

# Geological Society of Malaysia

PERSATUAN GEOLOGI MALAYSIA

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## G E O L O G I C A L   N O T E S

Interesting huebnerite-quartz growth texture from Khao Kathun,  
South Thailand

N.H. Chong, Jabatan Geologi, Universiti Malaya

The author recently studied the geology of the Khao Kathun wolfram mine (Fig. 1, location). The mine was found to be underlain by phyllite and quartzite which have been intruded by a granite. A fault zone with NW-SE strike occur along the granite-metasediments contact. Huebnerite ( $MnWO_4$ ) was found to be deposited in the fault zone (Chong, in manuscript).

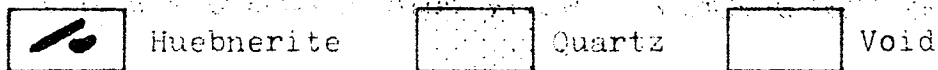
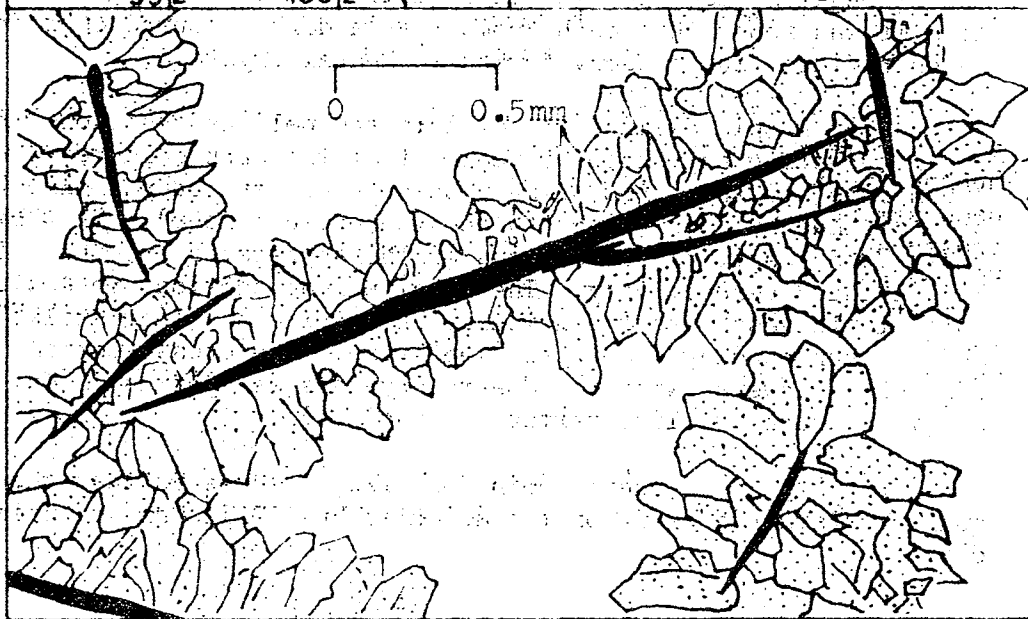
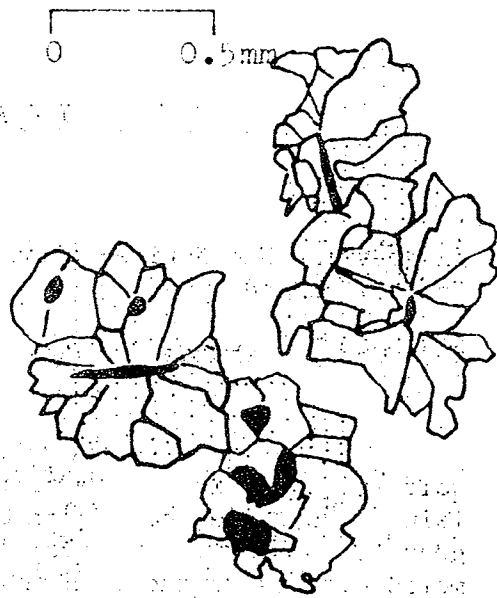
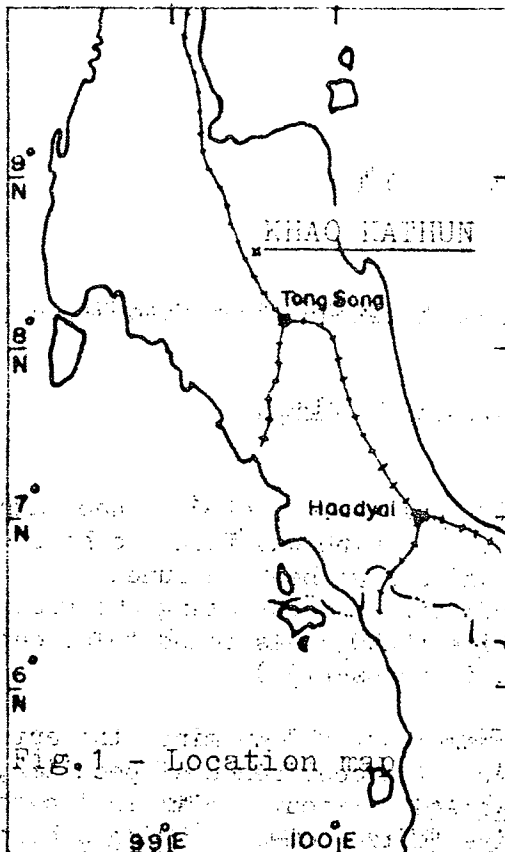
While examining some ore samples from the mine, the author noticed in some quartz-rimmed vugs the occurrence of peculiar, brown, rod-like, crystalline aggregates about 2-5 mm in length. The aggregates resemble miniature "maize combs". Using a hand-lens it was found that each "comb" has a dark coloured core from which radiate fine closely packed subhedral crystals.

Microscopic examination of thin and polished sections of the interesting aggregates revealed that the dark coloured core is huebnerite and the surrounding fine crystals are quartz which has been stained by iron oxides (hence the brown colour). Sketches of cross- and longitudinal sections of the aggregates are shown in Fig. 2 and 3 respectively. The longitudinal sections resemble "pinnate leaves" with the acicular huebnerite as "leaf stalks" and the surrounding quartz as "leaflets". The cross-sections resemble "flowers" with the quartz crystals as "petals". The origin of such peculiar texture is uncertain.

From the paragenetic point of view, it appears that the quartz crystals growing on the acicular huebnerite are of primary origin.

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(Figures 2 and 3 are tracings from photomicrographs)

## Application of statistics in palaeontology\*

S.S. Sarkar, Jabatan Geologi, Universiti Malaya

In these days of growing application of the computer, statistics is also being applied to palaeontology. The application of statistics in palaeontology, however, has some limitations as in biology.

The author has examined the holotypes of eleven species of Lower Triassic cephalopods from Spiti, Mala Johar and Byans described by von Kraft and Diener (1909) and has made various measurements of the cephalopods. The biometrical study shows that there were three distinct clusters or groups. The author has discussed in the paper that some morphological characters of these species have been overlooked if the total number of species are reduced to three.

In the study of a large fossil population, particularly microfossils, it is often useful to classify using a certain number of selected variables. However, these groups are not very useful as all desirable morphological characters have not been considered. The author believes that mathematical treatment of fossil collections leading to a more objective interpretation is laudable. However, a much better interpretation could be obtained if visual studies of taxonomy have been done as well.

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### Reference

Kraft, A. von & Diener, C (1909) Lower Triassic cephalopods from Spiti, Mala Johar and Byans. Pal. Indica. Ser. 15, vol. 6 No. 1

\*enlarged abstract of the paper read at the AGM Discussion Meeting (22 Feb. 1974)

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## M E E T I N G S

### Applications of the Earth Resources Technology Satellite (ERTS) Seminar

On the 18th May 1974 about 30 members of the Society attended the seminar at Hotel Hilton, Kuala Lumpur from 8.30 a.m. - 4.30 p.m. The seminar was jointly organised by the Society, the Malaysian Institute of Mineral Engineering and the United States Information Service. The speakers were Dr Nicholas M. Short and Mr John H. Boeckel both from NASA's Goddard Space Flight Centre. The President of the Society, Mr Santokh Singh, was the Chairman.

An opening address was given by Y.M. Tengku Tan Sri Ngah Mohamed bin Tengku Sri Akar, the Secretary General of the Malaysian Ministry of Primary Industries. He expressed the hope that the ERTS project would also cater for the interests of developing nations in fields such as weather forecasting, mineral exploration, etc. In his reply, Mr Irving G. Cheslaw (U.S. Deputy Chief of Mission) said that the American 'man-on-the-moon' project has numerous beneficial by-products and all the money spent has been worthwhile.

Before the talks, the members were shown an introductory film on how the ERTS works, laboratory processing of the collected data and some ERTS applications in geology.

In the morning session, Mr Boeckel talked on the ERTS system giving technical details and limitations of the system. He said that many parts of Malaysia have not been covered because of the presence of dense cloud blankets over the country. Regarding future projects, he said the second ERTS would be launched in 1975.

After the morning tea break, Dr Short talked on the applications of remote sensing in geology. Some of the applications given in his talk are (a) map editing (b) landform studies (c) structural geology (d) sedimentation studies (e) monitoring of volcanic activities (f) mineral and petroleum exploration and (g) search for groundwater. He stressed that remote sensing is just a new tool and will not be able to replace established field methods.

In the afternoon, the speakers delivered talks on ERTS applications in agriculture, forestry, environment and water resources.

After the seminar, the Chairman thanked the speakers and the United States Information Service for making the seminar so interesting and successful.

(TTK)

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N E W S

FROM THE SECRETARY

AAPG Affiliation

On 31st March 1974 the House of Delegates of the American Association of Petroleum Geologists (AAPG) has voted unanimously to approve the affiliation of the Society as an International Associate. It is hoped that the affiliation will prove to be mutually beneficial.

Membership

The following were elected to the Society:

Full member

Mr Reynolds Michael  
Amoco International Oil Co.  
P.O. Box 8368  
Chicago, Ill 60680  
U.S.A.

Dr Garnett M. Dow  
Amoco International Oil Co.  
200E Randolph  
Chicago, Ill 60601  
U.S.A.

Mr James E. Monical  
Continental Oil Co (Malaysia)  
1701 Oriental Plaza  
Jalan Parry, Kuala Lumpur.

Student member

En. Abdul Hanif Hussein  
 180 Jalan Sungai  
 Sg. Siput (U)  
 Perak, Malaysia

Address Unknown

The Society would like to have the address of Mr Chin Lik Suan.

## FROM THE TREASURER

Student Loans

This year the Society has so far given loans to 9 student members, totalling \$2,350. These students are in the final year at the Geology Departments of Universiti Kebangsaan Malaysia and Universiti Malaya. The loans are meant to assist them in field work relating to their B.Sc. Honours dissertations.

This brings the total number of recipients since the inception of the scheme last year to 29, and the total value of the loans to \$6,800. The word from the students is that they are very appreciative of this assistance from the Society and the Council in turn is happy to be of help to them.

For the benefit of the student members who may not be knowing it may be added that they can apply to the Council for loans of up to \$300 on prescribed application forms obtainable from the Hon. Secretary of the Society. The loans are interest-free and are repayable within three years. Applicants are reminded that they should indicate the location of their area of geological investigation under the column "Any additional information". This,



together with the other information asked for in the application, enables the Council to decide on the amount of loan that is appropriate.

As yet the repayment of loans given last year has not started - perhaps it is too early. Since it is understood that a majority of last year's recipients are already in employment they are urged to think in terms of early repayment (if desired, in two or three instalments) instead of waiting for the three year limit! Also, if they could repay a little more than what they have borrowed, this will contribute to the growth of the Loan Fund, which future students can make use of in future.

Will former loan recipients please inform us of any changes in your address, quoting if possible, your Student Loan Reference Number. Your cooperation will be greatly appreciated.

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FROM THE EDITOR

Publications

Bulletin 7, which was edited by Dr B.K. Tan, is now in the press. It contains the following papers:

- Taylor, D. The liberation of minor elements from rocks during plutonic igneous cycles and subsequent concentration to form workable ores with particular reference to copper and tin. (5th Presidential Address delivered on 4th February 1972).
- Hosking, K.F.G. Practical aspects on the identification of cassiterite ( $\text{SnO}_2$ ) by the tinning test.
- Gobbett, D.J. & Stauffer, P.H. Bibliography and index of the geology of West Malaysia and Singapore - Supplement 2: 1969-1971.

Wee, W.H. & Taylor, D. A major unconformity exposed in Sungai Siput, Pahang.

Stauffer, P.H. Malaya and south-east Asia in the pattern of continental drift (6th Presidential Address delivered on 16th February 1973).

"Geology of the Malay Peninsula" - what a reviewer said.

"Notwithstanding my criticisms this is an excellent handbook which I warmly recommend to every geologist interested in this part of the world. It is a worthy successor to Scrivenor's classic on the Geology of Malaya (1931)".

G.L. Krol (Book Review, Econ. Geol. March-April 1974, pp. 275-276)

## NOTICES

### REMITTANCES TO THE SOCIETY

The Treasurer will be grateful if all members of the Society, purchasers of the Society's publications and others follow the suggestions given below:

1. If payment is made by cheque, draft or money order, please make them out in the name of GEOLOGICAL SOCIETY OF MALAYSIA and if you wish, cross them "Account Payee only".
2. Remittances may also be made through your Bank by post or telegraphic transfer. Please make such remittances payable to:

Geological Society of Malaysia  
in account with  
The Chartered Bank  
New Town Centre  
Petaling Jaya, Selangor, MALAYSIA.

quoting our Invoice Number if payment is for publications already received by you, or giving brief particulars if payment is for membership dues, etc.

- 3. Please avoid sending cash by post. However, if you must send cash, please ensure that the letter is registered.
- 4. If payment is by cash at the Society's address, please obtain the temporary receipt and retain it until you receive the formal receipt by post.
- 5. When enclosing remittance with any letter to the Society, please address the envelope to the Treasurer at the Society's address (c/o Department of Geology, University of Malaya, Kuala Lumpur, 22-11, Malaysia). As soon as your remittance is recorded and removed, the letter will be passed on to the appropriate officer of the Council who deals with it.

(EVG)

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**GEOLOGISTS' LUNCH**

Many members in the Kuala Lumpur area meet for lunch and discussions at 1 p.m. every first Saturday of the month. The July lunch will be at the Regent Hotel, Kuala Lumpur and the organiser, Mr G.H. Teh hopes to see many of you turn up for the lunch. For further information, you can contact Mr Teh at the Department of Geology, University of Malaya, Kuala Lumpur or telephone 54361 Ext. 336.

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(GHT)

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

1. Alekseev, M.N. (1973) Boundary between Neogene and Quaternary System in eastern Asia. In "The boundary between Neogene and Quaternary (collection of papers IV)". Edited by M.N. Alekseev, etc. Moscow, pp. 3-19 (in Russian), pp. 20-32 (English translation).

The stratigraphy of Pliocene and Quaternary deposits in eastern USSR, Japan, northern China, western Taiwan, the Philippines, Burma, Malaysia and Java is reviewed and correlated. The author pointed out that the boundary between the Brunhes (normal polarity) and Matuyama (reverse polarity) paleomagnetic epochs is 0.69 m.y. (Cox and Dalrymple, 1967) and tektites from the Kaboeh beds (Java) and the Guadalupe formation (Philippines) gave K-Ar ages of 0.61-0.72 m.y. (Koenigswald, 1949) which are quite similar to the age of the boundary. He also said that in Java, Bolli (1966) established zone 21 of Globorotalia crassaformis and zone 22 of Globorotalia truncatulinoides. The first appearance of the latter foraminifer is said to coincide in time with the base of the Gilsa normal event (1.8 m.y.) of the Matuyama reversed polarity epoch. According to the author, the base of the Gilsa event is generally adopted, by most geological surveys as the boundary between Neogene and Quaternary.

(TTK)

2. Srinivasan, M.S. & Sharma, V. (1973) Stratigraphy and microfauna of Car Nicobar island, Bay of Bengal. J. Geol. Soc. India, Vol. 14, pp 1-11

In this paper, the authors mapped 2 formations in the island - Sawai Bay and Malacca limestone formations. The latter lithological unit is believed by them to be overlying the former uncon-

formably. The Sawai Bay formation is made up of 2 conformable members - Sawai Bay mudstone ( $\approx 800$  ft) and Sawai Bay limestone ( $\approx 90$  ft). The Sawai Bay rocks are said to be dipping gently towards the north-east. Abundant foraminifers have been found in the rocks and they distinguished 3 biostratigraphic zones. In ascending orders, they are (a) Globorotalia tumida flexuosa zone, (b) Globigerina nepenthes zone and (c) Globorotalia multicamerata Pulleniatina obliqueloculata zone. From the microfaunal evidence, the age of the Sawai Bay mudstone and limestone are considered to be L. Pliocene and M. Pliocene respectively and the Malacca limestone is considered to be Plio-Pleistocene in age. The authors also pointed out that basic and ultrabasic rocks shown to be occurring on the eastern half of the island in the 1964 geological map published by the Geological Survey of India have not been found.

(TTK)

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3. Lo, H.H. (1973) Composition of Philippine volcanic rocks. Trans. Am. Geophy. Union (Abstracts) Vol. 54, p. 1217

Volcanic rocks from Luzon and Marinduque are found by the author to fall into 2 groups - low-Si andesite and tholeiitic basalt. He found that in the volcanic rocks, K and Al increase, Ti, Mg, Fe and Ca decrease as the  $SiO_2$  content increases. The Ti contents of the Philippine tholeiitic basalts are, according to the author, unusually low compared to average continental and oceanic tholeiites. Most of the major elements of the volcanic rocks such as Si, Mg, Ca and K are found to have concentrations falling between continental and oceanic tholeiites. The author also described the petrography of the volcanic rocks.

(TTK)

4. Cronk, C. (1974) A suggested plate tectonic history of the Indonesia area. Trans. Am. Geophys. Union (Abstracts) vol. 55, p. 301.

Based on published data, an attempt is made to deduce a possible sequence of events responsible for the geologic development of the Indonesian area. The geographical and temporal distribution of orogenic events and sediments is used to interpret related plate movements. In early Mesozoic time, Indochina, Indonesia, and perhaps the older parts of the Philippines were located on the north edge of Gondwana land. The region from the Celebes westward moved to its present position during the Mesozoic, followed in the Tertiary by the eastern islands and New Guinea. The mid-Tertiary change in direction of the Pacific Plate from a northward to a north-westward direction, combined with the northward movement of Australia, has caused the deformation of the formerly straight Outer Banda Arc. The shifting of plate boundaries, causing the transfer of plate fragments from one major plate to another, has also been important in the development of the area.

(Author's abstract)

5. Karig, D; Ingle, J.C.; Bouma, A.H.; Ellis, H. and others (1973) Origin of the West Philippine Basin. Nature Vol. 246 pp 458-461.

Results of the Deep Sea Drilling Project Leg 31 are given. The authors thought that the basin is probably formed by complex pulses of extension during the early Tertiary and that the so-called Central Basin Fault or Philippine Ridge is probably a strike-slip fault, possibly with left lateral displacement.

(TTK)



5. Nguyen Dinh Kat (1972) Tectonic zonation of Vietnam, Laos and Cambodia (in Russian). Doklady Akad. Nauk SSSR, vol. 205, pp 916-919. (English translation in Doklady Acad. of Science USSR, Amer. Geol. Inst., August 1973 pp 65-68)

The author remarked that Indochina is tectonically interesting as it lies at the junction of the Circumpacific ring and the Mediterranean belt and that virtually all epochs of folding of the earth's crust are represented in Indochina. He divided Indochina into various tectonic zones such as median massifs, platforms, swells, basins and fold zones (Caledonian, Hercynian). The paper cannot be readily understood unless the reader is quite familiar with names and terms commonly used in Soviet work on structural geology.

From published work and his own data, the author recognized 6 major stages of igneous activity in Indochina - late Precambrian, early Cambrian, Permian-Triassic (up to Carnian), Jurassic-beginning of Cretaceous, late Cretaceous-Paleogene and Miocene. The Jurassic-beginning of Cretaceous event is believed to coincide with the orogenic stage of development of the Indochinese Mesozoides. The Miocene event is only represented by basalts.

(TTK)

6. Wesley, L.D. (1973) Some basic engineering properties of halloysite and allophane clays in Java, Indonesia. Geotechnique, Vol. 23, pp 471-494.

The properties of 2 soil groups widely found in Java and Sumatra are studied. The 2 groups, closely related, are known pedologically as latosols and andosols, and are formed under tropical weathering conditions from volcanic parent material. The latosols are reddish in colour and are found at altitudes up to about 1000 m while the andosols are yellowish-brown in colour and are found at greater altitudes.

Basic properties, particularly Atterberg limits, specific gravity and compaction characteristics are investigated in the natural state and after air and oven drying. The properties within each group are shown to be similar but are related more closely to mineralogical composition than to pedological classification.

Some basic in situ properties, including undrained shear strength, sensitivity and degree of saturation are also investigated.

(Author's abstract)

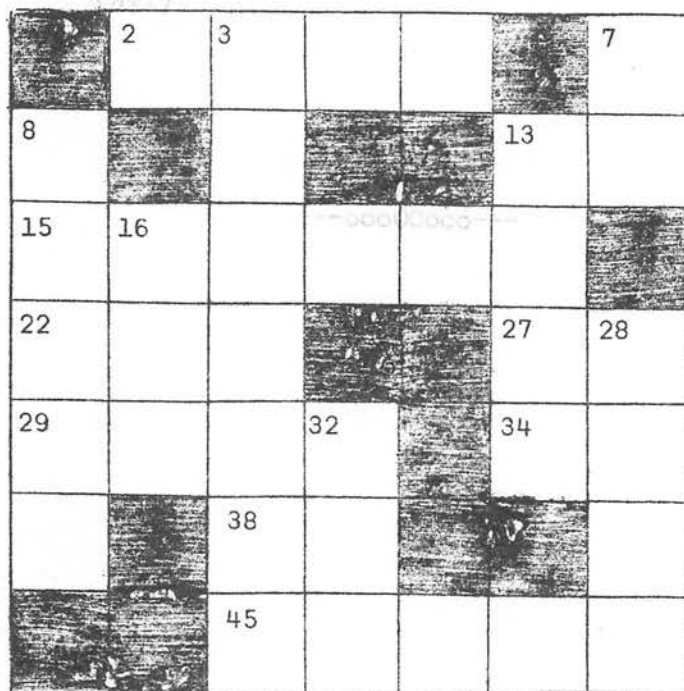
#### NEW BOOKS

1. Miyashiro, A. (1974) Metamorphism and metamorphic belts. Allen & Unwin. 480 pages, £8.60.
2. Carmichael, I.S.E., Turner, F.J. and Verhoogen, J. (1974) Igneous petrology. McGraw-Hill, 672 pages \$21.50 (US).
3. Sawkins, F.J., Chase, C.G., Darby, D.G., and Rapp, G. (1974) The evolving earth. MacMillan. 496 pages \$11.95 (US).
4. Hutchison, C.S. (1974) Laboratory handbook of petrographic techniques. Wiley Interscience 527 pages \$19.95 (US).
5. Jacobs, J.A., Russell, R.D. and Wilson, J.T. (1974) Physics and geology. 2nd edition. McGraw-Hill. 720 pages, \$17.95 (US).

## G E O - F U N

## GEO-CROSSWORD

Members are invited to send their answers to the Editor. The member, whose entry is the first all correct one to be opened on 25th July, will be given an extra copy of Bulletin 7. Each member is allowed to submit one entry only. Do not cut out the puzzle in the Newsletter; just send the answers. The solution will appear in the next Newsletter.



GSM Geo-crossword No. 1

Across

- (2) Big fire in two palaces? What a gem! (4)  
 (13) 2.65 of quartz (2)  
 (15) A blushing stone from Garten (6)  
 (22) Important meeting. We have one each year (3)  
 (27) What editors do without it (2)  
 (29) Need to know geology of South Africa. See to it (4)  
 (34) A citizen of Muscovy in short (2)  
 (38) Find a gas in cinnabar at the end (2)  
 (45) Disturb Colin to make mineralogists cross (5).

Down

- (3) System exported by Russia (7)
- (7) Short of a valuable metal in Agra (2)
- (8) Get aa to make into a semi-precious stone (5)
- (13) Form by joining and stacking many ossicles (4)
- (16) Rebuild Goa, in the past (3)
- (28) Lack lustre (4)
- (32) Trilobites which have lost all their lobes (3).

(TTK)

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