

## CHAPTER III

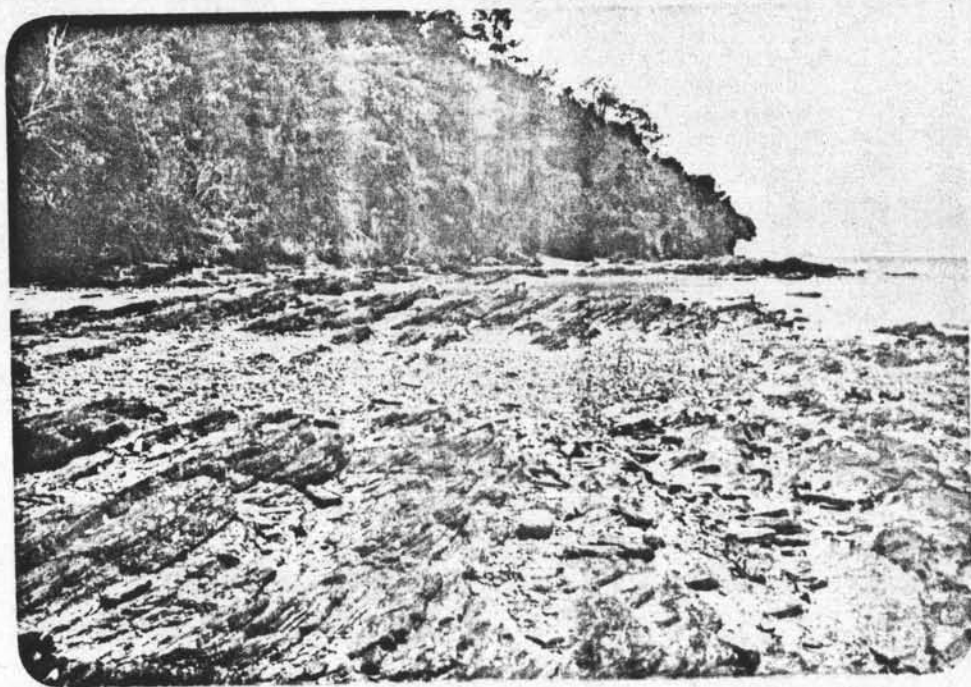
### PHUKET GROUP

Most of the central and eastern parts of the area studied are covered with a thick succession of mudstone, shales and sandstones, to which the term "Phuket Series" have been designated (Brown et al, 1951). They have assigned a Cambrian age on the uncertain evidence of fossil traces identified as Eophyton, collected from Tongkah Harbour Island. Hummel and Phawandon (1967) distinguished three mappable lithological units within the Phuket Series as conglomeratic shale, laminated shale, and thin bedded silstone and shale. Ridd (1971 a, 1971 b), in his studies on Gondwana rocks in SE Asia included the Phuket Group of peninsular Thailand, suggested that the sedimentary rocks of the 'Phuket Series' are not Cambro-Ordovician in age. Mitchell and others (1970) firstly used the term 'Phuket Group' for the clastic sedimentary rocks in the Phuket-Phangnga-Takua Pa Region and subdivided the group into two formations namely Upper Formation and Lower Formation. The distinction between these two formations is marked by the presence of early Permian Bryozoa bed in the Upper Formation. Sawata and others (1975) suggested that the rock sequences at Khao Phra, Petburi (Khao Phra Formation) seem to have similar facies as an Upper Formation of the Phuket Group described by Mitchell and others (1970). The finding of fossils from Khao Phra Formation indicates the Permo-Carboniferous age of Kaengkrachan Group (Piyasin, 1976). Garson and others (1975) have made a detailed study of the Phuket Group and further subdivided it into eight lithologic facies i.e. laminated mudstones, pebbly mudstones, turbidites, slump

units, limestones, sandstones and conglomerates, bryozoan beds and shale-interbedded sandstone. The first six belong to the Lower Formation and the last two from the Upper Formation. The total thickness of these two formations is not less than 3 km. A recent report by Mantajit and others (1979) at Phuket-Phangnga and Khao Yao Noi-Krabi area has briefly mentioned that the stratigraphic sequences of these two areas have two distinctive environments of deposition. However, they did not provide details for that statement.

They also concluded that the Phuket and Kaengkrachan Group are probably equivalent. Furthermore, the total thickness of the Phuket Group will not exceed 1.5 km (Mantajit, 1978). In his study the term 'diamictite' was firstly introduced to the Phuket Group and is synonymous with pebbly mudstone of Mitchell and others (1970). The rocks described are similar to those found in the Gondwana System in India, Australia, South Africa and Brazil. The Phuket Group is quite extensive in SE Asia and can be stratigraphically correlated with the Singa Formation of Malaysia (Gobbet & Hutchison, 1973; Aw, 1977) and more or less with the Mergui Series of Bruma (Chhibber, 1934; Cossen, 1978).

The sedimentary rocks of the Phuket Group in the area are wholly clastic with mudstone, shale and siltstone are dominant, and sandstone of various types are the subordinate. The attitudes of bedding, in general, vary in strike from N to NE and in dip from 10° to 45°. The sedimentary structures are also preserved. The most common is the honeycomb structure in mudstone, commonly found along the eastern parts of the area particularly at Ko Sire and Laem Nga. Generally, the rocks



Photograph 1 Southwesterly gentle dipping laminated mudstone of the Phuket Group at the northern part of Ko Sire.



of the eastern part are exposed at Ko Sire, eastern slope of Khao Sapam and southwest of Phuket Town. The beds are gentle dipping (photograph 1), in places, the rocks are disturbed to some extent. The typical rocks of the eastern part are slightly metamorphosed laminated mudstone and diamictite, both are brown to dark brown colour. Diamictite always contain several kinds of pebbles, i.e. quartz pebble, mudball and clast, mica schist and granite. The sizes of clasts vary from less than 1 cm up to more than 50 cm and the shapes vary from subangular to well rounded forms. The orientation of the clasts are rather conformable with the lamination. Massive brownish gray, fine-to medium-grained protoquartzite and subarkose are locally exposed at small hills near Ban Chi Lao. Pegmatites and other minor intrusions are common in the eastern part.

The sedimentary rocks of the central part of the area are exposed at Khao Chetra, Khao Sam Kong, eastern slopes of Khao Mai Tao Sip Song and Kathu Valley. The rocks have undergone thermal metamorphism by igneous intrusion and in places by tectonic displacement. The beds are generally steeply dipping. In many places, the rocks are so deformed that the attitudes can not be measured. The largest occurrence of the typical rocks in the area is at Kathu Valley. The rocks are slightly metamorphosed reddish brown to purple shale, siltstone and mudstone with scattered pebbles of mostly pegmatitic quartz and granite of various sizes. However, they are metamorphosed to some extent, as either light coloured phyllite grading to reddish brown mica schist or dark coloured hornfelsic rocks. The rocks of the Kathu Valley also served as a wide screen (roof pendant) about 4 km in surface exposures. The screen separates some distinct

pluton from one another (Map 2). Along the contact zone, the rocks are characterized by greenish to brownish massive hornfelsic mudstones and locally by fine-grained brownish yellow quartzite with plexus of quartz veins and small pegmatites. As noted by Carson and others (1975), the metamorphic aureole in places may be more than 1 km in size. The large pegmatites and other small intrusive bodies abundantly present in the area.