The stratigraphy of the Batu Arang area

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The Tertiary of Peninsular Malaysia witnessed the development of a few Tertiary basins, one of which is the Batu Arang basin. The NW-SE trending roughly oval-shaped basin consists of 2 units of sedimentary rocks namely,

1) The Tertiary Coal Measures and

2) The Boulder Beds

These basinal sediments overly pre-Tertiary basement rocks.

The Tertiary Coal Measures, consist of very fine sandstone interbedded with carbonaceous/bituminous shales and few coal seams. Two major coal seams can be distinguished, a lower seam and a upper seam which attains a thickness of 7 m and 13 m respectively. Palynological studies show that the lower seam is of Late Oligocene to Early Miocene age and the upper seam to be of Late Miocene age. The presence of fresh water gastropod, *Viviparus sp* and plant fossils indicate that the rocks were deposited in a non-marine environment. The sedimentary structures found in these rocks indicate a fluvio-lacustrine environment.

Unconformably overlying the Coal Measures are the Boulder Beds which consist predominantly of pebble to boulder size clasts of quartzite and subordinate chert and vein quartz in a muddy to sandy matrix. They were derived from a nearby source and the paleocurrent studies shows a multidirectional flow mainly from the NE-SW direction. These deposits are believed to have accumulated rapidly as a subaerial debris flow deposited in an alluvial fan setting under a semi-arid condition.

The angular unconformity between the basinal sediments and the basement rocks is exposed at the northeastern part of the area where the gently dipping Tertiary rocks rest on the folded pre-Tertiary rocks. These pre-Tertiary rocks consist of alternating sequence of quartzite and phyllite and yields ammonoid fragments and crinoid stems which show similarities to the Permian aged Kenny Hill Formation of Kuala Lumpur.

The Tertiary basin is bounded by a NW-SE trending fault. The presence of the rapidly deposited Boulder Beds and fault breccia suggests that the basin is a fault-controlled basin.

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