

PERSATUAN GEOLOGI MALAYSIA

WARTA GEOLOGI



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(For members only)

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PERSATUAN GEOLOGI MALAYSIA
(Geological Society of Malaysia)

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Geological Society of Malaysia
c/o Department of Geology
University of Malaya
Kuala Lumpur 22-11
MALAYSIA

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

Western extension of the Kuala Lumpur fault zone

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

A prominent zone of lineaments striking 280° - 300° through the Kuala Lumpur area (Gobbett, 1964; Ayob, 1968; Shu, 1969) has been recognized by Stauffer (1968, 1969) to represent a series of sinistral strike slip faults. Judging from Gobbett's map the zone may span a width of 15 km while it extends for at least 80 km. Stauffer (1968) sees the 30-km wide fault bundle of the Mersing area as the eastern continuation. Lineaments in both fault zones strike in similar directions but their internal organisations seem different (Fig. 1). Left slip on the Kuala Lumpur fault zone amounts to an aggregate of about 20 km as is indicated by offsets of lithologic boundaries and possibly also by similar displacements of alluvial tin zones (Stauffer, 1969). The Kuala Lumpur fault zone was active after the late Triassic-early Jurassic granite intrusion. Postmagmatic movement is also indicated by strained quartz within the Klang Gates quartz dyke that may be regarded as a late magmatic intrusion into a strand of the Kuala Lumpur fault zone. According to the general geologic history of the Peninsula, tectonic activity ceased by Late Cretaceous or Early Tertiary. Some geologists have suggested that the Miocene Batu Arang beds west of Rawang became downwarped on account of tectonic deformation. It seems more probable to me that probably gradual, subsidence of its presumably calcareous basement imparted a basinal structure to the overlying rocks. Tectonic deformation may be expected to develop anticlines as well as synclines. The calcareous rocks may be the Kuala Lumpur Limestone. For the present I assume that fault movement also ended in Early Tertiary.

Until now, to the west, the fault zone has only been followed up to Batu Arang. Beyond that locality its trace is lost below the coastal plain. Structural mapping of rocky islets in the Strait of Malacca has revealed that one strand of the Kuala Lumpur fault zone outcrops on Pulau Jemur, approx. 1.5 km west of Jeram village on the mainland (Fig. 1).

In the northern part of Jemur island occurs a flasered, 30-metre wide zone consisting of twisted and boudinaged metatuff lenses in black mylonite. Relatively straight and vertical fault planes cut through the flasers. Small markings on several of the 115°-striking, vertically disposed fault planes indicate left slip motion. The markings include recrystallized steprisers facing the direction whence the opposite fault block come, tectonic prod depressions on the stoss sides of fragments embedded in the fault planes, and spall fractures across the striated planes and opening towards the direction of fault movement (Tjia, 1972).

Sense of fault motion, phyllonite foliation planes, and foliation planes have been plotted on an equal-area projection (Fig. 2). The majority of structures and sense of fault movement are compatible with a regional compression that acted within the sector 40°-63°. A few senses of motion cannot be explained by this compression direction, like for instance those striking west and west-northwest and having right slip movement. These fault motions may have occurred on fractures that were subsidiary to the main faults and thus represent manifestations of reoriented stress fields (Tjia, 1972) or their motions were generated by another compression direction, i.e. a few foliations. Work in progress by the author and students of this university in the Lebir Valley, Kelantan, in the Kuala Dungun area, Trengganu, and near Dingkil, Selangor, shows that multiple deformations with compression acting in various directions were active in the Peninsula.

References

- Ayob, Mohammad, 1968. Stratigraphy and sedimentology of the Tembeling Formation in the Gunong Berantai area, Pahang. Unpubl. MSc. thesis, Univ. Malaya.
- Gobbett, D.J., 1964. The Lower Palaeozoic rocks of Kuala Lumpur, Malaysia. Fedn. Mus. J., 9, p.67-69.
- Shu, Y.K., 1969. Some northwest trending fault zones in the Kuala Lumpur and other areas. Geol. Soc. Malaysia Newsletter no. 17.
- Stauffer, P.H., 1968. The Kuala Lumpur fault zone: A proposed major strike-slip fault across Malaya. Geol. Soc. Malaysia Newsletter no. 15.

Stauffer, P.H., 1969. Tin mineralization and faults in the Kuala Lumpur region. Geol. Soc. Malaysia Newsletter no. 20.

Tjia, H.D., 1972. Fault movement, reoriented stress field and subsidiary structures. Pacific Geology, 5, 49-70.

Caption to figures (see page 4)

Figure 1. Location of Pulau Jemur in the Strait of Malacca and as a continuation of the southernmost branch of the Kuala Lumpur fault zone. Fault zones within the region are (1) Kuala Lumpur, (2) Bukit Tinggi, (3) Kelau-Karak, (4) Lebir, (4a) Lepar, a subsidiary fault of the Lebir zone, (5) Mersing.

Figure 2. Lower hemisphere, equal-area projection of structural elements on Pulau Jemur. Key: (1) pole to foliation plane, (2) pole to fault flaser plane, (3) pole of pitch of fault striation having left slip sense, (4) ditto indicating right slip sense, (5) ditto indicating reverse faulting. Short bars across the arrows indicate the average pitch of fault striations. Pi-pole plunging 10 degrees in 225° direction has been constructed based on observed fold limbs; other foliations outside the Pi-girdle probably represent NNE-striking and eastward dipping isoclinal fold limbs.

The majority of fault motions is compatible with a compression direction that acted within the sector 40°-63°. The observed fold indicates compression in 135° direction which may represent a second regional compression or a compression that had been re-oriented on account of left slip movement on the major faults striking 115°.

Figure 1

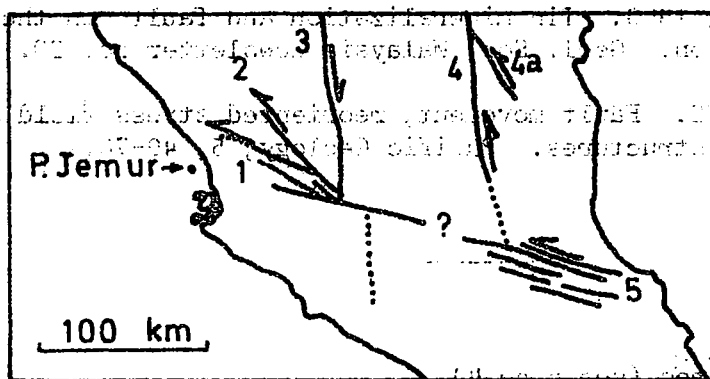
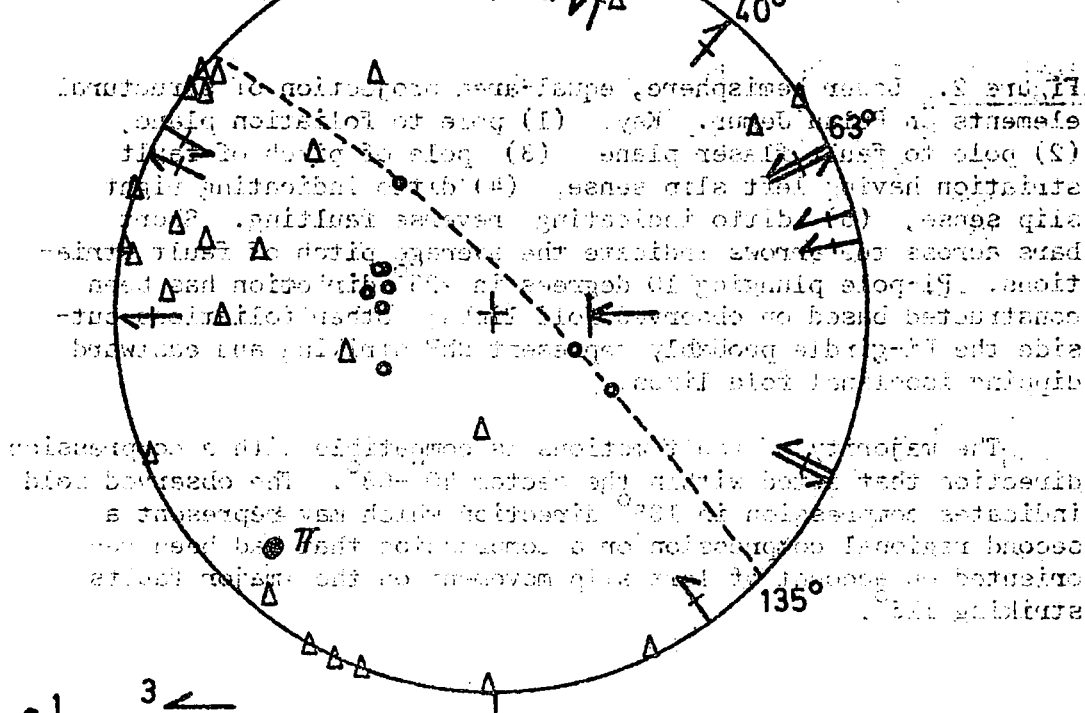


Figure 1 shows the location of the stations in the region of the study. The stations are numbered 1, 2, 3, 4, 5. The station 1 is located at P. Jemur. The stations 2, 3, 4, 5 are located in the region of the study. The station 4 is located at the station 4a.



- 1
- △ 2
- 3 ←
- 4 ←
- 5 ←

Figure 2

The discovery of macrofossils at Selumar, Belitung, Indonesia

K.F.G. Hosking & T.E. Yancey, Jabatan Geologi, Univ. Malaya, Kuala Lumpur
 H.L. Strimple, Dept. Geology, Univ. Iowa, Iowa City, Iowa, USA; and
 M.T. Jones, Broken Hill Prop. (Indonesia), Kelapa Kampit, Belitung,
 Indonesia.

This note is written on order to record the first discovery of well preserved, in situ, macrofossils on Belitung Island, Indonesia, as well as to provide details of the circumstances of the discovery, the geological environment in which the fossils occur together with a preliminary account of the best fossil specimen that was recovered, and the geological significance of the find.

At Selumar (Fig.1) a wide essentially magnetite/cassiterite orebody outcrops which elsewhere along the strike was once mined for tin by the Dutch, using underground methods. Early in 1974, when one of us (K.H.) visited the outcrop, it was being exploited by P.N. Timah for jig ragging. This work had exposed a nearly vertical hanging wall which, because of a prominent parting, had developed a few inches inside the ore-body proper. On the broken ore, close to this wall, a well-preserved greyish-white crinoid, partly embedded in the black magnetite-rich ore, was found by K.H. and is described below. Further immediate search, but of short duration, revealed a number of crinoid fragments in the foot-wall, and on the following day a more intensive search by two of us (M.J. & K.H.) resulted in the discovery of still more fragments there. A month or so later further search by M.J. and some of his colleagues recovered another good crinoid specimen from the site, but this has not yet been described.

It is thought that the fossil locality at Selumar may be rather restricted as there is no record of fossils having been found in the underground mine, and it is most unlikely that Dr Adam, the excellent geologist who was associated with the company that operated the mine, would have failed to record them had they occurred there.

The fossils found at Selumar are all crinoids, and include a well preserved cup with arms (crown), various segments of articulated crinoid stems up to 40 cm long, and many disassociated crinoid elements. They are all referable to a single species of inadunate crinoid of the genus Moscovicrinus and even the scattered columnals

can be referred satisfactorily to the species. This crinoid has a rather small cup with large plates, long robust arms with many plates, and many thin columnals with large diameter and very large internal opening, giving the stem a resemblance to a pipe and the individual columnals a resemblance to a ring.

The Selumar crinoid appears to be related to Moscovicrinus multiplex (Trautschold, 1867) which has been reported in the literature from the Myachkovian Formation (Moscovian = Desmoinesian), U.S.S.R. The only other species currently reported for the genus is M. bipinatus Lane & Webster, 1966, from the Wolfcampian (Lower Permian) of Nevada, U.S.A. The Selumar crinoids are thought to be Lower Permian in age.

The previous very tentative determination of Stephanian (latest Carboniferous) age plant remains, made by Jongmans and cited by van Overeem, (1960) is probably Permian rather than Carboniferous -- and it is questionable if the plants are preserved well enough to be identifiable at all. The fusulinids found along the north coast of Belitung are Permian, and the cassiteritized ammonite (Agathiceras sp.) from the southern part of the island is also Permian, but was found as float in a Quaternary placer.

The Selumar crinoids are also remarkable in that they have been replaced by a member of the serpentine group of minerals that is almost certainly antigorite. In this 'antigorite' there are occasional small crystals of magnetite, generally rim-replaced by hematite, and equally small individual crystals or aggregates of hematite. The matrix in which the crinoids are embedded consists essentially of comparatively large crystals of magnetite that have been superficially altered to hematite. 'Antigorite', locally with small magnetite/hematite and hematite inclusions, and the rare crystal of cassiterite, occur between the large magnetite crystals.

A discussion of the possible history of replacement of these originally calcitic organic remains, together with the nature and genesis of the Selumar ore-body, will form the subject of a later note.

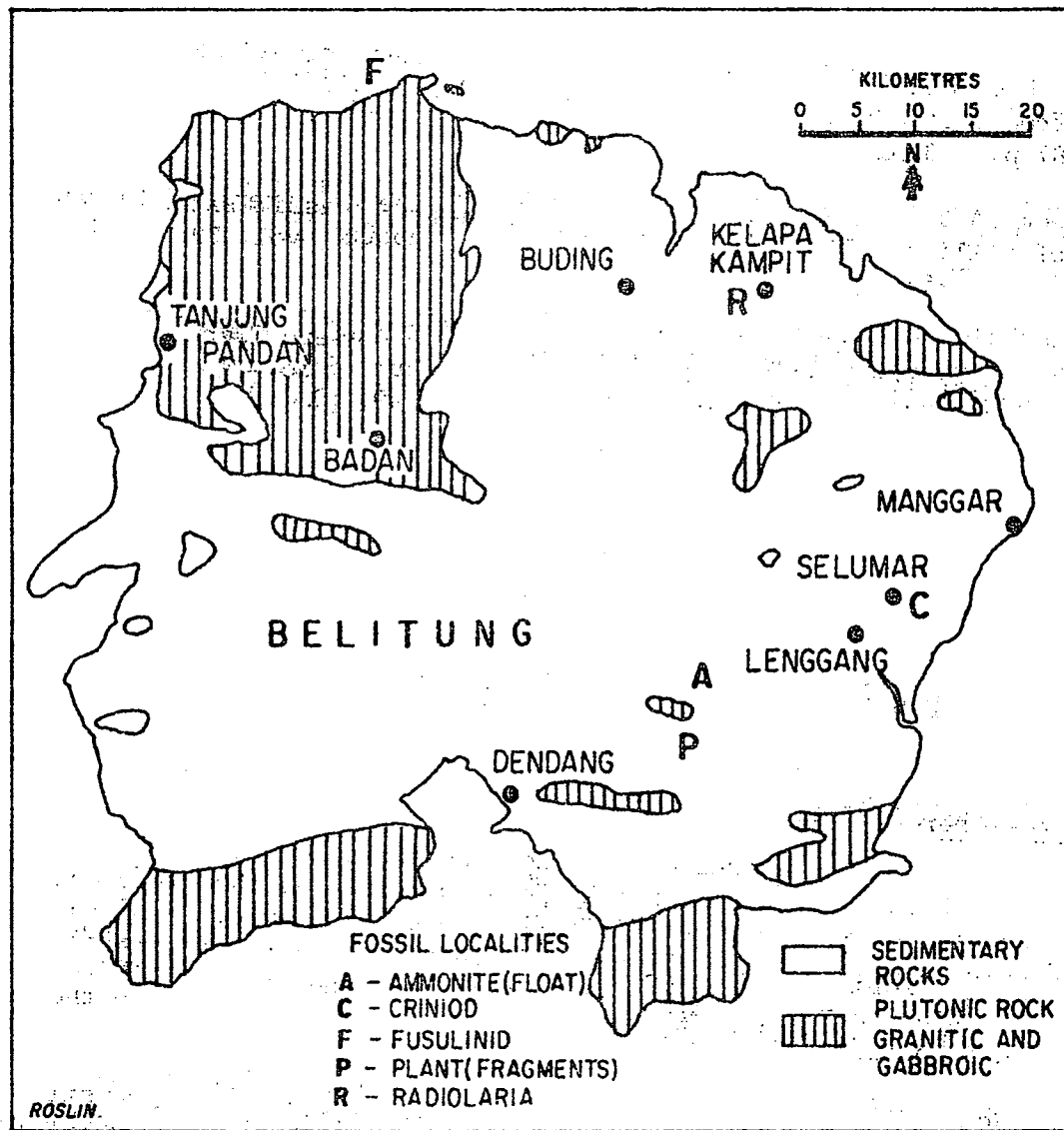


Figure . 1

References

- Lane, N.G. and Webster, G.D., 1966. New Permian crinoid fauna from southern Nevada; Univ. Calif, Publ. Geol. Sci. v. 63, 87 p., 13 pl.
- Overeem, A.J.A., van, 1960, The geology of the cassiterite placers of Billiton, Indonesia; Geologie en Mijnbouw, vol. 39, no. 10, p. 444-457.
- Trautschold, H., 1867. Einige Crinoideen und andere Tierreste des jüngeren Bergkalkes in Gouvernement Moskau: Soc. imp. Nat. Moskau Bull., v. 40, pt. 2, no. 3, pp. 1-49, pls. 1-4.

NEWS OF THE SOCIETY

Annual General Meeting

The adjourned Annual General Meeting scheduled to be held on 26 March 1975 has unfortunately been postponed as the statement of accounts for the past year has still to be completed. Members have been informed of the postponement in the New Straits Times and the Malay Mail. Members will be duly informed of the date the adjourned meeting will be held.

According to Article V Section 2(iv) of the Society's constitution, new officers and councillors can only assume duty immediately following the completion of the annual general meeting. So, until the annual general meeting has been concluded the old Council (1974/75) is still in office.

World Campus Afloat

On 15 April 1975 the Society organized trips to the Sungai Besi Mines, Kuala Lumpur and the Jabatan Geologi, Universiti Malaya for a group of students of the World Campus Afloat when their ship called at Port Kelang. At the mines the students were shown the geology of the area, tin mining methods and mineral dressing processes. Later, at the Jabatan Geologi they were briefed on the general geology of Malaysia and also shown collections of Malaysian rocks, minerals and fossils.

The leaders of the excursions were Encik E.B. Yeap and Encik L.C. Wong.

Membership

The following applicants have been elected:

Full member

K. Mohan, Home Oil Co., Ltd., 304 Sixth Avenue, Southwest, Calgary, Alberta, Canada, T2 POR 4.

Associate member

Institut Teknologi Kebangsaan, Jalan Gurney, Kuala Lumpur.

Student members

Ibrahim Komoo, Jabatan Kajibumi, Universiti Kebangsaan Malaysia, Kuala Lumpur.

John Y. T. Huong, MXL/3, Exploration, Sarawak Shell Bhd., Lutong, Sarawak.

Warta Geologi Masthead

To date members have not submitted any design or suggestion for the new masthead. It is hoped the designs and suggestions will soon be forthcoming.

Students Loan Fund

Since the Fund was established, many student members have obtained generous loans from the Society to help them pay for their field expenses and preparation of theses. However, the money now available from the Fund is critically low as most recipients of loans have not repaid the interest-free loans as soon as possible. As a result many deserving student members this year have not been given loans to pay for their field expenses and theses preparation. As the expenses for fieldwork and theses preparation have gone up considerably in the past year many of these deserving student members are facing financial difficulties. It is only reasonable that recipients of loans who are now fully employed should repay their loans as soon as possible and those who are holding high-salaried posts should repay their loans immediately.

Exchange of Publications

The Council has agreed to exchange publications with the Institution of Mining and Metallurgy, London. We shall get in return Transactions section B "Applied Earth Sciences" and IMM Abstracts from them.

NEWS OF MEMBERS

Appointments

John K. Raj, B.Sc. (Malaya), M.Sc. (I.T.C., Holland) has been appointed temporary assistant lecturer in Jabatan Geologi, Universiti Malaya on 5 March 1975. Mr Raj specialises in photogeology and geomorphology.

New addresses

J.D. Bignell
10, Birch Grove
Sandy, Beds
ENGLAND

Resignations

A.Y. Tamura
8925 E. Callita St.
San Gabriel, Calif., 91175

K. Kuttan
EXXON Prod.
Kota Kinabalu, Sabah.

N O T I C E S

Indonesian Petroleum Association 4th Annual Convention

The Convention will be held on 2-3 June 1975 at Borobudur Hotel, Jakarta. About 30 papers will be presented. The papers cover topics such as tectonic evolution of southeast Asia, stratigraphy of East Kalimantan, geology of Timor, petroleum in Seram, outer-arc-basin areas of south Java and S.W. Sumatra, etc. Several papers on geological, seismic, drilling and refining methods will also be presented. Field trips to central Java and East Kalimantan will also be organised. For further information contact:

Convention Secretary
Jalan Menteng Raya 3
Jakarta
Indonesia

Regional Conference on the Geology and Mineral Resources of Southeast Asia, Jakarta, 4-7 August 1975

According to the Second Circular (April 1975) the response to the conference has been very encouraging and it has been estimated that about 300 geoscientists will attend the conference. Each participant will have to pay a registration fee of US\$30 if paid before 30 June or US\$40 if paid after 30 June to attend the conference. The following excursions have also been arranged.

1. Geothermal exploitation of Kawah Kamojan and Geological Museum, Bandung (1 day, US\$30)

2. Turbidites of West Java (1 day, US\$30)
3. Quaternary of Central/East Java (2 days, US\$150)
4. Geology of Timor (6 days, US\$450)
5. Geology along the roads Pekan Baru-Bukit Tinggi-Padang-Lubuk Linggan, Central Sumatra (US\$200)

Members who wish to participate should write immediately to G.A.S. Nayoan, The Secretary General, Regional Conference on the Geology and Mineral Resources of S.E. Asia, Jalan Sinaburg 111/4, Jakarta Selatan, Indonesia.

THESES FROM LOCAL UNIVERSITIES

The following B.Sc. (Hons) theses have been submitted to local universities:

1973/74

Universiti Kebangsaan Malaysia

See Newsletter of the Geological Society of Malaysia No. 51 pp. 21- 22.

Universiti Malaya

Abdul Hamid Mohamad: Geology, mineralization and geochemical studies of the Titi area, Jelebu, Negri Sembilan, Peninsular Malaysia, 127 pp.

Chow Weng Sum: The geology, mineralisation and geochemical studies of the Bendi area, Trengganu, Peninsular Malaysia, 165 pp.

- Chow Yue Cheong: Geology and stratigraphy of the Temerloh-Kampung Awah-Chemor area, Pahang, Malaysia 114 pp.
- Chuah Ai Lin: The geology and petrology of the north-eastern Kuala Lumpur area, Selangor, Peninsular Malaysia. 66pp.
- Goh Leng Siang: Geology, mineralisation and geochemical studies of the Chenderong-Buloh Nipis area, Trengganu. 105 pp.
- Goh Sing Thu: Geology of the Kemaman area, Trengganu, Peninsular Malaysia. 88pp.
- Harpajan Singh: Geology of the Gopeng Area, Perak. 54 pp.
- Lim Peng Siong: Geology and copper mineralisation of the Mamut area, Sabah, East Malaysia, 116 pp.
- Loi Kuong Soon: The geology of the Batu Kitang-Siniawan area, West Sarawak. 118 pp.
- Mohd. Yusop Abdul Mutalib: Geology of the Kuala Pilah area, Kuala Pilah, Negri Sembilan, West Malaysia 105 pp.
- Nik Azman Mohd. Zain: Geology, mineralisation and geochemical studies of Bukit Penchuri Area including some aspects of Bukit Panau, North Kelantan. 98pp.
- Ong Guan Bee: Geology of an area southwest of Raub, Pahang. 94 pp.
- Ooi Aun Chye: Geology, mineralisation and some geochemical studies of the eastern flank of the Kladang Range in the vicinity of Ipoh, Perak, Peninsular Malaysia. 108 pp.
- Shaharin Ibrahim: Geology and geochemical study of the Tampin-Simpang Ampat area, Negri Sembilan-Malacca border, Peninsular Malaysia. 128 pp.
- Siti Zaayah Darus: Geology of the Sungai Way-Shah Alam area, Selangor, Peninsular Malaysia. 78 pp.
- Teoh Seng Kiat: Geology, mineralisation and geochemical studies of Tasek Chini area, South Central Pahang. 150 pp.

- Tong Khai Wah: Geology, mineralisation and some geochemical studies of the Papan area, Perak. 132 pp.
- Too Heng Keong: The geology and supergene mineralisation of the Tanjong Tuallang area, Perak. 123 pp.
- Tuah/Wan Fuad Wan Hassan: Geology and mineralisation of South-eastern Langkawi. 76 pp.
- Wong Lee Ching: Geology of the Kampong Batu Melintang area, North-west Kelantan, West Malaysia. 95 pp.
- Wong Pak Kheong: The geology and stratigraphy of the North-eastern Langkawi area, Kedah. 94 pp.

1974/75

Universiti Kebangsaan Malaysia

- Abdul Aziz Hussin: Kajibumi Manik Urai utara, Kelantan, Malaysia Barat (Geology of north Manik Urai, Kelantan, West Malaysia)
- Abdul Aziz Sidik: Kajibumi Manik Urai selatan, Kelantan, Malaysia Barat (Geology of south Manik Urai, Kelantan, West Malaysia)
- Abdul Rashid Ahmad: Kajibumi kawasan Rosob-Silimpondon (Teluk Merudu Timur) Sabah, Malaysia Timur. (Geology of the Rosob-Silimpondon area (east Marudu Bay) Sabah, East Malaysia.
- Mohd. Zahari Abu: Kajibumi kawasan Marasimsim-Silimpondon (Timur Teluk Marudu) Sabah.
(Geology of the Marasimsim-Silimpondon area, (east Marudu Bay) Sabah .
- Mahzan Bakar: Kajibumi kawasan Kuala Lumpur Utara, Selangor, Malaysia Barat (Geology of the north Kuala Lumpur area, Selangor, West Malaysia).

Universiti Malaya

- Abdul Hanif Hussein: The geology of the Kuantan area, with special reference to the petrology and chemistry of the basalts and dolerites. 68pp.
- Au-yong Mun Heng: Geology of the Bukit Bintang area, Trengganu with some aspects in geotechnics. 87pp.
- Jagathasparan Ponniah: Geology and stratigraphy of the Batu Niah area, Sarawak. 91 pp.
- Krishnan Dharmarajan: Geology of the Bentong area, Pahang, West Malaysia. 83 pp.
- Lim Meng Sze Wu. Biostratigraphy of the Jurong area, Singapore. 88 pp.
- Loy Wei Choo: General geology of the area round Bt. Rambutan with special emphasis on petrology. 62 pp.
- Oh Wu Pui: Geology, mineralisation and geochemical studies of the Klian Intan-Sungai Pong area, Upper Perak. 82pp.
- Ong Tiam Hoe: The geology, mineralisation and geochemical studies of the Kampar-Temoh area. 74 pp.
- Polit Hamzah: The geology of the Bakam-Bekenu area, Fourth Division, Sarawak. 64 pp.
- Seet Chin Peng: The igneous complex of Pulau Ubin. 82 pp.
- Yeoh Gaik Chooi: The geology of the Genting Highlands area, Selangor, Pahang, with some aspects of geotechnics. 85 pp.
- Yogeswaran Mailvaganam: The geology of the Marudi area, Sarawak, Malaysia. 107 pp.

The following M.Sc. theses have been submitted to local universities:

Universiti Kebangsaan Malaysia

See Newsletter of the Geological Society of Malaysia No. 51, pp. 21-22.

Universiti Malaya

1973

Ahmad Jantan: Stratigraphy of the Singa Formation (Upper Palaeozoic) in the southwestern part of the Langkawi Island Group, West Malaysia. 250 pp.

Ismail Mohamad Noor: A study of trace elements in stream sediments from road/river intersections in Central Pahang and the potential value of such a method as an aid in reconnaissance prospecting in tropical terrain 266pp.

Tan Teong Hing: Geology, mineralisation, geochemistry and bio-geochemistry of the eastern flank of the Kledang Range, Perak, West Malaysia. 2 vol. (Vol. 1, 413 pp; Vol. 2, 47 maps and figures).

NEW PUBLICATIONS

Geological Map of Karak/Temerloh area, Pahang (old series sheets 3C/9 and 3C/10) Scale 1 inch to a mile. Coloured. 41" X 29½". Published by Geological Survey, Malaysia. (Map to accompany Memoir No. 15). Price \$6 (Malaysian).

Geological Sections across Karak/Temerloh area, Pahang (old series sheets 3C/9 and 3C/10). 3 sections. Coloured. 41" x 21". Published by Geological Survey, Malaysia. (Sections to accompany Memoir No. 15). Price \$3 (Malaysian).

G E O - F U N

The solutions of GSM geo-crossword No. 4 which appeared in Warta Geologi Vol. 1 No. 1 are given below:

<u>Across</u>	<u>Down</u>
1. adamellite	2. dendrochronology
7. TRS	3. And.
10. EN	4. lithify
11. indent	5. Imp
13. phase rule	6. enantiomorphous
15. HF	7. tie
17. UB	8. stub
18. fractionation	9. pseudoeutectic
20. MD	12. etch
21. IC	14. runite
23. ACF	16. Fo
24. MY	19. nem
25. moonstone	22. conjugate
29. NM	26. one
30. EN	27. diameters
31. argillaceous	28. aa
34. jet	32. landing
35. gnomonic	33. sole
36. pelagic	37. Ti
37. Th	39. TNT
38. elutriation	41. BTU
40. Ft	43. two
42. etc.	45. Ab
44. aggregates	46. En.
47. Hutton.	