

PERSATUAN GEOLOGI MALAYSIA

WARTA GEOLOGI

NEWSLETTER OF THE GEOLOGICAL SOCIETY OF MALAYSIA



GEOLOGICAL
SOCIETY OF
MALAYSIA

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PERSATUAN GEOLOGI MALAYSIA

Geological Society of Malaysia

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About the Society

The Society was founded in 1967 with the aim of promoting the advancement of earth sciences particularly in Malaysia and the Southeast Asian region.

The Society has a membership of about 600 earth scientists interested in Malaysia and other Southeast Asian regions. The membership is worldwide in distribution.

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CATATAN GEOLOGI

Geological Notes

Occurrence of synplutonic dykes from Perhentian Kecil Island, Besut, Terengganu

AZMAN ABDUL GHANI
Geology Department
University of Malaya
50603 Kuala Lumpur

Abstract: This short note reports field and microscopic observations of the synplutonic dykes from the Perhentian Kecil syenite. The observations suggest that the dykes were intruded when the host magma was partially crystallised.

INTRODUCTION

During the mapping course of the Perhentian Island area, two synplutonic dykes were found intruding the Perhentian Kecil syenite (SPK). The aim of this paper is to report the field characteristics of the synplutonic dykes and its implications. The Perhentian Kecil syenite consists of a gradational sequence of intermediate to mafic igneous rocks ranging in composition from syenitic to gabbroic. It formed a nearly circular shaped pluton and has in turn been intruded by the Perhentian granite (GP). The contact between the two plutons can be seen at Pasir Patani, Tanjung Batu Nisan, Pasir Karang and Tanjung Batu Peti (Fig. 1).

FIELD AND MICROSCOPIC DESCRIPTIONS

The dykes were found at two locations namely, (1) Tanjung Batu Peti and (2) Tanjung Batu Jalil (Fig. 1). They are more mafic and finer grained than the syenite host. Field sketch of both dykes are shown in Figures 2 and 3 respectively. The dykes vary in width from a few cm to 20 cm and lengths up to several meters and are marked by necking and disrupting or pinching and swelling along their lengths. At Tanjung Batu Peti, a K-feldspar

pegmatite (2 to 3 cm across) can be seen bordering and sometimes veining into the dyke (Fig. 2). Subhedral to anhedral syenitic inclusions with sizes that range from several mm up to 2 cm across are scattered throughout the dykes. The inclusions are either monomineralic (usually K-feldspar) or consist of a clots of several minerals (K-feldspar, hornblende and plagioclase). Lobes of syenite material occasionally penetrated into the dykes resulting in lobate and cusped contacts between the dykes and the Perhentian Kecil syenite.

Detail inspection of sawn slabs of the dyke from Tanjung Batu Jalil shows that the dyke is banded. It consists of alternating greyish non-biotite and reddish grey biotite-bearing bands. In thin section the dykes show an amphibolitic texture suggesting its basic origin. Flow texture of fine-grained hornblende and biotite are well-developed at the margin of the feldspar inclusion and dying out away from the inclusion.

IMPLICATION

The field features shown by the dykes in the present study is similar to synplutonic dykes elsewhere (Roddick and Armstrong, 1959; Pitcher and Read, 1960; Pitcher and Bussell, 1985; Reid and Hamilton, 1987; Pitcher, 1991,

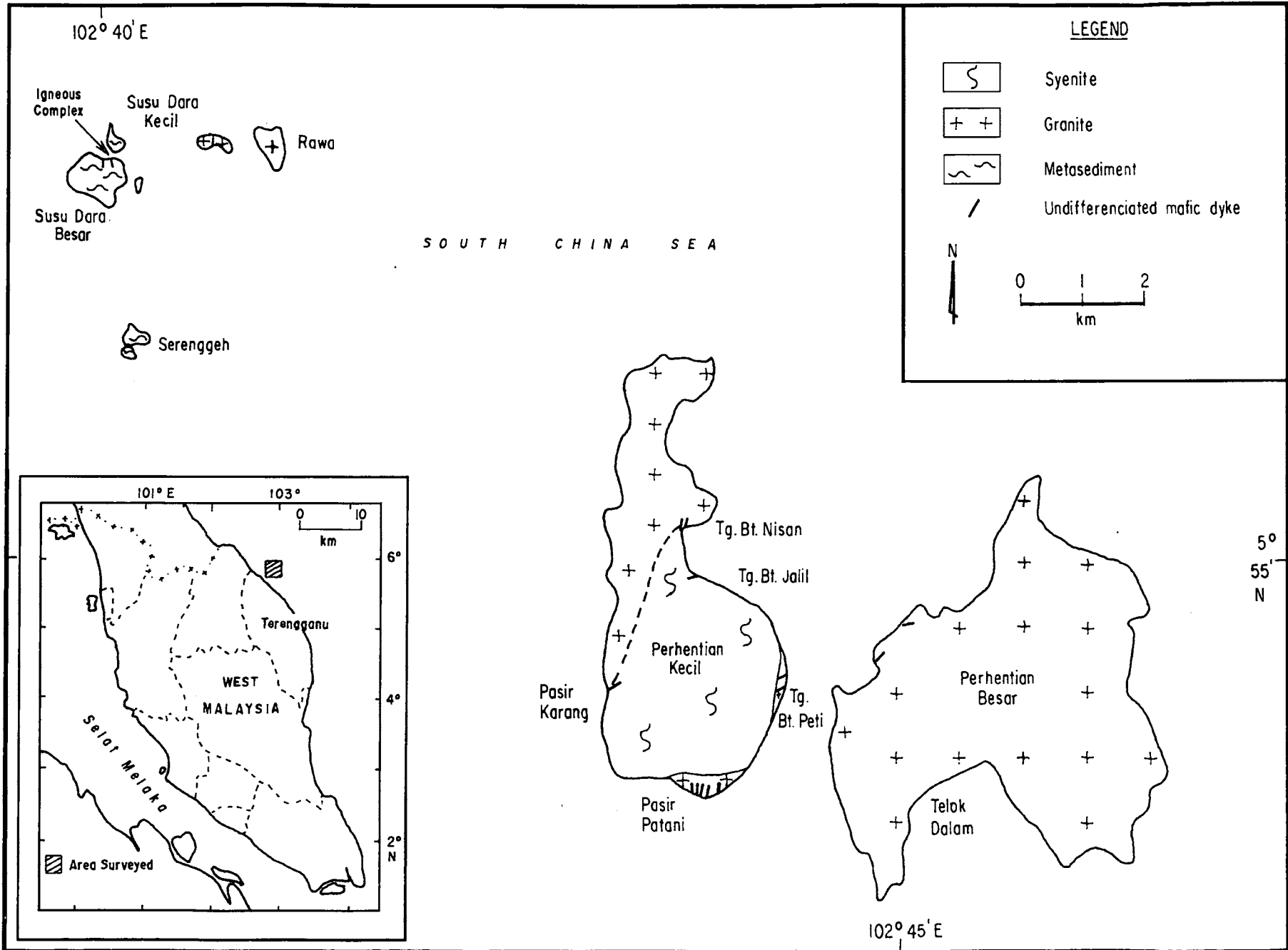


Figure 1. Map of Pulau Perhentian and its surrounding area showing the location of Tanjung Batu Jalil and Tanjung Batu Peti on Perhentian Kecil, where both dykes described in the text occur.

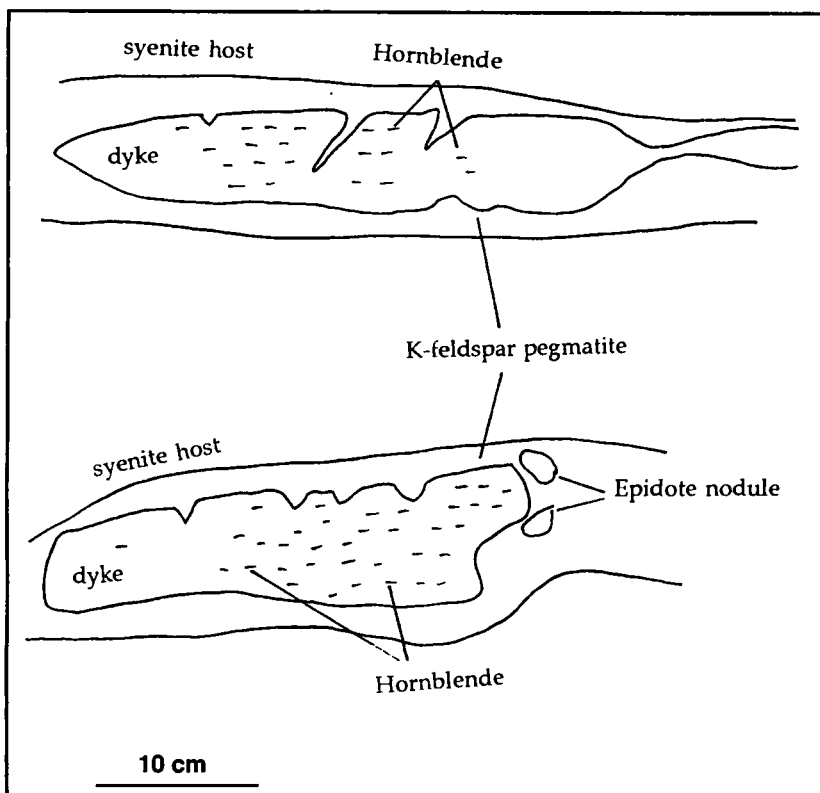


Figure 2. Field sketch of the dykes from Tanjung Batu Peti.

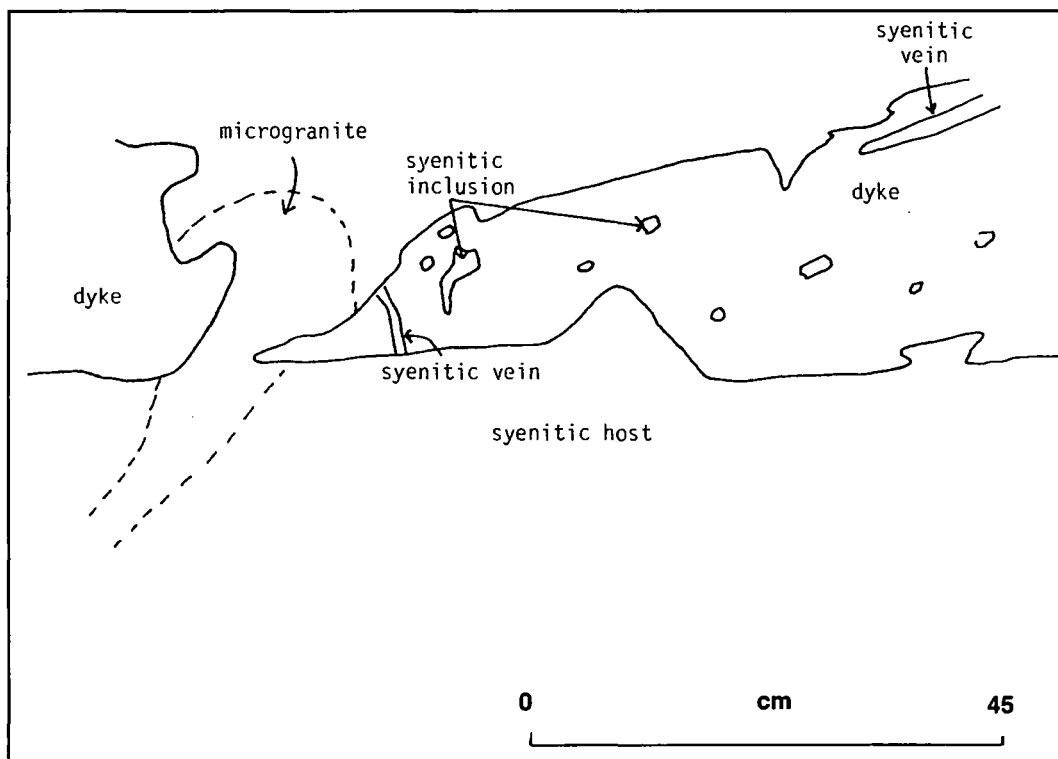


Figure 3. Field sketch of the dyke from Tanjung Batu Jalil.

1993). The implication of the occurrence of the dykes are:

- (1) The field relation suggests that the dykes represent a mafic magma (basaltic) that was injected into a more silicic magma (syenitic) chamber.
- (2) Lobate to crenulate contact and necking of the dykes suggest that the time of the dyke intrusion is coeval to its host (e.g. Pitcher, 1991; Vernon *et al.*, 1988). The dykes probably were injected when the syenitic magma was partially crystallised and where both magmas were continuously moving.
- (3) The occurrence of syenitic inclusions in the dykes suggests that the quenched dykes' carapaces were sometimes breached by syenitic vein material which broke up into globules on penetrating the more fluid interior of the dykes (Bussell, 1991).
- (4) The amphibolitic texture of the dykes suggests that they have undergone metamorphism. The texture may also have resulted from the metasomatic process resulting from the differences in concentration gradients of certain elements between the dyke and the host interface.

FURTHER STUDY

Suggestions for further study concerning these dykes are:

- (1) The dykes probably provided some clues regarding the heat source of the igneous rocks from the area (namely, the Perhentian Kecil syenite) as it may represent an offshoot of the underplated mafic magmas which intruded into the

partially crystallized Perhentian Kecil syenite.

- (2) The interaction between the Perhentian Kecil syenite and the dykes can be further investigated by using serial studies of thin sections and analytical techniques to establish if there are any chemical diffusion gradients between these rocks.

REFERENCES

- BUSSELL, M.A., 1991. Enclaves in the Mesozoic and Cenozoic granitoids of the Peruvian Coastal batholith. *In: J. Didier and B. Barbarin (Eds.), Enclaves and granite petrology.* Elsevier, 155–166.
- PITCHER, W.S., 1991. Synplutonic dykes and mafic enclaves. *In: J. Didier and B. Barbarin (Eds.), Enclaves and granite petrology.* Elsevier, 383–391.
- PITCHER, W.S., 1993. *The nature and origin of granite.* Blackie Academic, 321 p.
- PITCHER, W.S. AND READ, H.H., 1960. Early tranverse dykes in the Main Donegal granite. *Geol. Mag.*, 97, 53–61.
- PITCHER, W.S. AND BUSSELL, M.A., 1985. Andean dyke swarms: andesite in synplutonic relationship with tonalite. *In: W.S. Pitcher, M.P. Atherton., E.J. Cobbing and R.D. Beckinsale (Eds.), Magmatism at a plate edge: the Peruvian Andes.* Blackie Glasgow, 93–101.
- REID, J.B. AND HAMILTON, M.A., 1987. Origin of Sierra Nevada granite: evidence from small scale composite dikes. *Contrib. Mineral. Petrol.*, 96, 441–454.
- RODDICK, J.A. AND ARMSTRONG, J.E., 1959. Relict dikes in the Coast Mountains near Vancouver, B.C. *Jour. Geol.*, 67, 603–613.
- VERNON, R.H., ETHERIDGE, M.A. AND WALL, V.J., 1988. Shape and microstructure of microgranitoid enclaves: indicators of magma mingling and flow. *Lithos.*, 22, 1–11.

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CATATAN GEOLOGI

Geological Notes

Eruptive or impact breccia? Bukit Lebam, Johor

H.D. TJIA

Petronas Research & Scientific Services Sdn. Bhd.
Lots 3288 & 3289, Kawasan Institusi Bandar Baru Bangi
43000 Kajang, Selangor

The small-scale geological map of Sheet 132, Sungai Papan published by Ismail Ahmad (1984) and the regional geological map (Geological Survey of Malaysia, 8th edition, 1985) show Bukit Lebam (104°12'30"E, 01°32'50"N) as a Permian, or Permo-Triassic, patch of mainly felsic pyroclastics among metasedimentary rocks of older age. The pyroclastics may be correlated with the Jasin Volcanics of Suntharalingam (1981) or the Linggiu Formation of Rajah (1986) on the map sheets adjoining Sheet 132. This note refers to a remarkable outcrop on the west foot of Bukit Lebam that is grazed by the Kota Tinggi to Pengerang main road (Fig. 1a). In 1989, the roadside outcrop was located near the Vita Tenggara factory and orchard. The main geological features seen in the outcrop of partially to thoroughly weathered material are (Fig. 2):

1. A fault zone that is 1.2 m at its widest striking 125° and dipping subvertically south.
2. South of the fault zone is a megabreccia consisting of large blocks of tuffaceous schist and light-coloured, coarse-grained tuffite.
3. On the north side of the fault zone are resistant knobs of brecciated metamorphic rock that, on account of its hardness stand out above the embedding tuff breccia.
4. Clasts in the tuff breccia are rounded; their bleached appearance suggests rounding by possibly hydrothermal action without undergoing mechanical transport.

This interpretation is based on the observation that in active volcanic craters, well-rounded, partly decomposed clasts of igneous rock occur side by side with fresh-looking, but angular blocks of the same material.

5. A black, sooty looking soft rock grades into mauve-coloured shale. The black colour probably indicates carbonaceous material. The shale-black rock interval and the tuff breccia are conformable, but both these horizons are separated by an angular unconformity from a sequence of brecciated ignimbrite and flasered tuff.
6. About 4 metres wide brecciated ignimbrite, or coarse-grained tuffite underlies the unconformity.
7. The tuff showing flasered structure is thoroughly weathered. The original rock could have been tuffite. Strike is east-west with moderate dip towards north.
8. Two fist-sized black (carbonaceous?) oval objects were also collected. A sliced surface across one of the specimens suggests radial structure. No further examination was performed as the specimens have since been misplaced.

Most striking of this outcrop is the widespread occurrence of brecciation in a variety of rock types. The fault breccia most probably represents the latest brecciation event and is of tectonic origin. The general outcrop pattern suggests two rock sequences, one striking east-west and dipping north that is separated by an

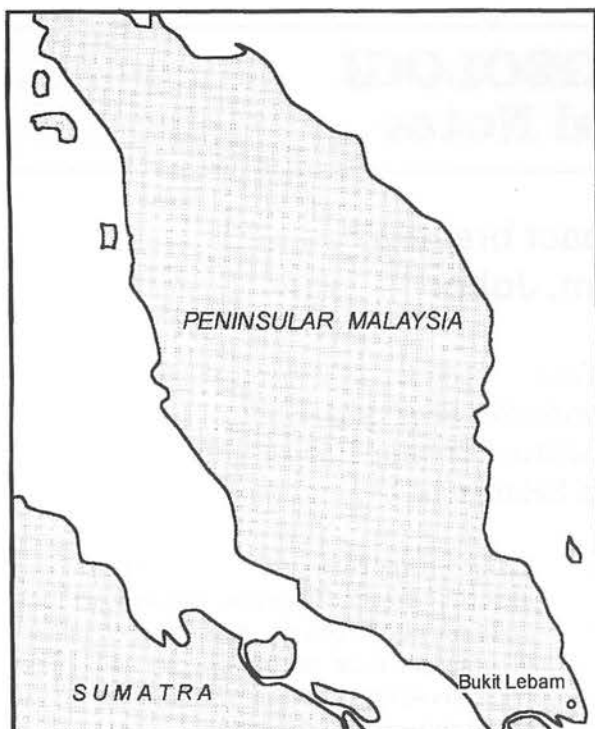


Figure 1a. Location of Bukit Lebam, Johor.

angular unconformity from a second sequence striking SW and dipping NW (Figs. 1b and 2). Although an angular unconformity, the geological ages of the two sequences that it separates may be identical if the unconformity marks a catastrophic event such as mass movement, tsunami, a volcanic eruption, or impact by an extraterrestrial body. The widespread brecciation suggests a violent event. The "burnt" appearance of the black coloured argillaceous layer and the two, unfortunately lost, specimens indicates heat. This could have been produced by volcanism; that is, the overlying tuff breccia may represent a nuee ardente deposit. Or, the heat could have been provided by a firestorm resulting from impact, as described by Alvarez (1997) for the KT Chicxulub impact. Some probable impact structures in southeast Johor have been pointed out by Anizan Isahak (1993). These consist of single or multiple circular features generally up to 5 km in diameters. The Bukit Lebam outcrop is within distances of only a few kilometres from such features.

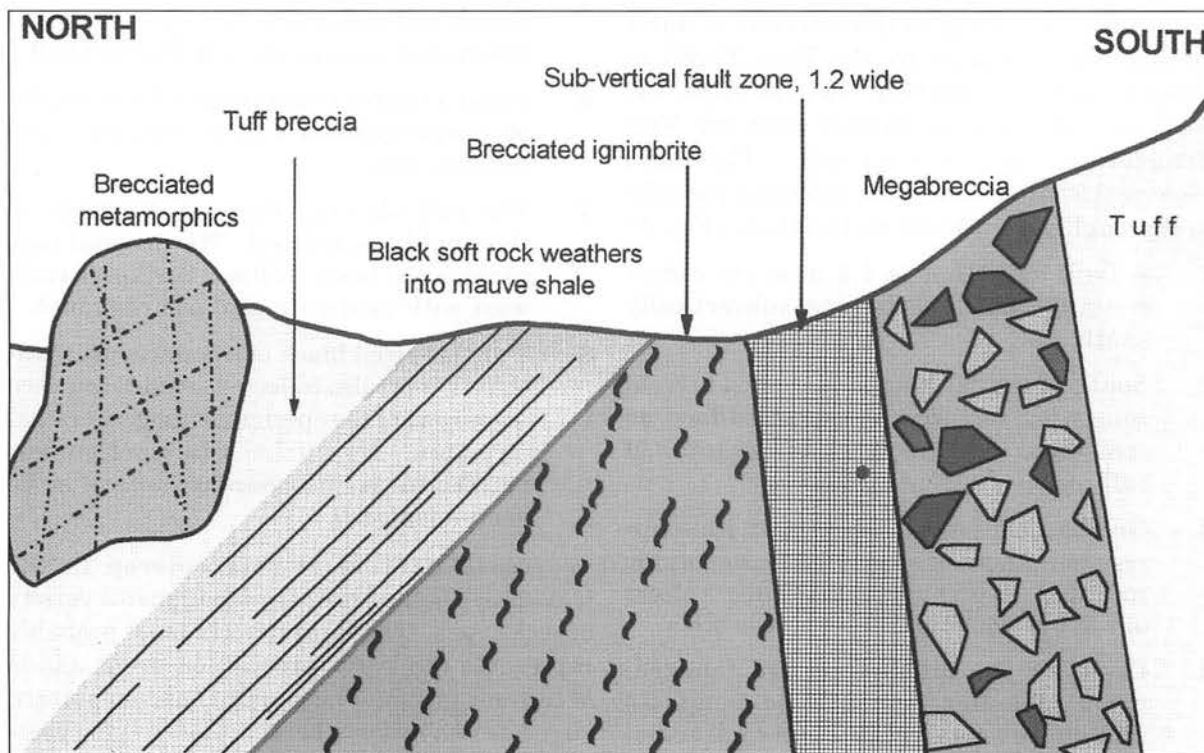


Figure 1b. Schematic cross section of complex geology at Bukit Lebam.

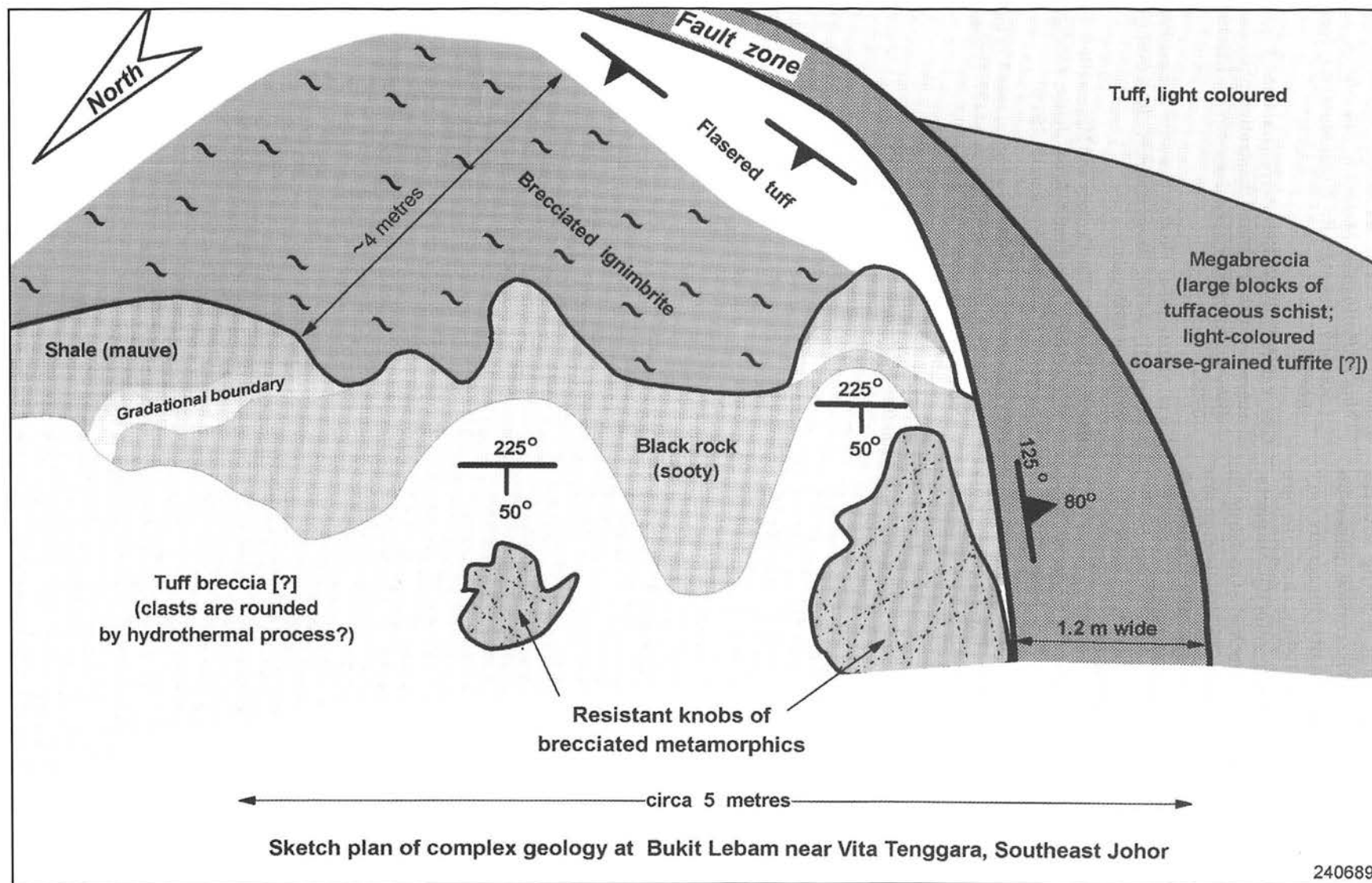


Figure 2. Sketch plan of complex geology at Bukit Lebam, Southeast Johor.

In hindsight and after reading Alvarez (1997) and Grieve's (1997) review paper on extraterrestrial impact events, it seems very probable that the Bukit Lebam breccias are deposits related to high-velocity impacts. Evidence in the form of shocked structures in quartz and glassy spherules in the outcrop are to be looked for among a host of other indicators as listed in these two publications.

REFERENCES

- ALVAREZ, W., 1997. *T. rex and the Crater of Doom*. Princeton University Press, New Jersey, 185 p.
- ANIZAN ISAHAK, 1993. *Geomorphology and Soils of Southeast Johore*. PhD Thesis, University Kebangsaan Malaysia, Bangi.
- GEOLOGICAL SURVEY OF MALAYSIA, 1985. *Geological Map of Peninsular Malaysia, 8th edition, scale 1:500,000*. Jabatan Kajibumi Malaysia, Ipoh, 2 sheets.
- GRIEVE, R.A.F., 1997. Extraterrestrial impact events: the record in the rocks and the stratigraphic column. *Palaeo-geography, -climatology, -ecology* 132 (1997), 5-23.
- ISMAIL AHMAD, 1984. Geologi kawasan Sungai Papan (Syit 321), Johor. *Annual Report 1982, Geological Survey of Malaysia*.
- RAJAH, S.S., 1986. The Geology and Mineral Resources of the Gunong Belumut Area, Johor. *Geological Survey of Malaysia, Memoir* 19, 191 p.
- SUNTHARALINGAM, T., 1981. (Geological map Ulu Sedili and Kg. Sedili Besar) Sheets 126 and 127. *Geological Survey of Malaysia, scale 1:63,360*.

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Manuscript received 30 December 1997

PERTEMUAN PERSATUAN Meetings of the Society

ANNUAL GENERAL MEETING 1998 & ANNUAL DINNER 1998 — REPORT

The Annual General Meeting 1998 was held at 6.15 pm on Saturday 25 April 1998 at the Mohar Room 1, Hotel Singgahsana, Petaling Jaya. 35 members were present to take an active part in the AGM which was chaired by the Vice President, Jimmy Khoo.

The business of the AGM went smoothly and ended at 7.40 pm, in time for the Annual Dinner 1998 at the same venue. There was a pretty good turnout of about 50 members and friends who graced the gala event to renew acquaintances and talk about the year's events over a buffet dinner with a wide variety of choices for dinner and dessert.

Winners of the recent Photographic Competition, who were present, were presented their prizes by the incoming President, Ibrahim Komoo

G.H. Teh



The Council Members busy studying the Minutes (left to right: C.P. Lee, Treasurer; Jimmy Khoo, Vice President; Ahmad Tajuddin, Hon. Secretary; G.H. Teh, Editor)

ANNUAL GENERAL MEETING & ANNUAL DINNER 1998



Captions to figures

- | | |
|--|---|
| <p>1. Vice-President, Jimmy Khoo, ably conducting the AGM.</p> <p>2-5. The enthusiastic and devoted members at the AGM.</p> <p>6. A few words from incoming President, Ibrahim Komoo.</p> <p>7. A wide variety of food to stomach.</p> | <p>8-12. Participants busy eating, chatting and posing.</p> <p>13. Budding photographer, Ros Fatimah, receiving her prize money.</p> <p>14. Tan Boon Kong, a winner with the Tambun Tower.</p> <p>15. Joy Pereira wins a prize again.</p> |
|--|---|

MINUTES OF THE 31ST ANNUAL GENERAL MEETING (1996/97)

Minutes of the 31st Annual General Meeting held at the Hyatt Regency Saujana Hotel, Km 2, Off Sultan Abdul Aziz Shah Airport Highway, 47200 Subang, Selangor at 6.30 pm on 26 April 1997 (Saturday).

Present:

- | | |
|-------------------------------------|---------------------------|
| 1. Khalid Ngah (Chairman) | 16. Muhd Barzani |
| 2. Jimmy Khoo Kay Khean (Secretary) | 17. Bahari Md Nasib |
| 3. Hutchison, C.S. | 18. Abdul Rahim Abu Bakar |
| 4. Chow, Y.C. | 19. Mazlan Madon |
| 5. Ng Tham Fatt | 20. Hla Mine Pye |
| 6. J.J. Pereira | 21. Fateh Chand |
| 7. Chu Yun Shing | 22. Ng Chak Ngoon |
| 8. Leong Lap Sau | 23. Zulkipli Che Kasim |
| 9. Selvarajah | 24. Abdul Hadi Abd Rahman |
| 10. Maarof Seman | 25. Gan Lay Chin |
| 11. Wan Mohamed Nizam Wan Isa | 26. Tan Bock Kang |
| 12. Arulmani Shanthi | 27. Cik Rozita Musib |
| 13. Morgana Sundaram | 28. Liew Kit Kong |
| 14. Malliga Palaniapan | 29. A Aziz Hussin |
| 15. Tan Ai Lin | 30. Lee Chai Peng |

1. Confirmation of the minutes of the previous AGM (1996/97):

The minutes of the previous AGM was passed on the proposal of Dr. J.J. Pereira and seconded by Dr. Leong Lap Sau with no amendments.

2. Matters arising:

On item 2.1, Winning photographs: The Chairman informed that the 1997 desk top calendar have been published incorporating the winning photographs and copies given to members free of charge.

On item 2.2, Geologist's Act: The Chairman informed that the representative of the Institute of Geology (IGM) have met the Ministry of Primary Industries (KPU) officials. KPU will call for a meeting jointly with the Public Works Department (JKR) and the Institute of Engineers Malaysia (IEM). This item is being dealt with by the IGM.

On item 2.3, Life Membership Certificate: The Chairman informed that the certificates have been printed but have yet to be signed. These will be given out at the Annual Geological Conference in Terengganu in 1st June 1997.

3. President's Report:

Dr. Khalid Ngah began his report for the 1996/97 session with the following amendment: Read as "**Encik Ali Mohd Sharif**" instead of "Mohd Ali Sharif".

He thanked the chairmen of the Annual Geological Conference '96 and the Petroleum Geology Conference '96 as well as the chairmen of the various working committees during the past year. He highlighted the current lack of interest among the younger geoscientists to join as members of GSM and the future activities of the Society to be self-financing through possible increases in subscriptions and registration fees of the Society's activities.

Dr. Hutchison said that in spite of the incentive of a free dinner, the AGM failed to draw satisfactory number of its members to attend. He agreed that there is certainly a lack of spirit and interest nowadays.

Mr. Fateh Chand said that the small number of members attending the AGM is not unique to GSM. The mining, civil engineering and the legal professions also faced this problem of a lack of interest. For the geoscientists, this is compounded by the problem of a lack of recognition too. The Society's activities cannot also be too academic-orientated.

Dr. Hutchison said that in the past, there were many people from industry becoming members of GSM and not mainly from academia.

Dr. Leong Lap Sau said two problems can also be attributed to the current lack of interest:

- 1) Petroleum companies allow only one society to be company-subsidised.
- 2) The younger people do not want to join because of the "boss-employee" barrier, particularly so after office hours.

Dr. Khalid said that in Petronas, the annual subscriptions of one local and one overseas society can be paid for by the company. The new Council will seek ideas to increase the current membership. As geoscience advisor in Petronas, he will do his part to recruit new members among the 220 geoscientists in Petronas. He invited members of the Society to feel free to come out with ideas to Council on ways to overcome these problems.

The President's report was passed on the proposal of Dr. Leong Lap Sau and seconded by Dr. Hutchison.

4. Secretary's Report:

Dr. Lee Chai Peng read out the Secretary's report as presented in the absence of the Secretary Dr. Ahmad Tajuddin who was on a field trip with his students. The following amendment was recorded:

Delete "Second" and read as "Annual Petroleum Geology Conference".

Dr. Hutchison reminded the organising committee of the GEOSEA '98 conference to extend an invitation to Robert Hall and his group (in Bedford College) in the United Kingdom to actively participate in the organisation from the UK end. These people are the most active group in SE Asian geology and a special letter to them to help bring in participants from Europe would boost the GEOSEA '98 conference. The President will inform the Organising Chairman of the GEOSEA '98 conference accordingly.

Mr. Liew Kit Kong proposed that the Secretary's Report be passed. Mr. Selvarajah seconded.

5. Editor's Report:

The Editor's report was read by Dr. Lee Chai Peng who explained that the Editor Dr. Teh Guan Hoe was away in the U.S.A. on official duties.

Dr. Aziz Hussin thanked the Society for coming out with the poster of common rocks and minerals and the brochure on the History of the GSM. He suggested that it's now timely to put out a poster on fossils. He also said that tin seems to have been forgotten although it had played a significant contribution to Malaysia's economic development. He therefore suggested a brochure on the History of Tin Mining be done by the GSM. The new Council will consider this request.

Dr. Mazlan Madon proposed that GSM set up its homepage and all of Society's activities, especially announcements of the GEOSEA '98 conference and new publications, be posted there. The President informed that GSM's homepage is currently being built and can be accessed for evaluation through the free "geocities" server. GSM will have its own local server very soon.

The Editor's Report was passed on the proposal of Mr. Arulmani Shanthi and seconded by Mr. Chu Yun Shing.

6. Treasurer's and Auditor's Reports:

Dr. Lee Chai Peng presented the Treasurer's and Auditor's Reports with the following amendments:

- 1) Read as "Petroleum Geology **Conference**" not "Seminar".
- 2) Read as "Lee **Siew Fatt**" not "Sia".

He explained that the small deficit noted in the present accounts was due to accounting procedures whereby income from the 1996 Petroleum Geology Conference was credited only in 1997.

Dr. J.J. Pereira queried on the expenditure under the item on "SIRIM". She informed that since SIRIM became corporatised, they are paying people to attend their meetings. Therefore GSM should not incur any expenditure on attending meetings at SIRIM. The Treasurer will note this point.

Dr. Gan Lay Chin thanked the Council for producing the desk top calendar and hopes this be continued next year. She queried why there was no income under Annual Petroleum Geology Conference. The Treasurer explained that the income will be shown in the 1997 report.

Dr. Hutchison said that it was money well spent on organising the Annual Geological Conference '96.

Mr. Fateh Chand said that meals during the Society's conferences should be all sponsored otherwise meals can be taken out. He suggested that registration fees for the Petroleum Geology Conference be raised.

The Treasurer's and Auditor's Reports were passed on the proposal of Mr. Mogana Sundaram and seconded by Mr. Ng Chak Ngoon.

7. Election of the Honorary Auditor:

Dr. Lee Chai Peng proposed that Mr. Lee Siew Fatt be elected as auditor for 1997/98. This was seconded by Mr. Fateh Chand.

8. Other Business:

No other business was discussed.

9. Announcement of New Council (1997/98):

The President announced the new Council as follows:

President:	Khalid Ngah (PRSS)
Vice President:	Jimmy Khoo Kay Khean (GSD)
Secretary:	Ahmad Tajuddin Ibrahim (UM)
Assistant Secretary:	S. Paramanathan (Consultant)
Treasurer:	Lee Chai Peng (UM)
Editor:	Teh Guan Hoe (UM)
Councillors (2-year):	Tan Boon Kong (UKM) Azhar Hussin (UM) Liew Kit Kong (PETRONAS Carigali) Khadderi Md. Desa (UKM)
Councillors (1-year):	Abdul Ghani Rafek (UKM) Abdul Rahim Samsudin (UKM) Abdul Hadi Abd. Rahman (UM) 1 Vacancy
Immediate Past President:	Fateh Chand (GSD)

He thanked the outgoing members of the Councillors who had served during the 1996/97 session and welcomed the new Council members for the 1997/98 session.

The AGM finished at 7.30 pm with a vote of thanks to the past and new Council proposed by Mr. Ng Chak Ngon and seconded by Dr. Leong Lap Sau.

Jimmy Khoo
Secretary
23.5.97

PRESIDENT'S REPORT 1997/98

I am honoured to present this year's President's Report. As you are aware, Dr. Khalid Ngah, President of GSM, resigned in January 1998 and the Vice-President is given the "pleasant" task of preparing and presenting the President's Report for 1997/98.

Good progress has been made. The two major conferences, namely: the 12th Annual Geological Conference and the Petroleum Geology Conference '97 have been successfully held in Terengganu and Kuala Lumpur, respectively. We wish to thank Dr. Ahmad Tajuddin Ibrahim and Mr. Robert Wong for being the respective chairmen.

Numerous technical talks have been held and at least one talk was held in Ipoh, benefiting our members in the north. Attendances at these talks have been satisfactory. I would encourage more members to attend. This is especially applicable to student members because the GSM's activities are always geared with you in mind. Site visits and seminars are usually well-attended. I would like to this opportunity to thank the various Chairmen of Working Groups and their committees for carrying out their varied activities.

The Society has tried its level best to keep costs for its functions low thus benefiting its members. Student members paid only nominal costs and the Society as usual is able to sponsor buses for its student members from USM in Penang to attend the two annual conferences mentioned earlier.

Membership has been static all these years with the total number hovering around the 560 600 mark. Perhaps the incoming Council will offer a member-get-member campaign with attractive prizes.

The Student Loan Fund has been actively tapped during the year. There have been a few cases of not being able to trace borrowers or of recalcitrant debtors. The incoming Council will take note of these and implement appropriate action.

Publications of the Newsletters and Bulletins remain satisfactory. Escalating publishing costs and storage space are of prime concern to the Council.

The financial position of the GSM remains sound due to prudent spending. I wish to record the Society's thanks to the various companies, individuals and agencies who have sponsored and supported the Society's activities during the year. Thanks are also due to the Council members who volunteered their time and effort to sit as members of the Council.

Signed

Jimmy Khoo Kay Khean
Vice-President
GSM 1997/98
21.4.98

SECRETARY'S REPORT

1. The Council

Members of the Council of the Geological Society of Malaysia for the period 27 April, 1997 to the 25th April 1998 are as follows:

President	: Khalid Ngah (PRSS)(Resigned 17.2.1998)
Vice-President	: Jimmy Khoo Kay Khean (Geological Survey Department Malaysia)
Secretary	: Ahmad Tajuddin Ibrahim (University of Malaya)
Assistant Secretary	: S. Paramanathan (Consultant)
Treasurer	: Lee Chai Peng (University of Malaya)
Editor	: Teh Guan Hoe (University of Malaya)
Councillor (2-years)	: Tan Boon Kong (Universiti Kebangsaan Malaysia) Azhar Hussin (University of Malaya) Liew Kit Kong (PETRONAS Carigali) Khadderi Md. Desa (Universiti Kebangsaan Malaysia)
Councillors (1-year)	: Abdul Ghani Rafek (Universiti Kebangsaan Malaysia) Abdul Hadi Abd. Rahman (University of Malaya) Abdul Rahim Samsudin (Universiti Kebangsaan Malaysia) Sia Hok Kiang (Consultant)
Immediate Past President	: Fateh Chand (Geological Survey Department Malaysia)

Dr. Khalid Ngah tendered his resignation due to pressure of work and his resignation was accepted by the Council at its meeting on the 17.2.98.

2. Council Meetings

Council meetings were held monthly throughout the 1997/98 session. A total of 12 Council Meetings have been held. Attendances of Council Members at these meeting are good as shown in Appendix 1.

3. Membership

The total membership of the Society as at 31st. December, 1997 is at 615 showing a slight increase from the previous year's total of 594. Life memberships have also increased by 17.5% to 114. Details of the various classes of memberships and their geographical distributions are shown in Appendix 2.

4. Society Activities

The Annual Geological Conference 1997 was successfully held at the Awana Kijal Beach & Golf Resort, Kemaman, Terengganu on the 31st. May and 1st June 1997 with a total of 39 papers presented and more than 100 participants. The Conference was officially opened by the Y.A.B. Menteri Besar Terengganu and was generously supported by the Terengganu State Government, PETRONAS and PERMINT Minerals Sdn Bhd. A pre-conference one-day field trip was held around Kemaman with the cooperation of the Geological Survey

Department Malaysia, Terengganu, followed by a two-day post-conference field trip to Gunung Gagau. A beach volleyball competition was also held during the conference.

The Annual Petroleum Geology Conference was also successfully held on the 1 & 2 December 1997 at the Istana Hotel, Kuala Lumpur with the theme "Reborn Frontiers - Meeting the Challenges with Technology". Mr. Yeow Kian Chai, General Manager, Petroleum Management Unit, E & P Business, PETRONAS officially opened it. About 300 participants attended and 24 technical papers were presented. A small exhibition was also held.

The Working Groups have not been very active during this session due to pressure of work. However a seminar on "Tertiary Basins of Peninsular Malaysia and its adjacent offshore areas" was organised by the Sedimentology & Stratigraphy Working Group, at the Department of Geology University of Malaya on the 21st February 1998 followed by a 1-day field trip to North Perak visiting selected Tertiary sequences. The Structural and Tectonic Working Group will be having a workshop and field trip on the "Structural Geology & Tectonic of the Eastern Belt Semenanjung Malaysia" on the 19-21 June, 1998. Circulars to this effect have already been sent out.

The GEOSEA '98 organising committee is currently working hard to ensure the success of this Congress. Response in terms of papers submitted has been very good to date. However due to the current economic situation there could be a big reduction in the number of participants from affected ASEAN countries.

The Society also organised a photographic competition, which unfortunately received a very lukewarm response from members. Due the limited participation and the quality of the photographs submitted the Council agreed with the panel judges to reduce the amount of the prizes given.

The Society which is a member of the Confederation of Scientific and Technological Associations in Malaysia (COSTAM) is now being represented in its executive committee by Mr. Jimmy Khoo our Vice President.

A total of 18 technical talks and 4 fieldtrips/site visit were organised during the 1997/98 session. Details of the Society's activities are shown in Appendix 3.

5. Publication

Sales of publications remain very slow as in previous years. Only the "Rocks and Minerals Poster" is selling very well. The remaining stock and sales made during 1997 is as shown in Appendix 5. The Society has already published the Malaysian Stratigraphic guide, which is now available for sale. Work is now in progress to get the Stratigraphic Lexicon ready to be published before the GEOSEA '98. The Society continued to maintain a publication exchange with various professional bodies and libraries from various parts of the world.

6. Acknowledgements

The Society would like to acknowledge with thanks the generous cooperation and sponsorships received from companies, professional societies, government departments, universities and institutions; the Head of the Department of Geology, University of Malaya where the Society is housed and where most of the activities were held and the numerous individuals and Councillors who have contributed in one way or another to the Society's activities.

Appendix 1

Attendance at Council Members at Council Meetings

No.	NAME	20/4	24/6	15/7	12/8	16/9	14/10	11/11	16/12	13/1	17/2	17/3	14/4
1.	Khalid Ngah	X	O	X	O	X	X	O	O	O	-	-	-
2.	Jimmy Khoo Kay Khean	X	X	X	X	O	X	X	O	X	O	O	O
3.	Ahmad Tajuddin Ibrahim	O	X	X	X	X	X	X	O	X	X	X	X
4.	S. Paramanathan	O	O	X	X	X	X	X	O	O	X	O	O
5.	Lee Chai Peng	O	X	X	X	X	X	X	X	X	X	X	O
6.	Teh Guan Hoe	X	X	X	X	X	X	X	X	X	X	X	X
7.	Tan Boon Kong	O	O	O	X	O	X	X	X	X	X	X	X
8.	Azhar Hussin	X	O	O	X	X	X	X	O	O	X	O	X
9.	Liew Kit Kong	X	O	O	X	X	X	X	X	X	X	X	X
10.	Khadderi Md Desa	O	O	X	X	X	X	O	X	O	X	O	O
11.	Abdul Ghani Rafek	X	X	X	X	X	X	O	X	O	X	O	X
12.	Abdul Rahim Samsudin	X	X	O	X	X	O	X	X	O	O	X	O
13.	Abdul Hadi Abd. Rahman	X	O	O	X	X	O	O	O	X	X	O	X
14.	Sia Hok Kiang	X	O	O	O	X	X	X	O	O	O	X	O
15.	Fateh Chand	O	X	O	O	O	O	O	O	X	O	X	X

X present

O absent with apology

- resigned

Appendix 2

Membership of the Society (As at 31.12.1997)

	Honorary	Full	Life	Student	Institutional	Associate	Total
Australia		15	6		3		24
Brunei			1		2		3
Canada		3		1			4
Europe		13	6		2	2	23
Indonesia		7	1				8
Japan		4	1				5
Libya		1					1
New Zealand		2					2
Philippines		1	1				2
Singapore		8	5		3	1	17
Thailand		2	1				3
Venezuela		1					1
Vietnam					1		1
U.S.A.		14	4		1	1	20
Malaysia	3	243	88	146	10	11	501
Total	3	314	114	147	22	15	615

Appendix 3

Society Activities 1997/98

No.	Date	Event/Speaker/Venue
1	26 May 1997	Technical Talk 1: <i>From limestone to sandstone: The sedimentology of Gomantong Limestone and Tanjong Formation in the Northeast Borneo</i> by Jon Noad, University College London at the Geology Department, University of Malaya.
2	30 May 1997	Pre-Conference Field Trip of the geology around Kemaman and the Pahang/ Terengganu border.
3	31 May & 1 June 1997	Annual Geological Conference 1997 at the Awana Kijal Beach & Golf Resort, Kijal, Kemaman, Terengganu.
4	2–3 June 1997	Post-Conference Field Trip to <i>Gunung Gagau, Hulu Terengganu</i> .
5	21 June 1997	Site Visit: LRT2 Tunnel Site (Sultan Ismail Station), Kuala Lumpur organised by the Engineering Geology & Hydrogeology Working Group.
6	8 July 1997	Technical Talk 2: <i>The role of the geological surveys in the 21st Century</i> by Peter J. Cook, Director, British Geological Survey at the Geological Survey Malaysia, Ipoh.
7	15 July 1997	Technical Talk 3: <i>Sedimentation, stratigraphy and hydrocarbon potential in continental rift basins</i> by Joseph J Lambiase, Universiti Brunei Darussalam at the Geology Department, University of Malaya.
8	18 July 1997	Technical Talk 4: <i>Terrane rafting enhanced by contemporaneous climatic amelioration as a mechanism of biogeographical vicariance: Permian marine biogeography of SE Asia</i> by G.R. Shi, Deakin University, Melbourne at the Department of Geology, Universiti Kebangsaan Malaysia Bangi.
9	18 July 1997	Technical Talk 5: <i>Early Permian brachiopods from the Singa Formation of Langkawi Island, northwestern Peninsular Malaysia: biostratigraphical and biogeographical implications</i> by Dr. Mohd Shafeea Leman, Universiti Kebangsaan Malaysia, Prof. B.K. Tan, University of Malaya and G.R. Shi, Deakin University, Melbourne at the Department of Geology, Universiti Kebangsaan Malaysia Bangi.
10	27 July 1997	Technical Talk 6: <i>Geology and its impact on the environment</i> by Matthew Rajah at the Methodist Church, Kuantan, Pahang.
11	17 September 1997	Technical Talk 7: <i>A method of conserving geological, paleontological and archeological objects and profiles</i> by Prof. Dr. Gero Hillmer, University of Hamburg, Germany at the Geology Department, University of Malaya.
12	18 September 1997	Technical Talk 8: <i>The famous paleontological locality Messel, Germany — an insight into the history of life (Tertiary/Eocene; ca. 55 million years)</i> by Prof. Dr. Gero Hillmer, University of Hamburg, Germany at the Geology Department, University of Malaya.
13	23 September 1997	Technical Talk 9: <i>An introduction to Bryozoans and Bryozoans in glacial erratic boulders (ice-age impressions)</i> by Prof. Dr. Gero Hillmer, University of Hamburg, Germany at the Geology Department, University of Malaya.

Appendix 3 (cont'd) Society Activities 1997/98

No.	Date	Event/Speaker/Venue
14	7 October 1997	Technical Talk 10: <i>Amber from the Miocene of Borneo</i> by Prof. Dr. Gero Hillmer, University of Hamburg, Germany at the Geology Department, University of Malaya.
15	13 October 1996	Technical Talk 11: <i>Tidal Flats of the German Bay, North Sea — some impressions</i> by Prof. Gero Hillmer, University of Hamburg, Germany at the Geology Department, University of Malaya.
16	3 November 1997	Technical Talk 12: <i>Groundwater protection in Kelantan</i> by Dr. Saim Suratman, Geological Survey Malaysia, Kuala Lumpur at the Department of Geology, University of Malaya.
17	1–2 December 1997	Petroleum Geology Conference 1997 at the Istana Hotel, Kuala Lumpur.
18	18 December 1997	Technical Talk 13: <i>Recent developments in modern temperate and polar carbonates and their significance in the exploration of oil, gas and mineral deposits</i> by Dr. C. Prasada Rao, University of Tasmania, Australia at the Department of Geology, University of Malaya.
19	19 December 1997	Technical Talk 14: <i>Attenuation characteristics of some clay soils from landfill sites in South Wales, U.K</i> by Tan Boon Kong, Universiti Kebangsaan Malaysia at the Department of Geology, University of Malaya.
20	29 December 1997	Technical Talk 15: <i>New Zealand's largest historic earthquake of January 23 1855</i> by Dr. Rodney Grapes, Victoria University of Wellington, New Zealand at the Department of Geology, University of Malaya.
21	13 January 1998	Technical Talk 16: <i>Conodonts and mass extinctions in the Phanerozoic</i> by Dr. D. Jeffrey Over, SUNY-Geneseo, New York, USA at the Department of Geology, University of Malaya.
22	15 January 1998	Technical Talk 17: <i>Tertiary mammal fossils for dating the continental basins of Thailand</i> by Dr. Stephane Ducrocq, Universite Montpellier II, France at the Department of Geology, University of Malaya.
23	15 January 1998	Technical Talk 18: <i>The age and palaeoenvironment of micromammals from Plio-Pleistocene fissure-fillings in Southeast Asia</i> by Y. Chaimanee, Department of Mineral Resources, Thailand at the Department of Geology, University of Malaya.
24	21 February 1998	Seminar: Tertiary Basins of Peninsular Malaysia and its adjacent offshore areas organised by the Sedimentology & Stratigraphy Working Group at the Department of Geology, University of Malaya.
25	22 February 1998	Fieldtrip: to North Perak visiting selected Tertiary sequences organised by the Sedimentology & Stratigraphy Working Group.

Appendix 4 Stock of Publications

BULLETIN NO./PUBLICATION	SALES 1997	STOCK REMAINING
2	5	288
3	7	293
4	3	158
5	2	62
6	4	520
7	3	335
8	2	17
11	3	95
13	4	131
15	6	50
16	3	73
17	3	140
18	5	122
19	3	634
20	4	480
21	5	246
22	5	308
23	5	308
24	3	481
25	5	258
26	4	302
27	5	182
28	6	179
29	4	175
30	37	244
31	3	190
32	8	225
33	8	345
34	9	148
35	10	151
36	12	188
41	800*	156
Abstracts (Bulletin 6)	-	5
Stratigraphic Correlation	8	283
Rocks and Minerals Poster	244	652
Geological Evolution of SEA (CSH)	8	510
Malaysian Stratigraphic Guide	800	798

*inclusive of free copies distributed to Members

EDITOR'S REPORT 1997/98

The Society's newsletter, the *Warta Geologi*, continued to be published regularly. The latest *Warta*, Vol. 24, No. 1 (Jan-Feb 1998), is with the printers.

We would like to thank the members who have responded positively to the urgent call for geological notes last year and it is hoped that the contributions will continue to come in.

Bulletin 41 with the majority of papers from Petroleum Geology Conference 1996 was specially brought out for the Annual Petroleum Conference 1997 in early December 1997. At the same time the Malaysian Stratigraphic Guide, prepared by the Malaysian Stratigraphic Nomenclature Committee was also made available as well the Society's 1998 table top calendar. Bulletins 37, 38, 39 and 40 should be available before GEOSEA '98.

The Society is grateful to the many authors for their valuable contributions, and the donors and advertisers for their valuable financial contributions to the Society's Funds.

Special thanks are due to Ng Tham Fatt and A.K. Fan for assistance in the various editorial processes. The contributions of members of the Editorial Subcommittee and reviewers and advice of members of the Editorial Advisory Board are greatly appreciated.

G.H. Teh
Editor

TREASURER'S REPORT 1997

There is a small drop in the Society's net current assets from RM612,511.09 to RM608,324.07 for the past year.

The Society's income for 1997 was RM129,706.39 compared to RM99,157.82 for 1996. This rise in income was attributed mainly to a very significant increase in our interest on fixed deposits due to the timing of maturity dates. There is however, a significant drop in income from the Petroleum Geology Conference when compared to 1996. We have also spent less during 1997 as compared to 1996. A significant cost savings was in the running of the Annual Conference. We have substantially increase the honorarium to our helpers because of the increased workload involved. Although there is an excess of income over expenditure of about RM40,063.55, there are substantial printing bills amounting to about RM34,000.00 which will go into next year's account as they were paid after 31.12.97. So the more realistic excess of income is actually only about RM6,000.00

The Society is most grateful to our generous donors for their continuous support and wishes to sincerely thank all of them. We want to also thank our Honorary Auditor, Mr. Lee Sia Fatt for auditing our accounts.

Lee Chai Peng
Treasurer

AUDITORS' REPORT TO THE MEMBERS OF PERSATUAN GEOLOGI MALAYSIA (Geological Society of Malaysia)

We have audited the accounts set out on pages 2 to 3 in accordance with approved auditing standards.

In our opinion, the accounts give a true and fair view of the state of affairs of the Society as at 31st December, 1997 and of its income and expenditure and receipts and payments for the year ended on that date.

Signed

S.F. LEE & CO.

(AF: 0670)

Public Accountant

Kuala Lumpur

Date: 30 March 1998

Signed

LEE SIEW FATT

(1179/9/98J)

Public Accountant

PERSATUAN GEOLOGI MALAYSIA
(Geological Society Of Malaysia)

**Income and Expenditure Account for the Year
Ended 31 December 1997**

INCOME	<u>1997</u>	<u>1996</u>
	RM	RM
Entrance fees	980.00	1,017.23
Interest on fixed deposits	72,636.30	21,835.75
Subscriptions	24,758.05	23,614.11
Sales of publications	7,459.73	7,904.34
PGC '96: Donation	17,434.70	42,924.21
Fax	-	563.16
Xerox	2,025.21	1,189.02
Souvenirs	45.00	111.00
Advertisement	4,000.00	-
Study groups	367.40	-
	<u>129,706.39</u>	<u>99,157.82</u>
 EXPENDITURE		
Audit fee	500.00	500.00
Annual dinner	2,820.00	2,880.00
Annual Conference	6,032.44	21,589.18
E-mail	500.00	2,985.00
Bank charges	123.79	562.10
Honorarium	13,192.00	7,001.00
Postage	5,896.95	6,480.77
Science Fun Fiesta	-	1,000.00
Printing and Stationary:		
— Miscellaneous	18,540.18	9,288.35
— Bulletin	19,360.00	15,080.00
— Warta Geologi	7,180.00	15,254.25
Refreshments	1,590.91	3,078.58
Study groups	-	693.99
Sundry expenses	893.92	1,733.30
Speakers' account	3,431.29	5,068.89
Subscription: Professional bodies	200.00	225.58
Sirim meeting	-	101.70
Telephone	797.83	353.98
Telefax	487.67	-
Depreciation on fixed assets	3,924.56	4,360.62
Seminar Geologi Sekitaran	2,000.00	-
Stratigraphic committee	1,523.90	-
Langkawi fieldguide	147.40	-
Geochemistry in the tropics	-	2,000.00
Geoscientist Award	-	260.00
Photo competition	500.00	2,800.00
	<u>89,642.84</u>	<u>103,297.29</u>
 EXCESS OF EXPENDITURE OVER INCOME:		
Transfer to capital fund	<u>40,063.55</u>	<u>4,139.47</u>

PERSATUAN GEOLOGI MALAYSIA
(Geological Society Of Malaysia)

Balance Sheet As At 31 December 1997

	<u>1997</u>	<u>1996</u>
	RM	RM
FIXED ASSET	35,321.06	39,245.62
CURRENT ASSETS		
Fixed Deposits with licensed banks	488,553.56	508,191.11
Deposit and prepayment	30,815.27	18,380.01
Cash and bank balances	53,634.18	46,694.35
	<u>572,503.01</u>	<u>573,265.47</u>
NET CURRENT ASSETS	<u>608,324.07</u>	<u>612,511.09</u>
FINANCED BY:		
ACCUMULATED FUND		
Balance brought forward	565,117.69	569,257.16
Surplus/Deficit for the year	40,063.55	-4,139.47
Young Geoscientist Award	3,142.83	3,142.83
	<u>608,324.07</u>	<u>612,511.09</u>

COUNCIL FOR 1998/99

President	:	Ibrahim Komoo (Universiti Kebangsaan Malaysia)
Vice-President	:	Jimmy Khoo Kay Khean (Geological Survey Department Malaysia)
Secretary	:	Ahmad Tajuddin Ibrahim (University of Malaya)
Assistant Secretary	:	Mazlan Madon (PRSS)
Treasurer	:	Lee Chai Peng (University of Malaya)
Editor	:	Teh Guan Hoe (University of Malaya)
Councillors (2-years)	:	M. Selvarajah (Geological Survey Department Malaysia)
		Abdul Ghani Rafek (Universiti Kebangsaan Malaysia)
		Tajul Anuar Jamaluddin (University of Malaya)
		Muhinder Singh (PLRT)
Councillors (1-year)	:	Azhar Haji Hussin (University of Malaya)
		K.K. Liew (PETRONAS Carigali)
		Kadderi Md. Desa (Universiti Kebangsaan Malaysia)
		Tan Boon Kong (Universiti Kebangsaan Malaysia)
Immediate Past President	:	Khalid Ngah (PRSS)

BERITA-BERITA PERSATUAN News of the Society

KEAHLIAN (Membership)

The following applications for membership were approved:

Full Members

- | | |
|--|--|
| <p>1. Scott Andrew McManus
Level 1, Lot 9310, Block H, Taman Sri Sarawak, Jalan Borneo, 94100 Kuching.</p> <p>2. Kam Tuck Who
2JalanSS21/62, Damansara Utamal 47000 Petaling Jaya.</p> | <p>3. Tan Kail Tin
47 Jalan Rajawali, Taman Bukit Raja, 41150 Klang.</p> |
|--|--|

Student Members

- | | |
|---|---|
| <p>1. Zulpakar Mohamad
Jabatan Geologi, Universiti Malaya, 50603 Kuala Lumpur.</p> <p>2. Ahmad Shamsul Kamal Zakaria
Jabatan Geologi, Universiti Malaya, 50603 Kuala Lumpur.</p> <p>3. Ahmad Zamani Samat
Jabatan Geologi, Universiti Malaya, 50603 Kuala Lumpur.</p> | <p>4. Mayar b. Mat
Jabatan Geologi, Universiti Malaya, 50603 Kuala Lumpur.</p> <p>5. Norddin b. Mohamad Nasir
Jabatan Geologi, Universiti Malaya, 50603 Kuala Lumpur.</p> |
|---|---|

Associate Member

- | | |
|--|--|
| <p>1. Amri Shaari
TTDI Development Sdn. Bhd., Tkt. 1 Plaza IBM, No. 1 Jalan Tun Mohd Fuad, Taman Tun Dr. Ismail, 6000 Kuala Lumpur.</p> <p>2. Shahrizal Abdul Aziz
P.O. Box 82231, 87000 Labuan.</p> | <p>3. Sang Yew Ngin
Level 6, Wisma SSP, 1 Jalan SR6/3, Serdang Raya Seksyen 8, 43300 seri Kembangan.</p> |
|--|--|

PETUKARAN ALAMAT (Change of Address)

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

- | | |
|---|--|
| 1. Ha Kong Yin
Block 379, #04-370, Clementi Ave. 5,
Singapore 120379. | 4. Tan Kail Tin
Subsurface Engineering Sdn. Bhd., 14,
Jalan TS 6/4, Taman Industri Subang,
47510 Subang Jaya, Selangor. |
| 2. Wan Mohamed Nizam Wan Isa
c/o Permata Services Sdn. Bhd., No. 89A,
Jalan SG 3/10, Taman Sri Gombak, 68100
Batu Caves, Selangor D.E. | 5. Marie Tungka
Subsurface Engineering Sdn. Bhd., 14,
Jalan TS 6/4, Taman Industri Subang,
47510 Subang Jaya, Selangor. |
| 3. Ng Chak Ngoon
Subsurface Engineering Sdn. Bhd., 14,
Jalan TS 6/4, Taman Industri Subang,
47510 Subang Jaya, Selangor. | 6. Kong Chi Liang
Subsurface Engineering Sdn. Bhd., 14,
Jalan TS 6/4, Taman Industri Subang,
47510 Subang Jaya, Selangor. |

GSM

PERTAMBAHAN BAHARU PERPUSTAKAAN (New Library Additions)

The Society has received the following publications:

- | | |
|--|---|
| 1. AAPG Bulletin, vol. 81, no. 11, 1997, vol. 82/1, vol. 82/2, 1998. | 9. American Museum Novitates, nos. 3215, 3216 & 3217, 1997. |
| 2. AAPG Explorer, February, March, April, May 1998. | 10. Tin International, vol. 71, no. 1, 1998. |
| 3. Episodes, vol. 20, no. 4, 1997. | 11. Berliner geowissenschaftliche Abhandlungen, 1996: Band 184, 187, 186, 189, 188. 1997: Band 194, 193, 192, 191, 190. |
| 4. Geological Survey of New South Wales, Quarterly Notes nos. 105 (1997) & 106 (1998). | 12. SOPAC: proceedings of the 26th session, 1997. |
| 5. Stratotectonic map of New South Wales, scale 1:1000,000 (4 parts). | 13. Acta Palaeontologica Sinica, vol. 36, no. 4, 1997 & vol. 37, no. 1, 1998. |
| 6. U.S. Geological Survey: Professional Paper: 1997: no. 1581. | 14. Acta Micropalaentologica Sinica, vol. 14, no. 4, 1997 & vol. 15, no. 1, 1998. |
| 7. Geological Survey of Japan, vol. 49(9-12), 1997. | 15. Palaeontoloigcal Abstracts: vol. 12, no. 4, 1997 & vol. 13, no. 1, 1998. |
| 8. CCOP Technical Bulletin vol. 26, 1997. | |

GSM

Resignation of President and Vice President

The President, Dr. Khalid Ngah, tendered his resignation on 14 January 1998 citing pressure of work and his resignation was accepted by the Council at its meeting on 17th February 1998.

The Society was also informed that Dr. Khalid Ngah, a Joint Managing Director of Kedah Cement Holdings Berhad was conferred the award Darjah Dato' Paduka Mahkota Terengganu (D.P.M.T.) which carries the title Dato' by His Majesty Duli Yang Maha Mulia Sultan Terengganu on the occasion of His Majesty's Birthday on 29 April 1998.

Meanwhile, the Vice-President, Jimmy Khoo Kay Khean, sent in his letter of resignation on 29 April 1998. The Council accepted his resignation at its meeting on 19th May 1998. The Council at the same meeting co-opted S. Paramanathan to fill the Vice-President's post.

G.H. Teh

Keputusan Peraduan Fotografi '97

Panel pengadilan yang terdiri daripada Dr. Abdul Ghani Rafek (Pengerusi), Dr. Ahmad Jantan dan Dr. Che Aziz Ali telah meneliti semua gambar-gambar peraduan tersebut dan keputusan adalah seperti berikut:

Pertama	:	Ros Fatimah Haji Muhammad	:	<i>Capturing stripes of the earth</i>
Kedua	:	Ng Tham Fatt	:	<i>Banded calcite and siderate</i>
Ketiga	:	Tan Boon Kong	:	<i>The Tambun Tower</i>

Lima hadiah sagu hati:

Ros Fatimah Haji Muhammad	:	<i>Sculptured by nature</i>
Wan Hasiyah Abdullah	:	<i>Dammar resin in a Tertiary coal of Sarawak</i>
Joanes Muda	:	<i>Gong-shaped water worn boulder</i>
Ng Tham Fatt	:	<i>Quartz crystals</i>
Joy Jacqueline Pereira	:	<i>Rounded gravel</i>

Abdul Ghani Rafek

Souvenirs For Sale

In Response to requests by members, the Society has now prepared several souvenir items for sale as follows:

	Unit Price (RM)
1. Key Chain (brass with epoxy coating and Society Logo)	6.00
2. Tie Clip (with Society Logo)	7.00
3. Cap (dark blue, with Society Logo)	9.00
4. Hat (dark blue, with Society Logo)	10.00
5. Tie (dark blue with Society Logo)	30.00

Members can purchase/order these souvenir items by contacting:

Anna Lim

Geological Society of Malaysia

c/o Geology Department

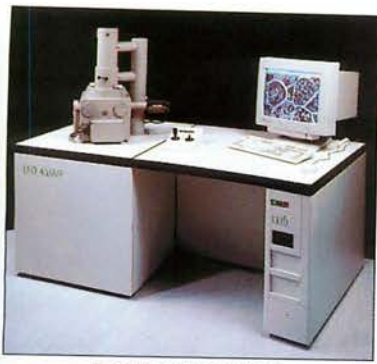
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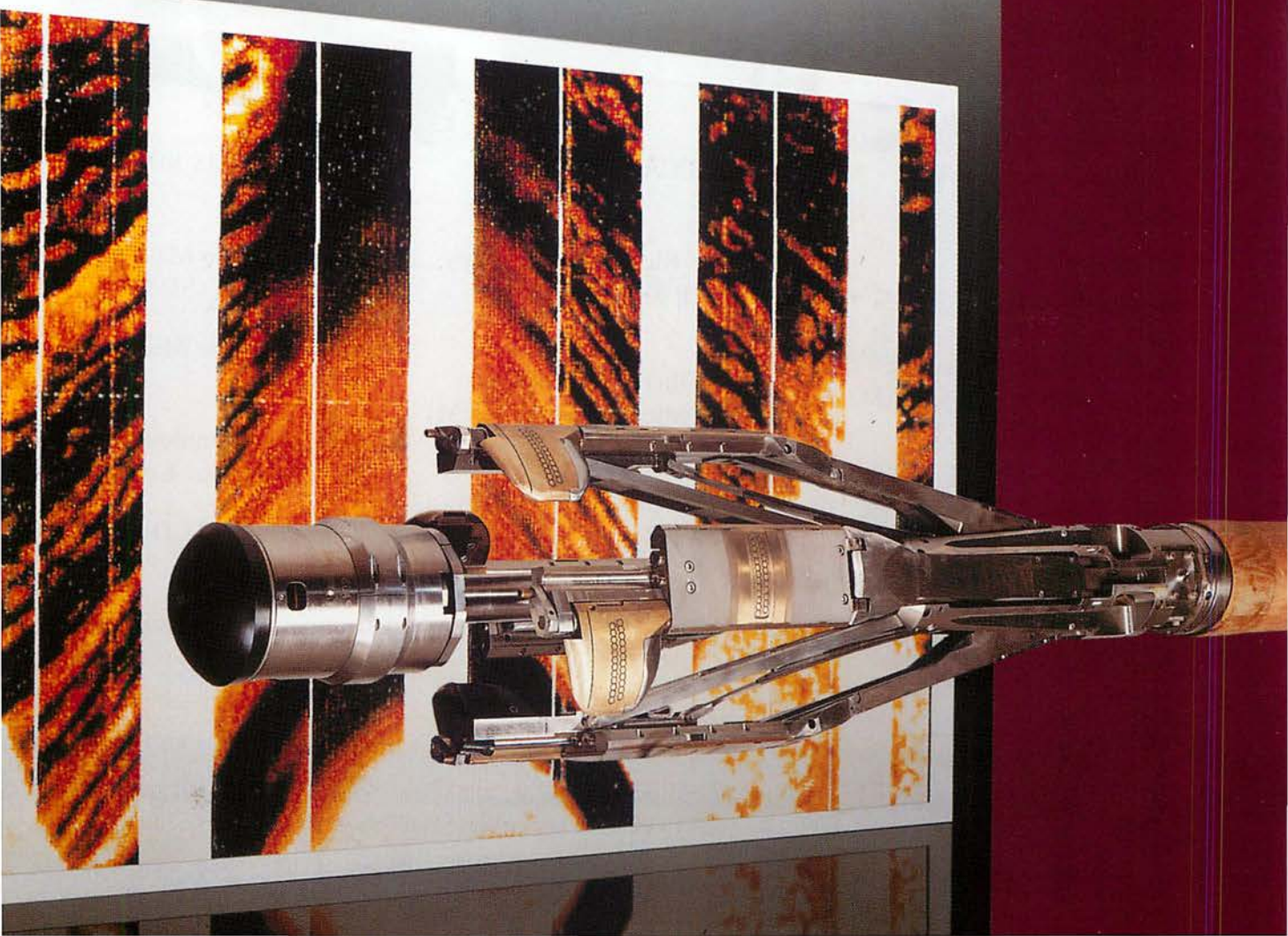
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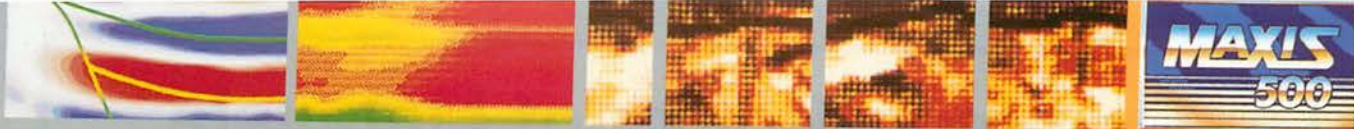
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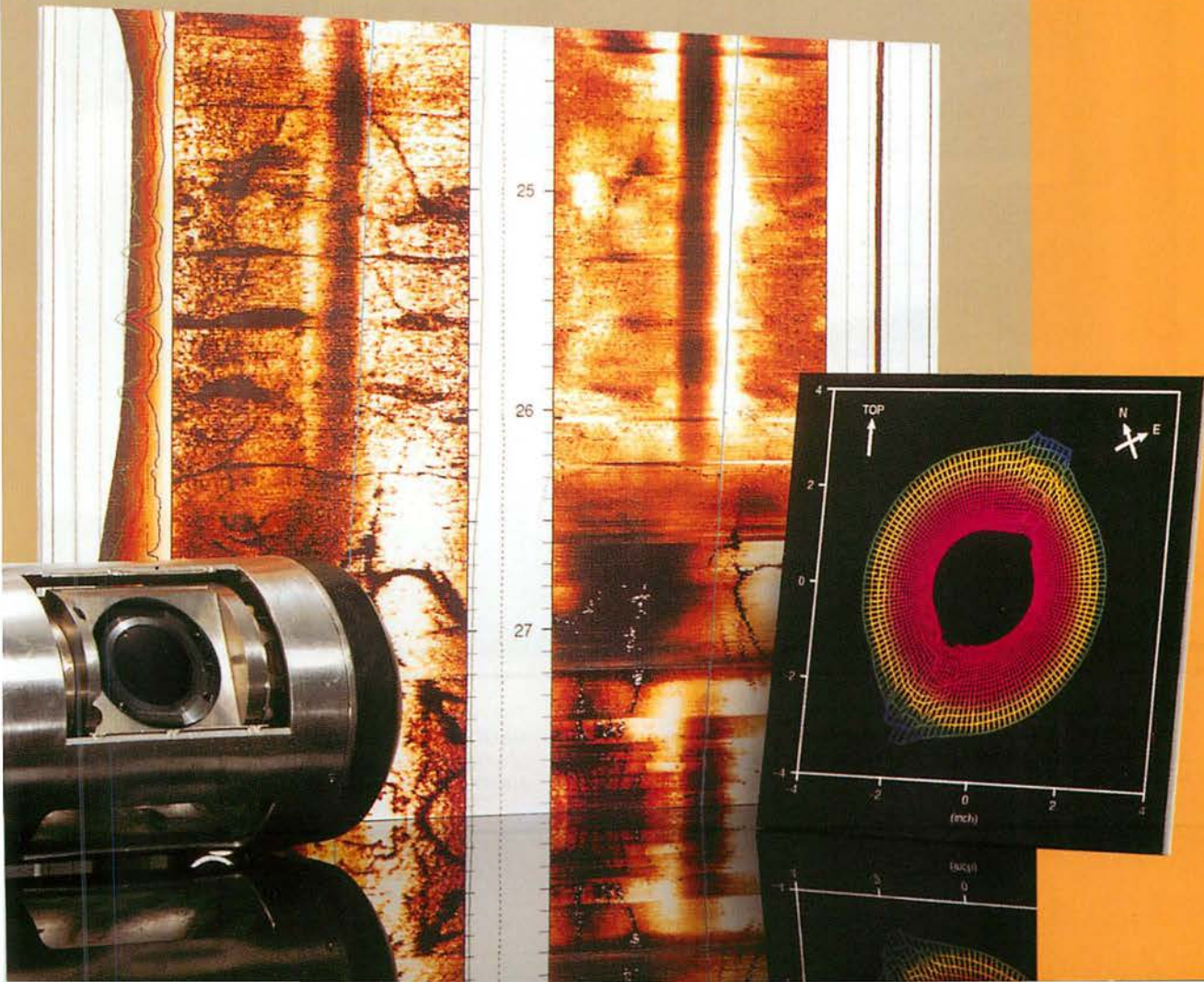
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Common Rocks of Malaysia

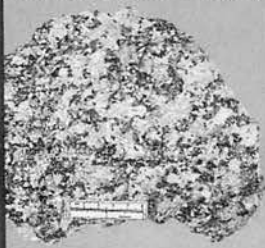
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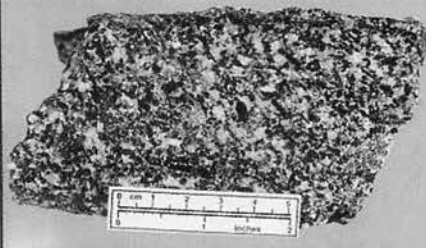
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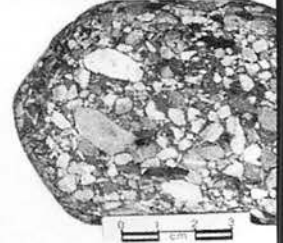
6. Basalt (Segamat, Johor)



Serpentine (Raub, Pahang)



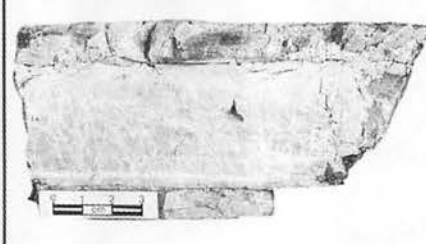
12. Pegmatite (Bukit Mor, Johor)



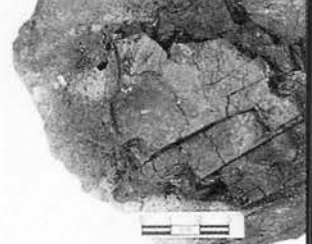
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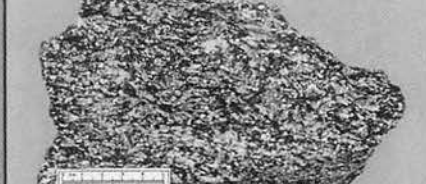
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BERITA-BERITA LAIN Other News

Local News

Permint Minerals mined '2,800 kg gold, 300 kg silver'

Permint Minerals Sdn. Bhd. has produced 2,800 kg of gold and 300 kg of silver valued at RM80 million since its gold processing plant in Lubuk Mandi, Marang, started operations in 1992.

The company, a subsidiary of the State Economic Development Corporation sold the high-quality gold and silver bullion in the local market.

Menteri Besar Tan Sri Wan Mokhtar Ahmad, who is also chairman of the SEDC, said the gold and silver were mined using the open pit mining method in an area covering 484 hectares.

"We have so far dug pits as deep as 55 metres to extract the precious metals. We can go as deep as 80 metres," he told reporters after opening a gold exhibition at the State Museum on Saturday.

The mining operations will move to new areas once the existing area has been exhausted.

"We believe that the area still retains deposits which will enable mining operations to continue for about a year," he said. The company has been conducting surveys in several districts to determine the commercial viability of the mineral deposits.

He said gold deposits were found in several areas in Dungun, Besut, Marang and Setiu.

Wan Mokhtar said since 1992, the company had spent more than RM21 million to set up the plant at Lubuk Mandi and *'we are happy the investment had reaped handsome returns'*.

He said initially, the company had to engage experts from Australia and the Philippines to operate the plant but now it was being handled by 156 local workers.

Meanwhile, Bernama reports that Sydney-based Austral Malaysia Mining Limited has signed an agreement for a multi-million ringgit joint venture to prospect and mine for gold in Kelantan.

The company and its local partner Kelstone Sdn. Bhd., a subsidiary of the State Economic Development Corporation, would work on gold deposits in Blok Pulai, Gua Musang.

The agreement signing here last night was witnessed by Menteri Besar Datuk Nik Abdul Aziz Nik Mat and his deputy Abdul Halim Abdul Rhaman.

AMML was represented by chairman Peter Anderson and director Grahame Bush and Kelstone by its chairman Ahmad Yakub and chief executive officer of the corporation Wan Zulkifle Wan Yusoff.

Speaking at the function, Ahmad said prospecting work on the concession area covering 684,000 ha would start in April.

Ahmad, who is also State Trade, Industry and Entrepreneur Development Committee chairman said the project was divided into two phases.

The prospecting phase cost RM10 million while estimates for the mining expenditure would be determined later.

AMML holds 60 per cent equity in the joint venture and Kelstone, the rest.

The Australian company, incorporated in 1996 in Sydney, is specialised mineral prospecting and mining concern which also builds its own factories and market its products, said Ahmad.

NST, 2.3.1998

'Think twice before opening new tin mines'

The Primary Industries Ministry has cautioned against an all-out move to open new tin mines, saying companies should consider the fluctuations of the currency exchange rate.

Given the high costs involved in such activities, Deputy Minister Datuk Hishammuddin Tun Hussein said companies should make careful assessments to avoid making huge losses.

"The bulk of the increase in tin prices has been due to the fall of the ringgit and prices could be reversed once the ringgit stabilises or strengthens against the US dollar."

"Companies should make a careful assessment as to whether the large investments needed to open or to rehabilitate mines is viable before going ahead," he said in an interview.

Malaysian Chamber of Mines president

Shukor Shahar had earlier called for a revival of the tin mining industry which he said could help revive the country's economy.

He had said that studies by the local Geological Survey Department and the United States Geological Survey showed that Malaysia had a substantial amount of tin which could be exploited.

Hishammuddin said it would be more viable to rehabilitate old mines as the capital required was much lower.

"However, any such move must be taken with the proviso of the short-term rise in tin prices."

"If companies feel it is still viable to do so, then they should go ahead," he said.

According to Shukor, it could cost as much as RM1 mil to revive one in dredge.

Star, 6.3.1998

There is still hope for the tin industry

Sporadic but active ... Isolated tin mines are still in action in former prime mining areas in the Kinta District of Perak.

Although not as active as before, the industry has not died out totally and there are still those who are optimistic about the future.

Perak Chinese Mining Association president Chin Lean Choong said the tin industry *"will never die"* as there will always be demand for the metal.

"It slowed down a lot when tin prices fell in the 1980s but global demand is always on the rise. In addition, constant research and development results in increased utilisation of the metal."

Bearing this in mind, Chin feels there is still hope for the industry, although he concedes that the recent increase in prices was due to the depreciation of the ringgit.

Profitability, however, depends on individual mines, their costs and the type of operation.

One of the main worries of the industry is

the lack of land. The competition is stiff and there is no law which reserves land for mining.

"A lot of tin land has been lost to development, in Ipoh and Kuala Lumpur," Chin said, adding that there were still many areas which warranted mining.

Present State policy on mining is not partial to the industry. Currently, it allows for the renewal of leases for mines which are actively worked.

Those for land that is not being productively mined are not renewed as a matter of course while new applications for prospecting permits and mining land not entertained.

State Mines Department director (north zone) Abdul Rahman Rafek said the policy was unlikely to be changed in the future.

"The recent increase in prices has been shown to be currency related," he said, adding that prices were not likely to settle at a level which would be conducive to a surge in mining activities.

NST, 8.3.1998

Esso starts production at Seligi field

Esso Production Malaysia Inc. (EPMI) has begun production from the Seligi F oil platform sited 275 km off the coast of Terengganu.

The Exxon Corp. affiliate, as operator, is developing the Seligi field in a 78.22 joint venture with Petronas Carigali Sdn. Bhd.

Seligi, one of Malaysia's biggest oil fields, is sited in the 1995 production sharing contract

area. It is the seventh platform to be installed in the field, which started production in 1988.

The Seligi F platform, installed offshore last October, was designed as an unmanned satellite unit and constructed by Malaysian fabricators.

"Production from Seligi F is expected to have a peak annual average rate of 21,000 barrels a day," EPMI said a statement yesterday.

Star, 11.3.1998

Mineral water consumption to hit 24.8 million litres

Mineral water consumption in the country this year is expected to hit 24.8 million litres valued at RM36.4 mil, according to estimates provided by the Malaysian Association of Mineral Water Manufacturers.

Its president Lt. Col. (R) Jalil Ithnin said the figure was based on total consumption of 10 million litres in 1993, with an estimated growth of 20% a year.

"Consumption in 1991 stood at only three million litres, but growing consumer awareness has led to higher demand for the produce," he told reporters during a visit to mineral water company Vitaton (M) Sdn. Bhd.

There has been much public confusion of late over the difference between mineral water and bottled piped water which are selling at more or less the same price.

The mineral water industry has been under criticism for charging RM2.20 per 1.5-litre bottle which is more expensive than petrol at RM1.10 per litre.

Lt. Col. Jalil, however, said for such products, RM1.20 for a half-litre bottle and RM2.20 for a 1.5-litre bottle could be considered low, given the high investment cost of the plants.

Vitaton group general manager K.C. Tee said the initial investment in a mineral water plant was about RM18 mil, of which RM10 mil go towards the land, tube well, factory and machines, and the balance RM8 mil for working capital and other incidental expenses.

"Apart from the high start-up cost, a manufacturing plant takes between two and 2½ years to set up due to the number of approving authorities involved," he said.

Tee said Vitaton produced an average of 100,000 cartons of bottled mineral water a month last year and would be increasing output to 200,000 per month this year.

"We are targeting to increase our export portion from 50% to 70% this year to take advantage of the weaker ringgit. We are exporting to Singapore, Vietnam, Cambodia and Hong Kong and are looking for opportunities in Brunei, Somalia, Yemen and Saudi Arabia," he added.

The Malaysian Association of Mineral Water Manufacturers is made up of nine members with over 100 brands in the market. Between them, they control over 70% of the local mineral water market.

Star, 12.3.1998

Development to go on at cave site

The firm which built a RM3 mil lighted pathway inside Gua Tempurung is going ahead with its plans to construct more recreational facilities outside the cave.

Heritage Acres' project manager David Tan Suan Hoong said economic slowdown had only

slowed down its implementations.

He said a water theme park, cable-car ride, roller coaster and boating were all on the cards.

"The theme park will attract more visitors with its fun activities," he said.

Tan said the lighted pathway running 1 km

inside the cave was part of the larger 12-year tourism-cum-property project to develop the 2,000 ha site at an eventual cost of RM650 mil.

"Construction of chalets, restaurants and a recreation centre will be the first step taken in developing the area once the contracts are finalised with the state government and block titles issued," he said.

Tan said the masterplan included a lakeside shopping complex and a camping area.

There will also be a golf course, bungalows, hotels and chalets sitting on an island and a heritage park.

"The heritage park will comprise botanical gardens, oil palm and rubber plantation exhibits,

tin mining museums, a historical village, fishing ponds, an area for youths and an equestrian centre," he said.

Perak Tourist Association secretary Mohd Odzman Abdul Kadir said that once developed, Gua Tempurung would be a major and natural tourist destination in the country.

He said the association, together with hoteliers, tour operators and tour guides would visit all tourist spots in Perak next month to compile data.

"We will make a proposal on what is needed and how to improve these places to the state government and relevant bodies," he added.

Star, 13.3.1998

DOE to approve sand dredging activities in Johor

Applications for sand dredging activities in Johor must now be referred to the Department of Environment.

State Executive Councillor Dr. Chua Soi Lek said the new ruling would minimise pollution resulting from such activities.

He said it would be enforced immediately as the state was concerned that sand dredging activities would pollute water sources.

He said with the ruling, the department would be able to impose strict conditions on companies.

Dr. Chua added the operators were also required to present a report on measures to be taken to minimise pollution.

"We realise how important it is to protect water sources with the increasing demand and water shortage," he said after the weekly exco meeting yesterday.

Prior to this, applications for this need only be referred to the Land and Mines, Drainage and Irrigation and Fisheries departments.

Dr. Chua, who is the State Environment and Consumer Affairs Committee chairman, said the state had directed the Land and Mines department to issue stop work order on two sand dredging companies — Giant Distinction Sdn. Bhd. and GD Miner Sdn. Bhd. — operating in Sungai Tengkil, Kota Tinggi.

Star, 16.3.1998

Perstima to review sources of raw material

Tin plate maker Perusahaan Sadur Timah Malaysia Bhd. (Perstima) will continue to review its raw material sources to secure more competitive prices, executive chairman Datuk Moehamad Izat Emir said.

He said in the company's latest annual report that a trial shipment of tin mill black plate, the main raw material, from an alternative supplier was being tested for quality and reliability.

Moehamad Izat said Perstima reported a 9% drop in turnover to RM351.5 mil for the financial year to March 31, 1997, and that profit margins had also eroded owing to the rise in raw material

prices and other costs of production.

After making provision for doubtful debts, the group incurred a loss before tax of RM23.2 mil in 1997 compared with a profit before tax of RM19.5 mil in 1996, he added.

A loss per share (EPS) for the group was registered at 18.2 sen compared with an earnings per share of 12.1 sen in 1996.

In explaining the company's performance, Moehamad Izat said the Malaysian tin plate industry was facing numerous challenges and plastics had become a cheaper alternative in packaging.

He said more companies were using plastics for their packaging, particularly in the edible oil, paint and beverage industry.

Moehamad Izat also said that tin plate imports from South Korea and Japan had put pressure on sales volume, as they accounted

about 16% of total local tin plate consumption, compared with 14% in the previous year.

During the last financial year, Perstima divested two of its subsidiaries — Perstima Development Sdn. Bhd. and Sterngold Investments Pte. Ltd. of Germany.

Star, 21.3.1998

Perstima to cut price but tinplate users find imports cheaper

Tinplate maker Perusahaan Sadur Timah Malaysia Bhd. has agreed to reduce the price of its tinplate by five per cent but users, the tin can manufacturers, are saying imported tinplate is still cheaper and they will continue to import the product.

Malaysia Tin Can Makers Association president Datuk Anthony See said Perstima had agreed to reduce its last quoted price by five per cent at a meeting on Thursday.

The last quoted price by Perstima averaged about RM3,100 per tonne, which is 36 per cent higher than RM2,200 per tonne sold before the currency depreciation.

Now with the five per cent discount, local tin can makers would be paying Perstima about RM2,945 per tonne.

"The five per cent reduction from the last quoted price is effective from April 1. Despite this reduction, the price of tinplate sourced from overseas is still cheaper."

"In view of the difficulties the company is facing now, we are willing to accept the five per cent reduction," See said in a telephone interview yesterday.

But at the same time, he added, the association's 31 members would continue to source tinplate from overseas as *"it is more*

viable and cheaper even after we pay the 20 per cent import duty".

"Ever since the ringgit against the US dollar was below RM4, we could get imported tinplate at a lower price than what is sold by Perstima."

"Now as the ringgit is at the RM3.60 level, the imported tinplate has become less expensive," See said.

MTCMA members now source up to 25 per cent of tinplate from abroad, he noted, adding that Perstima had asked the members to continue making orders so that the company would not fall into deeper problems.

Perstima is now under probe by various authorities including the Kuala Lumpur Stock Exchange and Registrar of Companies following irregularities in its financial accounts.

The company's auditors KPMG Desa Megat & Co. had called into question its financial results for the year ended March 31, 1997 — including subsequent transactions related to share financing.

Perstima posted a group pre-tax loss of RM23.23 million for the period under review compared with earlier unaudited results announcement which showed a group pre-tax profit of RM8.98 million.

NST, 21.3.1998

East Coast Highway project to go on

Deputy Prime Minister Datuk Seri Anwar Ibrahim said today construction of the RM3.6 billion East Coast Highway project will proceed as scheduled.

He said the Government had given its consent to the Malaysian Mining Corporation-led consortium to start with the project. Others in

the consortium are MTD Capital Bhd. and United Engineers Malaysia Bhd.

The highway, stretching between Karak and Kuala Terengganu via Kuantan, covers a distance of 340 km and is scheduled to be completed in the year 2000.

"If the consortium is unable to undertake the

entire project at one go due to the high cost, it can be carried out in stages. The scope of work will depend on its financial capability," Anwar said at a meeting with State Umno leaders here.

Menteri Besar Tan Sri Mohd Khalil Yaakob said last week the State Government had not

been informed by the consortium on the status of the project.

He appealed to the Federal Government to look into the matter as the East Coast Highway project was important to help boost the growth of east coast states.

NST, 22.3.1998

Govt urged to open more land for tin

The recent increase in the price of tin should be conducive to opening up more land for mining, the All-Malaya Chinese Mining Association president Chin Lean Choong said yesterday.

He said there existed some areas of good grade deposits to warrant mining. And what better time to start than with better tin prices caused by the weakened ringgit,

"The government should consider all viable applications to resume mining and also to allow conversion of agriculture land that contains tin reserves for mining, otherwise minerals that is not extracted will be unexploited," he said during the association's AGM.

Chin said unlike a manufacturing plant, a mine could not be sited anywhere else and should take precedent over other development.

"We must go where the mineral is. Areas that have potential mineral deposits should be reserved for exploration and exploitation before other development projects which are permanent in nature."

Chin said the mining industry as a whole must be viewed as an important industry to provide raw materials to achieve the country's goal as an industrialised nation.

"The mining industry has been one of the pillars in our nation's economic development. The decline in tin production in the country has been very severe due to unremunerative prices and competing use of land for other purpose."

"In a free market economy, the viability of any mining project should best be determined by investors and mining companies."

"Minerals are depleting and non-renewable resources. Hence conservation of all potential mineral resources should be carefully evaluated for the benefit of the nation as a whole, always bearing in mind that extreme price fluctuations in all commodities, particularly minerals, are a norm, not an exception," he said.

"This could be accomplished by a policy of re-alienation to the miners of all such rehabilitated worked-out mining land," he said.

Star, 28.3.1998

Tin mining firms urged to form consortium

Malaysian tin mining companies should consider selling their services and expertise overseas through a consortium, Petaling Tin Bhd. consulting geologist Choo Mun Keong said. *"Large mining companies should form a consortium and start offering their services as dredging expertise is need overseas."*

"One company cannot do it. We need a consortium for the move to be successful," he said, adding that the Malaysian tin mining companies' strength lay in its manpower resources.

Choo was speaking after Petaling Tin's annual general meeting in Kuala Lumpur.

The company has diversified its business into the manufacturing sector through its wholly-owned subsidiary PTB Clay Products Sdn. Bhd. last December.

PTB Clay, which uses highly sophisticated technology machinery, is expected to produce 30 million pieces of common facing and paving bricks per year.

The manufacturing division is expected to become the main contributor to the group in the

forthcoming year with an estimated operating profit of RM1 million annually.

The company's mineral sand project in Hainan, China, has shown positive cash flow.

NST, 1.4.1998

Tronoh Mines to hold major stake in US firm

Malaysian Mining Corporation Bhd.'s subsidiary, Tronoh Mines Malaysia Bhd., will soon become the single largest shareholder in US-based gold mining firm Homestake Mining Co.

This is the result of Tronoh Mines injecting its entire 56.11 million shares representing a 29.03 per cent stake in Plutonic Resources Ltd. of Australia in Homestake Mining for US\$189.64 million (RM718.76 million)

In return, 19.08 million new Homestake Mining shares priced at US\$9.94 each will be issued to Tronoh Mines.

"The 19.08 million shares in Homestake Mining is equivalent to 8.6 per cent equity in the company," Tronoh chief executive officer Lim Chee Wan said after Tronoh Mines extraordinary meeting in Kuala Lumpur yesterday.

"Thus, upon completion of the exercise at the end of this month, we will become the single largest shareholder of Homestake Mining."

The current single largest shareholder in Homestake Mining now holds less than five per cent stake.

Lim said the deal will result in Plutonic becoming a wholly-owned subsidiary of Homestake Mining — which had already obtained the remaining stakes in Plutonic from other parties.

Plutonic chairman Paul McClintock, who was also present, said the consolidation of

Homestake Mining and Plutonic would create the third largest North American-based gold mining company in terms of production and reserves, and the second largest gold mining firm in Australia.

He said Plutonic's current production was between 500,000 and 600,000 ounces of gold annually, and when combined with the production of Homestake Mining, it would be about 2.2 million ounces per annum.

McClintock noted that Plutonic has reserves amounting to 40 million ounces at its gold mines in Australia, while Homestake Mining operates 12 mines in the US, Canada, Chile and Bulgaria.

Homestake Mining announced its plan to acquire the entire 189.03 million shares in Plutonic not already held by the company for US\$640 million on Dec 21 last year.

Tronoh Mines chairman Tan Sri Ibrahim Menudin said the proposed share exchange had placed a value of A\$5.20 on each Plutonic share, against some A\$2.75 the company paid previously for each Plutonic share.

He also said that Tronoh Mines stood to enjoy significant gains if it chose to sell its potential stake in Homestake Mining at a later stage.

However, he was quick to point out that — at present — Tronoh Mines had no intention to sell the interest in Homestake Mining.

NST, 3.4.1998

Kerinci Link will be realigned to run outside UM

The Cabinet today approved a realignment of the Kerinci Link highway which will now run outside instead of through Universiti Malaya.

Works Minister Datuk Seri S. Samy Vellu said the stretch would run between Masjid Al Rahman, the university mosque and the Girl Guides Association headquarters.

It will also utilise some land of a language

institute belonging to the Education Ministry.

The highway might however encroach "several feet" into UM's boundary.

The project created controversy when it was announced that it would run through UM. The university was unhappy and residents felt the highway was unnecessary.

"We are continuing the project as it is

important to solve traffic problems. A total of 295,000 cars now use the Federal Highway. This highway is important as a direct link to the city," he told reporters at the Parliament's lobby after his winding-up speech on points raised by MPs during debates on the motion of thanks on the Royal Address.

The Kerinchi Link is a tree-lane, two-way and multi-tiered expressway. It is part of the RM1.3 billion Sprint Expressway to ease traffic congestion and serve some 400,000 residents in western Kuala Lumpur.

The project, involving a 26 km long road network, would have three links between Duta and Kerinchi, Penchala and between Damansara and Semantan.

It will also be connected to the proposed North-East Expressway and the East-West Expressway.

Earlier, the Academic Staff Association of Universiti Malaya said the proposed Kerinchi Link would temporarily ease Kuala Lumpur's traffic woes.

In a paper titled *Kerinchi Link, Sprint and Universiti Malaya: A Wrong Premise*, the association said although the highway might

improve the traffic situation for the first two years, congestion would return after that.

"The newly built Jalan Damansara is already at its full capacity, what more with traffic coming from the Federal Highway via the link," said the paper which bore 272 signatures of academic from various UM faculties.

"The solution is not by building more roads," the paper said, adding that highway projects in London had been cancelled purely on this argument.

The paper also called for alternative solutions such as the promotion of public transport, cycling or even containing the growth of Kuala Lumpur.

It said the fact that UM formed a very important green lung for Kuala Lumpur and Petaling Jaya was also a reason why the Link should not be built.

The entire campus and, especially a hostel which is now located near the proposed highway, will suffer from noise, heat and fumes from vehicles using the highway, the paper said.

Besides UM academicians, the project has faced stiff opposition from land owners of Sungai Penchala and residents of Bukit Bandaraya and Bukit Pantai in Bangsar.

NST, 9.4.1998

Expert: Not all of dam water can be used

Water from dams cannot be drawn too far below the critical level because it can affect the stability of dams and quality of water produced.

Negeri Sembilan Water Supply Department director Dr. Akbar Johari said it was dangerous to "use all the water in a dam as this can affect its stability, particularly in the embankment, where capillaries will form and cause seepages.

He said capillaries were formed when the concrete structure of the dam's embankment was subjected to differing pore pressures as it gets dry.

Dr. Akbar said the quality of water would drop as the level reached the lowest point.

"Water quality would be at its worst, in terms of smell from gases such as ammonia, hydrogen sulphide and other sediments," he added.

For example, the Sungai Terip Dam's critical level was 89 m and the department would not

draw water when it reached 86 m, he said.

Dr. Akbar added that the ecology would be affected when dams dried up because fish, which help to clean up the water and other growth, would die.

He said the design and stability of dams had to undergo stringent tests.

"In fact, dams will more often fail due to overflowing and not so much when they dry up," he added.

Water authorities, Dr. Akbar said, had to ensure that dams did not fall below the critical level.

"If dams fall below the critical level, chances of them filling up in the year are low," he said.

He said the authorities should balance the storage in dams to ensure that they could fill up again the following year.

Star, 14.4.1998

Perak offering incentives to silica-based industries

Silica-based industries have been identified as a potentially lucrative venture in Perak.

In this respect, the State Government is prepared to offer several incentives, including reduction of premiums and allocation of land to potential investors in silica-based industries which are both environment- and user-friendly.

Menteri Besar Tan Sri Ramli Ngah Talib told newsmen this after opening a seminar on "Opportunities in the Silica-based Industry" in Ipoh yesterday.

The seminar was jointly organised by the Department of Mines, Geological Survey department, Tin Industry Research and Development Board, Malaysian Chamber of Mines and Sirim Berhad.

Also present was Deputy Primary Industries Minister Datuk Hishammuddin Tun Hussein.

Ramli said Perak welcomed joint venture efforts that would benefit the State and enhance its skills development in value-added industries such as crystal glass production.

He noted that Perak had abundant silica-sand reserves amounting to 56.1 million tonnes in the Bikam, Tronoh, Kampar, Malim Nawar, Coldstream, Tanah Mas and Sungai Lesong areas.

"However, much if not all of the silica-sand produced here should be upgraded so that the State can benefit much more than the creation of silica-sand related downstream activities," he said.

Ramli said research on upgrading tin tailings was now being undertaken by the Mines Research Institute, Universiti Sains Malaysia and Sirim Berhad.

NST, 17.4.1998

Roadshow to explain mineral policy

The Primary Industries Ministry is conducting a nationwide roadshow to explain the terms and implications of the National Mineral Policy to ensure maximum utilisation of the country's mineral reserves.

Its Deputy Minister Datuk Hishammuddin Tun Hussein said roadshow would provide information on the types of mineral reserves available in the respective States and what could be done to exploit them to the fullest.

"The ministry wants to ensure that the mineral industry in Malaysia can be further developed to a competitive level especially the value-added silica-based industry which has vast potential."

He said this in his keynote address at a seminar on "Opportunities in the Silica-based Industry" in Ipoh yesterday.

Hishammuddin said it was time the country exploited its own natural resources to reduce imports.

He said that even though Malaysian had its own natural reserves of silica sand, in 1996 it imported some RM17.5 million worth of premium grade sand because "our resources have to be purified before they can be used by industries".

Hishammuddin said in 1996 Malaysia's import bill for premium-grade glass and its related products amounted to RM783 million while about RM480 million worth of silica-based products such as glass and glassware were exported.

"In order to redress this trade imbalance, the private sector must make more efforts to commercialise local reserves for downstream value-added products," Hishammuddin said.

NST, 17.4.1998

Our limestone as a potential match for Italian marble

Malaysian limestone can be just as famous for interior decoration as Italian marble if effort is made to exploit it properly, Primary Industries Minister Datuk Seri Dr. Lim Keng Yaik said yesterday.

"It is a real shame how we are simply crushing all our limestone to be used on our roads when the higher grades can be processed into beautiful slabs for floors and building exteriors."

He deplored the way local firms used dynamite to extract limestone which left the cliffs badly scarred.

"They should seriously consider using diamond-based cutter to slice off the limestone. This may be a slightly more expensive process but I am very sure the extra earnings will more than cover the additional costs."

Dr. Lim also said efforts should be made to exploit the silica available in Malaysia as much of it could be used as raw material for crystal glass production.

He also cited the ceramics sector as another important sector which needed upgrading.

"At present, we can't even highlight any of our own ceramic production except maybe pottery from Sarawak. That is a good start but there is a lot more to be done to upgrade this industry."

Dr. Lim was speaking to reporters after opening the three-day 13th Industrial Minerals International Congress which held in Kuala Lumpur.

In his speech, he said non-metal minerals should become the focus of the Malaysian mining

industry as these resources were still not well exploited.

"There is more to the Malaysian mining industry than just tin."

According to Dr. Lim, some local firms could be considering restarting their tin-mining operations in view of the higher earnings made possible during these times by the lower ringgit value. Tin is quoted in US dollars.

"I advise these firms to be careful as the higher earnings in ringgit terms is only a temporary thing."

"It is not practical in the longer terms, and we have already taken steps to wind down tin mining operations since the 80s due to the lower tin prices world-wide," he said.

In 1996, the total production value for minerals was RM2.70 billion, of which non-metallic or industrial minerals accounted for RM2.32 billion.

Dr. Lim meanwhile lamented the lack of uniform regulations for the Malaysian mining industry.

"Mining is a State issue and even though the Federal Government has passed a set of laws to better regulate the industry, only Sarawak has adopted some of these laws."

"The other State Government haven't done so even though we have sent them model examples of how the new regulations could be drafted."

"This could be a hindrance to potential investors in the Malaysian mining industry if it is not resolved quickly."

NST, 28.4.1998

**International Conference
on
WATER RESOURCES MANAGEMENT IN
INTERMONTANE BASINS**

**2-6 February 1999
Chiang Mai, Thailand**

BACKGROUND

Intermontane basins, or wide flat-lying river valleys separated by sharply rising mountains, are commonly fertile lands within which large cities are located. The Chiang Mai Basin in northern Thailand is an example. Water supplies for both the urban and agricultural areas within such basins come mainly from the through-flowing rivers, lakes, reservoirs and underground water. However, expanding urbanization as well as increases in industrial and agricultural activities cause environmental problems relating to the depletion and pollution of these water resources. To ensure that adequate supplies of good quality water are maintained for the basin's population, effective water resources management and pollution controls are needed.

SCOPE AND OBJECTIVE

The main objective of this International Conference is to provide a forum for the exchange of information and views relating to the current status and future directions of environmental research in areas such as:

- hydrometeorology
- surface and groundwater hydrology
- water quality monitoring
- aquatic environmental monitoring
- development of analytical methods
- irrigation
- wetlands management
- water pollution controls
- *plus other related topics*

KEYNOTE PAPERS

The lecture programme will be built around keynote papers given by Invited Speakers of international repute in their respective fields of expertise.

CONTRIBUTED PAPERS

Contributed papers in the form of either oral or poster presentations are hereby invited. Applications can be made on the **Reply Form** overleaf. An abstract of not more than 300 words should be submitted to the *Conference Secretary* before **30 September 1998**.

CONFERENCE FEES

Applications to attend the Conference should be made on the **Reply Form** overleaf. The fees given below cover registration, all Conference materials including the *Proceedings*, the Conference Dinner, lunches, coffee/tea and light refreshments. Early registration is advised.

FEE (\$US)	Presenters	Participants	Students
Early	100	200	50
Late*	150	300	100

* after 30 November 1998

DEADLINES

Early registration	: 30 November 1998
Submission of Abstract	: 30 September 1998
Notice of Acceptance	: 31 October 1998
Receipt of Full Paper	: 30 November 1998
Final Circular	: 15 November 1998

VENUE AND DATES

The Conference will be held at the Chiang Mai Phucome Hotel from 2-6 February 1999 in the picturesque city of Chiang Mai. Situated right in the heart of the largest intermontane basin in northern Thailand, Chiang Mai is approximately 750 km north of the capital Bangkok. Travel times from Bangkok to Chiang Mai are about 1 hour by air and 14 hours by train.

LANGUAGE

The official language of the Conference will be English.

**EXHIBITION AND
ADVERTISEMENTS**

A Conference Exhibition in the form of tabletop stands and corporate video displays is planned. Advertisements for inclusion in the Conference Proceedings as well as sponsorship of any of the various programmed events is also welcomed.

HOTEL ACCOMMODATION

Good quality to first-class hotel accommodation at or near to the Conference venue is available at rates varying from \$US20–80/room/night. Accommodation can be in either single or double rooms. Preferences should be indicated on the Reply Form overleaf.

SPONSORSHIP

It is hoped that it will be possible to provide partial financial support from commercial sources to enable the participation of research workers and students from neighbouring countries who would otherwise be unable to attend. Application for such support should be made in writing to the Conference Secretary.

FOR FURTHER INFORMATION

Dr. Pongpor Asnachinda
The Conference Secretary
Inter. Conf. on Water Resources Management
Faculty of Science
Chiang Mai University
Chiang Mai
Thailand 50200

Fax: (66-53) 222268, 892274
E-mail: scgli012@chiangmai.ac.th

**SECOND CIRCULAR
CALL FOR PAPERS**

**19th International Geochemical Exploration
Symposium**

Exploration Geochemistry into the 21st Century

Association of Exploration Geochemist

Vancouver, British Columbia, Canada

April 11–16, 1999

Hotel Vancouver

This symposium will be the last major Geochemical Exploration meeting of this Century. In keeping with the theme Exploration Geochemistry into the 21st Century the conference will aim to stimulate and disseminate new ideas and innovations.

Short Courses

Short courses will take place April 10th–11th before the symposium

- SC1 *Drift prospecting in Glaciated Terrain*
- SC2 *Geoanalysis with emphasis on Selective Extractions*
- SC3 *The use of Soil Gases in mineral exploration*
- SC4 *New advances in Diamond exploration*
- SC5 *Quality Control in Mineral Exploration*

Field Trips

Field trips will take place after the meeting, starting April 17th.

- FT1 *Applied Geochemical Methods*
- FT2 *Environmental Geochemistry*
- FT3 *Geochemical Exploration Techniques for Buried Deposits*

Trade Show

An excellent opportunity to display your product, services or property to influential decision makers from around the world!

- To be held in adjoining areas to the Technical Sessions.
- Operates on April 12–13 and on April 15–16.
- Participants may choose either 2 or 4 day displays.
- Space limited to 36 booths, early booking is recommended.

Information

Venue West Conference Services Ltd.

Tel: (604) 681-5226

Fax: (604) 681-2503

Email: congress@venuewest.com

AEG website: <http://www.aeg.org>

KALENDAR (CALENDAR)

1998

May 3-7

MINING, METALLURGY AND PETROLEUM, Montreal, Quebec, Canada. (Contact: Chantal Murphy, Canadian Institute of Mining, Metallurgy and Petroleum, 3400 de Maisonneuve Blvd. West, Suite 1210, Montreal, Quebec H3Z 3B8, Canada. Tel: 1 514 939 2710; Fax: 1 514 939 2714; E-mail: cmcim@login.net)

May 12-15

WATER QUALITY, Wuhan, China. (Contact: Prof. Xia Jun, Local Organizing Committee, International Workshop on Barriers to Sustainable Management of Water Quantity and Quality. Wuhan University of Hydraulic and Electric Engineering, No. 8 Southern Road of East Lake, Wuhan 430072, China. Tel: 86 27 8313502; Fax: 86 27 7878318; E-mail: jxia@sun20.wuhee.edu.cn)

May 12-16

CRETACEOUS-PALEOGENE TRANSITIONS IN TUNISIA (K-T BOUNDARY) (International Workshop and Field Excursion), Tunis, Tunisia. Jointly sponsored by the International Commission on Stratigraphy (ICS) and the Geological Survey of Tunisia. (Contact: Dr. Gerta Keller, Department of Geosciences, Princeton University, Princeton NJ 08544, USA. Tel: 609 258 4117; Fax: 609 258 1671; E-mail: keller@geo.princeton.edu)

May 14-18

LINKING SPATIAL AND TEMPORAL SCALES IN PALEOECOLOGY AND ECOLOGY (Penrose Conference of the Geological Society of America), Solomons, Maryland, USA. (Contact: Andrew Cohen, Department of Geosciences, University of Arizona, Tucson, AZ 85721, USA. Tel: 1 520 621 4691; Fax: 1 520 621 2672; E-mail: acohen@geo.arizona.edu)

May 17-20

SOCIETY FOR SEDIMENTARY GEOLOGY (Annual Meeting, in conjunction with AAPG), Salt Lake City, Utah, USA. (Contact: SEPM, 1731 E, 71st St., Tulsa, OK 74136, USA. Tel: 1 800 865 9765; WWW: <http://sepm.tulsa.net>)

May 17-20

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS (Annual Meeting), Salt Lake City, Utah, USA. (Contact: AAPG Conventions Department, P.O. Box 979, 1444 S Boulder Ave., Tulsa, OK 74101-0979, USA. Tel: +1 918 560 2679; Fax: +1 918 560 2684; E-mail: dkeim@aapg.org)

May 18-20

QUEBEC 1998 (Joint Meeting of Geological Association of Canada, Mineralogical Association of Canada, and Association Professionnelle des Geologues et des Geophysiciens du Quebec), Quebec, Canada. (Contact: Agathe Morin, Department of Geology, Universite Laval, Pavillon Adrien-Pouliot, Sainte-Foy, Quebec G1K 7P4, Canada. Tel: 1 418 656 2193; Fax: 1 418 656 7339; E-mail: quebec1998@ggl.ulaval.ca; WWW: <http://www.ggl.ulaval.ca/quebec1998.html>)

May 26-29

AMERICAN GEOPHYSICAL UNION (Spring Meeting), Boston, Massachusetts, USA. (Contact: AGU Meetings Dept., 1998 Spring Meeting, 2000 Florida Ave., NW, Washington, DC 20009, USA. Tel: 1 202 462 6900; Fax: 1 202 328 0566; E-mail: meetinginfo@kosmos.agu.org; WWW: <http://www.agu.org>)

May 27-30

GROUND-PENETRATING RADAR '98 (International Conference), Lawrence, Kansas, USA. (Contact: Richard Plumb, Electrical Engineering and Computer Science, Radar Systems and Remote Sensing Laboratory, The University of Kansas, 2291 Irving Hill Road, Lawrence, KS 66045-2969, USA. Tel: 1 913 864 7735; Fax: 1 913 864 7789; E-mail: gpr98@rsl.ukans.edu; WWW: www.rsl.ukans.edu/~gpr98)

May 27-31

SOCIETY AND RESOURCES MANAGEMENT (International Symposium), Columbia, Missouri, USA. (Contact: Sandy Rikoon, ISSRM Co-Chair, University Building 108, Columbia, MO 65211, USA. Tel: 1 573 882 0861; Fax: 1 573 882 1473; E-mail: srsrjr@muccmail.missouri.edu)

May 31 – June 4

SEISMIC DESIGN AND MITIGATION FOR THE THIRD MILLENNIUM (U.S. National Conference on Earthquake Engineering), Seattle, Washington, USA. (Contact: Earthquake Engineering Research Institute, 499 14th St., Suite 320, Oakland, CA 94612-1934, USA. Tel: 1 510 451 0905; Fax: 1 510 451 5411; E-mail: eeri@eeri.org)

June 1–4

PANAMERICAN CURRENT RESEARCH ON FLUID INCLUSIONS (International Conference, PACROFI VII), Las Vegas, Nevada, USA. (Contact: Jean S. Cline, Dept. of Geosciences, University of Nevada, Las Vegas, Nevada 89154-4010, USA. Fax: +1 702 895 4064; E-mail: jcline@nevada.edu)

June 1–5

INTERNATIONAL CONFERENCE ON PRECAMBRIAN AND CRATON TECTONICS (14th International Conference on Basement Tectonics), Ouro Preto, MG, Brazil. Sponsored by Departamento de Geologia, Escola de Minas, Universidade Federal de Ouro Preto, Brazil and International Basement Tectonics Association. (Contact: E-mail: basement98@degeo.ufop.br)

June 2–6

5TH NATIONAL OPEN PIT MINING CONFERENCE WITH INTERNATIONAL PARTICIPATION "State and Development of Open Pit Mining in Market Economy, Varna, Bulgaria. (Contact: Scientific and Technical Union of Mining, Geology and Metallurgy, Open Pit Mining Conference, 108 Rakovski Str., 1000 Sofia, Bulgaria. Tel: +3592 80 07 47; 80 41 74; Fax: +3592 80 07 47)

June 3–5

ROCK MECHANICS (ISRM International Symposium), "Rock Mechanics, Earth Crust Mechanics", Cancun (Quintana Roo), Mexico. (Contact: Sociedad Mexicana de Mecánica de Rocas, Camino a Santa Teresa No. 187, Col. Bosques del Pedregal, MEX-14020 México, D.F., MEXICO. Tel/Fax: +52 5 5282089; E-mail: asg_smmr@intmex.com)

June 4–12

EVOLUTION OF OCEANIC ISLAND VOLCANOES (Penrose Conference of the Geological Society of America), Galapagos

Islands, Ecuador. (Contact: Dennis J. Geist, Department of Geology, University of Idaho, Moscow, ID 83844, USA. Tel: 1 208 885 6491; E-mail: dgeist@uidaho.edu)

June 7–13

EUROPEAN ASSOCIATION FOR CONSERVATION OF GEOLOGICAL HERITAGE (ProGEO) MEETING '98, Bulgaria. (Contact: Dr. Todor Todorov, Sofia 1113, P.O. Box 121. Tel: +359 2 713 2271; Fax: +359 2 75 91 04; E-mail: todorov@geology.acad.bg or uptech@ttm.bg)

June 8–11

GLOBAL WARMING (International Conference and Expo), Hong Kong, China. (Contact: World Resource Review, 22W381 75th Street, Naperville, Illinois, USA 60565-9245; Fax: +1 630 910 1561)

June 8–12

EUROPEAN ASSOCIATION OF GEOSCIENTISTS AND ENGINEERS (EAGE) (60th Conference), Leipsig, Germany. (Contact: EAGE, E.H. Bornkamp, P.O. Box 298, NI 3700, AG Zeist, The Netherlands. Tel: 31/3069 62 655; Fax: 31/3069 62 640)

June 16–20

PACIFIC CONGRESS ON MARINE SCIENCE AND TECHNOLOGY: TOWARDS THE 21ST CENTURY — A PACIFIC ERA (8th International), Seoul, Korea. (Contact: N. Saxena, P.O. Box 11568, Honolulu, HI 96828, USA. Tel: +1 808-956-6163; Fax: +1 808-956-2580; E-mail: saxena@wiliki.eng.hawaii.edu)

June 23–25

THE ROLE OF A NATIONAL GEOLOGICAL SURVEY IN SUSTAINABLE DEVELOPMENT (International Conference), Gaborone, Botswana. (Contact: The Secretariat (Attention: Mr. B.K. Paya), 50th Anniversary Conference, Department of Geological Survey, Private Bag 14, Lobatse, Botswana. Tel: (267) 331721; Fax: (267) 332013; E-mail: 100076.1001@compuserve.com)

June 24–26

EUROPEAN CONODONT (International Symposium), Bologna and Modena, Italy. (Contact: M.C. Perri, Dipartimento di Scienze della Terra e Geologico Ambientali, Via Zamboni 67, 40126 Bologna, Italy. Fax: 39 51 354522; E-mail: perri@geomun.unibo.it)

June 24-27

MINERAL AND THERMAL GROUNDWATER (International Symposium of the Romanian Association of Hydrogeologists/IAH). Miercurea Ciuc, Romania. (Contact: Romanian Association of Hydrogeologists, Symposium Secretariat, c/o Iulian Popa (Executive Secretary), 6 Traian Vuia Str., R-70139 Bucharest, Romania. Tel/Fax: +40 1 21 23385)

June 28 - July 5

EVENT STRATIGRAPHY OF GONDWANA (Gondwana 10, International Symposium), Cape Town, South Africa. (Contact: Organising Committee Gondwana 10, Department of Geological Sciences, University of Cape Town, Rondebosch, South Africa. Tel: 27 21650 3171; Fax: 27 21650 3167; E-mail: Deborah@medicine.uct.ac.za; URL: <http://www/uct.ac.za/depts/cigc/gondwana10.htm>)

June 29 - July 2

15TH CARIBBEAN GEOLOGICAL CONFERENCE, Kingston, Jamaica. (Contact: Dr. Trevor Jackson, c/o Department of Geography and Geology, University of the West Indies, Kingston 7, Jamaica. Fax: 809 927 1640)

June 29 - July 15

8TH INTERNATIONAL PLATINUM SYMPOSIUM (IAGOD/CODMUR), Johannesburg, South Africa. (Contact: Dr. C.A. Lee, P.O. Box 68108, Bryanston, South Africa. Tel: 1127 373 2580; Fax: 1127 836 0371; E-mail: clee@amplats.co.za)

July 4-11

PROCESSES OF CRUSTAL DIFFERENTIATION (Penrose Conference of the Geological Society of America), Verbania, Italy. (Contact: Tracy Rushmer, Department of Geology, University of Vermont, Burlington, VT 05405, USA. Tel: 1 802 656 8136; Fax: 1 802 656 0045; E-mail: trushmer@zoo.uvm.edu)

July 6-10

AUSTRALIAN GEOLOGICAL CONVENTION, Townsville, Australia. (Contact: Debbie Buckley, School of Earth Sciences, James Cook University, Townsville QLD 4811, Australia. Tel: 077 81 5047; Fax: 077 25 1501; E-mail: jcu.edu.au; WWW: <http://www.jcu.au/dept/Earth/AGC14.html>)

July 6-10

HYDROLOGY IN A CHANGING ENVIRONMENT (International Symposium of the British Hydrological Society), Exeter, UK. (Contact: Bruce Webb, Department of Geography, University of Exeter, Exeter, EX4 4RJ, UK. Fax: +44 (0) 13392 263342; E-mail: B.W.Webb@exeter.ac.uk)

July 8-10

GEOCONGRESS '98 (Conference of the Geological Society of South Africa), Pretoria, South Africa. (Contact: Tel: 27 12 8411167; Fax: 27 12 8411221; E-mail: caucamp@geoscience.org.za)

July 8-17

CRYOSOLS (Congress of International Society of Soil Science), Montpellier, France. (Contact: Dr. D.A. Gilichinsky, Institute of Soil Science and Photosynthesis, Russian Academy of Sciences, 124292 Pushchino, Moscow region, Russia. E-mail: gilichin@issp.serpukhov.su)

July 11-17

IAVCEI INTERNATIONAL VOLCANOLOGICAL CONGRESS '98, Rondebosch, South Africa. (Contact: Secretariat, IAVCEI 1998, Dept. of Geological Sciences, University of Cape Town, Rondebosch, South Africa. Fax: 27 21 650 3783; E-mail: ivc98@geology.uct.ac.za; WWW: <http://www.uct.ac.za/depts/geolsci/ivc98/>)

July 12-16

FUTURE GROUNDWATER RESOURCES AT RISK (FGR-98) (2nd International Conference), Changchun, China. (Contact: Dr. Zhao Yongsheng and Dr. Sui Weiguo, FGR '98 Conference Secretariat, P.O. Box 298, Changchun University of Earth Sciences, 6 Ximinzhu Street, Changchun, Jilin 130026, China. Fax: +86 431 892 8327)

July 15-22

IGCP PROJECT 420 WORKSHOP (Continental growth in the Phanerozoic: Evidence from East-Central Asia) (with field excursion in the Altai Mountains) Urumqi, China. (Contact: Prof. Hong Dawei, Institute of Geology, CAGS, 26 Baiwanzhuang Road, Beijing 10037, China. Tel: 86 10 6831 1133 ext. 2309; Fax: 86 10 6831 0894, or Prof. Bor-ming Jahn, Geosciences Rennes, Universite de Rennes 1, 35042 Rennes

Cedex, France. Tel: 33-2-99 28 60 83; Fax: 33-2-99 28 67 72 or 33-2-99 28 67 80; E-mail: jahn@univ-rennes1.fr

July 21-25

WESTERN PACIFIC GEOPHYSICS (Meeting), Taipei, Taiwan, China. (Contact: American Geophysical Union, Meetings Dept., 2000 Florida Ave., Washington, DC, USA; Tel: 1 202 462 6900; Fax: 1 202 328 0566; E-mail: meetinginfo@kosmos.agu.org; WWW: <http://www.agu.org>)

August

10TH IAGOD SYMPOSIUM, Broken Hill, Australia. (Contact: Prof. I.R. Plimer, University of Melbourne, Parkville, VIC 3052, Australia. Tel: 613 3446520; Fax: 613 3447761)

August

EUROCK '98 (ISRM Regional Symposium), "Rock Mechanics in Petroleum Engineering", Trondheim, Norway. (Contact: Prof. Rune M. Holt, Dept. of Petroleum Technology and Applied Geophysics, NTH, N-7034 Trondheim, Norway, Tel: +47 73 591187; Fax: +47 73 591102; E-mail: rune.holt@iku.sintef.no)

August 4-8

MODERN APPROACHES TO ORE AND ENVIRONMENTAL MINERALOGY, Ottawa and Guelph, Ontario, Canada. A Short Course sponsored by the Mineralogical Association of Canada, Natural Resources Canada, The Commission on Ore Mineralogy and the International Mineralogical Association. Limited registration as the course will focus on specialized laboratories available in the Booth Street area. (Contact: Louis, J. Cabri, CANMET, 555 Booth Street, Ottawa, Ontario, Canada, K1A 0G1. Tel: +1 613 995 4073; Fax: +1 613 996 9673; E-mail: lcabri@nrca.gc.ca)

August 9-12

ENVIRONMENTAL GEOTECHNOLOGY (International Symposium), Boston, Massachusetts, USA. (Contact: H.I. Inyang, 4th International Geoenvironmental Symposium, CEEEST, James B. Francis College of Engineering, University of Massachusetts-Lowell. One University Ave., Lowell, MA 01854, USA. Tel: 1 508 934 2285; Fax: 1 508 934 3092; E-mail: inyangh@woods.uml.edu)

August 9-15

INTERNATIONAL MINERALOGICAL ASSOCIATION: IMA '98 (17th General Meeting), Toronto, Canada. (Prof. A.J. Naldrett, Department of Geology, University of Toronto, Canada M5S 3B1. Tel: (416) 978 3030; Fax: (416) 978 3938; E-mail: ima98@quartz.geology.utoronto.ca)

August 10-16

GENERATION AND EMPLACEMENT OF OPHIOLITES THROUGH TIME (International Symposium and Field Excursion), Oulu, Finland. (Contact: J. Vuollo, Department of Geology, University of Oulu, FIN-90570 Oulu, Finland. Fax: 358 81 5531 484; E-mail: vuollo@sveka oulu.fi)

August 15-20

HISTORY OF OCEANOGRAPHY (International Congress), Qingdao, China. (Contact: G.-K. Tan, First Institute of Oceanography, SOA, 3A Hongdao Nanch Road, Qingdao 266003, China. Tel: 86 532 28883127; Fax: 86 532 2879562; E-mail: fiokjc@ns.qd.sd.cn)

August 17-19

GEOSEA '98 (Ninth Regional Congress on Geology, Mineral and Energy Resources of Southeast Asia), Kuala Lumpur, Malaysia. (Contact: The Organising Secretary, GEOSEA '98, Geological Society of Malaysia, c/o Department of Geology, University of Malaya, 50603 Kuala Lumpur, Malaysia. Tel: +(603) 757 7036; Fax: +(603) 759 3900; E-mail: geologi@po.jaring.my)

August 17-20

THE JURASSIC SYSTEM (5th International Symposium), Vancouver, Canada. (Contact: P.L. Smith, Earth and Ocean Science, University of British Columbia, 6339 Stores Rd., Vancouver, BC, V6T 1Z4 Canada. Tel: (604) 822-6456; Fax: (604) 822 6088; E-mail: psmith@cos.ubc.ca; WWW: <http://www.eos.ubc.ca/jurassic/announce.html>)

August 17-20

GLACIERS AND THE GLACIATED LANDSCAPE (International Symposium), Kiruna, Sweden. (Contact: Secretary General, International Glaciological Society, Lensfield Road, Cambridge CB2 1ER, UK. Tel: 44 1223 355974; Fax: 44 1223 336543; E-mail: 100751.1667@compuserve.com)

August 20-26

ICOG-9: GEOCHRONOLOGY, COSMOCHRONOLOGY AND ISOTOPE GEOLOGY (9th International Conference), Beijing, China. (Contact: ICOG-9 Secretariat, Chinese Academy of Sciences, 26 Baiwanzhuang Road, Beijing 100037, China. Tel: +86 10 68311545 or 68326456; Fax: +86 10 68311545)

August 20-26

CRYOSOLS AND THEIR RELATIONSHIP TO GLOBAL CLIMATE CHANGE (World Congress of Soil Science, Symposium 39), Montpellier, France. (Contact: Agropolis-Avenue, Agropolis-34394, Montpellier. Cedex 5, France. Tel: 33 6704 7538; Fax: 33 6704 7549)

August 23-28

PALEOCEANOGRAPHY (6th International Conference), Lisbon, Portugal. (Contact: Fatimá Abrantes, Assoc. Portuguesa de Paleocanografia, Apt. 7618 Alfragide, 2700 Amadora, Lisbon, Portugal. Tel: 351 1 346 3915; Fax: 351 1 342 4609; E-mail: icp6fatima@mail.telepac.pt)

August 24-25

SOCIETY FOR ORGANIC PETROLOGY (Annual Meeting), Halifax, Nova Scotia, Canada. (Contact: Prasanta K. Mukhopadhyay. Tel/Fax: 1 902 453 0061)

August 25-28

INTERNATIONAL SYMPOSIUM ON URBAN WATER RESOURCES IN THE 21ST CENTURY (ISUWR'98), Beijing, China. Sponsored by Beijing Association for Science & Technology. (Contact: Chinese Academy of Geological Sciences, 26 Baiwanzhuang Road, Beijing 100037, China. Tel/Fax: +86-10-6832 6186; E-mail: geophy@bj.col.com.cn)

August 30 - September 3

V.M. GOLDSCHMIDT CONFERENCE (8th Annual of The Geochemical Society), Toulouse, France. (Contact: E-mail: goldconf@lucid.ups-tlse.fr; WWW: <http://www.obs-mip.fr/omp/umr5563/goldconf98.html>)

August 30 - September 4

CLAY MINERALOGY AND PETROLOGY (International Conference and Workshop of IGCP Project No. 405), Brno, Czech Republic. (Contact: Petr Sulovsky, Dept. of Mineralogy, Petrology and Geochemistry, Faculty of Science,

Masaryk University, Kotlarska 2, CZ 611 37 Brno, Czech Republic. Fax: 420 541211214; E-mail: clays@sci.muni.cz)

September

SEDIMENTARY ROCKS (International Symposium), Taipei, Taiwan, China. (Contact: Dr. Ou Chin Der, Director General, Taiwan Area National Expressway Engineering Bureau, Ministry of Transportation and Communications, Taipei Taiwan, China. Tel: +886 2 5156777; Fax: +886 2 5041281)

September 1-12

ANATOMY AND TEXTURES OF ORE-BEARING GRANITOIDS OF SIKHOTELIN (PRIMORYE REGION, RUSSIA) AND RELATED MINERALIZATION (Joint Field Conference of IAGOD, IGCP-373, SGA, and Russian Academy of Sciences), Vladivostok, Russia. (Contact: Dr. Galina Gonevchuk, Far East Geological Institute of FEB of Russian Academy of Sciences, 159, Prospect 100-letya, Vladivostok, 690022, Russia. Tel: 7 4232 318 750; Fax: 7 4232 31 78 47; E-mail: fegi@online.marine.su; WWW: <http://www.immr.tu-clausthal.de/lager/announcement1.html>)

September 5-9

ANTARCTIC GLACIOLOGY, Lanzhou, China. (Contact: Secretary General of ISAG-6, Laboratory of Ice Core and Cold Regions Environment, Lanzhou Institute of Glaciology and Geocryology, CAS, Lanzhou 730000, China. Fax: 86 931 8885241; E-mail: icecore@ns.lzb.ac.cn)

September 5-14

INTERNATIONAL "THE GEOLOGY OF TODAY FOR TOMORROW" (Conference on radioactive waste disposal, protection of drinking water resources, integrated stratigraphy and sequence analysis. GIS in geology — on the occasion of the 150th anniversary of the Hungarian Geological Society), Budapest, Hungary. (Contact: Hungarian Geological Society, P.O. Box 433, H-1371 Budapest. Tel: (361) 251 0889; Fax: (361) 156 1215; E-mail: csaszar@mafi.hu)

September 6-11

EARTHQUAKE ENGINEERING (International Conference), Paris, France. (Contact: French Association for Earthquake

Engineering, 4 Avenue du Recteur Poincare, 75782 Paris Cedex 16, France. WWW: <http://dfc2.enpc.fr/ecee11>)

September 6-16

DEPOSIT AND GEOENVIRONMENTAL MODELS FOR RESOURCE EXPLOITATION AND ENVIRONMENTAL SECURITY (International Conference of NATO Advanced Study Institute), Matrahaza, Hungary. (Contact: Dr. A.G. Fabbri, Intern. Inst. for Aerospace Survey & Earth Sciences (ITC). Hengelosestr 99, P.O. Box 6, 7500 AA Enschede. The Netherlands. Fax: 31-53-487-4336; E-mail: fabbri@itc.nl)

September 7-9

SEDIMENT TRANSPORT AND DEPOSITION BY PARTICULATE GRAVITY CURRENTS (Conference), Leeds, UK. (Contact: Ben Kneller, Earth Sciences Department, University of Leeds, Leeds, LS2 9JT, UK. Tel: +44 113 233 6625; Fax: +44 113 233 5259; E-mail: ben@earth.leeds.ac.uk; WWW: <http://earth.leeds.ac.uk/turbidites/conference/html>)

September 7-10

DRINKING WATER CONTAMINATION (International Conference of International Association of Hydrological Sciences), Santiago, Chile. (Contact: Eric G. Reichard, U.S. Geological Survey, 5735 Kearny Villa Road, Ste. O. San Diego, California 92123, USA. Tel: 1 619 637 6834; Fax: 1 619 637 9201; E-mail: egreich@usgs.gov)

September 7-11

EARLY WARNING SYSTEMS FOR THE REDUCTION OF NATURAL DISASTERS (Conference), Potsdam, Germany. (Contact: E-mail: ewc98@gfz-potsdam.de)

September 7-14

INTERNATIONAL INHIGEO HISTORY OF GEOLOGY CONGRESS "From Folds to Nappes to Plates" "The History of Ideas About Glaciation", Neuchâtel, Switzerland. (Contact: Prof. Jean-Paul Schaer, Université de Neuchâtel, Institut de Géologie, Emile-Argand 11, 2007 Neuchâtel, Switzerland. Fax: 4132 7182601; E-mail: sabine.robert@geol.unine.ch)

September 8-10

COASTAL ENVIRONMENT 98 — ENVIRONMENTAL PROBLEMS IN COASTAL REGIONS (Conference), Cancun, Mexico. (Contact: Liz Kerr, Conference Secretariat, COASTAL ENVIRONMENT 98, Wessex Institute of Technology, Ashurst Lodge, Ashurst, Southampton, SO40 7AA, UK. Tel: 44 (0) 1703 293223; Fax: 44 (0) 1703 292853; E-mail: liz@wessex.ac.uk; <http://www.wesses.ac.uk>)

September 9-11

REMOTE SENSING (Annual Conference, Natural Resource Institute and University of Greenwich), Kent, UK. (Contact: RSS98, School of Earth and Environmental Sciences, University of Greenwich, Medway Towns Campus, Chatham Maritime, Kent ME4 4AW, UK. Tel: 44 0181 3319803; Fax: 44 0181 3319805; E-mail: rss98@gre.ac.uk)

September 10-20

IGCP PROJECT 367 (FINAL MEETING) AND INQUA SHORELINES AND NEOTECTONICS COMMISSIONS, Corinth and Samos, Greece. (Contact: Stathis Stiros, Inst. of Geology and Mineral Exploration, 70 Mesoghion St., Athens 11527, Greece. Tel: 30 1 771 5522; Fax: 30 1 775 2211; E-mail: stiros@prometheus.hol.gr or Paolo Antonio Pirazzoli, CNRS, URA 141-Lab de Géographie Physique, 1 Pl. Aristide Briand, 92190 Meudon-Bellevue, France. Tel: 33 1 4507 5558; Fax: 33 1 4507 5830; E-mail: pirazzol@cnrs-bellevue.fr)

September 11-14

ASSOCIATION OF EARTH SCIENCE EDITORS (32nd Annual), Council of Biology Editors, and Association of European Science Editors (Joint Meeting), Washington, DC, USA. (Contact: Arly Allen, Sheridan Electronic Systems, Suite 832, 400 E. Pratt St., Baltimore, MD 21202, USA. Fax: +1 410 347 1641; E-mail: aallen@ses.sheridan.com)

September 13-15

PETROLEUM GEOLOGY AND HYDROCARBON POTENTIAL (Conference), Neptune/Constanta, Romania. (Contact: Dr. Akif A. Narimanov, Azerbaijan Society of Petroleum Geologists. Tel: 0099412 92 3511; Fax: 0099412 92 3297; E-mail: Akifnar@Socar.baku.az)

September 13-17

ENVIRONMENTAL AND ENGINEERING GEOPHYSICS (4th International Conference), Barcelona, Spain. To receive the First Announcement sent E-mail request. (Contact: Lluís Rivero, Ass't of Applied Geophysics, Faculty of Geology, University of Barcelona, Barcelona 08071, Spain. Tel: 34-3-402.14.30; Fax: 34-3-402.13.40; E-mail: rivero@natura.geo.ub.es.)

September 14-17

MODERN EXPLORATION AND IMPROVED OIL AND GAS RECOVERY METHODS (2nd International Conference), Kraków, Poland. (Contact: DEXTER Congress and Symposium Bureau, Wroclawska 37A, 30-011 Kraków, Poland. Tel: 48 12 340 808; Fax: 48 12 336313; E-mail: kongresy@dexter.krakow.pl)

September 21-23

EPICONTINENTAL TRIASSIC (Symposium), Halle, Germany. (Contact: Gerhard Beutler, Institut für Geologische Wissenschaften und Geiseltalmuseum, Domstr. 5, D-06108 Halle/oale, Germany. Fax: 49 0 345 55 27 178)

September 21-25

INTERNATIONAL ASSOCIATION OF ENGINEERING GEOLOGY (8th International Congress), Vancouver, Canada. (Contact: Kim Meidal, Secretariat, 8th Congress IAEG, c/o BC Hydro, 6911 Southpoint Dr., Burnaby, BC V3N 4X8, Canada. Tel: 1 604 528 2421; Fax: 1 604 528 2558; E-mail: kim.meidal@bchydro.bc.ca; WWW: <http://www.bchydro.bc.ca/bchydro/IAEG/IAEG98.html>)

September 21-25

GROUNDWATER QUALITY (International Conference), Tübingen, Germany. (Contact: Conference Secretariat GQ '98, c/o Lehrstuhl für Angewandte Geologie, Sigwart-strasse 10, D-72076 Tübingen, Germany. Tel: 49 7071 2974692; Fax: 49 7071 5059; E-mail: mike.herbert@uni-tuebingen.de)

September 26-27

EVOLUTION OF STRUCTURES IN DEFORMING ROCKS, Canmore, Alberta, Canada. (Contact: Shoufa Lin, c/o Geological Survey of Canada, 601 Booth St., Ottawa, Ontario K1A 0E8, Canada. Fax: 1 613 995 7997; E-mail: slin@gsc.nrcan.gc.ca; WWW: <http://www.nrcan.gc.ca/ess/cgd/ctg98/>)

September 27 - October 2

GAMBLING WITH GROUND WATER: PHYSICAL, CHEMICAL AND BIOLOGICAL ASPECTS OF AQUIFER-STREAM INTERRELATIONS (28th Congress of the International Association of Hydrogeologists), Las Vegas, Nevada, USA. (Contact: John Van Brahana, IAH Las Vegas, USGS, 118 Ozark Hall, University of Arkansas, Fayetteville AR 72701, U.S.A. Tel: +1 501 575 2570; Fax: +1 501 575 3846; E-mail: jbrahana@jungle.uark.edu)

September 29-30

IMPROVING THE EXPLORATION PROCESS BY LEARNING FROM THE PAST, Haugesund, Norway. (Contact: Norwegian Petroleum Society, P.O. Box 1897 Vika, N-0124 Oslo, Norway; Fax: 47 22 55 46 30; E-mail: karin.haugness@npf.no)

September 30 - October 3

SOCIETY OF VERTEBRATE PALEONTOLOGY (Annual Meeting), Salt Lake City, Utah, USA. (Contact: SVP, 401 N. Michigan Ave., Chicago, IL 60611-4267, USA. Tel: 1 312 321 3708)

October 5-7

FIFTH INTERNATIONAL CONFERENCE ON REMOTE SENSING FOR MARINE AND COASTAL ENVIRONMENTS, San Diego Princess Convention Center, San Diego, California, USA. Organized by ERIM with sponsors that include NASA, NOAA/NESDIS, U.S. DOE Nevada Operations Office and Remote Sensing Lab., GER Corporation, RadarSat International, and National Wetlands Research Center. (Contact: ERIM Marine Conferences, Box 134001, Ann Arbor MI 48113-4001 USA. Tel: +1 313 994 1200, ext. 3234; Fax: +1 313 994 5123; E-mail: wallman@erim.org)

October 5-9

INTERNATIONAL ASSOCIATION FOR MATHEMATICAL GEOLOGY (Annual Conference), Ischia Island, Naples, Italy. (Contact: Conference Secretariat, IAMG '98, c/o Antonella Buccianti, Dipartimento di Scienze della Terra, Università di Firenze, Via La Pira 4, 50121 - Firenze, Italy. Tel: +39 55 275 7496; Fax: +39 55 284 571; E-mail: buccianti@cesit1.unifi.it)

October 6-9

GERMAN GEOLOGICAL SOCIETY (150th Annual Meeting), Berlin, Germany. (Contact: Johannes Schroeder, Inst. für Angewandte Geowissenschaften II, Ernst-Reuter-Platz 1, D-10587 Berlin, Germany. Tel: 49 30 314 23650; Fax: 49 30 314 21107; E-mail: Geo-Berlin-98@tu-berlin.de)

October 7-9

COMPUTER SIMULATION IN RISK ANALYSIS AND HAZARD MITIGATION (International Conference), Valencia, Spain. (Contact: Paula Doughty-Young, RISK ANALYSIS '98 Conference Secretariat, Wessex Institute of Technology, Ashurst Lodge, Ashurst, Southampton SO40 7AA, UK. Fax: +44 1703 292 853; E-mail: paula@wessex.ac.uk)

October 19-21

WILLISTON BASIN SYMPOSIUM (8th International), Regina, Saskatchewan, Canada. (Contact: Dr. Dough Paterson, Saskatchewan Geological Society, P.O. Box 234, Regina, Saskatchewan, Canada S4P 2Z6. Tel: +1 306 787 2625; Fax: +1 306 787 4608; E-mail: dpaterson@gov.sk.ca; WWW: <http://www.gov.sk.ca/enermine/about/semnew.htm>)

October 26-29

GEOLOGICAL SOCIETY OF AMERICA ANNUAL MEETING, Toronto, Ontario, Canada. (Contact: GSA Meetings Department, P.O. Box 9140, Boulder CO, 80301 USA. Tel: +1 303 447 2020; Fax: +1 303 447 1133; E-mail: meetings@geosociety.org; WWW: <http://www.geosociety.org/meetings/index.htm>)

October 26-29

SOCIETY OF ECONOMIC GEOLOGISTS (Annual Meeting, with GSA), Toronto, Canada)

October/November

PHYSICAL, CHEMICAL AND BIOLOGICAL ASPECTS OF AQUIFER-STREAM SEDIMENT INTERRELATIONS (28th IAH Congress) (Contact: Dr. J. Rosenschein, USGS MS 414, National Center, Reston Va 22092, USA; Fax: 703 648 5722)

November 8-11

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS (International Conference and Exhibition), Rio de Janeiro, Brazil. (Contact: AAPG Conventions Department, P.O. Box 979, 1444 S Boulder Ave., Tulsa, OK 74101-0979, USA. Tel: +1 918 560 2679; Fax: +1 918 560 2684)

November 16-20

THIRTEEN SOUTHEAST ASIAN GEOTECHNICAL CONFERENCE (Conference), Taipei, Republic of China. (Contact: Dr. John Chien-Chung Li, Secretary General/SEAGC 13, c/o Public Construction Commission, Executive Yuan, Fl. 9, No. 4, Chung Hsiao West Road, Sec. 1, Taipei, Taiwan, Republic of China. Tel: 886-2-388-4962; Fax: 886-2-388-4959; E-mail: seagc13@mail.pcc.gov.tw)

December 1-3

ORIGIN OF THE EARTH AND MOON (International Conference of the Geochemical Society), Monterey, California, USA. (Contact: LeBecca Simmons, Lunar and Planetary Institute, 3600 Bay Area Boulevard, Houston TX 77058-1113, USA. Tel: 1 281 486 2158; Fax: 1 281 486 2160; E-mail: simmons@lpi.jsc.nasa.gov)

December 2-3

SEAPEX SILVER JUBILEE EXPLORATION CONFERENCE, Suntec City Exhibition Center, Singapore. (Contact: Mr. T.C. Chew, Southeast Asia Petroleum Exploration Society, P.O. Box 423 Tanglin Post Office, Singapore 812. Tel: (65) 338-9108; <http://web.singnet.com.sg/~seapex>)

December 6-10

AMERICAN GEOPHYSICAL UNION (Annual Fall Meeting), San Francisco, California, USA. (Contact: AGU Meetings Department, 1998 Fall Meeting 2000 Florida Avenue NW, Washington, DC 20009, USA. Tel: +1 202 462 6900 (in Washington, D.C. area and outside North America), or +1 800 966 2481 (toll-free in North America); Fax: +1 202 328 0566; E-mail: meetinginfo@kosmos.agu.org; WWW: <http://www.agu.org>)

1999

February 1-5

SHALLOW TETHYS (International Symposium), Chiang Mai, Thailand. (Contact: Shallow Tethys 5 Symposium Secretary, Dept. of Geological Sciences, Chiang Mai University, Chiang Mai 50200, Thailand. Fax: 66 53 89 2261)

March 1-3

THIRTEENTH INTERNATIONAL CONFERENCE AND WORKSHOPS ON APPLIED GEOLOGIC REMOTE SENSING: Practical Solutions for Real-World Problems. Hotel Vancouver, Vancouver, British Columbia, Canada. Organized by ERIM with sponsors that include NASA, U.S. DOE Nevada Operations Office and Remote Sensing Lab, and USGS. (Contact: ERIM Geologic Conferences, Box 134001, Ann Arbor, MI 48113-4001 USA. Tel: +1 313 994 1200, ext. 3234; Fax: +1 313 994 5123; E-mail: wallman@erim.org)

March 1-4

SOCIETY FOR MINING, METALLURGY, AND EXPLORATION (Annual Meeting), Denver, Colorado, USA. (Contact: SME, 8307 Shaffer Parkway, P.O. Box 625002, Littleton, CO 80162-5002, USA. Tel: 1 303 973 9550; E-mail: smenet@aol.com)

March 9-11

INTERNATIONAL CONFERENCE ON PANGEA AND THE PALEOZOIC-MESOZOIC TRANSITION, Wuhan, Hubei, China. (Contact: Dr. Tong Jinan, Faculty of Earth Science, China University of Geosciences, Wuhan, Hubei 430074, China. Tel: +86-27-7482031; Fax: +86-27-7801763; E-mail: jntong@dns.cug.edu.cn)

April 11-14

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS (Annual Meeting), San Antonio, Texas, USA. (Contact: AAPG Conventions Department, P.O. Box 979, 1444 S. Boulder Ave., Tulsa, OK 74101-0979, USA. Tel: +1 918 560 2679; Fax: +1 918 560 2684; E-mail: dkeim@aapg.org)

May 26-28

GEOLOGICAL ASSOCIATION OF CANADA-MINERALOGICAL ASSOCIATION OF CANADA, JOINT ANNUAL MEETING, Sudbury, Ontario. (Contact: Dr. P. Copper,

Dept. of Earth Sciences, Laurentian University, Sudbury, Ontario P3E 2C6, Canada. Tel: (705) 657-1151 ext. 2267; Fax: (705) 675-4898; E-mail: gacmac99@nickel.laurentian.ca)

June

FOURTH INTERNATIONAL AIRBORNE REMOTE SENSING CONFERENCE AND EXHIBITION, Ottawa, Ontario, Canada. Organized by ERIM. (Contact: ERIM Airborne Conferences, Box 134001, Ann Arbor, MI 48113-4001 USA. Tel: +1 313 994 1200, ext. 3234; Fax: +1 313 994 5123; E-mail: wallman@erim.org)

June 7-11

EUROPEAN ASSOCIATION OF GEOSCIENTISTS AND ENGINEERS (EAGE, 61st Conference), Helsinki, Finland.

July 19-30

INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS, Birmingham, UK. (Contact: IUGG99, School of Earth Sciences, University of Birmingham, Edghaston, Birmingham B15 2TT, UK. Fax: 44 121 414 4942; E-mail: IUGG99@bham.ac.uk)

August 3-12

INTERNATIONAL UNION FOR QUATERNARY RESEARCH (INQUA) (15th Congress), "The Environmental Background to Hominid Evolution in Africa", Durban, South Africa. (Contact: Dr. D. Margaret Avery, INQUA XV CONGRESS, P.O. Box 61, South Africa Museum, Capetown 8000, South Africa. Tel: +27 21 243 330; Fax: +27 21 246 716; E-mail: mavery@samuseum.ac.za; WWW: <http://inqua.geoscience.org.za>)

August 4-12

AFRICA, CRADLE OF HUMANKIND DURING THE QUATERNARY (XV INQUA Congress), Durban, South Africa. (Contact: Prof. T.C. Partridge, Climatology Research Center, University of Witwatersrand, 13 Cluny Rd., Forest Town, Johannesburg 2193, South Africa. Tel: +27 11 646 3324; Fax: +27 11 486 1689; E-mail: 141tcp@cosmos.wits.ac.za)

August 14-25

CARBONIFEROUS-PERMIAN (XIV International Congress), Calgary, Alberta, Canada. (Contact: Dr. Charles Henderson, Associate Professor, Department of Geology and Geophysics, The University of Calgary, N.W.

Calgary, Alberta, Canada T2N 1N4. Tel: 403 220 6170; Fax: 403 285 0074; E-mail: henderson@geo.ucalgary.ca)

August 22-25

SOCIETY FOR GEOLOGY APPLIED TO MINERAL DEPOSITS (SGA) (5th Biennial Meeting), "Mineral Deposits: Processes to Processing," London, UK. Imperial College Natural History Museum. (Contact: Dr. Chris Stanley, Department of Mineralogy, Natural History Museum, Cromwell Road, London, SW7 5BD, UK. Tel: +44 171 938 9361; Fax: +44 171 938 9268; E-mail: cjs@nhm.ac.uk)

September

THE CONTINENTAL PERMIAN OF THE SOUTHERN ALPS AND SARDINIA (ITALY): Regional reports and general correlations (International Field Conference), Brescia, Italy. (Contact: Prof. G. Cassinis, Dipartimento di Scienze della Terra, Università di Pavia, Via Ferrata, 1, I-27100 Pavia, Italy. Tel: 39 382 505834; Fax: 39 382 505890; E-mail: cassinis@ipv36.unipv.it)

September

INTERNATIONAL ASSOCIATION OF HYDROGEOLOGISTS (29th Congress), Bratislava, Slovakia. (Contact: Prof. L. Melioris, Comenius University, Mylinska Dolina, 84215 Bratislava, Slovakia. Tel/Fax: +42 7 725 446; E-mail: podzvody@fns.uniba.sk)

September

INTERNATIONAL SOCIETY OF ROCK MECHANICS (9th International Congress), Paris, France. (Contact: Dr. S. Gentier, Secrétaire Général du CFMR, BRGM/DR/GGP, Avenue Claude Guillemin, B.P. 6009, F-45060 Orléans Cedex 2, France. Tel: +33 2 38 64 38 77; Fax: +33 2 38 64 30 62)

September 12-15

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS (International Meeting), Birmingham, UK. (Contact: AAPG Conventions Dept., P.O. Box 979, Tulsa, OK 74101-0979, USA. Tel: 1 918 560 2679; Fax: 1 918 560 2684)

October 25-28

GEOLOGICAL SOCIETY OF AMERICA (Annual Meeting), Denver, Colorado, USA. (Contact: GSA Meetings Dept., P.O. Box 9140, Boulder, CO 80301-9140, USA. Tel: +1 303 447 2020; Fax: +1 303 447 1133; E-mail: meetings@geosociety.org; WWW: <http://www.geosociety.org/meetings/index.htm>)

October 30 - November 4

SOIL SCIENCE SOCIETY OF AMERICA (Annual Meeting), Salt Lake City, Utah, USA. (Contact: SSSA, 677 So. Segoe Rd., Madison, WI 53711, USA. Tel: 1 608 273 8090; Fax: 1 608 273 2021; E-mail: rbarnes@agronomy.org)

2000

March 6-9

SOCIETY FOR MINING, METALLURGY, AND EXPLORATION (Annual Meeting), Salt Lake City, Utah, USA. (Contact: SME, 8307 Shaffer Parkway, P.O. Box 625002, Littleton, CO 80162-5002, USA. Tel: 1 303 973 9550; E-mail: smenet@aol.com)

August 6-17

31ST INTERNATIONAL GEOLOGICAL CONGRESS, Rio de Janeiro, Brazil. Theme of the Congress: Geology and Sustainable Development: Challenges for the Third Millennium. (Contact: Prof. Hernani Chaves, President of the Preparatory Commission for the 31st IGC, Ave. Pasteur, 404, Urca: Cep 22290-204, Rio de Janeiro, Brazil. Tel: +55 21 295 5337; Fax: +55 21 542 3647; E-mail: Hernani@uerj.br)

October

INTERNATIONAL MILLENIUM CONGRESS ON GEOENGINEERING, Melbourne, Australia. (More information soon)

November 13-16

GEOLOGICAL SOCIETY OF AMERICA (Annual Meeting), Reno, Nevada, USA. (Contact: GSA Meetings Dept., P.O. Box 9140, Boulder, CO 80301-9140, USA. Tel: +1 303 447 2020; Fax: +1 303 447 1133; E-mail: meetings@geosociety.org; WWW: <http://www.geosociety.org/meetings/index.htm>)

2001

June 3-6

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS (Annual Meeting), Denver, Colorado, USA. (Contact: AAPG Conventions Department, P.O. Box 979, 1444 S. Boulder Ave., Tulsa, OK 74101-0979, USA. Tel: +1 918 560 2679; Fax: +1 918 560 2684; E-mail: dkeim@aapg.org)

November 5-8

GEOLOGICAL SOCIETY OF AMERICA (Annual Meeting), Boston, Massachusetts, USA. (Contact: GSA Meetings Dept., P.O. Box 9140, Boulder, CO 80301-9140, USA; Tel: +1 303 447 2020; Fax: +1 303 447 1133; E-mail: meetings@geosociety.org; WWW: <http://www.geosociety.org/meetings/index.htm>)

2002

March 10-13

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS (Annual Meeting), Houston, Texas, USA. (Contact: AAPG Conventions Department, P.O. Box 979, 1444 S. Boulder Ave., Tulsa, OK 74101-0979, USA. Tel: +1 918 560 2679; Fax: +1 918 560 2684; E-mail: dkeim@aapg.org)

October 28-31

GEOLOGICAL SOCIETY OF AMERICA (Annual Meeting), Denver, Colorado, USA. (Contact: GSA Meetings Dept., P.O. Box 9140, Boulder, CO 80301-9140, USA; Tel: +1 303 447 2020; Fax: +1 303 447 1133; E-mail: meetings@geosociety.org; WWW: <http://www.geosociety.org/meetings/index.htm>)

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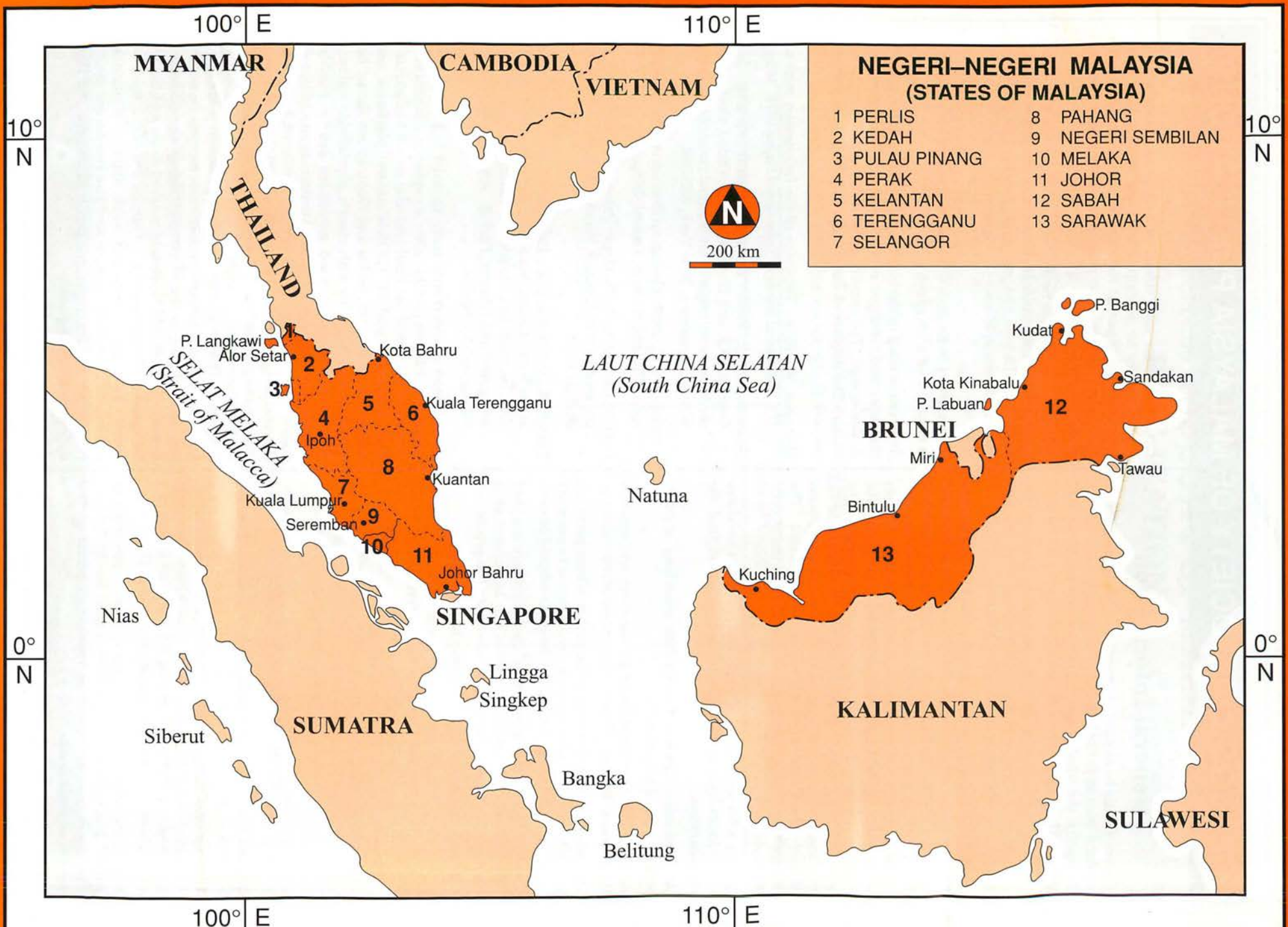
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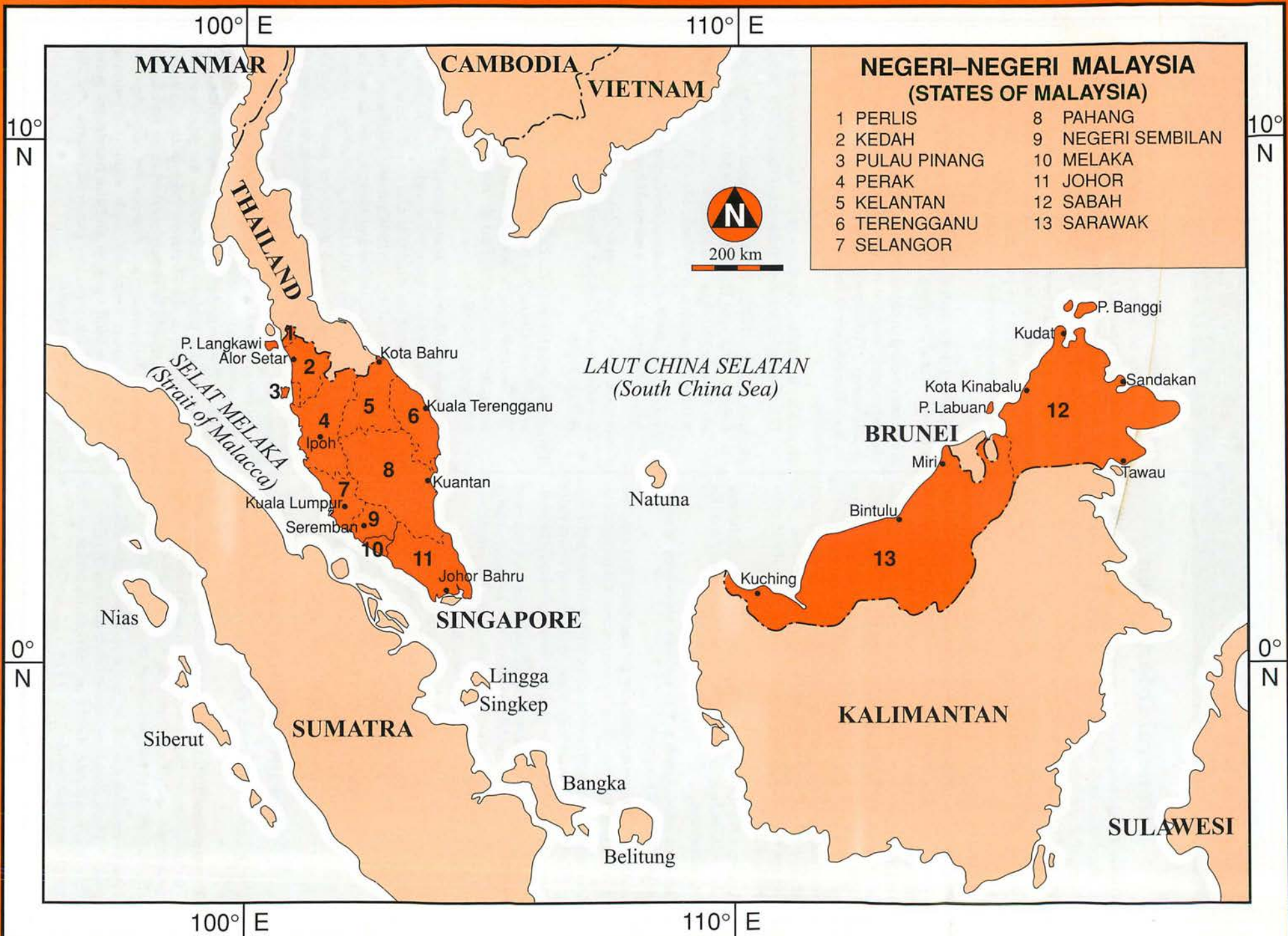
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SUNTHARALINGAM, T., 1968. Upper Paleozoic stratigraphy of the area west of Kampar, Perak. *Geol. Soc. Malaysia Bull.* 1, 1-15.

TAYLOR, B., AND HAYES, D.E., 1980. The tectonic evolution of the South China Sea basin. In: D.E. Hayes (Ed.), *The Tectonic and Geologic Evolution of Southeast Asian Sea and Islands, Part 2. Am. Geophy. Union Monograph* 23, 89-104.

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**NEGERI-NEGERI MALAYSIA
(STATES OF MALAYSIA)**

- | | |
|----------------|-------------------|
| 1 PERLIS | 8 PAHANG |
| 2 KEDAH | 9 NEGERI SEMBILAN |
| 3 PULAU PINANG | 10 MELAKA |
| 4 PERAK | 11 JOHOR |
| 5 KELANTAN | 12 SABAH |
| 6 TERENGGANU | 13 SARAWAK |
| 7 SELANGOR | |

MYANMAR

CAMBODIA
VIETNAM

THAILAND

SELAT MELAKA
(Strait of Malacca)

LAUT CHINA SELATAN
(South China Sea)

BRUNEI

KALIMANTAN

SULAWESI

SUMATRA

SINGAPORE

Nias

Siberut

Lingga
Singkep

Bangka

Belitung

Natuna

Kuching

Bintulu

Miri

P. Labuan

Kota Kinabalu

Kudat

P. Banggi

Sandakan

Tawau

Kota Bharu

Kuala Terengganu

Kuantan

Johor Bahru

Kuala Lumpur

Seremban

Ipoh

Alor Setar

P. Langkawi