Preliminary microfacies analysis of the Bukit Biwah Limestone, Tasik Kenyir, Terengganu

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A brief field visit to the limestones at Bukit Biwah and Bukit Taat was made in August 1993 by 14 GSM members. These hills are now islands in the lake and are separated about 500 meters of water at the widest part. 18 samples from five localities (2 in Bukit Biwah and 3 in Bukit Taat) in these hills were collected and studied by the author. Bedding planes were only observed at one part of the Bukit Biwah and these dip gently to the east. These limestones are informally referred to as the Bukit Biwah Limestone after the larger hill.

The Bukit Biwah samples are predominantly biosparites and biosparudites containing variable amount of micrite. Large corals, algae colonies and bivalves are seen in several parts of the limestone in the eastern part of the hill. The sand-sized components are predominantly algal fragments, crinoid stems, shell fragments and peloids. Fusulinids, cortoids, grapestones and other intraclasts, and rare pisoids are found in two samples. Most of the bioiclasts have micritic rims and had undergone various degree of rounding and sorting. Some had undergone a biomoldic stage are now filled with coarse sparry calcite.

Possible existence of burrows are indicated by irregular bodies filled with minute dolomites. Coarse dolomites are rare and are present as late phase pore fillers. Calcite veins are present which may represent two or more generations. However, these limestones do not show much signs of deformation.

The limestones at Bukit Taat are predominantly biomicrites and pelmicrites with lesser amount of algal biolithites. Algal and shell fragments, and echinoid stems constitute the main bioclasts. Extensive dolomitisation found in many samples show dolomites with a variety of texture ranging from small anhedral crystals to large euhedral crystals exhibiting several opague zones. A pervasive feature of these limestones is that they are strongly deformed, veined and brecciated. Most of the bioclasts are sheared and the peloids strained. Large echinoid stems, initially of single calcite crystals, show denucleation effects and result in several smaller crystals. Patches of micrite are also recrystallised to form microspar.

Several pertinent questions arise from these initial study which require further work:

1). Can the bedding be deciphered in other parts of the hills?

2). Are the two hills separated by faults as evidenced from the intensive deformation and brecciation especially in the Bukit Taat samples?

3). Are the differences in microfacies present in these two hills a reflection of lateral variation or do represent different stratigraphic horizons?
This work also document the finding of another fusulinid locality in these limestones. Detailed work should be made on to determine the extend of their distribution in these rocks and their exact ages. This should supplement the earlier determination of the Permian age of the limestone by Fontaine (1990).

4. Pisoids are generally considered to be indicators of subaerial, fresh water environment of deposition. Could their occurrence as clasts suggest that a part of these limestones were emergent during their depositional history?

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