PERSATUAN GEOLOGI MALAYSIA

WARTA GEOLOGI

NEWSLETTER OF THE GEOLOGICAL SOCIETY OF MALAYSIA

Jil 4, no. 6 (vol. 4, no. 6) KDN 0284/78 Nov-Dec 1978

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ISSN 0126-5539

ISSUED BIMONTHLY BY THE
GEOLOGICAL SOCIETY OF MALAYSIA
c/o Jabatan Geologi, Universiti Malaya,
Kuala Lumpur 22-11, Malaysia.

Printed by N.H. Enterprise, 8B Jln. Pantai Baru, K.L.

GEOLOGICAL NOTES

Brief geology of the kaolin deposit at Sungai Long, Cheras, Selangor*

P.C. Aw, Geological Survey Malaysia, Ipoh, Perak.

Introduction

The deposit which is being exploited by Sun Yan Kaolin Sendirian Berhad is situated at long. 101° 44' 10" E and lat. 3° 4' 10". It is accessible by an unmetalled road 1 km from the road junction at 17½ km Kuala Lumpur - Kajang road. The deposit was mapped by the writer, and assisted by his colleague, Mr. Ooi Aun Chye in January 1977 in the course of a preliminary kaolin investigation in the area (Aw, 1978). The details of the deposit will be published elsewhere (Aw, in print).

Bedrock geology

The area is underlain by granite (Yin, in manuscript). No bedrock is exposed in the kaolin deposit. Granite is exposed nearby in areas 1, 2, 3, 5 & 6 (Aw, 1977). The granite is coarse-grained and in places, porphyritic. It has two-micas, biotite and muscovite, the latter of which is subordinate. More than two-thirds of the feldspar is microcline. The microcline is relatively fresh compared to the plagioclase whose core is partially altered to sericite and clay minerals.

Field description of the kaolin deposit

The clay that is rich in visible quartz grains is arbitrarily called a-type while the quartz-poor clay is called b-type. The distribution of the a-type and b-type clay is shown in Figure 1. The contact between the 2 types is sharp. The b-type clay is smaller and more irregular, occurring mainly within the a-type clay. However, there are also some small a-type clay bodies within the b-type clay.

Besides, kaolin, the other recognisable minerals in the a-type clay are quartz and muscovite. The a-type clay is gritty, quartz grains make up about half of its composition. Muscovite flakes are subordinate. The texture of the freshly exposed clay is very similar to that of the coarse-grained granite.

The b-type clay, on the other hand, is soft and has a smooth texture. Very little grit can be felt when the clay is tested between the thumb and the index figure. When the clay is examined closely, minor amounts of quartz and muscovite flakes can be recognised.

There are many quartz veins, occurring in both types of clay. The veins strike less than 20° either to the west or east of the N-S trend. The veins are mostly a few metres in length and a few centi-

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* Publication authorised by the Director-General, Geological Survey of Malaysia

metres in width. One quartz vein was observed to cross cut a kaolin vein (Figure 2).

There are a few tourmaline veins, mostly in the a-type clay. Loose pieces of tourmaline rock up to 6 cm in diameter were observed. One tourmaline vein is cut by a kaolin vein (Figure 2).

In both the clay types, but particularly in the a-type are long narrow kaolin veins. Some of them are more than 10 m long and their width is less than a few mm. The strikes, though variable, are mostly in two major sets of N-S and NE-Sw. In one exposure, the N-S set is cut by the NE-SW set (Figure 2).

Composition of the kaolin

The particle size distribution (Table 1) shows that a-type clay has low content of minus 2 micron fraction but high content of the coarse (plus 45 microns) fraction. The converse is true for the b-type clay. The average clay content (minus 2 microns) of a-type is 5.6 percent, whilst that of the b-type is 14.5 percent.

Table 1: Average particle size distribution of the kaolin from Sungai Long, Chera, Selangor

	a-type clay (5 samples)	b-type clay (5 samples)
over 45 microns	56.8%	11.4%
30-45 microns	7.1	15.8
20-30 microns	5.8	12.2
10-20 microns	9.6	18.0
5-10 microns	8.6	15.1
2- 5 microns	6.5	13.0
less than 2 microns	5.6	14.5
	100.0	100.00

Analyst: Lee Kim Hock

Sieve analysis of the plus 45 micron fractions shows that more than 60 percent of the a-type consists of quartz grains with diameter of more than 1mm. On the other hand, 60 percent of the coarse fraction of the b-type consists of quartz grains with 53 to 125 microns range. Although quartz predominates in the coarse fraction of both types, relatively more muscovite is found in the a-type than the b-type. The quartz grains of both types are angular and rugged.

Chemical analysis of the minus 2 micron fraction (Table 2) shows that the major and minor components of the two types of clay are comparable.

Table 2: Average chemical composition of a-type and b-type kaolin from Sungai Long, Cheras, Selangor (minus 2 micron fractions)

	a-type (2 analyses)	b-type (2 analyses)
SiO_2	45.64%	45.52%
Al_2O_3	36.08	37.53
Fe_2O_3	0.19	0.15
TiO_2	0.16	0.19
CaO	0.52	0.46
MgO	Trace	Trace
P_2O_5	0.07	0.07
MnO	Trace	Trace
Na_2O	0.10	0.23
K_2O	0.35	0.24
L.O.I.	17.27	15.81
	100.38	100.20

Analyst: Lee Kim Hock

The composition of the granite and the a-type clay is comparable, though on moisture-free basis, the SiO_2 and Al_2O_3 contents of the clay are higher (Table 3). There is a great difference in the composition of the b-type clay with that of the a-type clay and the granite. The SiO_2 content of the b-type clay is about two-third that of the a-type, whilst its Al_2O_3 content is double that of the a-type.

Origin of the kaolin

There is no doubt that the kaolin deposit at Sungai Long is a residual one, derived from the alteration of granitic rock. The texture, structure, mineralogy and field relationship of the a- and b-types show that they were formed in situ. However, it is less certain whether the kaolinization is due to hydrothermal or supergene origin. There is no clear cut evidence for either of them. However, from field observation, the writer is of the opinion that the kaolin deposit is a hydrothermal product of alteration of granite.

The a-type kaolin is most likely derived from coarse-grained granite, as the textures of both are similar. Their chemical compositions are comparable. The granularity of the quartz and muscovite in the kaolin is similar to that in the granite. The preservation of the original rock texture in the kaolin shows that the process of alteration is essentially an equivolume replacement.

Table 3: Complete chemical analyses of a- and b-type kaolin and granite from Sungei Long, Chera, Selangor.

	Biotite-muscovite granite	a-type kaolin	b-type kaolin
SiO_2	73.98	73.88	48.24
Al_2O_3	14.32	17.84	36.79
Fe_2O_3	0.38	0.33	0.16
FeO	0.82	0.07	0.04
TiO_2	Trace	0.22	0.04
CaO	0.90	0.50	0.50
MgO	0.18	Trace	Trace
P_2O_5	0.04	0.04	0.04
Na_2O	3.60	Trace	Trace
K_2O	4.72	1.39	0.23
H_2O^+	0.17	0.42	1.34
H_2O^-	0.52	5.05	12.59
Total	99.71	99.74	100.33

Note: Clay samples analysed by Lee Kim Hock, granite sample by Tong Yik Lum.

The b-type kaolin does not exhibit any recognisable relict texture. The relict minerals, quartz and muscovite, are fine-grained. The b-type kaolin is most likely derived from a fine-grained granite or aplite. Its field occurrence also suggests that the parent rock is a hypabyssal rather than plutonic one.

Acknowledgements

I would like to thank Messrs Ooi Aun Chye and Mohamed Yusup bin Basri for assistance in the field, Messrs Tong Yik Lum and Lee Kim Hock for the chemical analyses and the staff of the Cartographic Section, Geological Survey Malaysia for drawing the diagrams.

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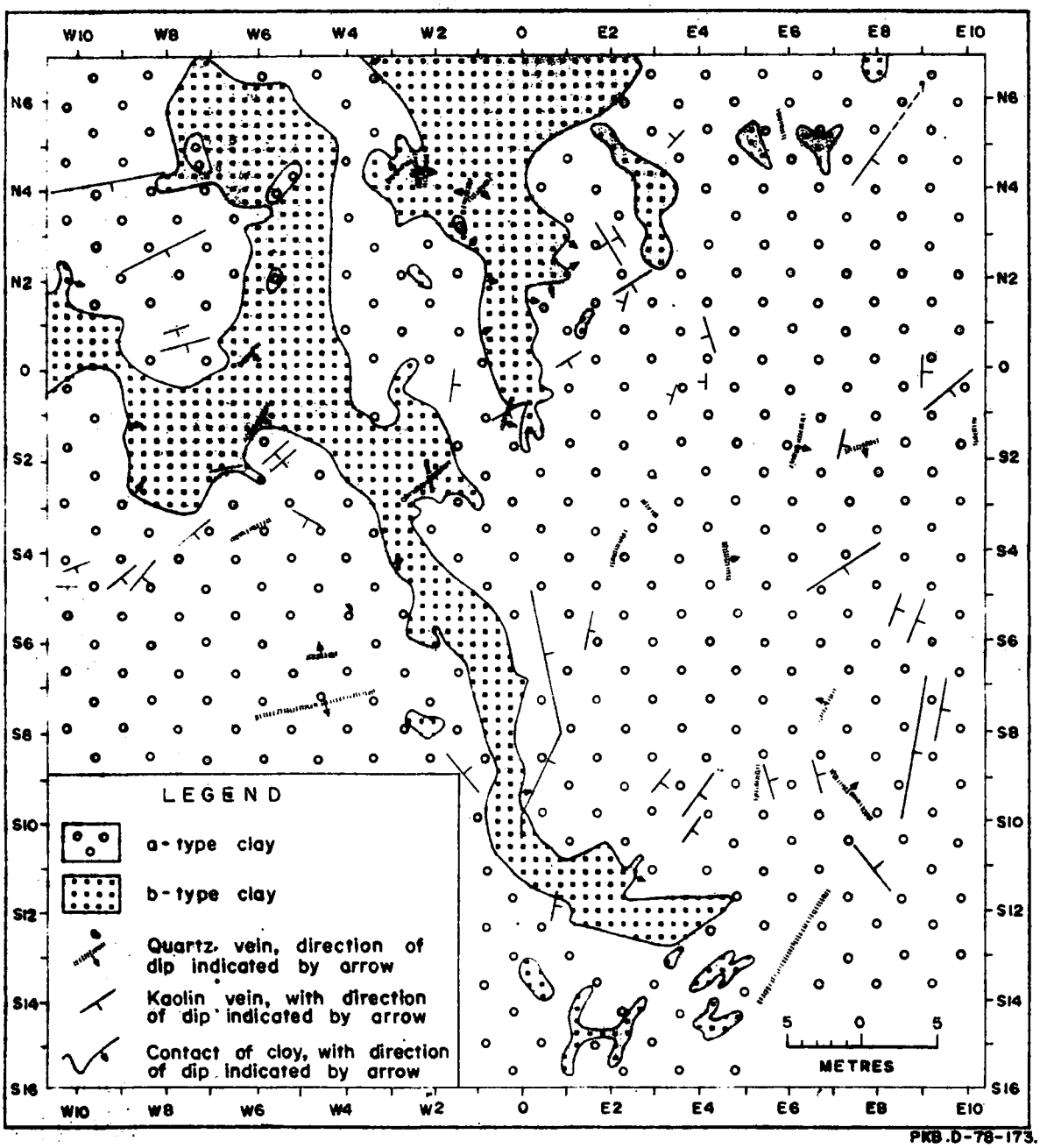
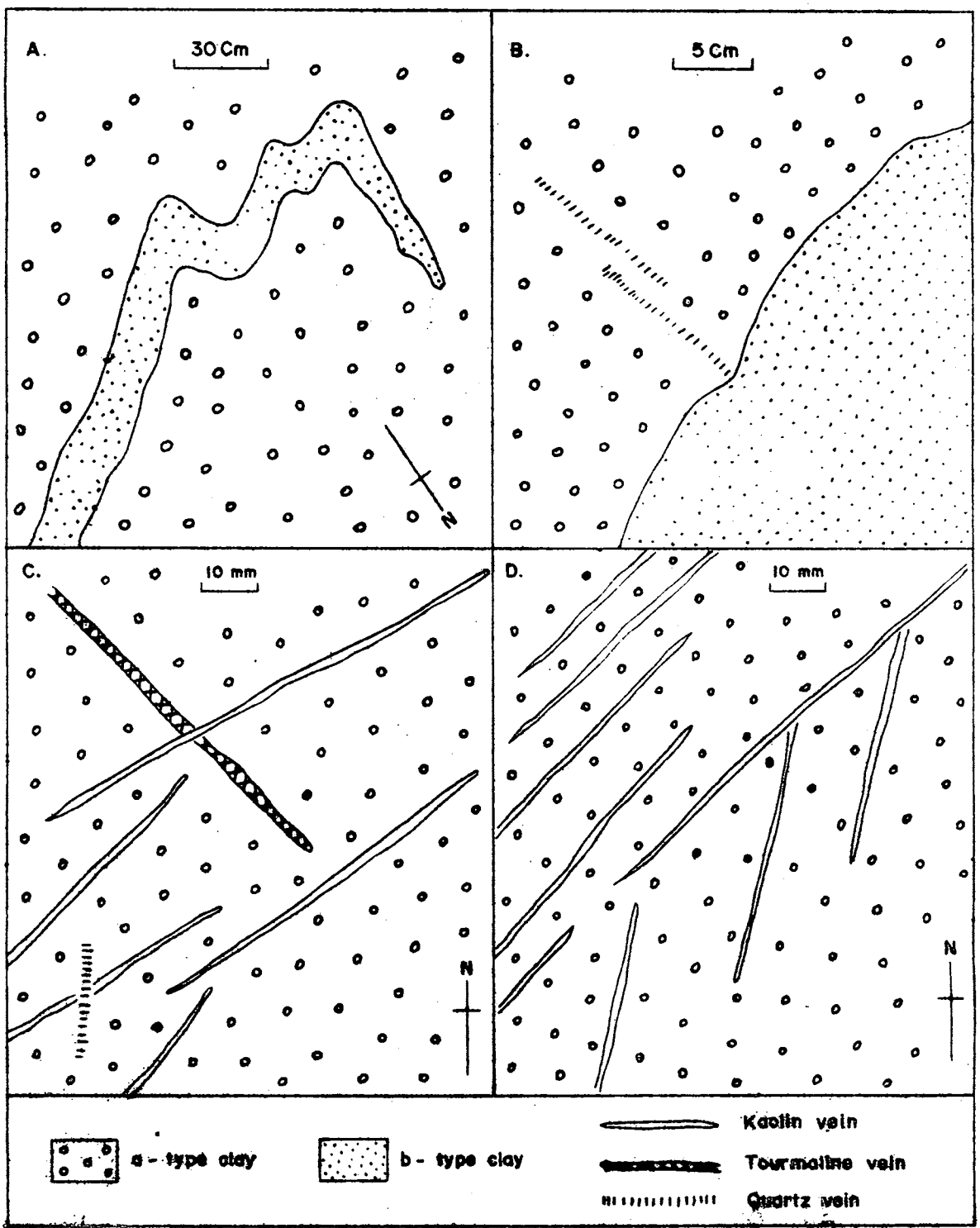
Figure 1.

Geology of the kaolin deposit at Sungai Long, Cheras, Selangor.



(Note : This map shows only part of the deposit)

Figure 2. Showing some of the exposures of the a - type and b - type clay in Sungai Long, Cheras, Selangor.



Lower Cretaceous age for the chert in the Lupar Valley, West Sarawak.

D.N.K. Tan, Geological Survey of Malaysia, Sarawak.

Introduction

Chert occurs extensively as exotic blocks in a tectonically-derived chaotic assemblage of rocks in the Lupar Valley, west Sarawak. Many are radiolarian chert. The radilaria in these cherts were first identified by G.T. Hinde (Molengraaff, 1902) who determined some 100 forms, including some in cherts from the adjoining Upper Kapuas Valley in Kalimantan. A.G. Davis (Haile, 1957) identified an assemblage of radiolaria in the cherts belonging to a single fauna, presumably of the same age, probably between Mid-Jurassic to pre-Cenomanian. Some of the radiolarian cherts collected during detailed mapping in the Lupar Valley were found to contain radiolarian assemblages indicating a Lower Cretaceous age, probably Valanginian to Barremian.

General geology

A belt of tectonically-derived chaotic assemblage of rocks in the Lupar Valley was mapped and named the Lubok Antu Melange by the writer (Tan, 1973). This belt, with an average width of 10.5 km, underlies about 337 km^2 of the valley and continues southeast into Kalimantan. The melange separates the Lower Tertiary Silantek Formation in the west from the Upper Cretaceous Lupar Formation in the east and is in faulted contacts with both formations.

The Lubok Antu Melange is composed of fragments and blocks, from a few centimetres to a few kilometres in maximum dimension, of chert, mudstone, sandstone, shale, conglomerate, hornfels, basalt and gabbro and their metamorphosed equivalents, limestone and serpentinite in a highly cleaved, chloritised, pervasively sheared, dark pelitic matrix. The melange was developed during the Lower Tertiary, from Palaeocene to Eocene or even Miocene, probably as the result of the southwest subduction of a northeast oceanic plate beneath a southwest continental plate (Tan, 1978).

The chert occurs as ubiquitous exotic blocks in the melange, varying in size up to a maximum of 5.5 km. The chert varies from whitish to greenish-gray to reddish-brown in colour with conchoidal to hackly fractures, depending on the degree of recrystallisation. The reddish-brown chert is commonly interbedded with reddish-brown to maroon mudstone. Most of these chert blocks are ribbon-cherts, with beds of a few centimetres thickness. The majority of the chert blocks are sheared and fractured; some are folded.

Fossils and age

During the present investigation, fourteen radiolarian chert samples were sent for age determination. Of these, five samples were found to contain radiolaria that were sufficiently preserved to be identified; the rest containing only poorly-preserved radio-

laria. The locations of these five samples (K6620, K6634, K6641, K6652, K6653) are shown in figure 1.

Using the technique for extracting radiolarian from radiolarian chert developed by Pessagno & Newport (1972), Dr. E.A. Pessagno, Jr. obtained sufficiently well-preserved specimens from the above five samples to determine that the cherts contain radiolarian assemblages indicating a Lower Cretaceous age, probably Valanginian to Barremian (Table 1). Similar radiolaria have been reported in the Lower Cretaceous schert of the Great Valley Sequence and Franciscan Complex in California (Pessagno, ms) and the zones assigned in Table 1 are based on the radiolarian zonation established by Pessagno (in manuscript).

Acknowledgements

Grateful thanks are due to Professor Emile A. Pessagno, Jr. of the University of Texas at Dallas for the radiolaria age determination and making a copy of his manuscript available to me. This note is published with the permission of the Director-General, Geological Survey of Malaysia.

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FIGURE I FOSSIL LOCATION MAP

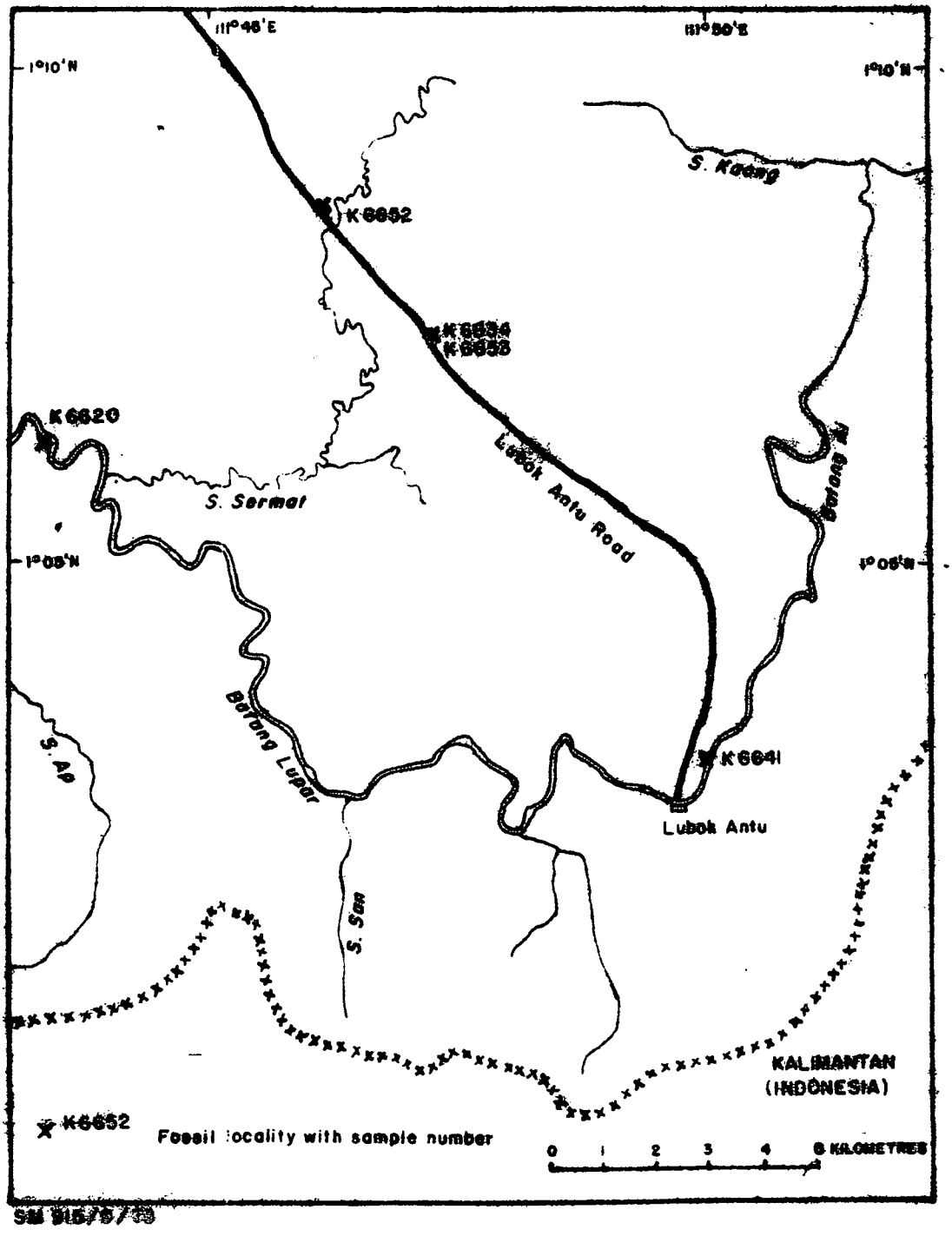


TABLE 1. LOWER CRETACEOUS RADIOLARIA IN CHERT IN THE MELANGE

Sample No.	Locality	Radiolaria	Age
K6620	Batang Lupar	Thanarla conica (Aliev) Archaeodictyomitra sp. Xitus sp.	Zone 6: Hauterivian to Aptian
K6634	Mile 15½, Lubok Antu Road	Pantanellium n. sp., Thanarla conica (Aliev), Spongocapsula n. sp., Pseudodictyomitra n. sp., Archaeodictyomitra n. sp., Archaeodictyomitra vulgaris Pessagno, Xitus n. sp., Crucella sp., Paronaella sp., Zifendium sp.	Zone 6: Hauterivian to Aptian; probably Hauterivian-Barremian
K6641	Batang Ai	Parvacingula sp.	Zone 1 to top of Zone 5. Late Kimmeridgian (early Tithonian to late Valanginian)
K6652	Mile 14, Lubok Abtu Road	Thanarla conica (Aliev), Parvacingula sp. cf. P. citae Pessagno, Archaeodictyomitra sp., Alievium sp. A. of Pessagno	Zone 5, Sub-zone 5C, Upper Valanginian
K6653	Mile 15½, Lubok Antu Road	Thanarla conica (Aliev), Parvacingula boesii Parona, Parvacingula sp. Parvacingula citae Pessagno, Pantanellium corriganensis Pessagno Pantanellium sp. cf. P. riedeli, Acanthocircus dicranocanthos (Squinabol), Pseudodictyomitra sp., Podobursa triacantha, Acanthocircus sp. aff. A. fossilis (Parona), Archaeodictyomitra apiarium (Rust)	Zone 5, Sub-zone 5C, Upper Valanginian

Identification by Professor Emile A. Pessagno Jr., The University of Texas at Dallas.

A modified cobalt nitrate test devised particulary as an aid to the identification of water-soluble magnesium, aluminium and zinc minerals.

K.F.G. Hosking, Calle Isla de Cuba, 23, 1°, 3, Sitges (Barcelona), Spain.

Introduction

When, during April, 1978, I visited Pahang Consolidated Mines at Sungai Lembing, Pahang, my friend, Encik Joginder Singh, the resident geologist, presented me with two samples of efflorescences that he had collected underground. These will be described, in some detail, in a future note. Sufficient is it to mention now that when portions of these specimens were examined under the Scanning Electron Microscope, the one, which was readily soluble in water, was shown to contain Mg and S, and is, in all probability, epsomite, $MgSO_4.7H_2O$. The other was proved to contain Al and S, and is, almost certainly, a hydrated aluminium sulphate: certainly subsequent laboratory tests failed to show that it contained any of the other likely elements, for example potassium, which would not be revealed by the S.E.M.

It was whilst carrying out the classical laboratory tests that the samples were subject to the well-known cobalt nitrate test in order to confirm the presence of magnesium in one sample and aluminium in the other. This test, as usually performed, involves heating a little of the powdered sample, before the oxidising flame of the blow-pipe, on a charcoal block, then adding a drop of cobalt nitrate solution to the calcined test susbstance and again heating it with the oxidising flame of the blow-pipe. Under normal circumstances the colour and occasionally the surface character of the treated substance may indicate the presence of magnesium by being pink and of aluminium by being malt and blue. The test may also indicate a number of other elements and radicles and as no published account known to me provides details of all of them I have introduced Table 1, which I prepared a about 25 years ago from data obtained in part from obscure sources and my own observations.

For some reason unknown to me the presence of magnesium is the most difficult to confirm by the above cobalt nitrate test. In addition, the test becomes very difficult, or impossible to perform on a charcoal block if the test substance rapidly sinks into the block during the test, and this is exactly what happened when my colleague Encik Yeap Ee Beng and I were examining the sample that we are now virutually certain is epsomite. This difficulty reminded me of how I solved it years ago and as I have not published the solution before I do so now.

Details of the modified test

From a filter paper (I use Whatman's No. 1) cut a strip, say, 2 cm by 10 cm (the dimensions are not very critical). Near one end place a little of the finely-powdered substance under test if it is

readily soluble in water, then add a drop of cobalt nitrate solution. Heat the damp spot, if possible, over the tip of a non-luminous Bunsen burner flame, although the flame from an alcohol lamp will suffice, holding the untreated end of the filter paper with a tongs. The paper will char and eventually it will burn. Catch the fragments of ash on a watch glass and examine them. Soluble salts or minerals of Zn, Sn, Al and Mg (the elements most usefully south by the test in question) are indicated by the presence of grass green, blue-green, blue and pink encrustations respectively. Obviously this modified cobalt nitrate test may be used to test for the above elements, and possible others noted in Table 1, in salts and minerals that are not soluble in water, provided they are first brought into solution either by direct acid attack or by appropriate fusion followed by acid attack.

Finally, it should be noted that this text is by no means a complete substitute for the one carried out on the charcoal block. It does not permit a powder to be identified directly as hemimorphite, for example, whereas the test carried out on the charcoal block does (see Table 1).

Table 1: Cobalt nitrate reactions on charcoal

Substance	Colour of product	other notes
Aluminium	Blue and powdery	
Fusible phosphates, silicates and borates	Blue and glassy	The colour is darker than that of the Al compound
Zinc	Grass-green and powdery	
Zinc silicate (Hemimorphite)	Coating on mineral is grass-green, but the mineral itself is blue	
Tin	Blue-green and powdery	Darker than the Zn product. Finely powdered cassiterite will react positively to this test.
Antimony	Dull-green and powdery	Apply the test to the oxide sublimate
Magnesium	Pale pink and powdery	Often difficult to obtain positive results
Titanium	Yellow-green and powdery	Difficult to obtain even with finely powdered rutile (TiO_2)
Zirconium	Violet	Difficult to obtain even with finely powdered baddeleyite (ZrO_2)
Calcium and Strontium	Grayish	
Barium	Brownish	

NOTE: This test should be carried out on minerals that yield a white or near-white powder and on any white sublimates that are generated when the test substance is heated on the charcoal block before the OXIDISING FLAME of the blowpipe.

MEETINGS OF THE SOCIETY

Petroleum Seminar, 11th December

In what is hopefully becoming an annual tradition, the Society held its second Seminar on the Petroleum Geology of the Malaysian Region at the Jaya Puri Hotel in Petaling Jaya on Monday the 11th of December 1978. The seminar was well attended (175 registered participants) and those who came found plenty of nourishment, both physical and intellectual. Exhibits prepared by Petronas and the petroleum companies displayed specimens of basement rocks and oil-bearing sandstone from offshore wells, as well as aspects of offshore petroleum technology. The strength of the participants was maintained by morning and afternoon tea breaks and a spicy lunch in the Bunga Raya restaurant of the hotel (all included in the very modest registration fee, thanks to donations from petroleum organizations - see elsewhere in this issue of the Warta).

Between the opening remarks by the Society's President, Dr. B. K. Tan, and the closing remarks by Mr. James Lau of Petronas, Chairman of the organizing committee for the seminar, six technical papers were presented.

Manfred Epting of Sarawak Shell Bhd. described the Miocene carbonate buildups in the Central Luconia area of offshore Sarawak. Some 200 of these structures have been seismically mapped and a number explored by wells. They have varied histories related to growth rates and changes in relative sea level. Diagenetic changes including dolomitisation and pressure solution were strongly controlled by depositional environment. Fresh water leaching, during emergence, and dolomitisation both produced good secondary porosity.

A.R. Lloyd of Asia Exploration Consultants presented a paper highlighting some anomalies in the published literature on regional offshore stratigraphy, particularly in the environmental interpretation of the Tertiary in the Gulf of Thailand. This paper stimulated a lively discussion, as members of various petroleum companies defended their differing interpretations.

The subsurface stratigraphy in the northern Straits of Malacca was described by Nik Ramli of Petronas, using mainly data obtained by Mobil Petroleum Corp. Metamorphic basement was encountered underneath the Tertiary section.

Two papers were presented by staff of Esso Exploration (Malaysia) Inc., and both of them concerned the use and interpretation of seismic profiles. J.B. Bubb described the delineation of 'seismic facies' - packets of strata of distinct type as seen on seismic sections - and their correlation with traditional sedimentary facies types. G.M. Hajash discussed the problem of depth prediction from reflection seismic profiles and showed how progressively better knowledge of a basin led to marked improvement in the accuracy of such predictions.

In what seemed to this reporter the outstanding contribution to a good program, A.J. Bol of Sabah Shell Bhd. discussed the structural styles encountered in the western Sabah offshore. Whereas onshore western Sabah consists mainly of Paleogene deep water marine sediments deformed intensively in at least two periods of deformation (Miocene and Pleistocene), in the offshore three zones can be recognized in which deformation took place at varying times in the late Tertiary and Quaternary. From the shore outward, these are characterized by (1) Neogene deep marine to continental sediments deformed by basement faulting; (2) Neogene deep to shallow marine sediments deformed by extensional faulting; and (3) Neogene deep marine sediments deformed by a system of east-dipping thrusts. Although these thrusts look temptingly like subduction zone structures, there is no evidence of a subduction zone having operated along this part of the Sabah offshore. One distinctive feature of the near-shore zone (including Labuan Island) is the presence of steep, narrow anticlines ('Sabah ridges') separated by broader bowl-shaped synclines. Formerly attributed to shale diapirism, these ridges have been shown to be synchronous in origin and to be associated with positive gravity anomalies. For these and other reasons they are now considered to be related to faulting in the underlying basement, the age and nature of which remain unknown.

With such active participation and good papers from the petroleum companies, the seminar was a real success. One hopes it will remain an annual event, and that next year's will be even better.

PHS

Donations to the Society

The Society would like to acknowledge the following donations which were made in December 1978:

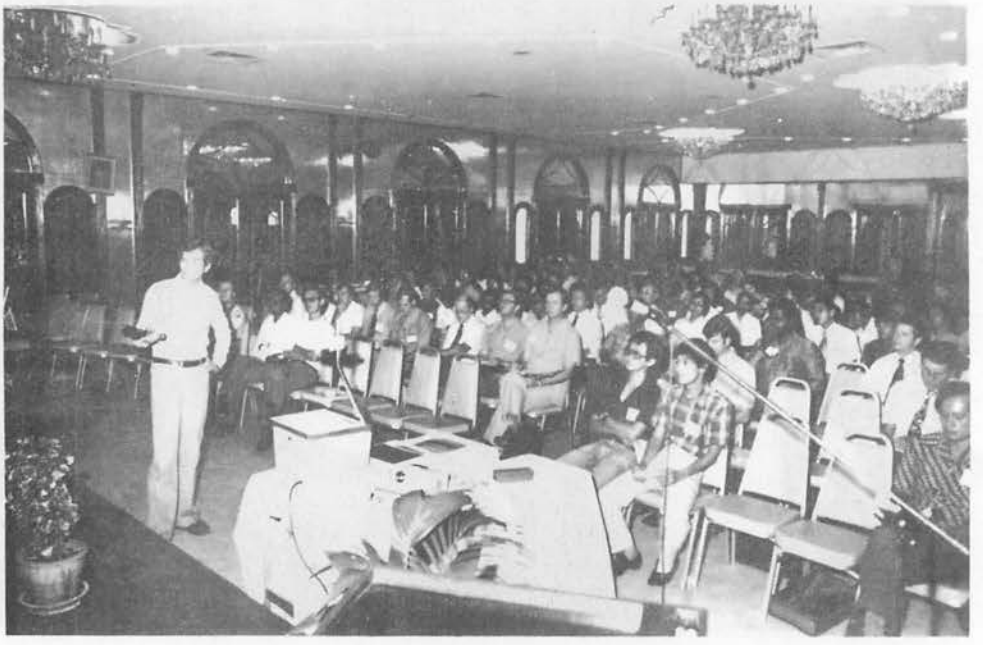
Esso Production Malaysia Inc	M$3000
Sarawak Shell Bhd & Sabah Petroleum Co. Ltd.	M$1500
Petronas	M$1000

The donations by Sarawak and Sabah Shell Companies and Petronas were specifically for the GSM Petroleum Seminar while Esso's donation was for furthering the fellowships amongst geologists through the Society.

Dr. Frank Sherer, Chief Geologist, Sarawak Shell Sdn. Bhd. addressing the meeting before the presentation of the donation from Shell.

Dr. B.K. Tan receiving Esso Malaysia's donation from Esso's Exploration Manager, Mr. Jack Armitage.

A section of the participants registering for the seminar.



Mr. M. Epting of Sarawak Shell presenting his paper at the seminar.

N E W S O F T H E S O C I E T Y

Constitutional Amendment

The results of the postal ballot opened on 31.10.78 on the constitutional amendment to bring the Society memberships in line with the requirements of the proposed Mineral Engineers Act are as follows:

For the amendment	-	99
Against the amendment	-	7
Spoilt votes		1
Total		107

Discussion Meeting

The Society proposes to hold a Discussion Meeting either before or after the Annual General Meeting to be held in mid-April 1978. The topics to be discussed will be general and pertaining to Malaysian geology. It is hoped that one of the main papers will be on the Central Belt on which much geological work is being carried out.

Young Geoscientist Publications Award

The Society announces that a "Young Geoscientist Publications Award" has been set up to encourage young geoscientists of not more than thirty years of age to publish results of their work and research. A certificate and a small sum of money will be given to the author of the best paper in geology about Malaysia or the Southeast Asian region. This award will be decided by an award nominations board appointed by the Council. The award for each year will be based on papers that have been published in the Society's series of publications or have been published or accepted for publication elsewhere in the previous calendar year. The carrot is dangling. So young geologists - good luck!

Editor's Note

The Society can pursue the recognition of geologists under the proposed Mineral Engineers Act with more vigour now that the members have overhelmingly voted for the constitutional amendments relating to membership. Indeed the Committee concerned should now seek to ensure that the professional members of the Society will have a place under the Malaysian sun side by side with others.

It had previously been noted that Malaysians tend to be very reticent compared to expatriates who record and publish almost everything, they observe. This trend however may be shifting into the opposite gear judging from recent number of papers by Malaysians. It is hoped that with the added incentive of the "Young Geoscientist Publications Award", the trickle will increase into a steady flow of publications by Malaysians about this region.

Although concerted efforts have been made, the Society finds it difficult to get speakers to give afternoon/evening talks of general interests to members. If members have suggestion about the talks they would like to hear and how we can get these speakers, they should drop the Secretary a line.

New Library Additions

The following works have been added to the Society's Library and are available to members at the Klome Reading Room at the Dept. of Geology, University of Malaya:

1. Report on the geophysical activities in the Republic of India, vol. 12, Jan-Dec 1976.
2. Central Adult Section, National Library, Singapore, NL. 311/62, pt. 1, 1978 and accessions list for Nov. 1978.
3. Commonwealth Geological Liaison Office, Special Liaison Report, Aug & Nov 1978.
4. Regional meeting on cooperation in Geosciences, Seoul, Korea, 17.20 Oct 1977: Final Report.
5. Scripta Geologica, no. 46, 1978.
6. Bulletin of the National Science Museum, vol. 4, no. 3, 1978.
7. Grondboor & Hamer, no. 1-5, 1978.
8. The Dept. of Geological Sciences Open-file reports, 1975-1978.
9. Bulletin du Bureau de Recherches Geologiques et Minieres, Sect. IV, no. 2, 1978.
10. National Library, Singapore, Adulf Reference Collections, Accession list Oct 1978.
11. Commonwealth Geological Liaison Office, NL 11, 1978.
12. Oklahoma Geological Survey, Bull. 125, 1978.

13. Institution of Mining and Metallurgy, section B & C, vol. 87, 1978.
14. Jour. Petroleum Geology, vol. 1, no. 2, 1978.
15. The paleotectonic maps of the USSR: explantory notes, vol. 1.

Membership

The following persons have joined the Geological Society of Malaysia:

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Aim-orn Tassanasorn (Miss)
284 Av. Brugmann
1180 Brussels, Belgium.

Change of address

The following members have informed the Society of new addresses as indicated:

Ommo E. Smith
Schubert laan 130
2324 EA Leiden, Netherlands

Tan Kai Soon
5, Jln SS2/97
Petaling Jaya

Dr. Gunter Matheis
Geologisch-Palaontologisches Instiut
der Justus-Liebig-Universitat-Giessen
Senckenbergstr. 3
D-6300 Lahn-Giessen 1
Fed. Rep. Germany

Rank Xerox Copying Machine

The Society has purchased a reconditioned Rank Xerox copying machine for its secretariat. This machine is housed just outside the Reading Room of the Department of Geology, University of Malaya. Members of the Society are welcomed to this facility at 10 cents a page or 7 cents a page for 100 pages or more.

O T H E R N E W S

I.P.A. - Eighth Annual Convention

The Indonesian Petroleum Association will hold its Eighth Annual Convention in Jakarta, June 5th and 6th 1979. The technical sessions will deal with exploration, production, refining, economics and environmental aspects of the oil industry. For further information please write to:

I.P.A. Lecture Committee
Jalan Menteng Raya 3
Jakarta, Indonesia.

Calendar

Under this column the Society will note coming events on meetings, courses and symposia of interest to members. Date in parentheses gives the issue of Newsletter containing more information pertaining to the event.

Geological Society of Malaysia

1979

April : Discussion Meeting on Malaysian geology. Secretary, Geological Society of Malaysia, c/o Dept. of Geology, University of Malaya, Kuala Lumpur. (Nov-Dec 1978).

Other events

1979

1979 : 14th Congress of the Pacific Science Association USSR. B.G. Gafurov, Chairman of the Soviet National Pacific Committee, Academy of Sciences of the USSR, Moscow. (Jul-Aug 1977).

Apr 30 - May 3 : 1979 Offshore Technology Conference, Astrohall, Houston, Texas. OTC Headquarters, 6200 North Central Expressway, Dallas, Texas 75206, USA. (Jul-Aug 1978).

May 10 - 26 : Ninth International Congress of Carboniferous Stratigraphy and Geology, Washington, USA. President or Secretary-General IX-ICC, 1979, Museum of Natural History, Washington, D.C. 20560, USA. (Sep-Oct 1977).

Jun 5 - 6 : Eight Annual Convention of the Indonesian Petroleum Association. I.P.A. Lecture Committee, Jalan Menteng Raya 3, Jakarta, Indonesia. (Nov-Dec 1978).

Jul 24 - 27 : Sixth Asian Regional Conference on Soil Mechanics and Foundation Engineering, Singapore. Dr. Tan Swan Beng, c/o Institution of Engineers, Singapore, Suite 1306, 13th Floor, International Plaza, Anson Road, Singapore 2, (Sep-Oct 1978).

Oct 8 - 12 : Tenth World Mining Congress, Instanbul, Turkey, Dunya Madencilik Kongresi Turk Milli Komitesi, Ziya Gokalp Cad No. 17, Kat 8, Ankara, Turkey. (Jan-Feb 1978).

1980

Feb 11 - 16 : Fifth Gondwana Symposium, Wellington, New Zealand. Secretary, Fifth Gondwana Symposium, Victorial University of Wellington, Private Bag, Wellington, New Zealand. (May-Jun 1978).

Apr 10 - 15 : 8th International Geochemical Exploration Symposium, Hannover, Fed. Rep. Germany. Dr. H. Gundlach, Organizing Committee, 8th Int. Geochemical Exploration Symposium, Federal Institute for Geosciences and Natural Resources, P.O. Box 510, 153, D-3000 Hannover 51, W. Germany. (Jul-Aug 1978).

Jul 7 - 17 : 26th International Geological Congress in Paris, France. Secretariat General du 26eme Congress geologique internationa. Maison de la Geologie, 77-78 rue Claude Bernard 75005, France. (Nov-Dec 1977).

PERSATUAN GEOLOGI MALAYSIA
(GEOLOGICAL SOCIETY OF MALAYSIA)

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

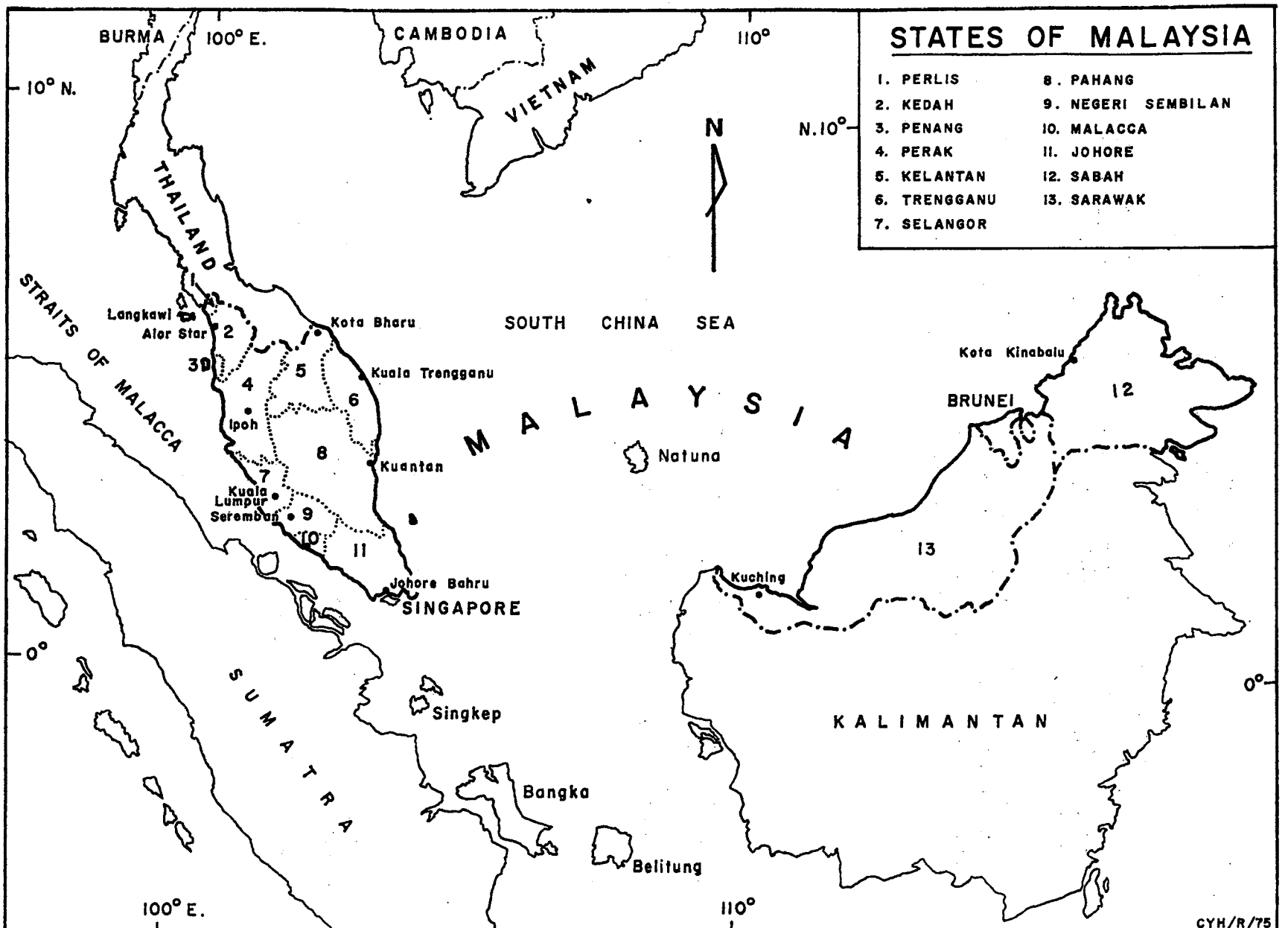
The aim of the Geological Society of Malaysia is to promote the advancement of geological sicneces particularly in Malaysia and the nearby areas. Anyone interested in becoming a member of the Society should obtain the necessary forms from the Hon. Secretary.

Annual Dues

The annual dues of Full Members and Associate Members shall be M$15.00 if paid in advance before the first day of each calendar year, M$16.00 if paid between 1 January and 1 March or M$17.00 thereafter. The annual dues for members elected after June 30 shall be M$7.50 that year. An entrance fee of M$5.00 shall be payable on election.

Some Bahasa Malaysia (Malay) geographical terms

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


STATES OF MALAYSIA
1. PERLIS
2. KEDAH
3. PENANG
4. PERAK
5. KELANTAN
6. TRENGGANU
7. SELANGOR
8. PAHANG
9. NEGERI SEMBILAN
10. MALACCA
11. JOHORE
12. SABAH
13. SARAWAK
BURMA
100° E.
CAMBODIA
110°
VIETNAM
10° N.
N
N.10°
THAILAND
STRAITS OF MALACCA
Langkawi
Alor Star
Kota Bharu
SOUTH CHINA SEA
Kuala Trengganu
Ipoh
Kuantan
Natuna
Kuala Lumpur
Seremban
Johore Bahru
SINGAPORE
MALAYSIA
BRUNEI
Kota Kinabalu
Kuching
KALIMANTAN
0°
SUMATRA
Singkep
Bangka
Belitung
CYH/R/75