CHAPTER IX

SUMMARY AND CONCLUSIONS

The following summary and conclusions have been drawn from the field and laboratory investigations performed in this study.

The rocks of the study area consist of sedimentary and igneous rocks. The exposed outcrops are mostly sedimentary rocks. They are subdivided into 13 lithostratigraphic member as followed; X1.1, X1.2, X2.1, X2.2, X3, X4.1, X4.2, X4.3, X5.1, X5.2, X5.3, X6.1 and X6.2 members. The rock types of X2.1, X2.2, X3, X4.1, X4.2 and X4.3 members composed mainly of limestones. The other members are sandstones, shales, chert and limestone interbeds. X1.1, and X6.1 plus X6.2 members are the lowermost and uppermost part of the stratigraphic sequences of the area, respectively. The compositional change from chert to porcellanite has been characterized in X5.1 and X5.3 members. Generally, the chert occurs within the limestones as nodules or lenses of various sizes and shapes, usually in rows approximately parallel to the bedding. The conformable stratigraphic contact and fault contact are commonly recognized as the boundaries of these rock units. The geometric bodies of X1.1, X1.2, X5.1, X5.2 and X5.3 members have a tabular outline and the rest, lense-shaped. The age of deposition of these rocks ought to be Permian period as suggested by the wides-preading of fusulinids throughout the region. Later, an event of tectonism took place in this region with one recognizable folding event, perhaps with more than one phase. It is determined by uniform

orientation of the bedding planes, minor folds, cleavage surfaces, kink bands and faults. The bedding planes mostly dip to the south. The large overturned syncline and anticline were formed with the axial trends lying northwest-southeast and sharing a common overturned limb. The style of macroscopic structures of the area probably represents the southern limb of yet a larger, gently west-ward plunging open anticline (or anticlinorium) whose core lies to the north of here. The overturned folds observed here are thus the second-order folds of this gigantic "anticlinorium". In the major overturned folds themselves, there are smaller-scale lower-order folds. These minor folds are parallel, flattened parallel and similar folds with occasionally angular folds. The cleavage surfaces are clearly the penetrative structures in the folded tuff and limestone layers of X2.2 member, dipping to the southwest. The bedding-cleavage relationship in all observed cases indicates that the rock unit belongs to a normal limb of the large second-order southward-dipping overturned syncline. When the adjacent, southerly-lying overturned anticline was further deformed to a gently-dipping inclined tight fold, or nearly a recumbent fold, the overturned limb would be sheared off to become a thrust by a mechanism of ductile-to-brittle failure, namely, Thap Kwang Thrust. The thrust block glided further northward to cover a large portinon of the underlying overturned syncline. Furthermore, the other faults found all over the area mostly trend southeast-northwest and north--south. They compose of the normal faults, southward- to southwest-ward-dipping, left- and right-lateral strike-slip faults and reverse faults. It is certain that the tectonic event, both folding and

faulting, took place after the deposition period, i.e. after Permian Period, perhaps during the Indosinian orogeny (Mesozoic Era).

The igneous rocks were observed to compose of the volcanic rocks and intrusive diorite. The volcanic rocks unconformably overlied the sedimentary rocks, and dip at a low to moderate angle to the south. The dikes and sills of similar composition were also found in the sedimentary country rocks. The intrusive diorite bodies were found as the scattered plugs, or perhaps the tips of a common larger batholith hidden underneath. The contact metamorphic zones were usually found in the Ratburi country rocks around the intrusive igneous exposures. The angular (?) unconformity was occurred between the volcanic rocks and Ratburi Group. Thus the igneous activities, both the intrusive and extrusive types are proposed to be of the post-tectonic ones, possibly pre-Khorat. Perhaps the area had also slightly experienced another tectonism afterward, i.e. the Himalayan Orogeny. This was before the processes of weathering, erosion and deposition in the Quaternary Period to reign the area.