

## Seminar on Marine Sedimentation and Biota in Malaysian Geological Record

### *Abstracts of Papers*

## Probable reasons for the paucity of the fossil record in the Kenny Hill Formation

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The Kenny Hill formation is a widely distributed thick sequence of arenaceous and argillaceous rocks in the general vicinity of Kuala Lumpur and areas south of it. Some bedded cherts from Dengkil have also been included in the formation.

Except for two reported finds of the Lower to Middle Permian ammonoid, *Agathiceras* sp., together with crinoid stems and poorly preserved bivalves and probable brachiopods, fossils are generally not found in the formation. Some trace fossils and Carboniferous to Permian palynomorphs have also been reported. The Dengkil radiolarians are supposedly pre-Carboniferous with Devonian affinities but a probable Triassic age has been suggested by H.Y. Ling (*pers. comm.*).

Absence of fossils in a formation can be due to many reasons including:- the lack of suitable material for preservation, unfavourable preservational environment, post-depositional destruction due to metamorphism, tectonics or weathering and erosion. I had originally thought that the Kenny Hill formation was largely unfossiliferous because most of it was metamorphosed or badly weathered where exposed. However, as more fresh and deep exposures created by the recent construction boom were examined, it became clear that some of them were not too metamorphosed or weathered and one begins to wonder if the absence of fossils is due to the actual non-presence and not non-preservation of the fossils in the first instance. This is not unlikely because the Kenny Hill is a rather thick formation. It could be fossiliferous in its lower part where the ammonoids and crinoids were found but the bulk of the Kenny Hill could be laid down perhaps during Late Permian times where many organisms were becoming or had become extinct. The end of the Permian between about 250 to 255 million years ago was disrupted by what appears to be the most devastating mass extinction of all time in which about half of all families in the marine realm disappeared and vertebrate faunas on land were decimated. This could create a real lack of material to be fossilised and explain the paucity of the fossil record in the Kenny Hill formation apart from or in addition to preservational factors. Additional support comes from the general lack of trace fossils in those parts of the Kenny Hill which are also devoid of body fossils indicating the absence of organisms.

There appears to be a change in depositional environment from deep (Dengkil radiolarian cherts) to shallow deposits where channel sandstones cutting deep red shales have been observed (e.g. in the Puchong area) in the unfossiliferous and most likely younger parts of the Kenny Hill formation. The palaeogeographic significance could be that the lower part of the Kenny Hill formation with *Agathiceras* is marine and correlatable with other Lower to Middle

Permian ammonoid localities in Kampar, Cheroh, Maran and Kuala Betis while the upper unfossiliferous part was deposited in Late Permian time in an increasingly shallow and more continental environment.

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