Re-interpretation of the stratigraphy of the Gunong Semanggol Area, Perak Darul Ridzuan and its implication

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Previous workers on the stratigraphy of the Gunong Semanggol area has interpreted this area as being underlain by one formation: the Semanggol Formation, which comprises the Conglomerate Member and the Rhythmite Member (turbidite sequence). A re-study of the same outcrops led to a re-interpretation of the stratigraphy as follows:

A) A **pre-Semanggol unit** composed of a coarsening upwards sequence of a lower succession of shale and quartzite beds which is gradually replaced upsequence by beds and lenses of silica-cemented, predominantly of chert clasts-bearing orthoconglomerates. Basal scours and low-angled truncation of underlying beds, large planar and trough cross-stratifications and pebble imbrications are commonly exhibited by these conglomerates. Recrystallised radiolarias are found in some of these chert clasts; thus, detailed identification is difficult. Paleocurrent determination from the cross-stratification suggests derivation from the southwest. About 80

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meters thick sequence of this unit is exposed at the Pecah Batu Quarry on the eastern flank of Gunong Semanggol. This unit is interpreted to underlie the Semanggol Formation unconformably.

B) The **Semanggol Formation** consists of a lower conglomerate-pebbly sandstone sequence overlain by a turbidite sandstone-shale sequence. The clasts in the conglomerate and pebbly sandstones are more varied and include blocks of pre-Semanggol silica-cemented, chert-bearing orthoconglomerate. 1 m large planar cross-stratification are common on this lower sequence, from which paleocurrent determination indicate a westerly source. The upper turbidite sequence is well-exposed further to the north, where ammonites have been found near Kampong Kubu Gajah. Several thick conglomerate beds are present in the turbidite unit. Paleocurrent determinations from the flute marks of the turbidites indicate a westerly-directed flow which is similar with the paleocurrent determination from the asymmetrical ripple marks on the thinner sandstone beds.

An important implication of this re-interpretation of the stratigraphy is that there was a major tectonic event disrupting the deposition of an older chert sequence preceding the deposition of the pre-Semanggol unit. A significant time lapse was required to cement and lithify this pre-Semanggol sequence before part of it was subjected to be broken and incorporated as blocks into the Semanggol Formation.

Further work to date the chert clasts and the older part of the Semanggol Formation more precisely is being carried out so as to refine the timing of the events suggested here. Detailed petrographic study of the turbidites, the conglomerates and pebbly sandstones will be carried out to determine if there are more than one source areas as suggested by the paleocurrent determinations.