

Biostratigraphy of the Kinta Valley, Perak

FONTAINE HENRI¹ AND IBRAHIM BIN AMNAN²

¹128 rue du Bac, 75341 Paris cedex 07, France

²Geological Survey Department of Malaysia, Jalan Sultan Azlan Shah
P.O. Box 1015, 30820 Ipoh, Perak, Malaysia

The Kinta Valley is mainly made up of limestone or dolomite with subordinate shale. The limestone is widespread and varies in thickness. It is massive or bedded with dips varying from 15° to 70°, forming a few steep sided hills from 100 m to 500 m in height.

In the Chemor area, Middle Ordovician to Early Silurian graptolites with abundant *Orthograptus* cf. *truncatus* have been reported in shale and a Late Ordovician coral was also found in limestone. Late Early to early Late Devonian, Serpukhovian and Late Wolfcampian conodonts have also been found in the limestone.

Near Batu Gajah, Givetian (Middle Devonian) conodonts have been described. In an old mine pit (Wen Yoon Yuen mine, about 400 m northwest of Batu Gajah Golf Course), five solitary corals were found and identified by H.D. Thomas as *Siphonophyllia* cf. *gigantea* Michelin and *Zaphrentites* sp., indicating a Tournaisian–Visean age. From the same pit, a fusuline (*Eoschubertella* cf. *obscura* Lee and Chen) had also been found, indicating a Middle Carboniferous age. The presence of Permian with Sakmarian brachiopods has been noted east of Batu Gajah between Batu Gajah and Gopeng.

In the Kampar area, limestone, dolomitic limestone and dolomite which underlie Givetian limestone have yielded corals (*Thamnopora*) and gastropods (*Murchisonia*, *Straparollus*). The Carboniferous has been poorly documented by a coral (*Siphonophyllia*), a pelecypod (*Schizodus*?) and a cephalopod (*Cyrtoceras*?). On the contrary, the Permian has yielded a large amount of fossils in a good state of preservation, consisting of algae, fusulines, corals, large and thick shells of pelecypods, cephalopods and gastropods. These fossils have been collected mainly from the “old H.S. Lee mine No. 8”.

In the Kampung Sungai Keroh area north of Air Kuning, the Geological Survey files indicate the presence of some fossils at the Foong Ngean mine (small gastropods and some stromatoporoids), Hoong Cheong mine (large gastropods, streptelasmid and amplexoid corals, *Actinostroma* and *Clathrodictyum*) and Kwong Pook Loong mine No. 3 (*Murchisonia*-type gastropods). The presence of stromatoporoids indicates that the rocks of these mines cannot be younger than the Devonian. Gastropods and bivalves were noted at the Toong Poh mines north of Kampung Banir and at the Zain and Nun mine northwest of Kampung Banir.

Mar-Apr 1994

At the H.S. Lee Mine No. 8, two species of fusulines have been reported, i.e. *Misellina claudiae* (Deprat) which is restricted to the upper horizon and *Pseudofusulina krafftii* (Schellwien) in the lower horizon. In fact, these two species have been found together in Japan and their stratigraphical ranges are overlapping. Therefore, one cannot put emphasis on their distribution in two separate horizons at H.S. Lee Mine No. 8.

The following ammonoids have been reported from the H.S. Lee Mine No. 8:

- (i) *Prostacheoceras skinneri* (Miller) indicating a Late Artinskian age (Bolorian)
- (ii) *Adrianites* cf. *insignis*; Gemmellaro (*Adrianites insignis* indicates a Wordian age)
- (iii) *Neocrinite* cf. *guangxiensis* Chao & Liang.

A Wordian age is suggested by the specimens of *Adrianites*.

Some thin sections cut from the limestone samples collected from the H.S. Lee Mine No. 8 stored at the Geological Survey have been re-examined by the authors. They contain *Pseudofusulina krafftii* (Schellwien), a fusuline which occurs rather commonly in the Upper Yahtashian (the upper part of Lower Permian) and this species may extend into the Bolorian. The thin sections also contain *Cancellina (Maklaya) ex gr pamirica* Leven 1968 associated with *Parafusulina* cf. *undulata* Chen 1934, and *P. aff. japonica* (Gumbel). Some *Misellina* specimens described in the past such as *Misellina subelliptica* (Deprat, 1915) sensu Han 1985, are very close to, if not synonymous with, *Cancellina pamirica*.

This limestone corresponds to a subtidal deposition with bioaccumulation and hydrodynamic buildup. Hydrodynamic action is marked by frequent reworking. Fauna is diverse and include large pelecypods and abundant gastropods.

Study on the 39 thin sections from 4 samples of the limestone of "Old Nam Loong Kongsu Mine No. 1" indicates that one of the sample is similar to those from the "old H.S. Lee mine No. 8" and it contains *Cancellina (Maklaya) pamirica*. The other samples represent two different facies:

- i) facies rich in *Pseudovermiporella nipponica* Endo
- ii) facies rich in crinoids and containing Bryozoa (Fenestellidae and others), rare small foraminifera (*Tetrataxis*), a few gastropods and two tiny corals belonging to *Lophophyllidium* and maybe *Pavastehphyllum*.

A Recent visit to new "H.S. Lee Mine No. 8" (= No. 356, recent mine number given by the Mining Directorate) shows that it consists (from top to base) of:

- i) Massive limestone (wackestone to packstone), about 60 m thick, rich in fusulines at a horizon which is about 25 m above its base. The following fossils were noted:
 Crinoids (the most common fossil)
 Algae: *Tubiphytes obscurus* Maslov
 Small foraminifera: *Climacammina*
 Fusulines: *Parafusulina* sp.
 Sponges: *Hikrocodium*
- ii) Bedded limestone, dark grey, 10m thick, rich in crinoids and bryozoa (Fenestellidae and dendroid bryozoa). It also contains very rare *Tubiphytes obscurus* Maslov, some fragments of brachiopods (shells and spines) and rare pelecypods, very rare sea urchin spines and some ostracods. This limestone is commonly a packstone with rare to abundant dolomite crystals. Stylolites are common. This limestone differs from the above massive limestone because of the absence of fusulines and in the abundance of bryozoa.
- iii) Massive limestone, poorly exposed, locally rich in crinoids.

In conclusion, even though the biostratigraphy of the Kinta Valley area ranges from the upper Ordovician to Permian age, the Permian is more well-dated. The presence of *Maklaya* (fusuline) at H. S. Lee Mine is interesting because this genus as well as other taxa found at this locality are unknown in the northwest Peninsular Malaysia and Peninsular Thailand. *Maklaya* indicates the highest horizon of Bolorian or for some authors the base of Kubergandian. Moreover, the Bolorian limestone at the H. S. Lee Mine is possibly extends into the Yahtashian and it may corresponds to a period without limestone deposition in northwest Peninsular Malaysia and Peninsular Thailand.