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

Inverted facing of Kenny Hill Formation at Bukit Pantai, Kuala Lumpur*

H.D. Tjia, Jabatan Kajibumi, Universiti Kebangsaan Malaysia

At the junction of Jalan Bukit Pantai and Jalan Taman Pantai, Kuala Lumpur, crop out several unusual sedimentary structures in a sequence of thick-bedded argillaceous, lutaceous, and arenaceous rocks. The structures include a 35-cm long pseudo-nodule of tuffaceous lutite, aligned bulbous ridges with internal 'twisting', and subparallel long ridges with regular inter-ridge spacing.

The bulbous structures may stand as high as 30 cm above the sandstone surface; in plan view they are rounded, but elongated nodular ridges strung out sausage-like are more common. Their cross sections reach up to 40 cm across and may show overhanging sides. Strings of bulbous structures are mutually parallel or subparallel. Some regular spacing between strings of bulbous structures is common and spacing intervals vary between 10 and 30 cm. Small knobs, ridges, and wrinkles adorn the sides and crest of the main structures and suggest internal convolution. Cross sections show less than 2-cm wide clay-ironstone rims. Strikingly similar structures have been shown in Fig. 99, p. 147 of Dzulynski and Walton (1965), who interpreted them as load-casted ripples.

The subparallel to parallel, long ridges are narrow, round-crested, and project less than 1 cm above the bedding surface. They are 2 to 3 cm across while individual ridges may be 10 to 25 cm long. Often the ridges continue en echelon in the general direction of alignment and thus form long ridge trains. The ridges may terminate in pointed ends resembling beaks, while the other end may flare out. However, no consistent pattern of pointed ends or flaring ridge-ends is appreciable. For similar reasons the ridges cannot be interpreted as inverted flutes or 'setulfs' that have recently been described by Friedman and Sanders (1974) from a tidal flat in the Persian Gulf. The ridges cannot be ripple marks on account of their semi-circular cross sections.

* A fuller report will be published in *Sains Malaysia* vol. 3(2) 1974.

I interpret the long ridges on the sandstone surface at Bukit Pantai as a special type of groove cast. Their unusual feature is the regular spacing. It probably means that the tools responsible for cutting of the furrows in the underlying (now top) mud layer were connected to a common base or stem and may be knobs (= tools) on a palm leaf, or ornamentation (= tools) on an elongated, giant gastropod shell, or short protuberances (= tools) on the backbone of a big fish, and so forth.

The three main sedimentary structures described, all indicate overturning of the sedimentary succession. The beds strike northwest and dip about 25 degrees to the northeast. The moderate dip and constant dip direction over a distance of at least 50 m suggest isoclinal folding of some importance. Overturned stratification is also shown by small flame structures, 2 to 3 cm high argillaceous tongues that in their present positions project obliquely downward into arenite.

Among previous workers in the Kuala Lumpur area E.H. Yin (cited by Stauffer, 1973, p. 90) has suspected that the broad synclinal structure normally ascribed to the Kenny Hill Formation is probably not true. Calculations of sedimentary thickness based on the assumed structure and the moderate dips have yielded large values. It is believed that the Kenny Hill beds may consist of repetitive sequences that developed through (at that time still unknown) folds or longitudinal faults. The Bukit Pantai evidence appears to support Yin's interpretation of repetitive stratification, and moreover suggests that the structure may be isoclinal or even recumbent folding.

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Occurrence of raised corals in Pulau Tioman, Pahang

T.T. Khoo, Jabatan Geologi, Universiti Malaya

Evidence for higher Quaternary sea-levels in the east coast of Peninsular Malaysia has been presented by Fitch (1951) and Ossin (1962, 1965) who interpreted the occurrence of raised beach ridges along the east coast as indicating higher former sea-levels. More evidence has recently been discovered by Tjia (personal communication) who found shells attached to cliff faces well above the present sea-level in Trengganu. In this short note the writer would like to present evidence for higher former sea-levels in the east coast of Peninsular Malaysia of quite different nature from those just mentioned.

Recently the writer traversed up Sungai Baharu, near Kampong Juara on the east coast of Pulau Tioman (Fig. 1). At localities A and B (see Fig. 1) evidence suggesting a higher former sea-level was found.

Locality A

At the north bank of the river, about 0.5 metre of the top of a coral reef protrudes above the river channel over a 3 metre stretch and about 1.5 metres of sand overlies the reef. Broken shells are also present amongst the reef.

Locality B

This locality is about 25 metres upstream from locality A. At this locality a 5 metre stretch of horizontally bedded coralline debris is exposed at the north bank of the river. Only about 0.5 metre of the bed is exposed above the river channel. Overlying the bed is about 1.5 metres of sand.

The bed is composed mainly of broken branches of corals and subordinate amounts of broken gastropod and bivalve shells. The debris is very poorly cemented and very unlike the coralline coquina occurring at Tanjong Berhala on the west coast of Pulau Tioman (Khoo, 1974).

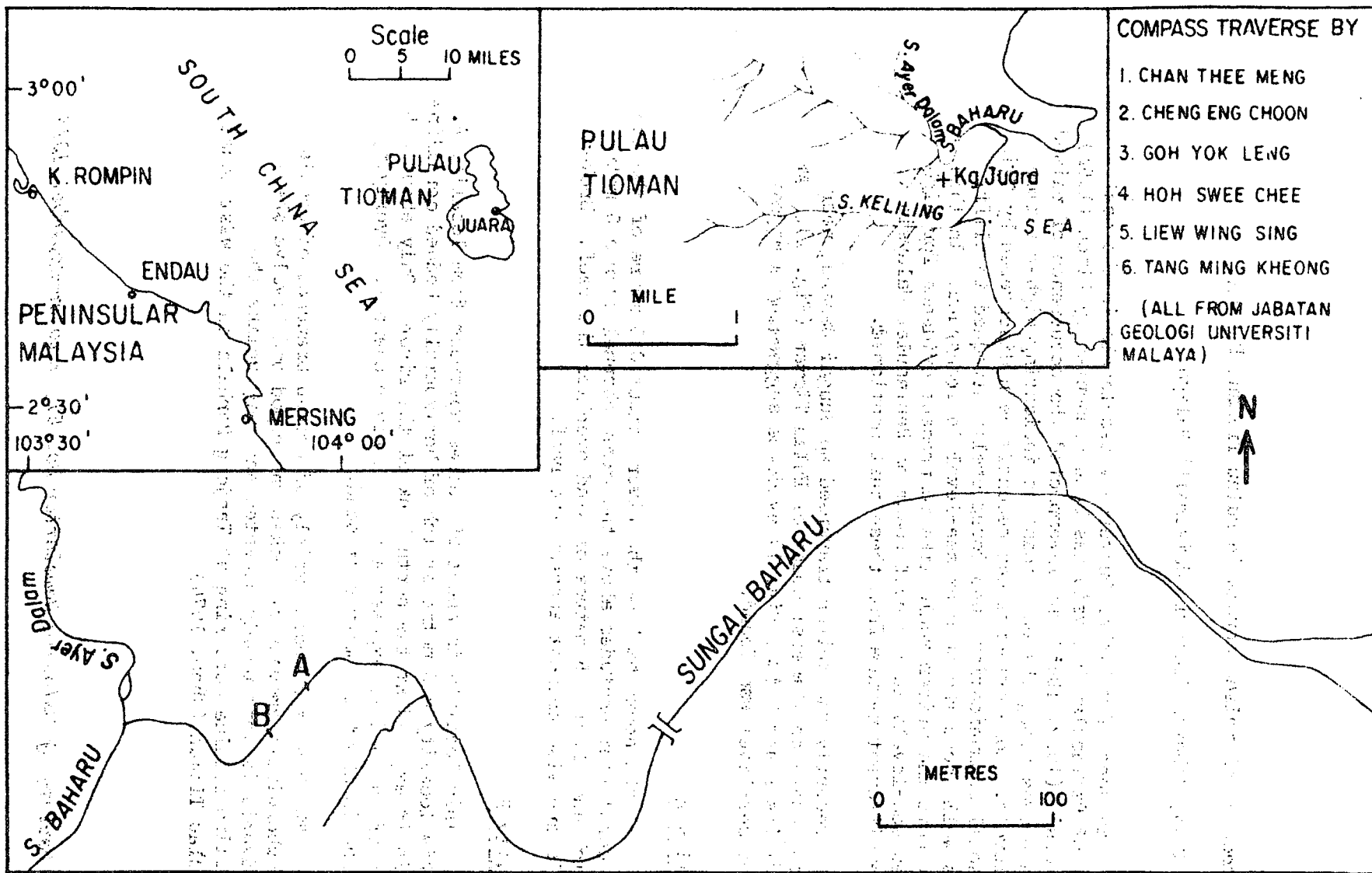


Fig.1: LOCALITY MAP OF PULAU TIOMAN, KG JUARA AND SUNGAI BAHARU.

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The coralline bodies are not found to be outcropping at the south bank of the river. It is likely that the coral reef is a patch reef, which occurs quite commonly in present day Pulau Tioman waters. The debris bed may be lenticular in shape.

In nearby Sungai Keliling (Fig. 1) there is also evidence of the occurrence of similar coralline bodies. Cheng Eng Choon and others (personal communication) have found coralline blocks and debris littered on the floor of the river. However, they did not find any of the described coralline bodies in situ. It is possible that such coralline bodies are more widespread in Pulau Tioman and more work will be done in future to seek and study them.

The exact height and age of the coralline bodies in Sungai Baharu is not known. From the topographic map it is estimated that the height could be about 8 metres above the present sea-level. If this is so, the former shoreline could be 10-15 metres above present sea-level. The rather unconsolidated nature of the debris bed and the fact that similar types of corals and shells forming the raised debris bed and reef can be found on the beaches and shallow waters around Pulau Tioman at present suggest that the age of the bed may be quite young, probably late Quaternary. However, until a more precise age of the raised coralline bodies is available, it is not possible to compare the elevation of the former shoreline in Pulau Tioman with those determined elsewhere in the east coast of Peninsular Malaysia.

References

- Fitch, F.H. (1951). The geology and mineral resources of the neighbourhood of Kuantan, Pahang. Geol. Surv. Dept. Fed. Malaya. mem. 6 (n.s.) 144 pp.
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- Nossin, J.J. (1962). Coastal sedimentation in northeastern Johore (Malaya). Z. Geomorph. Vol. 6, pp. 296-317.
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MEETINGS OF THE SOCIETY

2 nd August 1974

A fuller report of Dr M.W. McElhinny's talk on "Palaeomagnetism and plate tectonics" which has been briefly reported in Newsletter No. 50 is given below.

Palaeomagnetism and Plate Tectonics

In introducing his subject Dr McElhinny first explained the basic principles behind palaeomagnetism and in particular the axial geocentric dipole hypothesis. The model conforms very well with the properties of the geomagnetic field over the past million years. The model is then used as the basis of palaeomagnetism over the whole of geological time. The presentation of palaeomagnetic results in terms of apparent polar wander paths for each continental block was then explained. Using such paths Dr McElhinny then showed how certain situations that arise in plate tectonic theory can be identified by comparing such paths from different regions. In the first case the past relative positions of formerly adjacent blocks can be determined, whilst in the second case it is possible to determine whether mountain ranges presently situated within continents were formed as the result of plate convergence and continent-continent collision. To illustrate these points Dr McElhinny gave his audience a world tour applying these principles to palaeomagnetic results from all parts of the globe.

Starting with the North Atlantic the palaeomagnetic data show that Europe and North America initially converged during the early Palaeozoic and then diverged again at the close of the Triassic as magnetic anomalies show. Moving eastwards across Eurasia it can be shown that first the Urals and then the Verkhojansk Mountains were the result of continent-continent collision, the former in the late Palaeozoic and the latter during the Cretaceous. The Sikhote Alin Mountains also owe their origin to plate convergence. More recent orogenic belts of southern

Europe (the Alpine front) and the Japanese arc show that sections have been rotated with respect to one another. Spain, Italy, Corsica and Sardinia have rotated anticlockwise with respect to stable Europe whilst northeast Japan and Sakhalin have rotated anticlockwise with respect to southeast Japan and the Asian mainland.

Moving to the southern continents Dr McElhinny showed how the data are consistent with the ancient super-continent of Gondwanaland. The South Pole moved across this landmass successively glaciating various regions during the Palaeozoic. The great Ordovician glaciation first occurred in the Sahara and regions of northwest Africa. Then the pole moved south glaciating southern Africa during the Carboniferous and moved eastwards across Antarctica so that by the Early Permian regions of Australia were being glaciated. In this context the recent palaeomagnetic results obtained from late Palaeozoic rocks of the Malay Peninsula are relevant. They show that the Peninsula lay at about 15°N and could not have been associated with Gondwanaland in any way at that time. Cretaceous results from the Malay Peninsula give an almost identical pole position to one derived from a collection of igneous rocks from West Kalimantan. If these rocks are shown to have the expected Cretaceous age, this result demonstrates that the region is an extension of the Malay geosyncline.

(TTK)

8 & 9 October 1974

Dr B.N. Koopmans, of the International Institute for Aerial Survey and Earth Science (I.T.C.), Holland, gave two talks to the Society, at 8.00 p.m. on October 8 and 5.00 p.m.

on October 9. The first talk was on Remote Sensing, and the second talk was on Side-looking radar. About 50 members attended each of the talks.

In the first of the talks, Dr Koopmans discussed the advantages and limitations of the various methods of remote sensing. Technological advances have made it feasible to conduct surveys in most parts of the electro magnetic spectrum, and the orbiting of satellites has greatly extended the coverage and utility of even the traditional methods of remote sensing, a air photography. High altitude imagery has significantly improved our ability to recognize large scale lineaments that often are not visible on low altitude pictures. Selecting the proper sensing method is a matter of choosing the proper scale of coverage to yield maximum information the type of survey undertaken. Most of the remote sensing methods now being used are best utilized for reconnaissance surveys. Different methods emphasize different features and some methods are more suitable; for hydrological and botanical surveys than for geological surveys. Examples of surveys from the Magdalena River region in Colombia were shown.

The talk on side-looking radar was a detailed appraisal of the techniques and capabilities of the method. Side-looking radar surveys are made on a scale which makes them most suitable for reconnaissance surveys. Their advantages are mostly that they can penetrate cloud cover, and are suitable for tropical cloud cover conditions, and that they are more sensitive in detecting large scale lineaments than conventional air photography. The limitations are that it is suitable only for large regional coverage, and that there is considerable distortion from true image form because of the low angle of side-looking scan. This method is most suitable for areas of low to moderate relief, and least suitable for areas of high relief. The usefulness of various surveys in South America and Indonesia were discussed, and examples from surveys in South America were shown.

(TEY)

NEWS OF THE SOCIETY

Resignations and Appointments

Mr M.K. Choo and Encik Ahmad Jantan resigned from their posts as councillor of the Society and secretary of the Stratigraphic Sub-committee respectively in September. Mr Choo is now working in Zambia and Encik Ahmad has left for England for further education. The Council has accepted their resignations and thanked them for the services to the Society.

The Council has co-opted Mr L.C. Wong, a geologist with Sungei Besi Mines, to fill the vacancy caused by the resignation of Mr Choo.

Ipoh Discussion Meeting

Plans for the GSM Discussion Meeting in Ipoh on December 14 are progressing smoothly, with a gratifying response from members wishing to attend the meeting, and to present papers at the meeting. A full session is planned, beginning at 9.00 a.m. at the Geological Survey Offices in Ipoh. At present, 10 papers have been submitted and accepted for presentation, and others are expected to be added before the end of the month.

The meeting will begin with a review paper on the tectonic history of the Malay Peninsula. This will be a keynote paper, followed by other papers on tectonism and other topics. It is expected that there will be considerable discussion of some of the papers.

(TEY)

Reception in Honour of the 4th World Conference on Tin

On 1 November 1974, the Society jointly with the Institute of Mineral Engineering Malaysia and the Institute of Mining and Metallurgy (Malaysia Section) hosted a cocktail party from 7.30 p.m. to 9.30 p.m. at the Royal Selangor Golf Club, Kuala Lumpur for all delegates attending the 4th World Conference on Tin. Most of the delegates, some accompanied by their wives, attended the party which was very successful.

The idea of giving a cocktail party to the Tin Conference delegates by the Society and the two mentioned Institutes was suggested by the Entertainment Subcommittee of the Malaysian Ministry of Primary Industries which was the organiser and host of the Conference. After much deliberation and on hearing that the two mentioned Institutes were in favour of hosting the party, the Council decided to accept the suggestion of the Entertainment Subcommittee.

The Council believed that by jointly hosting the party the prestige of the Society would be enhanced and considerable goodwill would also be gained which cannot really be measured in material terms. Furthermore the Council strongly felt the Society which is the national association of geologists and other earth scientists in Malaysia should cooperate with the Government's efforts to make the first ever Tin Conference to be held in Malaysia the best and most hospitable ever. From the success of the party and Conference it appears that the objects of the Society in jointly hosting the party have been realized. Quite a number of the delegates have also applied for membership to the Society (see next Newsletter).

Finally, it is interesting to point out that the organizers of the Conference have given considerable help and facilities to the Society for sale of the Society's publications to the delegates attending the Conference. Large amounts of the Society's publications, particularly Bulletins 5 and 6 and the Society's geological map of Peninsular Malaysia, were sold to the delegates. The profits from the publication sales offset a very large portion of the money spent in jointly hosting the cocktail party.

Exchange of Publications

The Council has agreed to exchange publications with the:

Akademie der Wissenschaften
der DDR Zentralinstitut für Physik
der Erde Institutsteil

Berlin.

Newsletters

Members who are not residing in Malaysia will be able to receive their Newsletters for 1975 by airmail if the extra postal charges are added to their subscription for 1975. The extra postal charges are as follows:

<u>Region</u>	<u>Extra postage charges (US\$)</u>
Southeast Asia (excluding Malaysia and Singapore)	2.00
Japan and Australia	2.50
Europe, South & West Asia	3.50
North & South America and Africa	4.00

Membership

The following applicants were elected:

Full Member

- | | |
|---|---|
| <p>1. Abdul Jamil Mohd. Ali
Jabatan Pertanian Negeri
Perak
Jalan Douglas, Ipoh
Perak</p> | <p>2. Abdullah Hasbi Haji Hassan
Mines Research Institute
P.O. Box 1016
Ipoh, Perak</p> |
| <p>3. Takeshi Ishibashi
Department of Geology
Faculty of Science
Kyushu University
Fukuoka (812), Japan</p> | <p>4. Leonardo Matela Ote
Triton (Phils) Oil & Gas Co.
Kalayaan Building
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Lecaspio Village
Makati, Rizal, Philippines</p> |
| <p>5. Takehiro Sakimotó
2 Soi Suan Ploo
South Sathon
Bangkok, Thailand</p> | |

Student Member

- | | |
|---|--|
| <p>1. Ahmid Said
5th Residential College
Universiti Malaya
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Kulai, Johore</p> |
| <p>3. Hoh Swee Chee
1180 Jalan 17/48
Petaling Jaya, Selangor</p> | <p>4. Ten Kuan Chau
Jabatan Geologi
Universiti Malaya
Kuala Lumpur</p> |

GENERAL NEWS

The Fourth World Conference on Tin

Recently about 430 delegates, from many countries, attended the 4th World Conference on Tin at the Equatorial Hotel, Kuala Lumpur from 31 October - 5 November 1974. During this Conference, which was organised jointly by the Ministry of Primary Industries of the Government of Malaysia and the International Tin Council, thirty-one papers were presented and each one was followed by a spirited discussion. Indeed, it was the excellence of the discussion periods that made the serious side of the Conference such a marked success.

In addition, on the final afternoon, a panel of experts on what might be broadly termed 'Tin Marketing', discussed, and provided interesting if not always entirely satisfactory answers to well-prepared questions provided by a number of the delegates.

As the previous tin conferences in London (1967) and Bangkok (1969) had a strong geological/mineralogical flavour, it was decided, at the outset, that the Kuala Lumpur one should concentrate on the following aspects of the world of tin:- world tin resources; prospecting, mining, and processing; smelting; marketing and consumption. (A complete list of the papers presented appears in the appendix to this note.) This wise decision ensured that the latest developments in a number of fields were brought to the notice of the participants, and it provided a forum for those interested in smelting, marketing and consumption, topics which had received but scant notice in the previous two Conferences noted above.

Due to the very late registration of about half of the delegates there was a shortage of preprints but this was largely overcome by the prompt action of the Conference officials who provided, at very short notice, Xerox and other copies of all the papers.

Undoubtedly, when the collected papers and discussions are published, the whole will constitute a valuable addition to the literature of what is already one of the best documented of the metals.

On October 2nd and 3rd a number of delegates availed themselves of the opportunity to visit dredging and other mining operations in Selangor. Following the Conference there were organised tours, one to certain west coast areas and the other to east coast ones, of five and four days duration respectively.

Finally, one cannot refrain from commenting on the lavish entertainment offered during the period of the Conference which provided an atmosphere conducive to the exchange of information relevant to tin, and the establishment of friendship amongst the delegates from all over the world.

This Conference was an unqualified success and all who organised it deserve the thanks and congratulations of those of us who were fortunate enough to take part in it.

APPENDIX

LIST OF PAPERS PRESENTED AT THE FOURTH WORLD CONFERENCE ON TIN

First Section: World Tin Resources:-

- 1.1 - The search for deposits from which tin can be profitably recovered now and in the foreseeable future, by Professor K.F.G. Hosking.
- 1.2 - Australia's tin resources, by W.G.B. Phillips and J. Ward.
- 1.3 - Indonesian tin reserves and potentials by M. Simatupang and P.N. Timah team of geologists.
- 1.4 - Potential tin-bearing areas in Peninsular Malaysia, by D. Santokh Singh and Jaafar Ahmad.
- 1.5 - Tin exploration in the Adang-Rawee Archipelago area, Satun Province, Southern Thailand, by Payome Aranyakanon and his colleagues.

Second Section: Prospecting, Mining and Processing:-

- 2.1 - Some general aspects of Becker and Banka drilling relating to offshore prospecting, by D.R.S. Walker and Choo Mun Keong.
- 2.2 - A review of alluvial prospecting carried out by the Malaysian Department of Mines, by Abdullah bin Mohd. Yusof.
- 2.3 - A method of ore reserve evaluation practised in Malaysia, by Lee Whye Kwong
- 2.4 - Some problems relating to alluvial prospecting by Banka drilling, by Wong Yoke Fah.
- 2.5 - Exploration for cassiterite-magnetite-sulphide veins on Belitung, Indonesia, by W.R.B. Omer-Cooper, M.V. Hewitt and H. van Wees.
- 2.6 - ~~Determining~~ the amount and the size distribution of cassiterite in hard-rock in ore by M.P. Jones, J.R. Burley and M. Simovic.

Mining

- 2.7 - Problems arising from the presence of accessory minerals in Indonesian tin mining, by M. Simatupang.
- 2.8 - The Ardelthan tin operation, by J.P. Shanahan.
- 2.9 - Latest trends in gravel pump mining in Malaysia, by Leow Yan Sip, Ho Cheong Fook, Leong Wai Nyeen and Redzwan Sumun.
- 2.10 - A case study of large-scale palong (gravel pump) method of mining at Gopeng Consolidated Sdn. Bhd., by J.T. O'Brien.

- 2.11 - The development of a suitable property for a modern large-capacity dredge, by L.L. Cheng, W.C. Chan, F. Morgan and J.A. Hewitt.
- 2.12 - Problems resulting from the development of a large-capacity mineral recovery dredge, by P.W. Cullen and G.C.R. McDonald.

Processing

- 2.13 - Process design for tin placers in South-east Asia by J.H. Harris, United Nations, U.S.A.
- 2.14 - Tin volatilization and its influence on the smelting and mining of tin, by P.A. Wright, Extractive Metallurgist, England.
- 2.15 - The recovery of tin metal by chloride volatilization and reduction, by J.D. Esdaile and G.W. Walters, Commonwealth Scientific and Industrial Research Organisation, Division of Chemical Engineering, Australia.
- 2.16 - The flotation response of cassiterite, using new anionic collectors, by German Zambrana Z., ENAF Bolivia.

Third Section: Smelting:-

- 3.1 - Tin smelting in Malaysia, by J. Armstrong and F.T. Wheelwright.
- 3.2 - The electrolysis of tin, by Jorge Lema P. and Julie Penarrieta.
- 3.3 - The fuming of tin slags, by Jorge Lema P.
- 3.4 - Recent improvements in the rotary furnace smelting of Indonesian tin concentrates, by K. Batubara and T.S. Mackey.
- 3.5 - The submerged smelting of tin slags - A new approach to lower grade concentrates smelting, by J.M. Floyd.

Fourth Section: Marketing and Consumption:-

- 4.1 - Trends in tin consumption - Some technological observations, by W.E. Hoare.
- 4.2 - The Penang tin market, by Syed Hassan bin Ali and Ahmad Zubeir bin Haji Noordin.
- 4.3 - Some aspects of the marketing of tin, the tin price, and the roles of the London Metal Exchange, the Penang market, and the United States market in establishing world prices for tin, by C.A.J. Herkstroeter.
- 4.4 - A review of developments in the prices of non-ferrous metals, with particular reference to tin, by P.C.A. Legoux and R. Diethrich.
- 4.5 - A survey of the world tin industry, by D. Williamson.
- (KFGH)

International Geological Correlation Program (I.G.C.P.) on
 "Sea level changes during the last 15,000 years"

On September 26 and 27, 1974, a meeting on the project took place at the Geological Survey of the Netherlands at Haarlem. Participants came from Holland (9), Malaysia (1), Canada (1), U.K. (1), France (2), Belgium (2), West Germany (2), Sweden (2), and U.S.A. (2) including the project leader designate Dr A.L. Bloom of Cornell University at Ithaca, New York. The I.G.C.P. classified the study as its key project and has secured some travel funds from UNESCO for this meeting. Objectives, working methods, duration (8 years), and reporting procedures were agreed upon. Primarily, the project sets out to establish a graph of the trend of mean sea level during the

last deglacial hemicycle and continuing to the present time (about 15,000 years). From the world sea level graph it is expected to find out about local differences that are due to tectonics, changes of tidal range, and geophysical properties (such as isostatic compensation) of the lithosphere. Ultimately we also expect to be able to predict future trends of the sea level. The importance of this objective to settlements and projects in many coastal areas is obvious.

The objectives are expected to be attained by international cooperation in data collection (existing or still to be determined), through international programs on climatology, through Antarctic research, the IDOE (International Decade of Ocean Exploration) and the like.

It was pointed out to me that much more work on shoreline changes in Southeast Asia is essential to the project as a whole. I should like, therefore, to invite participation in this project by interested members of the Society. It is expected that the working group will be able to arrange for radiometric dating (C-14 and Uranium-series) of suitable samples. Interested members can write direct to Dr Bloom or contact me.

H.D. Tjia

Jabatan Kajibumi
Universiti Kebangsaan Malaysia
Kuala Lumpur

Oil-Producing Countries - Fact and Figures

In Table 1 below, the daily production figures were obtained from a UPI report (in New Straits Times, 9 October 1974) which said that the figures were compiled by the Venezuelan Mines Ministry. The figures for the 1974 proved reserves were obtained from the Time (4 November 1974). The blank column

in Table 1 is specially included for the reader to put his remarks, the year each oil producer will run out of oil assuming present rate of production, etc.,

Country	Daily Production (in millions of barrels)	1974 Proved Reserves (in billions of barrels)
Arab Emirates	-	24
Canada	1.823	-
Iran	6.131	60
Iraq	1.743	32
Kuwait	2.846	64
Libya	1.887	26
Nigeria	2.259	20
Saudi Arabia	8.336	132
USA	8.995	35
USSR	9.018	75
Venezuela	3.113	14

Table 1: Reserves and rate of production of oil of major oil-producing countries

South-east Asian Oil

The New Straits Times (3 October 1974) reported that Sabah Shell has struck oil at its offshore exploration well, South Furious-2, 55 miles north of Kota Kinabalu. The well is said to be producing 1500 barrels of oil per day.

A Reuter report quoted in the New Straits Times (10 October 1974) said that the Independent Indonesian-American Petroleum Company has discovered one of the largest oil fields in Indonesia. The field, named Rama, is reported to be situated in south Sumatra.

The New Straits Times (13 October 1974) carried a UPI report saying that oil and gas deposits have been discovered at a place about 134 miles north-east of Songkhla by the Japanese owned South-east Asia Petroleum Exploration Co.

Materials from the Earth's Core (?)

The Geotimes (July 1974) reported that John M. Bird and 3 colleagues from Cornell University have discovered a natural iron-nickel alloy, named josephenite, in Josephine Creek, Josephine County, Oregon, U.S.A. They found that compositionally josephenite differs from that of similar meteorite material in a systematic predictable way and believed that it is Earth's core material. Garnet is found aligned with the crystal structure of the alloy and this texture is interpreted to be due to exsolution during relaxation of very great pressure when the material moved from the core to the crust. They postulated that the alloy was transported by a deep mantle plume from the core-mantle boundary, incorporation in the Pacific Plate and lateral motion to a consuming plate margin near the edge of the present North America Plate.

N O T I C E

Second Regional Conference on Geology and Mineral Resources of South-east Asia

The Ikatan Ahli Geologi Indonesia (Association of Indonesian Geologists) plans to hold the above-mentioned conference in Jakarta from 4-7 August 1975. The first circular about the conference will be sent out at the end of this year. It is learned that tentatively the conference will be divided into 3 sessions as follows:

1. Technical discussions on geological disciplines.
2. Discussions on review and progress made in South-east Asian geology and related sciences.
3. Session especially reserved for international geoscientific organizations expressing desire to hold both business and technical meetings in connection with geoscientific knowledge of South-east Asia.

For more information members are advised to write to the Secretary-General of the Conference:

Ir G.A.S. Nayoan
 Jalan Sinabung III No. 4
 Jakarta Selatan
 INDONESIA

THESES, UNIVERSITI KEBANGSAAN MALAYSIA

1. Abdul Rahim Samsudin (1974).

Kajibumi Pahi, Kuala Kerai, Kelantan, Malaysia Barat.
 (Geology of Pahi, Kuala Kerai, Kelantan, West Malaysia).
 Unpubl. B.Sc. (Hons.) thesis, Univ. Kebangsaan Malaysia,
 90 pp.

2. Abdul Rashid Abdul Mohid (1974).

Kajibumi daerah Sungai Nal, Kuala Kerai, Kelantan, Malaysia Barat (Geology of the district of Sungai Nal, Kuala Kerai, Kelantan, West Malaysia).

Unpubl. B.Sc. (Hons.) thesis, Univ. Kebangsaan Malaysia, 104 pp.

3. Basir Jasir (1974).

Kajibumi daerah sempadan Machang-Kuala Kerai, Kelantan, Malaysia Barat (Geology of the district at the boundary of Machang-Kuala Kerai, Kelantan, West Malaysia).

Unpubl. B.Sc. (Hons.) thesis, Univ. Kebangsaan Malaysia, 80 pp.

4. Nasiman Sapari (1974).

Kajibumi Kuala Kerai, Kelantan, Malaysia Barat. (Geology of Kuala Kerai, Kelantan, West Malaysia).

Unpubl. B.Sc. (Hons.) thesis, Univ. Kebangsaan Malaysia, 92 pp.

5. Syed Sheikh Almashoor (1974).

Geology of Gunung Jerai, Kedah.

Unpubl. M.Sc. thesis, Univ. Kebangsaan Malaysia, 140 pp.

NEW PUBLICATIONS

Thomas, M.F. (1974). Tropical geomorphology. Halsted Press.
301 pages \$11.75 (US)

American Institute of Professional Geologists (1974). Suggested practices and guides (address of institute - 345 South Union, Denver, 80228, USA), each guide or practice \$3 (US) to non-members. Available Guides and Practice are as follows:

- (a) The professional geologist as an expert witness
- (b) Appraisal of high-bulk, low unit-value mineral deposits
- (c) Organization and content of a typical geologic report
- (d) A guide to registration of geologists
- (e) Investigation of potential mineral aggregate sources.

G E O - F U N

Geo-crossword

The solution to Geo-crossword No. 3 (Newsletter 50) is as follows:-

<u>Across</u>	<u>Down</u>
1. Prismatic	1. Permafrost
6. RI	2. Iris
7. Raindrops	3. Sine
9. Sea	4. Tropopause
10. AB	5. Cosmology
12. Cupel	8. Darcy
13. Rocky	11. Acrid
14. Lung	14. Lee
15. Seiches	16. HP
17. Peel	

Three members sent in all correct entries. They are:

1. Mr G.E. Kelly, c/o Tenneco, BUHC Building, 144 Sukhumvit Rd., Bangkok, Thailand.

2. Mr P. Loganathan, Geological Survey of Malaysia, Johor Office, Johor Bahru, Johor.

3. Dr P.H. Stauffer, Jabatan Geologi, Universiti Malaya.

The winner is Mr Kelley whose name was drawn out by Dr S.H. Chan (Jabatan Geologi, Universiti Malaya). Mr Kelley will receive the prize consisting of Bulletins 1, 2 and 3 of the Society.

In this Newsletter there is no geo-crossword puzzle but a new 'game' called the GSM Picture Puzzle is introduced (see next page). In this 'game' all you have to do is to make geological interpretations of the pictures shown (1-6). For example, picture 1 shows a bench and a one mark coin and a possible interpretation is that both of them mean a bench-mark. Members are invited to interpret the remaining 5 pictures and send their answers to the Editor not later than 20th January 1975. The best entry will be given a prize consisting of the Society's Bulletin 4 and 5.

---ooo00ooo---

1. Bench-mark
2. One mark coin
3. Bench-mark
4. Bench-mark
5. Bench-mark
6. Bench-mark

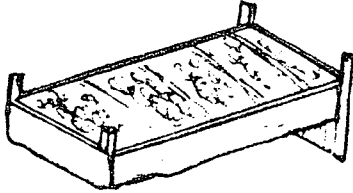
1. Bench-mark
2. One mark coin
3. Bench-mark
4. Bench-mark
5. Bench-mark
6. Bench-mark

1



Bench Mark

2



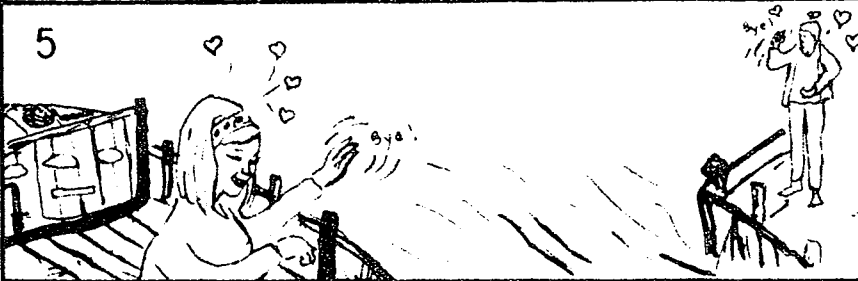
3



4



5



6

1980

