', KazIMS, K. Marx str. 105, Alma-Ata 480091, USSR).

September 23 - 30, 1985

ROCK DETERIORATION (5th International Congress), Lausanne, Switzerland. (E.P.F.L., 33 avenue de Cour, 1007 Lausanne, Switzerland).

September 23 - October 2, 1985

TECTONIC EVOLUTION OF THE TETHYAN REGIONS (NATO Advanced Studies Institute), Istanbul, Turkey. (Dr. B.C. Burchfiel, 54-1010, M.I.T., Cambridge, MA 02139, USA).

September 25 - 27, 1985

GEOTECHNICAL CONFERENCE (38th Annual), Edmonton, Alberta, Canada. Sponsored by Canadian Geotechnical Society. (Bob Wallace, Program Chairman, E.B.A. Engineering Consultants, 14535 - 118th Avenue, Edmonton, Alberta, Canada).

October 2 - 4, 1985

CONCENTRATION MECHANISMS OF URANIUM IN GEOLOGICAL ENVIRONMENTS (International Meeting), Nancy, France. (J. Leroy, CREGU, BP 23, 54501 Vandoeuvre-les-Nancy Cedex, France).

October 2 - 5, 1985

BAUXITE PROSPECTING AND MINING (International Symposium), Tapolca, Hungary, (Mr. J. Gebhardt, Director of Mining, President of the Organizing Committee, H-1387, Budapest, P.O. Box 30, Hungary).

October 3 - 5, 1985

COMPUTER APPLICATIONS IN OIL AND GAS EXPLORATION AND DEVELOPMENT (14th Annual Geochautauqua), Wichita, Kansas, USA. (D.F. Merriam, Dept. of Geology, Wichita State University, Ichita, KS 67208, USA).

October 4 - 6, 1985

OBSERVATION OF THE CONTINENTAL CRUST THROUGH DRILLING (4th Alfred-Wegener-Konferenz), Seeheim, F.R.G. Organized by ICL. (F. Goerlich, Conference Secretary, Ahrstrasse 45, D-5300 Bonn 2, Federal Republic of Germany).

October 5 - 16, 1985

LOESS RESEARCH (International Symposium), Xian, P.R. China. Sponsored by INQUA. (Institute of Geology, Academia Sinica, P.O. Box 634, Beijing, People's Republic of China).

October 7 - 11, 1985

INTRAPLATE EARTHQUAKES (Symposium), Winston Salem, N.C., USA. Sponsored by Association of Engineering Geologists. (Charles W. Welby, North Carolina State University, Box 8208, Raleigh, NC 27695, USA).

October 7 - 11, 1985

FIRST ASIAN WATER TECHNOLOGY EXHIBITION AND CONFERENCE, Putra World Trade Centre, Kuala Lumpur, Malaysia. (International Conferences & Exhibitions Ltd., 6 Porter Street, Baker Street, London W1M 1HZ, U.K. Tel. 01-487 2622; Telex: 21591, CONFEX G).

October 10 - 13, 1985

METALLOGENY OF THE EARLY PRECAMBRIAN (International Symposium), Changchun, People's Republic of China. Sponsored by China's National Committee of IGCP, Changchun College of Geology, and Chinese Work Group of IGCP Project 91. Languages: Chinese and English. (Prof. Zhang Qiusheng, Chinese College of Geology, Changchung, Jilin, People's Republic of China).

October 13 - 18, 1985

TYPE SECTIONS IN QUATERNARY STRATIGRAPHY (Symposium), Zurich, Switzerland. Sponsored by INQUA. (Dr. Ch. Schluchter, Institute of Foundation Engineering, ETH - Honggerberg, CH-8093, Zurich, Switzerland).

October 14 - 17, 1985

LATERITE (International Seminar), Tokyo, Japan. Co-sponsored by IGCP. (Dr. Y. Ogura, International Seminar on Laterite, c/o The Mining and Metallurgical Institute of Japan, 5-4 Ginza, 8-Chrome, Chuo-ku, Tokyo 104, Japan).

October 14 - 18, 1985

ANALYSIS OF EXTRAORDINARY FLOOD EVENTS (U.S.-China Bilateral Symposium), Nanjing, China. (Marshall E. Moss, Chief, Surface Water Branch, U.S. Geological Survey, 415 National Center, Reston, VA 22092, USA).

October 14 - 18, 1985

COAL RESEARCH (7th International Conference), Pretoria, South Africa. (W.G. Jensen, International Committee for Coal Research, Bte 11, B-1150 Bruxelles, Belgium).

October 14 - 18, 1985

MATHEMATICAL METHODS IN GEOLOGY (International Symposium), Pribram, Czechoslovakia. (Sekretariat symposia, Hornicka Pribram ve vede a Technice, post. schranka 41, Pribram 261 02, Czechoslovakia).

October 28 - November 1, 1985

COAL SCIENCE (International Conference), Sydney, Australia. Sponsored by IEA (R.W. Hinde, CSIRO Div. of Fossil Fuels, Box 136, North Ryde, NSW 2113, Australia).

October 29 - November 2, 1985

INDONESIAN MINING (International Exhibition), Jakarta, Indonesia. (Overseas Exhibition Services, 11 Manchester Square, London W1M 5AB, U.K.).

November 1985

PETROLEUM GEOCHEMISTRY AND EXPLORATION IN AFRO-ASIAN REGION (International Conference), Dehradun, India. (Kuldeep Chandra, KDM Institute of Petroleum Exploration, Oil and Natural Gas Commission, 9, Kaulagarh Road, Dehradun-248195, India).

November 4 - 9, 1985

PHYSICS AND GEODYNAMICS OF DEFORMATIONAL PROCESSES IN EARTHQUAKE FOCAL REGIONS (Meeting), Potsdam, G.D.R. (Prof. Knoll, Zentralinstitut fur Physik der Erde, DDR-1500 Potsdam, German Democratic Republic).

November 4 - 10, 1985

AFRICAN GEOLOGY - QUO VADIS? (7th Conference), Gaborone, Botswana. (GSA '85, c/o Rock View International, CEEI-ROCK VIEW, 11 rue Jean-Mermoz, 75008 Paris, France).

November 18 - 23, 1985

MAGMATIC EVOLUTION OF THE ANDES (Final Symposium IGCP-120), Santiago, Chile. (Prof. Francisco Munizaga, Dept. of Geology, University of Chile, Casilla 13518 Correo 21, Santiago, Chile).

November 27 - 30, 1985

BEACH EROSION (Meeting), Lome, Togo. Sponsored by the International Geographical Union and University of Benin. (Prof. Georges Rossi, Ecole des Lettres, Universite du Benin, B.P. 1515, Lome, Togo).

1986

January 28 - 31, 1986

OFFSHORE SOUTHEAST ASIA (6th Conference), Singapore. Sponsored by SE Asia Petroleum Exploration Society. Marathon Petroleum Exploration Ltd., P.O. Box 227, Tanjong Post Office, Singapore 9124).

February 1 - 9, 1986

INTERNATIONAL VOLCANOLOGICAL CONGRESS, (including symposium on PHREATOMAGMATIC ERUPTIONS AND THE ROLE OF WATER IN EXPLOSIVE VOLCANISM) Auckland, Hamilton, Rotorua, New Zealand. Sponsored by IAVCEL (P.E. Baker, Dept. of Earth Sciences, University of Leeds, Leeds LS2 9JT, U.K.).

February 16 - 21, 1986

EARTH RESOURCES IN TIME AND SPACE (8th Australian Geological Convention), Adelaide, Australia. (M.A. Cobb, Convenor, Publicity and Promotion Committee, Box 292, Eastwood, SA 5063, Australia).

March 31 - April 4, 1986

RIVER SEDIMENTATION (3rd International Symposium), Jackson, Miss., USA. (S.Y. Wang, School of Engineering, University of Mississippi, University, MS 38677, USA).

April 2 - 5, 1986

GEOCHEMISTRY AND MINERALIZATION OF PROTEROZOIC VOLCANIC SUITES (International Symposium), Keyworth, Nottingham, U.K. Co-sponsored by IGCP Project 217 and ILP Working Group 3. (Dr. Tim Pharaoh, Deep Geology Research Group, British Geological Survey, Keyworth, Nottingham NG12 5GG, U.K.).

April 8 - 11, 1986

COAL AND COAL-BEARING STRATA (International Symposium), London, U.K. (A.C. Scott, Dept. of Geology, Chelsea College, 552 King's Road, London SW10 0UA, U.K.).

April 21 - 24, 1986.

ENVIRONMENTAL GEOTECHNOLOGY (International Symposium), Allentown, Penn., USA. (Prof. H.Y. Fang, Symposium Chairman, Geotechnical Engineering Division, Dept. of Civil Engineering, Lehigh University 13, Bethlehem, PA 18015, USA).

April 21 - 25, 1986

GLOBAL CHANGE IN AFRICA DURING QUATERNARY, PAST - PRESENT - FUTURE (International Symposium), Dakar, Senegal. Sponsored by INQUA, GSA (Africa), AGID, IUGS, IGCP, ILP. Languages: English and French. (INQUA/1986 Dakar Symposium Secretariat, Laboratoire de Geologie du Quaternaire, Faculte des Sciences, LUMINY, Case 907, 13288 Marseille Cedex 9, France).

April 24 - 27, 1986

INDUSTRIAL MINERALS (7th International Congress), Athens, Greece. (G.M. Clarke, Editor, Industrial Minerals, 16 Lower Marsh, London SE1, U.K.).

May 11 - 16, 1986

MINING AND METALLURGICAL INSTITUTIONS (13th Congress), Canberra, Australia. (Council of Mining and Metallurgical Institutions, c/o The Australian Institute of Mining and Metallurgy, P.O. Box 310, Carlton South, Victoria, Aust. 3053).

May 12 - 14, 1986

GEOEXPO-86 (Meeting), Vancouver, B.C., Canada. Co-sponsored by AEG and GAC. (GEOEXPO-86 Regional Symposium, Association of Exploration Geochemists, 700-409 Granville Street, Vancouver, B.C., Canada V6C 1T8).

June 1 - 6, 1986

GEOSCIENCE INFORMATION (3rd International Conference), Adelaide, South Australia. (Conference Secretariat 31 CGI, c/o Australian Mineral Foundation, Private Bag 97, Glenside, South Australia 5065).

June 2 - 5, 1986

DINOSAUR SYSTEMATICS (Symposium), Drumheller, Alberta, Canada. (Kenneth Carpenter, Academy of Natural Sciences, 19th and the Parkway, Philadelphia, PA 19103, USA).

June 23 - 26, 1986

ARENACEOUS FORAMINIFERA (2nd Workshop), Vienna, Austria. (Dr. Fred Rogl, Naturhistorisches Museum, Burgring 7, A-1014 Wien, Austria).

June 30 - July 4, 1986

GEOCHRONOLOGY, COSMOCHRONOLOGY AND ISOTOPE GEOLOGY (6th International Conference), Cambridge, U.K. Sponsored by IAVCEL. (Organizing Committee, 6th International Conference, Dept. of Earth Sciences, University of Cambridge, Downing Street, Cambridge CB2 3EQ, U.K.).

July 7 - 10, 1986

PRECAMBRIAN GOLD/URANIUM DEPOSITS (GSSA Congress), Johannesburg, South Africa. (C.F. Vermaak, Geological Society of South Africa, Kelvin House, 2 Holland Street, Johannesburg 2001, South Africa).

August 11 - 15, 1986

KIMBERLITE (4th International Conference), Perth, Western Australia. (Dr. A.F. Trendall, Geological Survey of Western Australia, 66 Adelaide Terrace, Perth, W.A., Australia).

August 13 - 20, 1986

SOIL SCIENCE (13th ISSS International Congress), Hamburg, F.R.G. (Prof. Dr. K.H. Hartge, Inst. fur Bodenkunde, Univ. Hannover, Herrenhaserstrasse 2, D-3000 Hannover 21, F.R.G.).

August 17 - 22, 1986

CIRCUM-PACIFIC ENERGY AND MINERAL RESOURCES (4th Conference), Singapore. (Circum-Pacific Conference IV, c/o AAPG, P.O. Box 979, Tulsa, Ok. 74101, USA.).

August 18 - 22, 1986

INTERNATIONAL ASSOCIATION ON THE GENESIS OF ORE DEPOSITS (7th Symposium), Lulea, Sweden. (Centek Conference, S-951 87 Lulea, Sweden).

August 24 - 30, 1986

INTERNATIONAL ASSOCIATION OF SEDIMENTOLOGISTS (12th International Congress), Canberra, Australia. (ACTS, GPO Box 1929, Canberra, ACT 2601, Australia).

September 1986

ENGINEERING IN COMPLEX ROCK FORMATIONS (International Symposium), Beijing, P.R. China. (Prof. Tan Tjong-Kie, Institute of Geophysics, Academia Sinica, Beijing, People's Republic of China).

September 1986

SHALLOW TETHYS 2 (International Symposium), Wagga Wagga, NSW, Australia. (Dr. K.G. McKenzie, Riverina College of Advanced Education, P.O. Box 588, Wagga Wagga, NSW 2650, Australia).

September 8 - 12, 1986

PALEOCEANOGRAPHY (2nd International Conference), Woods Hole, USA. (W.A. Berggren, Woods Hole Oceanographic Institute, Woods Hole, MA 02543, USA).

September 22 - 28, 1986

BENTHOS '86 (3rd International Symposium on Benthic Foraminifera), Geneva, Switzerland. (D. Decrouez, Dept. of Geology and Invertebrate Palaeontology, Museum d'Histoire naturelle de Geneva, CP 434, 1211 Geneva 6, Switzerland).

September 29 - October 1, 1986

GOLD '86 (International Symposium), Toronto, Canada. (E. Craigie, Selco Division of BP Resources Canada Ltd., 55 University Avenue, Suite 1700, Toronto, Ontario, Canada M5J 2H7).

October 5 - 11, 1986

WORLD ENERGY (13th Congress), Cannes, France. (R. Ruttley, World Energy Conference, 34 St. James' Street, London SW1A 1HD, U.K.).

October 20 - 26, 1986

INTERNATIONAL ASSOCIATION OF ENGINEERING GEOLOGY (5th Congress), Buenos Aires, Argentina. (Dr. M. Primel, L.C. P.C., 58 boulevard Lefebvre, 75732 Paris Cedex 15, France).

1987

January 1987

GRANITES AND ASSOCIATED MINERALIZATIONS (International Symposium), Brazil. (ISGAM, Augusto J. Pedreira, Rua Ceara, 3-Pituba, 40,000, Salvador, Bahia, Brazil).

May 3 - 7, 1987

ENGINEERING GEOLOGICAL ENVIRONMENT IN MOUNTAINOUS AREAS (International Symposium), Beijing, P.R. China. (Geological Society of China, Ministry of Geology, Pai Wan Chung, Fuchengmenwai, Beijing, People's Republic of China).

May 25 - 27, 1987

COASTAL LOWLANDS: GEOLOGY AND GEOTECHNOLOGY (International Symposium), The Hague, The Netherlands. (Dr. H.J.W.G. Schalk, P.O. Box 85947 CP The Hague, The Netherlands).

July 31 - August 9, 1987

INTERNATIONAL UNION FOR QUATERNARY RESEARCH (12th Congress), Ottawa, Ontario, Canada. (Dr. Alan V. Morgan, Dept. of Earth Sciences, University of Waterloo, Waterloo, Ontario, Canada N2L 3G1).

August 1987

PACIFIC NEOGENE PALEOCEANOGRAPHIC AND BIOSTRATIGRAPHIC EVENTS (Meeting), Berkeley, Calif., USA. (Dr. C. Brunner Dept. of Paleontology, University of California, Berkeley, Ca. 94720, USA).

August 9 - 22, 1987

IUGG (XIX General Assembly), Vancouver, Canada (R.D. Russell, Dept. of Geophysics and Astronomy, University of British Columbia, Vancouver, B.C., Canada V6T 1W5)

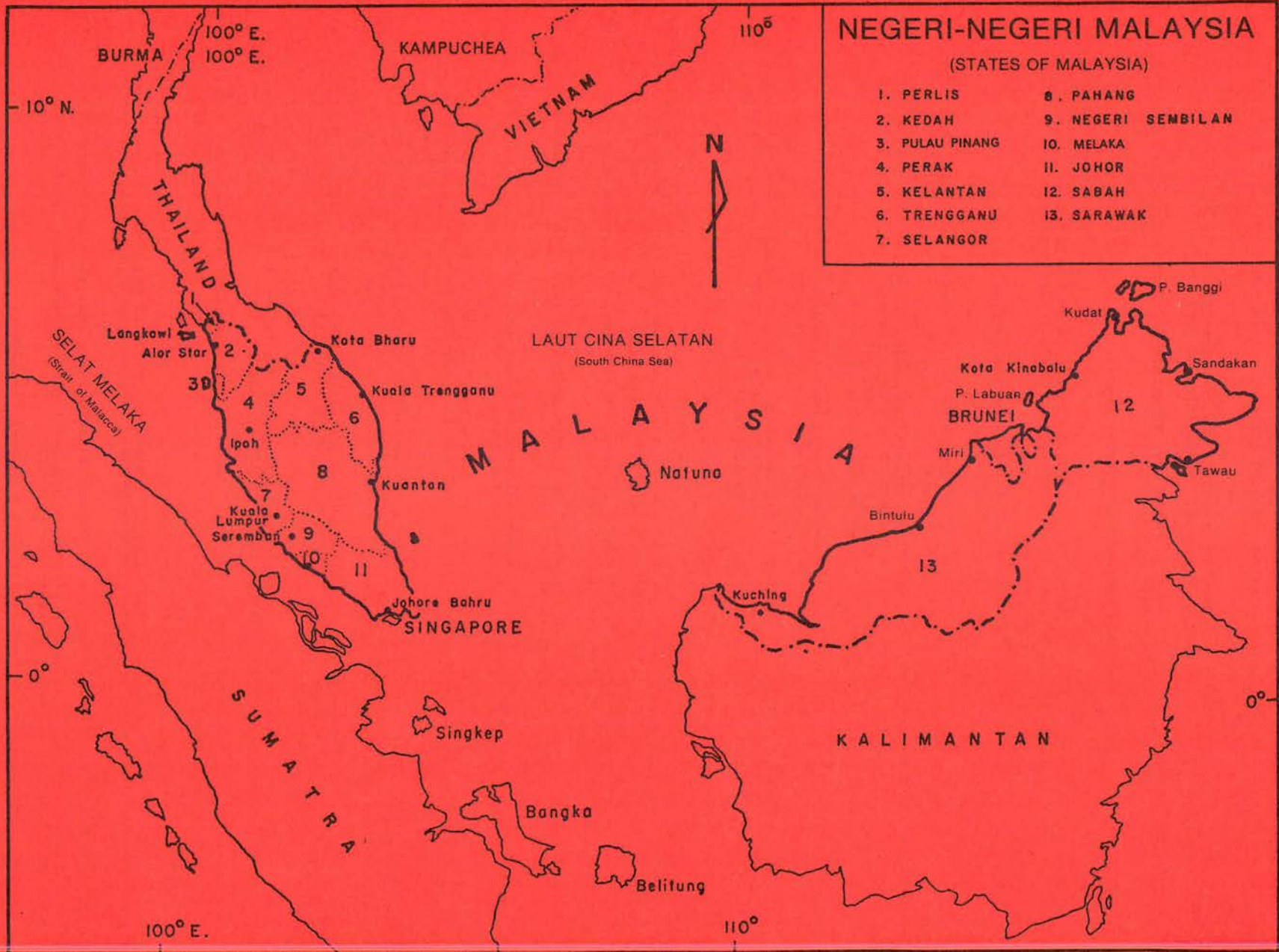
August 30 - September 4, 1987

INTERNATIONAL SOCIETY FOR ROCK MECHANICS (6th International Congress), Montreal, Canada. (Prof. B. Ladanyi, Dept. Civil Engineering, Ecole Polytechnique, Box 6079, Stn. A, Montreal, Canada H3C 3A7).

September 7 - 11, 1987

CARBONIFEROUS STRATIGRAPHY AND GEOLOGY (11th International Congress), Beijing, People's Republic of China. (Prof. Yang Jing-zhi, Nanjing Institute of Geology and Palaeontology, Chi-Ming-Ssu, Nanjing, People's Republic of China).

- Bulletin 1 (1968). 79 p. Studies in Malaysian Geology edited by P.H. Stauffer. A collection of papers presented at a meeting of the Geological Society on 31st January 1967. Price: M\$3.00 (US\$1.50).
- Bulletin 2 (1968). 152 p. Bibliography and Index of the Geology of West Malaysia and Singapore by D.J. Gobbett. Price: M\$10.00 (S\$5.00) - softcover; M\$15.00 (US\$7.50) - hardcover.
- Bulletin 3 (1970). 146 p. Papers in Geomorphology and Stratigraphy (with Bibliography supplement). Edited by P.H. Stauffer. Price: M\$10.00 (US\$5.00).
- Bulletin 4 (1971). 100 p. Papers in Petrology, Structure and Economic Geology. Edited by P.H. Stauffer. Price: M\$10.00 (US\$5.00).
- Bulletin 5 (1973). 70 p. The Search for Tungsten Deposits by K.F. G. Hosking. Price: M\$10.00 (US\$5.00).
- Bulletin 6 (1973). 334 p. Proceedings, Regional Conference on the Geology of Southeast Asia. A collection of papers, Kuala Lumpur, March 1972. Edited by B.K. Tan. Price: M\$22.00 (US\$11.00) - hardcover only.
- Bulletin 7 (1974). 138 p. A collection of papers on the geology of the Asean Region. Edited by B.K. Tan. Price: M\$12.00 (US\$6.00).
- Bulletin 8 (1977). 158 p. A collection of papers on the geology of the Asean Region. Edited by T.T. Khoo. Price: M\$12.00 (US\$6.00).
- Bulletin 9 (1977). 277 p. The relations between granitoids and associated ore deposits of the Circum-Pacific region. A collection of papers presented at the IGCP Circum-Pacific Plutonism Project Fifth Meeting, 12 - 13 November 1975, Kuala Lumpur. Edited by J.A. Roddick & T.T. Khoo. Price: M\$25.00 (US\$12.00).
- Bulletin 10 (1978). 95 p. A collection of papers on the geology of the Asean region. Edited by C.H. Yeap. Price: M\$10.00 (US\$5.00).
- Bulletin 11 (1979). 393 p. Geology of Tin Deposits. A collection of papers presented at the International Symposium on 'Geology of Tin Deposits'. 23-25 March 1978, Kuala Lumpur. Edited by C.H. Yeap. Price: M\$50.00 (US\$22.00).
- Bulletin 12 (1980). 86 p. A collection of papers on the geology of Malaysia. Edited by G.H. Teh. Price: M\$20.00 (US\$9.50).
- Bulletin 13 (1980). 111 p. A collection of papers on the geology of the Asean Region. Edited by G.H. Teh. Price: M\$20.00 (US\$9.50).
- Bulletin 14 (1981). 151 p. A collection of papers on the geology of the Asean Region. Edited by G.H. Teh. Price: M\$30.00 (US\$14.00).
- Bulletin 15 (1982). 151 p. A collection of papers on the geology of the Asean Region. Edited by G.H. Teh. Price: M\$30.00 (US\$14.00).
- Bulletin 16 (1983). 239 p. A collection of papers on the geology of the Asean Region. Edited by G.H. Teh. Price: M\$30.00 (US\$14.00).
- Field Guide for a 7-day one thousand mile, geological excursion in Central and South Malaya (West Malaysia and Singapore) (1973). 40 p. by C.S. Hutchison. Price: M\$5.00 (US\$2.50).
- Abstracts of papers. Regional Conference on the Geology of Southeast Asia. Kuala Lumpur (1972). 64 p. 8 figs. 3 tables, many extended abstracts. Edited by N.S. Haile. Price: M\$6.00 (US\$3.00).
- Proceedings of the Workshop on Stratigraphic Correlation of Thailand and Malaysia. Vol. 1: Technical Papers (1983). 383 p. Price: M\$25.00 (US\$12.00). (Members: M\$12.00/US\$6.30).
- WARTA GEOLOGI (Newsletter of the Geological Society of Malaysia). Price: M\$5.00 (US\$3.20). (for non-members) per bimonthly issue from July 1966).
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- ### NEGERI-NEGERI MALAYSIA
- (STATES OF MALAYSIA)
- | | |
|-----------------|--------------------|
| 1. PERLIS | 8. PAHANG |
| 2. KEDAH | 9. NEGERI SEMBILAN |
| 3. PULAU PINANG | 10. MELAKA |
| 4. PERAK | 11. JOHOR |
| 5. KELANTAN | 12. SABAH |
| 6. TRENGGANU | 13. SARAWAK |
| 7. SELANGOR | |

BURMA
100° E.
100° E.
10° N.

KAMPUCHEA
VIETNAM

THAILAND

Langkawi
Alor Star
Kota Bharu
Kuala Trengganu
Ipoh
Kuantan
Kuala Lumpur
Seremban
Johore Bahru
SINGAPORE

SELAT MELAKA
(Straits of Malacca)

LAUT CINA SELATAN
(South China Sea)

MALAYSIA

Sumatra
Singkep
Bangka
Belitung

100° E.

110°

N

P. Banggi
Kudat
Sandakan
Kota Kinabalu
P. Labuan
BRUNEI
Miri
Tawau
Bintulu
Kuching

KALIMANTAN

0°

110°