

SOME PERMIAN AMMONOIDS FROM KUALA BETIS AREA, KELANTAN

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Permian ammonoids were first recorded in Malaysia by Jones *et al.* (1966) in Kampar, Perak. These ammonoids which include *Stacheoceras* sp., *Crimites* sp. and *Adrianites* sp. suggested Middle Permian age to the H. S. Lee Beds. Suntharalingam (1968) added (and figured) *Agathiceras* sp. to the list of ammonoid genera found from the same bed. Detailed study conducted by Lee (1978) on these cephalopods suggested that these fauna might belong to the late Artinskian age. Lee (1978) also described some Middle Permian (early Murghabian) cephalopod fauna from Sungai Cheroh, Pahang. The Sungai Cheroh fauna is the only known Permian cephalopod fauna from the Central Belt of Peninsular Malaysia, prior to the present study. The age of the Kampar and Sungai Cheroh fauna were later converted into the threefold Permian subdivision by Fontaine (1986).

Recently, Permian cephalopods from two localities within the vicinity of Kuala Betis, Kelantan were studied. The Sungai Peralong cephalopod fauna were found in thin to moderately bedded tuffaceous siltstones and mudstones. The fauna consists of *Agathiceras* cf. *A. suessi* Gemellaro, *Adrianites elegans* Gemellaro, *Propanoceras* sp., *Propinacoceras* sp. and some uncertain ammonoids with goniatitic suture. Some rare productidid and athyridid brachiopods were also discovered from this fossiliferous locality. The cephalopod assemblage is very similar to that of the Sungai Cheroh fauna and thus suggests an early Murghabian age to the Sungai Peralong fauna.

The Sungai Berok cephalopods were confined to thin tuffaceous interbeds between thin to moderately bedded cherty mudstones. Some recrystallized Permian radiolarians and some spherulitic quartz were also seen in the mudstones. This locality yields some *Agathiceras* cf. *A. suessi* Gemellaro, *Adrianites elegans* Gemellaro, *Propanoceras* sp., *Propinacoceras* sp. and *Metalegoceras* sp. The fauna also shows close resemblance to the early Murghabian Sungai Cheroh fauna.

The Sungai Peralong, Sungai Berok and Sungai Cheroh faunas are all located immediately east of the Bentung-Raub line and these cephalopods belong to relatively deep water faunas. However, at Sungai Berok the cherty mudstones were thrust over some older shallow water sediments, possibly of Lower Permian age. Similarities between these fauna and the Italian Socio fauna and the Basleo fauna of Timor (Lee, 1978) indicates that the link between these faunas must have been developed as early as Lower Permian.
