Paper 37

Lithofication and fossils of Quaternary carbonate rocks from the Bum-Bum Island, southeast Sabah, Malaysia

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Bum-Bum Island one of many islands distribute along the east coast of Sabah state, East Malaysia, about 1 kilometer east of Semporna Town (Figure 1). This island crop out above the sea level as a result for the fluctuation and changing in sea level during the Quaternary, this fluctuation has effected strongly on the depositional environments of the sedimentary rocks there. The present topography of the area came as a result of period of erosion and volcanic activity during the Pliocene where the volcanic actions has continued and forming a large areas of volcanic rocks and sediment with volcanic detritus were deposited until the Quaternary which distinguished by a recession of sea level changes in most areas as a result of glacial and tectonic movements. A later recession of sea level of 25 to 30 feet in relatively recent times has caused the emergence of extensive old coral reef of the Semporna area and nearby islands .

As initial study total of 25 thin-sections represent the samples have been collected from carbonate rocks out crops around the coast of the island between 2-3 meters above the present day high tide level and the thickness of carbonate beds between 0.5 to 3.0 meters (Figure 2). The aim of this study is to estimate the depositional environment and the effecting of sea level changing during the time of deposition in addition to identify the marine conditions in terms of salinity, paleocurrent energy and organisms diversity. The carbonate sediment classified in to two microfacies; biomicrite and biosparite. These two facies has distinguished according to the bioclast

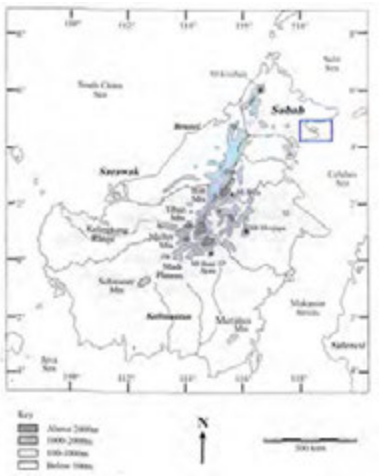

Figure 1: Topographic map of Borneo Island, showing the study area.

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and matrix materials which include green and red algae, bivalves, gastropod and foraminifera in addition to micrite and sparite as matrix materials (Figures 3, 4 and 5). Based on the fossils and texture, the depositional environment has been interpreted to be a shallow marine, lagoon and tidal flat environments, with warm water, normal salinity and low to moderate water current energy.

Figure 2: one of the carbonate rocks out crops in the Bum-Bum Island.

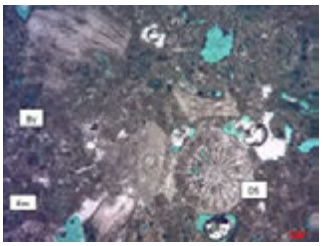

Figure 3: the Dasyclad green algae (DS) with foraminifera and bivalves in micrite matrix.

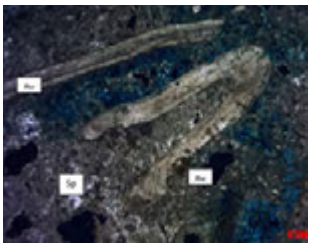

Figure 4: The bivalve shells (Bv) within sparite matrix (Sp).

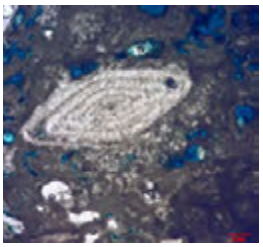

Figure 5: Large benthonic foraminifera within sparite matrix.