

Reviews of Felsic Plutonic Rocks of Thailand

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Felsic plutonic rocks have been the main object of interest and research activities among geologists who work in Thailand for decades. The prime reason for this interest inevitably depends much upon the close association of valuable tin and tungsten mineral as well as other economic minerals such as, fluorite and barite with the felsic plutonic rocks. The felsic plutonic rocks exposed in Thailand are just a portion of an arcuate belt of Southeast Asia batholithic intrusions (Figure. 1). This batholithic belt, which is over 2,500 km long, runs from Indonesia in the south through the Thai-Malay Peninsula into the Shan State of eastern Burma and into northeastern Thailand and western Laos (Garson and others, 1975) then veers northeastward through Yunnan, Kwangsi, and Kwangtung of South China (Burton, 1969). In Thailand the granitic rock concentrates mainly along the western part and the Peninsular Thailand. Subordinate numbers of small and scattering masses are, however, found along the western flank of Khorat plateau and along the eastern Gulf of Thailand.

In the early days, the granitic rocks of Thailand have been primarily classified into younger Cretaceous granite and older Triassic granite by Brown and others (1951). Later an addition of Carboniferous granite was reported by Burton and Bignell (1961) which subsequently was adopted by Javanaphet (1969) in his compilation of the geologic map of Thailand. In the early 70's, the Precambrian granite (orthogneiss), was believed to exist along the high grade metamorphic terrain of inferred Precambrian age. Von Braun (1969) and Baum and others (1970) suggested from their geologic mission in the northern part of Thailand that the plutonic emplacements were linked closely to the major orogenic episodes in Precambrian, Carboniferous, Triassic, and also late Cretaceous - Tertiary. During the last decade enormous radiometric age data of the granitic rocks have been produced all over the country (Snelling and others, 1970; Besang and others, 1975; Teggin, 1975; Garson and others, 1975; Bignell, 1972; von Braun and others, 1976; Beckinsale and others, 1979;

Ishihara and others, 1980; Nakapadungrat, 1982). It is clearly illustrated from figure 2 that among those granitic rocks, the Triassic granites are by far the dominant phases exposed in this region.

Mitchell (1977) and Hutchison (1978) have recognized and defined the granitic rocks in Malaysia and Thailand into three main parallel belts namely, the Eastern, the Central, and the Western Granitic Belts.

The Eastern Granitic Belt includes the Belitung Island, the eastern Malaysia, the eastern Thailand and possibly small plutons on the western flank of the Khorat Plateau. It is characterized by plutonic rocks ranging from gabbro through quartz diorite, granodiorite, adamellite to granite with their ages ranging from Permian to early Triassic especially in Malaysia. Recently Mahawa (1982) has also included the Tak Batholith of Triassic age into this eastern belt (Figure 1).

The Central Granitic Belt consists of the Banka, the Singkep, and the Tuju islands of Indonesia, the Main Range of Malaysia, the Peninsular, the Central, and the Northwestern Thailand. This belt covers at least three - fourth of the granitic rocks of Thailand. It is characterized principally by mesozonal porphyritic biotite granites of Triassic age, usually associated with highly folded Paleozoic metasediments.

The Western Granitic Belt comprises the Peninsular Thailand and Burma, and the western Shan States. It is characterized chiefly by high level adamellites, granites and granitic pegmatites of Cretaceous to Eocene ages.
