

P E R S A T U A N G E O L O G I M A L A Y S I A

WAR TA G E O L O G I

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ISSUED BIMONTHLY BY THE
GEOLOGICAL SOCIETY OF MALAYSIA,
c/o Jabatan Geologi, Universiti Malaya, Kuala Lumpur, Malaysia.



PERSATUAN GEOLOGI MALAYSIA
(GEOLOGICAL SOCIETY OF MALAYSIA)

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Tujuan Persatuan Geologi Malaysia adalah untuk memajukan sains bumi, terutamanya di Malaysia dan tempat-tempat berhampiran. Sesiapa yang ingin menjadi ahli Persatuan sila dapatkan borang-borang daripada Setiausaha Kehormat.

The aim of the Geological Society of Malaysia is to promote the advancement of geological sciences particularly in Malaysia and nearby areas. Anyone interested in becoming a member of the Society should obtain the necessary forms from the Hon. Secretary.

Some Bahasa Malaysia (Malay) geographical terms

Bukit (Bt)	- hill	Kuala (K)	- mouth of river
Genting (Gg.)	- pass	Pulau (P.)	- island
Gunung (G.)	- mountain	Sungai (S.)	- river
Jalan (Jln.)	- road, street	Tanjung (Tg.)	- cape
Kampung (Kg.)	- village	Teluk (T.)	- bay

G E O L O G I C A L N O T E S

Kadar Pengangkatan Tektonik Sekitar Miri, Sarawak
(Rate of Tectonic Uplift Around Miri, Sarawak)

H.D. Tjia, Jabatan Geologi, Universiti Kebangsaan Malaysia
Shoji Fujii, Dept. of Geology, Toyama University, Toyama, Japan
Kunihiko Kigoshi, Gakushuin University, Tokyo, Japan

Abstract: In the Miri hills the age of partially carbonized stigmara standing in lagoonal mudstone at 19 m above sea level is $20,460 \pm 1170$ BP (sample GaK - 5911). Twenty thousand years ago sea level was 100 to 130 m lower. The stigmara suggest an average rate of tectonic uplift in the order of 6.5 mm/y.

Di sekitar bandar Miri, Sarawak, beberapa teres didapati sebagai dataran pantai yang lebar, sebagai sejumlah undak datar pada cerun perbukitan dan sebagai aras kemuncak. Teres paling rendah membentuk dataran Miri, 1 - 1.5 m di atas paras laut. Lebih tinggi didapati suatu siri undak jelas dan kurang jelas yang bersarang pada cerun bukit pada ketinggian 6 m, 20 m (sebuah gereja berdiri di atas undak ini di bahagian timur Miri), 22.5 m, 36 m, 40 m dan kemuncak samatinggi pada 51 - 53.5 m di atas paras laut sekarang. Penentuan ketinggian dilakukan dengan pertolongan sebuah kompas brunton. Aras kemuncak samatinggi tersibar luas meskipun terputus-putus akibat hakisan. Pasir kuats menutupi teres 1 - 1.5 m dan yang 6 m sedangkan lapisan timbunan demikian hanya terdapat sebagai longgokan berasingan di atas teres-teres lebih tinggi. Adakalanya teres tinggi-tinggi hanya dikenal menerusi morfologinya.

Para ahli geologi Jabatan Kajibumi Malaysia mengenal di kawasan Miri teres pada 80 m, 37 m dan 18 m. Teres 37 m dan 18 m dianggap mereka sebagai permukaan teres lebih rendah yang terangkat akibat sesar. Permukaan yang dimaksud didapati pada ketinggian 11 - 15 m di sebelah selatan dan tenggara Miri (Wilford, 1961, ms. 93). Sesar memang diketahui antara teres 37 m, 18 m dan 11 - 15 m.

Sepanjang jalan Bintulu, kira-kira empat setengah kilometer dari Miri, dijumpai teres pada ketinggian 18.9 m. Ketinggian telah khusus diukur oleh jurukur Sarawak Shell Sdn. Bhd. dengan perantaraan Dr. P.J.C. Nagtegaal, ahli geologi kanan perusahaan tersebut. Sebagian permukaan teres ini tertutup pasir kuats hampir bersudut (subangular). Di bawah lapisan pasir didapati sebidang lapisan nipis (kurang dari satu meter) yang terdiri daripada batulumpur kehitam-hitaman. Batulumpur ini menindih satah ketakselarasan yang menyempadani lapisan condong daripada Formasi Miri (Miosen hingga Pliosen). Stigmara, yang separoh terkarbon, berdiri di dalam

lapisan batulumpur yang juga mengandungi klasta gambut dan ichnofosil dari jenis *Domichnia*. Rupanya lapisan batulumpur itu mewakili sedimen lagun sedangkan pasir kuats adalah endapan pesisir laut. Sebuah contoh *stigmaria* yang bergambut telah ditentukan usianya di Universiti Gakushuin, Tokyo, dan menerbitkan umur $20,460 \pm 1170$ BP (contoh GaK - 5911).

Kalangan am menerima bahwa dua puluh ribu tahun yang lalu paraslaut sekurang-kurangnya berada 100 m (atau mungkin 130 m) di bawah paras sekarang (lihat Flint, 1971). Nombor ini menunjukkan bahwa permukaan teres 18.9 m mengalami kadar pengangkatan purata yang berjulat antara 5.5 dan 7.7 mm setiap tahun atau lebih kurang 6.5 mm/tahun selama dua puluh ribu tahun terakhir. Selama masa itu dan pada takat-takat tertentu pengangkatan tektonik dapat berhenti sementara atau dapat mengimbangi kenaikan paraslaut eustatik postglasial supaya memungkinkan pembentukan teres pada ketinggian di bawah teres 18.9 m, iaitu teres 6 m dan 1 - 1.5 m di kawasan Miri. Kadar pengangkatan tektonik sekitar 6.5 mm/th di Miri tidaklah menyimpang daripada kadar pengangkatan tektonik yang berlaku di pantai-pantai berbatuan Tersier lain di Sabah. Jadual 1 mengumpulkan kadar pengangkatan yang hingga kini diketahui berdasarkan usia mutlak pantai terangkat di Malaysia Timur.

Tempat	Kadar Pengangkatan Purata (selama masa) mm/th	Ketinggian Pantai Terangkat	Rujukan
Miri, Sarawak	6.5 ($20,460 \pm 1170$ BP)	18.9 m	Tulisan ini
Tanjung Lipat, Sabah	2.7 (180 ± 75 BP)	0.5 m di atas tikas pasang	Tjia et al., 1975
Pulau Bangau-bangau, Sabah	6.2 ($18,900 \pm 350$)	2 m di atas tikas pasang	Taira et al., 1971
Semporna, Sabah	7 ($19,030 \pm 450$)	2 m di atas tikas pasang	Tjia, et al., 1972

Jadual 1 - Kadar Pengangkatan Tektonik Di Malaysia Timur

Meskipun demikian halnya, tingkah-laku tektonik vertikal di Malaysia Timur tidak mudah, kerana ada butir yang menyatakan (1) kadar yang lebih kecil telah berlaku secara tempatan, dan (2) koral berusia mutlak lebih tua (33,300 tahun) menindih koral berusia $18,900 \pm 350$ tahun di Pulau Bangau-bangau (butir dari Taira et al., 1971).

Perkara yang (2) mungkin menunjukkan hasil sesar sungkup atau nendatan (slumping) yang mengakibatkan batuan lebih tua menutupi yang lebih muda. Perkara (1) didapati di Semenanjung Klias di mana kayu (4790 ± 115 BP) dan kerang (4400 ± 110 BP) ditemukan dalam teres marin pada ketinggian 2 meter diatas paraslaut mengikut Wilford et al. (1967). Mengikut perkiraan ramai pakar (lihat Tjia et al., 1975) pada masa itu paraslaut adalah setinggi paras sekarang sampai 6 meter lebih rendah. Jika ketinggian terakhir dianggap betul, maka kadar pengangkatan di Klias kurang dari 2 mm setiap tahun selama 4500 tahun terakhir ini.

Dapatlah disimpulkan bahwa lebih banyak penentuan usia mutlak pantai terangkat dan yang terbenam diperlukan kerana pengangkatan tektonik vertikal tidaklah mudah.

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Lepar Fault Zone, Pahang

H.D. Tjia, Universiti Kebangsaan Malaysia

Approximately 9 km (or 6 miles) east of the village Paya Bungu (or 222 km from Kuala Lumpur) on the main road from Maran towards Kuantan, Pahang, roadcuts through a hill reveal intensely, and occasionally twisted, rock. The rock consist of flasered phyllite, or phyllonite, and coarser grained metaclastics. Weathering has profoundly altered the outcrop so much so that probable igneous intrusives are represented by kaolin, often with ferruginous material. The flasered rock has subhorizontal to horizontal striations. Once in a while the same striated planes bear witness of superimposition by other striations representing vertical motion. The flaser foliations strike between 290° and 340° and commonly dip 60 degrees or steeper towards the north-east sector. Across the strike the outcropping flaser zone is at least 160 m wide (Fig. 1). Within the flaser belt are zones of phyllonite up to 3 m wide which indicate the localisations of shearing.

Sense of motion on the various fault planes was determined in the field by interpreting small-scale markings on the flaser planes. These markings are parallel to subparallel or normal to the striations. Among the parallel markings are nailhead grooves that taper off in the direction of fault motion, while among the useful markings normal to striations must be counted recrystallized risers (so called 'bruises') of small steps, prod depressions, and jagged pluck risers. Bruised step risers face the direction of motion; pluck risers face with the direction of fault motion. The use of similar markings in determining fault sense in the field has been initiated by the reporter (Tjia, 1964, 1972) and the interpretation has been supported by a number of laboratory experiments (e.g. Riecker, 1965; Currie, 1968; Gay, 1970; Engelder, 1974) and by other field workers (e.g. Proust et al., 1974; Petit et al., 1975). Figure 2 compiles the measured fault senses. The average fault trend is N315E. Within the sector N290E and N340E nine out of ten fault zones have almost horizontal striations with associated markings indicative of left slip. The single exception, that is, a fault zone suggesting probable right slip motion may be explained as the result of elastic rebound, or more likely the particular fault motion was caused by reorientation of the regional compression. Note that the fault trend is subparallel to the sector of compressive stress (Fig. 2). The majority of fault slips may be explained by regional compression that acted within the sector N75E to N100E. With respect to this compression sector, the flaser foliations may be interpreted as first order shear planes.

Lee (1974) has traced this fault zone in N310E direction along the Lepar valley for a distance exceeding 40 km. He also indicates that at the above described roadcuts another fault intersects the Lepar fault. The second fault strikes N330E (Lee, 1973, 1974) and extends

15 km to NW and 5 km to SE of the roadcuts. From field observations Lee (personal communication) suspects that the Lepar fault zone has left lateral sense.

The vertical or downdip striations that are superimposed upon the results of more horizontal displacement of the Lepar fault zone must be considered as manifestations of equilibrium-seeking forces. In other words, normal faulting occurred within the fault zone after the state of equilibrium had been disturbed by lateral faulting.

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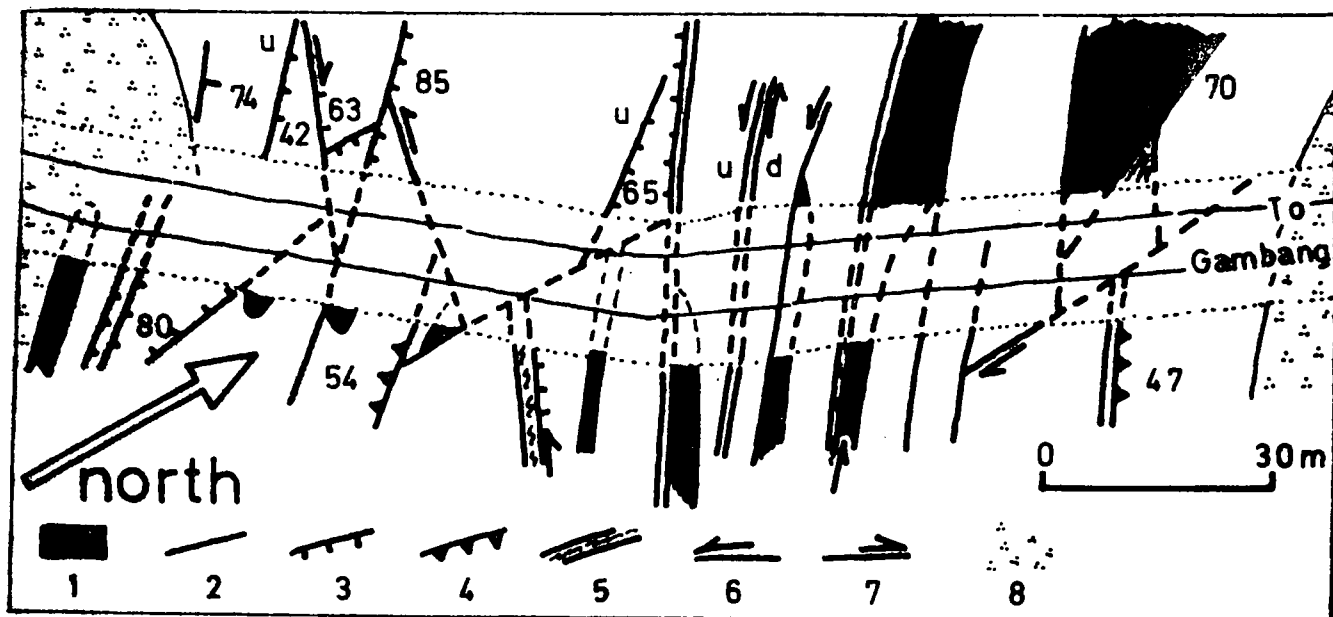


Fig. 1: Plan of Lepar Fault zone outcropping along the main road Maran to Kuantan. Key: (1) weathered igneous(?) rock, probably as dykes occupying fault zones, (2) vertical or near-vertical fault, (3) inclined fault, hachures show dip direction, (4) reverse fault, triangles on hanging wall, (5) flaser zone, (6) left and (7) right slip fault, (8) red soil with white spots.

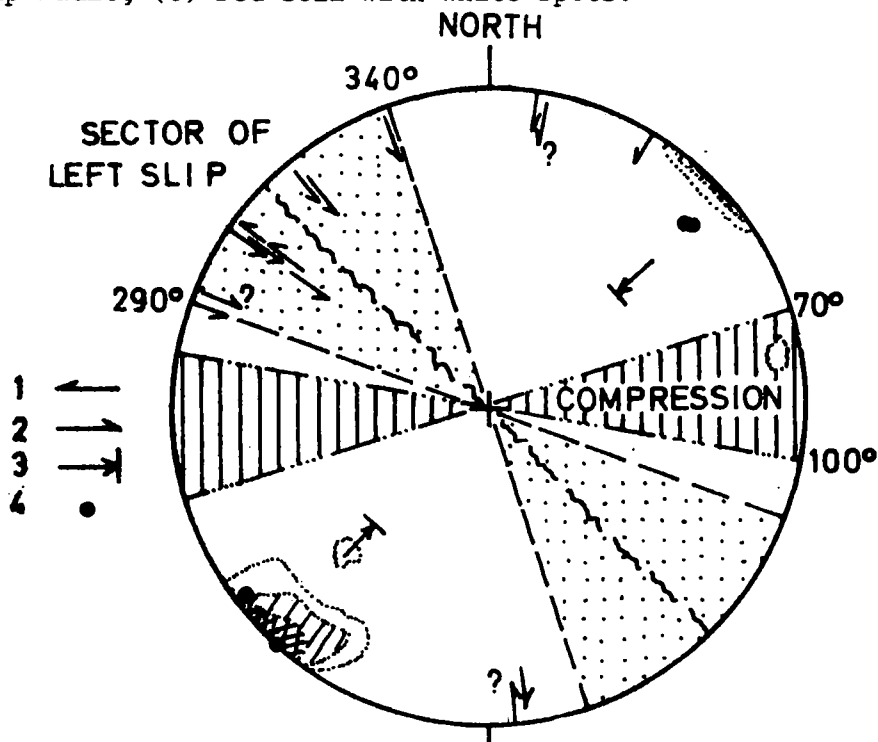


Fig. 2: Equal-area projection, lower hemisphere of fault striations in the shear zone. Contours indicate concentrations of 5-10-15 % of poles to flaser foliations; wavy line is the average trace of these foliations. Key: (1) left slip and (2) right slip striation, (3) reverse slip striation, (4) pole to non-flasered foliation.

Lateral compression that acted between 70° and 100° appears to have caused all the interpreted senses of fault motion.

M E E T I N G S O F T H E S O C I E T Y

- G.H. Moh: (1) Typical microscopic textures of sulphide ores and an attempt of an experimental explanation.
- (2) Techniques of experimental sulphide petrology and its application.

Prof. G.H. Moh from Heidelberg University is well known for his experimental studies of sulphide minerals such as stannite. He gave the two talks at 5.00 p.m. on 6 and 7 September in the Dept. of Geology, University of Malaya. About 40 people attended the talks each evening.

In the first talk Prof. Moh gave an account on the chemistry of chalcopyrite structural group of minerals such as stannite ($\text{Cu}_2\text{FeSnS}_4$), kesterite ($\text{Cu}_2\text{ZnSnS}_4$), gallite (CuGeS_2) and briartite ($\text{Cu}_2\text{FeZnGeS}_4$). He also showed slides of various textures exhibited by these sulphides which can be explained by consideration of various phase diagrams.

In the second talk he spoke on the equipments and techniques used in experimental work on sulphides. Phase diagrams of Fe - S and Cu - Ni - S systems were shown and interpreted.

Prof. Moh is a very interesting speaker and listening to his talks was quite an experience.

D.S. Parasnis: Some thoughts on the application of geophysics in Malaysian environment.

At 5.00 p.m. on 10 September in the Dept. of Geology, University of Malaya, Prof. D.S. Parasnis addressed about 50 members and guests of the Society on the above-mentioned topic. Prof. Parasnis is the Foundation Professor in the Dept. of Applied Geophysics in the University of Luleå, Sweden. Prior to his association with the university, Prof. Parasnis had spent more than 10 years with the Boliden Mining Company. He is a well-known mining geophysicist and has written two books, namely Principles of Applied Geophysics and Mining Geophysics. He is currently the editor of Geoexploration, an international geophysical exploration journal. This is Prof. Parasnis's first visit to Malaysia.

He has spent 3 months in the School of Physics, Universiti Sains Malaysia as a visiting professor.

In his talk he discussed various problems associated with the exploration of alluvial tin deposits in Malaysia. Of special interest was the problem of detecting limestone pinnacles. He proposed the use of "super-detailed" gravity survey with aim of mapping the positions of pinnacles on the gravity map. He also discussed the possible application of high resolution magnetic method and also the mise-a-la-masse method for the detection of contact zone.

There was an active discussion after the talk. Several participants from the mining sector raised and discussed several problems on the application of the methods suggested in areas of active mining. The suggestions of Prof. Parasnis gave us something to think about regarding the mining and exploitation of alluvial tin deposits.

SHC

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- R.G.C. Bathurst: (1) The evolution of porosity in limestones
- (2) Role of pressure solution in the compaction of carbonate rocks
- (3) Modern lagoonal and reef environments
- (4) Problems of the recognition of ancient carbonate environments.

In two extended evening meetings on 21st and 22nd September 1976, the Society's members were treated to a series of four talks on aspects of carbonate sedimentology by Dr. Robin G.C. Bathurst of Liverpool University in U.K. The Malaysian visit of Dr. Bathurst, author of the much-admired and widely used book Carbonate sediments and their diagenesis (2nd edition 1975), was made possible by a grant given last year by Exxon Production Malaysia specifically to support speakers. The talks were well attended and the audiences appreciative of the speaker's wide knowledge, clear presentation, and wry wit. These, together with the successful functioning of the Society's new tea urn during the mid-evening breaks, made the sequence of talks a highly successful occasion. While in Malaysia, Dr. Bathurst also gave a seminar on "The origin of oolites" in the Department of Geology, University of Malaya, and a talk on ancient carbonate environments

to the Society's members in Ipoh, as well as being taken into the field to see some limestones and tropical jungle.

A brief synopsis of Dr. Bathurst's talks to the Society follows:

1. The evolution of porosity in limestones

Porosity and its evolution are of importance not only scientifically but also economically, in the formation and entrapment of oil and gas, in ore emplacement, and in aquifers.

Original porosity of shelly carbonate sediments may be as much as 70%; in general this is reduced during diagenesis, but the processes are different (a) on the sea bottom, (b) after burial, and (c) upon uplift and exposure.

Submarine cementation is by magnesian calcite or aragonite partly as fillings of algal bores in shells. Early cementation on the sea floor can give a 'hard ground', recognizable in many ancient carbonates. Fresh water cementation is usually by sparry calcite, and aragonite may be dissolved out to give nice molds of fossils. Beach rock may be caused by mixing of fresh and sea water, both saturated with calcium carbonate.

A common but not well understood process is "neomorphism", whereby one crystal structure is replaced by another but with preservation of detailed texture, presumably by a migrating thin water film.

Deep sea lithification of coccolith oozes has been shown to be a very slow process, Upper Cretaceous ones still being friable and porous like chalk.

2. Role of pressure solution in the compaction of carbonate rocks

This is a process known to be responsible for very large reductions in volume (40% or more) in carbonates, both at individual grain contacts and in the form of stylolites. Pressure solution depends on stress and therefore requires overburden (the anomaly of an uplifted beach sand in England which showed clear pressure solution was solved when someone remembered that during the Pleistocene the area was buried under about 2 km of ice!). Pressure solution seems to be facilitated by the presence of clay impurity, apparently requires significant porosity in the rocks, and probably involves redeposition of much of the dissolved material nearby. But many problems remain, especially as regards the details of the mechanism and the relation to tectonic stresses in deformed regions.

3. Modern lagoonal and reef environments

High energy environments - beaches and reefs - are places where active abrasion, rounding and sorting of particles goes on. In the lagoons of the Bahamas, sediment is stabilized by sea grass and algal mats, but much organic activity goes on beneath the surface. The ubiquitous aragonite needle mud in such places probably forms by the disintegration of codiacean algae. The really important events in low-energy environments are probably the rare catastrophes such as hurricanes which may radically alter the topography, currents, and distribution of organisms.

4. Problems of the recognition of ancient carbonate environments

We must work from understanding of modern processes, but cannot expect that ancient environments were exactly like the modern ones. Ancient rocks wear such a heavy 'disguise' of diagenetic effects that it is rarely possible to uniquely determine the origin from the rock itself. Generally a reasonable picture emerges only from consideration of vertical and lateral sequence of facies, in addition to the character of the facies themselves. Recognizing the diagenetic history which a rock has gone through is of great help, as the features of diagenesis by normal sea water, supersaline water, and fresh water may be quite different.

PHS

F I E L D E X C U R S I O N

Bangi Campus, Universiti Kebangsaan Malaysia

As dark rain clouds began to congregate above Kuala Lumpur threatening another dreadful afternoon downpour, 34 optimistic people and one not so optimistic member armed with an umbrella braved the approaching storm to rendezvous outside the Dept. of Geology, University of Malaya at 2.00 p.m. on Saturday, 30 October for the excursion to Bangi. However, probably in response to someone's silent prayer, the congregation of clouds soon dispersed and it was a beautiful afternoon when the participants arrived at the new Campus.

In Sains Malaysiana 5(1), 49-65 (1976) and the Warta Geologi 2(4), 63-67 (1976), Prof. H.D. Tjia has described the rocks and structures exposed at new roadcuts in the Campus. He believes that the rocks there are those of the Kenny Hill formation which is widespread in the Kuala Lumpur area. His papers have aroused considerable interest. Some participants were keen to compare and contrast the rocks in the Bangi Campus with those in the Kuala Lumpur area and some were keen to examine the structures so clearly sketched in Prof. Tjia's paper. The excursion was arranged at rather short notice due to the enthusiasm and also in order to see the rocks before speedy tropical weathering obliterates them from inquisitive geologists. Once weathering has taken its toll interpretation of the geology will be like trying to dredge the image of the moon in a mining pool, quite impossible.

The rocks occurring in the Campus are silver and pale green phyllites interbanded with fine to coarse-grained metamorphosed psammitic rocks. The phyllites appear to lack porphyroblastic minerals. Often the schistosity of the phyllites are parallel to bedding surfaces and sometimes at an angle to the bedding. In some places a second set of axial plane cleavages developed in minor folds. Locally adjacent to faults the schistosity of the phyllites are sometimes kinked, another set of cleavages may develop and at one place the schistosity are contorted. It appears that the rocks there have undergone at least two phases of folding.

Faulting, not uncommonly low angle thrusts, occurs in all the exposures visited. These faults are post-metamorphism. Earlier faults are filled by quartz "sweat-outs".

Like people sleeping on the same bed but having different dreams, participants looking at the same beds in the Campus have different interpretations. Some of the participants agreed with Prof. Tjia that the rocks before metamorphism resemble the Kenny Hill formation rocks. Some disagreed. The silent majority of the participants were probably uncommitted. However, everyone agreed that the rocks in Bangi are structurally more complex and have been metamorphosed to a higher grade than the Kenny Hill formation in the Kuala Lumpur area.

It was a worthwhile and successful trip. Prof. Tjia should be thanked for leading the excursion and also for keeping the participants interested enough to forget that the famous Kajang satay was so tantalizingly near.

NEWS OF THE SOCIETY

Council Members

The Council has decided to coopt Encik K.K. Khoo, a geologist with the Geological Survey Malaysia to fill the Councillor post vacated by Encik J.K. Raj who has been coopted to be the Assistant Secretary.

Encik L.S. Chin has resigned as a Councillor.

Nominations for 1977/78 Council

No nomination was received by the Hon. Secretary at the close of nomination on 10 October. All the nominees recommended by the Nominations Committee will therefore sit in the next Council.

Membership

Full Members

The following have been elected to full membership of the Society:

Abdul Rahim Samsudin
Jabatan Geologi
Universiti Kebangsaan Malaysia
Kuala Lumpur

Sompongse Chantaramee
Jabatan Geologi
Universiti Malaya
Kuala Lumpur

Surapoung Lerdthusee
Jabatan Geologi
Universiti Malaya
Kuala Lumpur

Tan Seow Aik
283 Pasir Panjang
Singapore 5

John Westhoff
Sierra Mining Co. Ltd.
315 Silom Road
Bangkok, Thailand.

Student Members

The following students from Jabatan Geologi, Unversiti Malaya, Kuala Lumpur have been elected to student membership:

Abdul Ghani Rafek	Ahmad Tajuddin Hj. Ibrahim
Azhar Hj. Hussin	Cheong Seng Gee
Harmit Singh	Husani Zaini
Kamarulzaman Mohd. Zin	Kho Siak Chung
Kung Chin Leang	Liew Tung Chooi
Looi Keng Mun	Looi Kok Sam
Low Keng Lok	Lye Yue Hong
Ng Siow Chew	Ong Leh Wah
Ooi Say Tean	Poh Yong Thong
Tan Kai Soon	Tee Ai Teng
Yaw Ban Soon	

Ipoh Discussion Meeting

In response to the first circular about 30 members who are not with the Geological Survey Malaysia replied that they will participate. It is expected that all, if not most, of the geologists (majority of them our members) with the Geological Survey will also participate. From past experience we know that many members keen to participate will only know whether they have the time for it a few days before the meeting. So it appears that there will be at least 75 participants.

On 21 October, a final circular announcing the time, place and date of the meeting, the papers offered and other details have been posted to all members. If you wish to participate please inform us in advance by returning the reply slip attached to the circular. If you have not received the circular, the important information of the meeting for your diary are:-

Venue: Geological Survey of Malaysia, Tiger Lane, Ipoh

Date : Friday 10 September 1976

Time : 9.30 am to 5.00 pm (approximately)

Theme: Geology of the South China Sea area including its continental rim.

To date 14 papers have been offered. Tentative titles of the papers offered are as follows:

- 1) The problems of Upper Mesozoic stratigraphy of Peninsular Malaysia - E.H. Yin, P.C. Aw & others (Geological Survey Malaysia)
- 2) Interpretation of coastal sediment movement, east coast, Peninsular Malaysia - J.K. Raj (University of Malaya)
- 3) Quaternary offshore and coastal stratigraphy of Sundaland - B. Batchelor (University of Malaya)
- 4) Some aspects of the Recent in Pulau Tioman - T.T. Khoo (University of Malaya)
- 5) Some geochemical studies of beach and seafloor sediments and soils of the Pulau Aur - Pulau Pemanggil - Pulau Tioman area - S.B. Tan (University of Malaya)
- 6) Gravity traverse of Peninsular Malaysia - preliminary results - P.J.C. Ryall (University of Science Malaysia)
- 7) Tectonic development of eastern Peninsular Malaysia - B.K. Tan (University of Malaya)
- 8) Structures of the Tanjung Gelang area, Pahang - L.S. Yap (University of Malaya)
- 9) Structure and metamorphism of the Taku Schists and adjacent rocks in the Manek Urai area, Kelantan - S.P. Lim & T.T. Khoo (University of Malaya)
- 10) Structural style of east coast, Peninsular Malaysia - H.D. Tjia (University Kebangsaan Malaysia)
- 11) The basement of Sabah - C.S. Hutchison (University of Malaya)
- 12) Depositional environments and palaeoecology of Batu Niah, Sarawak - P. Jagathasparan (University of Malaya)
- 13) Geology of the Lupar valley, Sarawak - Alexander Unya & S.K. Lam (University of Malaya)
- 14) Structural evolution of the Labuan area, Sabah - C.P. Lee (University of Malaya)

One of the highlights of the meeting will be the comprehensive paper on Upper Mesozoic stratigraphy of Peninsular Malaysia to be

presented by senior officers of the Geological Survey. In the preparation of this paper groups of Survey geologists have recently visited important localities of Upper Mesozoic stratified rocks to make further studies of the problems of their stratigraphy. It appears that at this meeting the vexing problems of the folded Tembeling Formation and its relation to the not folded Gagau Formation and equivalent rocks will be clearly elucidated. A very lively discussion is also expected following the paper and a full session has been reserved for it.

Another highlight of the meeting will be a session on structural geology and tectonics of the eastern half of Peninsular Malaysia. At this meeting problems of the Taku Schists, a controversial group of rocks in the 1960s, will again be revived. Structures of interesting localities will also be presented and a model to explain the tectonic development of eastern Peninsular Malaysia will also be attempted. Very fittingly a paper on preliminary results of a east - west cross country traverse will also be presented and any model to explain the tectonic development will have to account for the gravity data, the position of the Taku Schists and the structures of several areas. All the ingredients for another lively session are there.

Sessions on coastal and offshore geology and on the geology of Sabah and Sarawak appear to be on the cards. Papers in these session promise to be interesting and will have special appeal to sedimentologists, palaeontologists and those searching for resources in the coastal and offshore areas.

Previous Discussion Meetings held in Ipoh immediately after the Geological Survey's Senior Officers' Annual Meeting were all successful and your active participation will certainly make the coming one even better. If the theme of the meeting does not really excite you, maybe because you are only interested in lunar geology, it may also be worthwhile for you to participate as the meeting will provide an opportunity for you to meet fellow geologists in this region.

Annual Dinner 1976

The Council has decided to elevate the ordinary dinner planned for the evening of 10 December after the Ipoh Discussion Meeting to an Annual Dinner. The cost will remain at \$15 per head (excluding extra hard or soft drinks). A member can bring any number of guests also at \$15 per head. This will be the first time the Society will be holding the Annual Dinner outside Kuala Lumpur. This is in line with the Council's desire to spread out its activities.

At the last Annual Dinner we heard the superb voice of Umar Yahya, an emotional patriotic Japanese song sung patriotically by Prof. Oba, an appreciative Russian poem composed and read at the Dinner by Academician Shilo (see page 119) and also bags of jokes from several

stalwarts. If you want to know what is in store this year you should attend the Annual Dinner. Ipoh, as you already know, is a gastronomic paradise and you can be assured that a gourmet will select only delectable dishes for the Dinner

If you want to attend, give your name and all your guests' names as well together with the correct sum of money to the Treasurer, Geological Society of Malaysia, c/o Jabatan Geologi, University of Malaya, Kuala Lumpur before 30 November 1976. Members who have paid up will be informed regarding the restaurant and time of the Dinner in due course. The tentative time for the Dinner is 7.30 p.m.

O T H E R N E W S

CCOP Symposium on Quaternary Geology in the Malay-Indonesian area

The symposium will be held during the annual meeting of the CCOP and is open to anyone interested in the subject.

Date : Monday 29 November 1976

Place : Hotel Equatorial, Kuala Lumpur

Time : 8.30 - 12.30 a.m. & 2.00 - 5.00 p.m.

The aim of the symposium is to give an up-to-date picture about the activities in the field and to stimulate research and cooperation between governmental agencies, scientific institutions and private enterprises that are interested in Quaternary Geology.

The preliminary programme is given below:

1. Introduction. - CCOP Project Office
2. Importance of Quaternary geological investigation for Malaysia, Founding of a mapping unit. - Geological Survey of Malaysia

3. General causes for sea level changes. Quaternary sea level changes in South China sea and their influence on the geology. Radio carbon datings, - Prof. H.D. Tjia, National University of Malaysia
4. The application of pollen analysis in Quaternary stratigraphy. - Dr. P. Haseldonckx, Robertson Research, Singapore
5. Quaternary research in certain coastal areas of Indonesia. Methods used. Stratigraphy, - Dr. F. Hehuwat, National Institute of Geology and Mining, Bandung, Indonesia
6. The systematic mapping of Quaternary deposits, illustrated by an example of a coastal area in W. Malaysia. Description of the mapping technique, - Mr. K.Y. Foo, Geological Survey of Malaysia
7. The use of light geophysical equipment for the mapping of unconsolidated sediments. Description of the equipment. Application in a coastal area. - Dr. Surendra Singh, University of Science of Malaysia.

Note: Only the authors who have confirmed their co-operation are listed. Only subjects of the talks are given.

Second Circum-Pacific Energy and Mineral Resources Conference

The Circum-Pacific Council for Energy and Mineral Resources announces its second conference to be held July 30 - August 4, 1978 at the Hilton Hawaiian Village, Honolulu, Hawaii. This international conference is sponsored by The American Association of Petroleum Geologists, The Committee for Coordination of Joint Prospecting for Mineral Resources in Asian Offshore Areas, The Pacific Science Association, The American Mining Congress, and the University of Hawaii. It is supported by more than fifty prestigious geological and geophysical societies of the World including the Geological Society of Malaysia.

This Conference will follow the general pattern of the very successful 1974 Conference by presenting approximately 120 papers by outstanding international scientists and statesmen on the energy and mineral potential of this vast region. These forward-looking papers will focus on future needs and potential for petroleum, oil shale, tar sands, coal, geothermal energy, nuclear energy, minerals, ores and

ground water. A special seminar on environmental geology will be offered during the Conference. The 1974 Conference papers are being published this summer in a special A.A.P.G. Memoir, and it is intended that the 1978 Conference papers will be similarly published.

Pre- and post-Conference geological field trips similar to those in 1974 will be conducted on the islands of Kauai, Oahu, Maui and Hawaii by experts from the University of Hawaii and the U.S. Geological Survey. Hopefully the Kilauea volcano will cooperate with its usual volcanic activity.

For further information write to 1978 Circum-Pacific Conference, c/o AAPG, P.O. Box 979, Tulsa, Oklahoma, USA 74101

Malaysian Scientific Association - Fellows of Science

The Malaysian Scientific Association (MSA) will soon be establishing a Council of Fellows of Science. Some of the criteria for election to be a Fellow are the scientist must be eminent and has contributed significantly to any branch of science. Many professional and scientific societies in Malaysia, including the Geological Society of Malaysia, took an active part in the nomination and election of the Foundation Fellows. The Foundation Fellows are

- a) Tan Sri B.C. Sekkar (Rubber Research)
- b) Professor A.A. Sandosham (Medical Research)
- c) Tan Sri Hamzah Sendut (Social Science)
- d) Tan Sri Mohamad Din (Public Health)
- e) Datuk Anuwar Mahmud (Agricultural Research)

The MSA with the cooperation of many professional and scientific societies has drawn up an inauguration programme to launch the Council of Fellows. The date and place have not been finalized. On the inauguration day, the Foundation Fellows will give the following talks:

- a) Science and development in Malaysia - B.C. Sekkar
- b) Agriculture and development - Anuwar Mahmud
- c) Science and health - Mohamad Din
- d) Science and medical research - A.A. Sandosham
- e) Science and Socio-economic development - Hamzah Sendut

In addition the Fellows will hold a panel discussion on "Science for the Malaysian Society: Strategy for the Future". A dinner and presentation of scrolls to the Fellows will also be held in the evening of the inauguration day.

All members of our Society have been invited to participate in the inauguration activities. Members will be informed on the date of the inauguration as soon as we hear from the MSA.

Tin Research and Development Centre

The United Nations Development Programme (UNDP) has allocated \$375,000 (ringgit) for the Southeast Asia Tin Research and Development Centre being set up in Ipoh to get the project going by the end of the year.

The allocation was disclosed at the meeting of the committee on natural resources of the ESCAP held in Bangkok recently.

New Straits Times
21 October 1976

P A P E R O F I N T E R E S T

The interesting section on "Management of the mining industry in Malaysia" which appeared in a paper entitled "Mineral resource development in Malaysia: State participation, private enterprise or both" presented by Dato Mohamad Salleh Majid at the AGID SYMPOSIUM 1, Sydney, 1976 is reproduced below.

Management of the Mining Industry in Malaysia

The mining industry in Malaysia has been, from its very beginning, managed by private enterprise. The ownership structure of the industry at present is still substantially foreign dominated. Though most of the gravel pump mines are owned by Malaysians, but dredging is largely dominated by Europeans, namely the British. In 1975 only 4 out of the 55 dredges were owned by Malaysians. About 57% of the equity shares of mining companies managed by Europeans are held by foreigners.

The Government realising this anomaly, has taken actions to remedy this situation by introducing policies and measures to safeguard the country's mineral wealth. Some of the measures taken are as follows:-

- i) to establish agencies both at Federal and State levels, namely PERNAS (National Corporation) and State Development Corporations, to undertake mining activities either by themselves or by joint-venture with the private sector.
- ii) to limit the amount of foreign investment to a maximum of 30% in any joint venture project including mining.
- iii) to give preference to citizens or local companies in the granting of mining rights. In cases where the proposed ventures are beyond local technical expertise and financial resources, a joint venture local/foreign company would be considered.
- iv) to take over foreign-controlled mining companies by Government sponsored agencies by purchasing controlling shares of the companies concerned.

These measures are necessary in order to ensure that the proceeds accrued from the exploitation of mineral resources will benefit the country and its citizens. This is consistent with the aims of Government's New Economic Policy, viz, to restructure society and increase the standard of living of its people.

NEW PUBLICATIONS

- 1) Halbouty, M.T., Maher, J.C. and Lian, H.M. (Editors). Circum-Pacific Energy and Mineral Resources. AAPG Memoir 25. October 1976. 608 p. cloth. Price US\$32.00 (for members of AAPG and also Geological Society of Malaysia).

(Members who wish to purchase this book should indicate on their orders that they are members of our Society. Otherwise they will be charged the non-member price (\$US40.00. Address: AAPG, Box 979, Tulsa, Oklahoma 74101, USA)

The volume contains 126 papers (General 17, Coal 7, Geothermal energy 15, Hydrocarbons 28, Hydrogeology 13 and Minerals 46) presented at the Circum-Pacific Energy and Mineral Resources Conference held in August 26-30 1974 in Honolulu, Hawaii.

- 2) Thomas, M.F. (1974). Tropical geomorphology. Macmillan. 332 p. Paperback. Price £2.95.

This book gives interesting chapters on tropical weathering and the development of tropical landforms. Examples from Malaysia and Singapore are also cited.

CANDID CAMERA

Field Excursion - Bangi Campus (30 October)



"The upper limb is horizontal nearer to me but dips steeply further away from me. The interpretation - its the right one! Can you see it?"



"O, Ya! This is a piece of concrete from the site of the new Geology Building in the Campus, not a graywacke."

A R U S S I A N P O E M

According to the author of the interesting book Malayan Landscape, Katharine Sim, whose husband served in the Malayan Government Service until 1960, Malaya (now Peninsular Malaysia) is a land of furloughs and transfers and also Malaya has much to inspire both brush and pen. At the Annual Dinner last year Academician N.A. Shilo was inspired to put pen to paper and produced a poem in Russian which not many of us could understand. An English translation of the poem (see below) was later made and it appears that Academician Shilo's impression of Malaysia is as interesting as that of Katharine Sim.

Malaysia - land of flowers and lovely girls
 The land here is covered with palms
 And also by luxuriant sprawls of greenery
 But the people's hearts are open, not covered.

Along the rivers of Malaysia I wandered
 Studying with care the origin of the Universe
 As if I have missed something
 In the perpetual mystery of creation.

In Kuala Lumpur I met my old friends
 Santokh, Paul, Frank, Richard and Reed*
 And many others of the geology discipline
 Who retain their wits even in camping life

N.A. Shilo

Translated from Russian
 by: S. Qusted,
 Universiti Malaya.

(*The persons referred to are Santokh Singh, Paul Bateman,
 Frank Dodge, Richard Murphy and Bruce Reed)

