

CHAPTER II

REGIONAL GEOLOGIC SETTING



A synoptic view of the regional geology of South Thailand is shown in Figure 2. The belt of granitic batholith was emplaced within major anticlinal axes of the preexisting sedimentary rocks. The sedimentary rocks shown in the simplified regional geologic map (modified after Mantajit, et al., 1979) range from Upper Paleozoic to Mesozoic Age and trend in N-S direction. The oldest sedimentary unit is a Permo-Carboniferous succession which is known as Kaengkracharn Group (Piyasin, 1975) or Phuket Group (Mitchell, et al., 1970). Such sedimentary rocks are generally exposed along the western part of the region. They consist largely of laminated and pebbly mudstone, and interbedded turbidites. Mantajit and others (1979) have further subdivided the Phuket Group into 2 formations on the basis of difference in depositional environment, namely Kaengkracharn Formation and Ko Yao Noi Formation. Broadly speaking, Kaengkracharn Formation is quite similar to Phuket Group of Mithchell (1970). Ko Yao Noi Formation is lithologically different from Kaengkracharn formation as it is characterized by the presence of volcanic tuff with thinly bedded silicified mudstone and laminated mudstone with carbonate lenses. These two formations are conformably overlain by the Ratburi Group of Permian Age (Mantajit, et al., 1979). The Ratburi Group consists predominantly of massive limestones and bedded limestones with chert nodules in the lower part. These carbonate rocks are commonly exposed in the central and southern parts of the region and are less

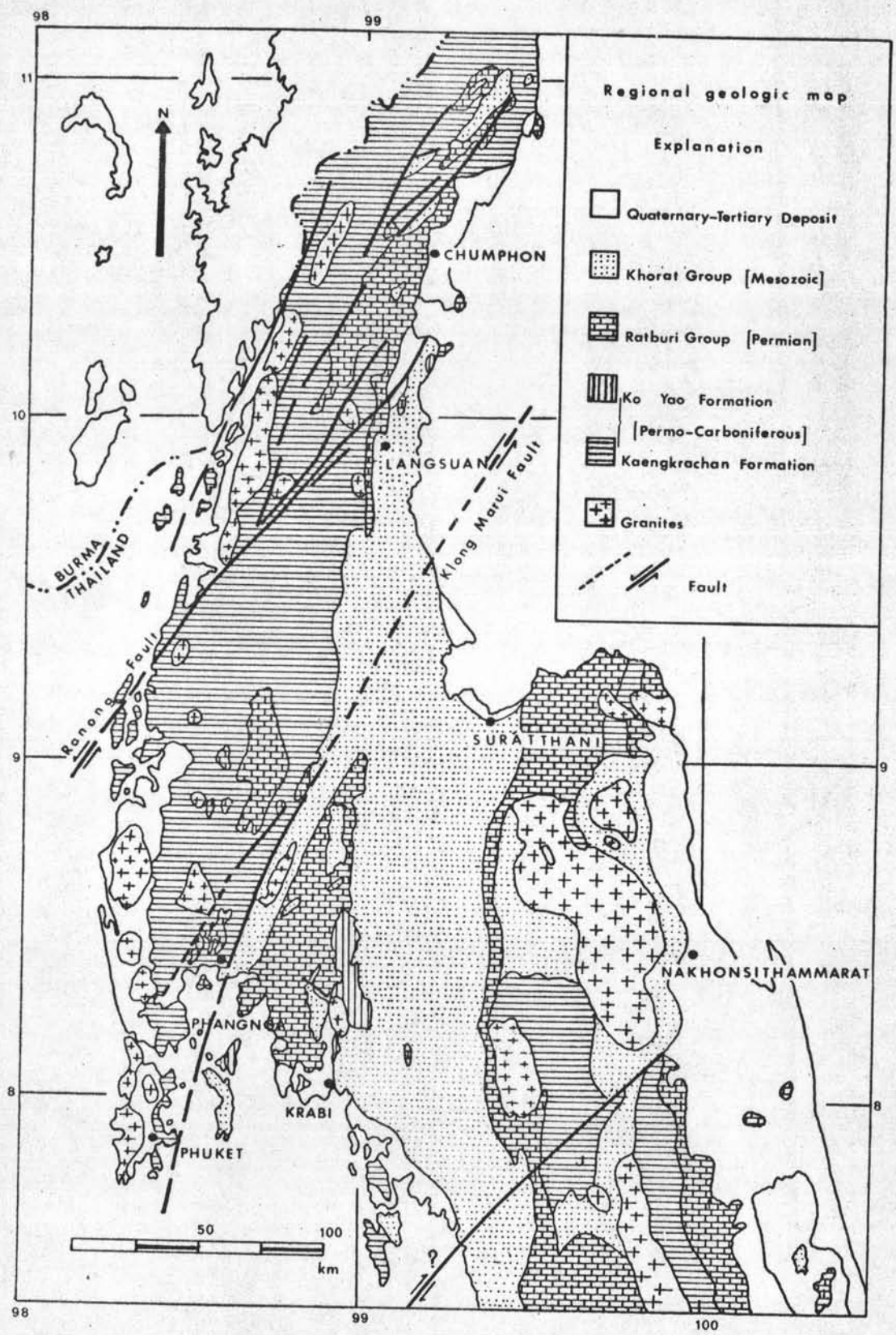


FIGURE 2. Geologic map of Southern Thailand (modified after Mantajit et al., 1979).

encroached by the granitic batholiths.

The exposures of the Mesozoic Sedimentary rocks are mainly found in the central part of the area, comprising mostly sandstone. This sandstone shows very little disturbance by igneous intrusions. Along the coastal and intermountainous alluvial plains, they are dominately covered by younger or recent unconsolidated to semi-consolidated sediments.

Large scale transverse faults, particularly Ranong and Klong Marui faults, diagonally traverse the isthmus in NNE direction with a total sinistral displacement of at least 200 km (Garson & Mitchell, 1970). These fault systems formed during the late Mesozoic, probably before the final consolidation of the younger granites. Consequently, displacement by such faults may possibly cause fracturing in the preexisting rocks and provide space for the development of tin resources (Mitchell, 1976). Such NNE displacement also caused the present day physiographic outlook of Phuket Island, being at the extremity of angular elbow-like feature of the Thai peninsula projecting SSW into Andaman Sea.

The granitic rocks of southern Thailand occur as independent plutons, regionally extending in N-S direction along the peninsula. Their ages range from Carboniferous to Cretaceous (Angkavanich, 1975). According to Carson and others (1975) and Bignell (1972), there are at least 4 major intrusive episodes :

Cretaceous	100-140 Ma
Triassic-Jurassic	200 Ma
Triassic	230 Ma
Late Carboniferous	285 Ma

The minor episode of emplacement was Late-Cretaceous to Early-Tertiary (50-75 Ma). These intrusive bodies are generally coarser-grained porphyritic biotite granites with a small amount of hornblende-biotite granite and adamellite. Finer-grained biotite-muscovite granites, which frequently contain some tourmaline, are also common and form the apical parts of large plutons.