SEDIMENTOLOGICAL, ICHNOLOGICAL AND FORAMINIFERAL CHARACTERISTICS OF THE KYAUKKOK FORMATION IN THE KYAWZWA AREA NORTH OF PYAY

Ph D DISSERTATION

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ABSTRACT

The Kyawzwa area is situated between latitudes 18° 52'-19° 0' N and longitudes 95° 8' – 95°15' E. It lies in one-inch topographic map No.85 N/1 and covers approximately 80 square miles.

The Neogene sequence of the area can be differentiated into 4 units of formation rank and these in ascending order are: the Pyawbwe Formation (Early Miocene), the Kyaukkok Formation (Early Miocene), the Obogon Formation (Middle Miocene) and the Irrawaddy Formation (Mio-Pliocene). A 4000 foot-thick sequence of sandstones, shale, clays, siltstones and gritty to pebbly sandstone is exposed in the area.

The sandstones of Kyaukkok Formation are subfeldspathic lithic arenites, showing early diagenesis and late diagenetic features

The Kyaukkok sandstones fall in the field of recycled orogenic provenance, mainly in the transitional recycled orogen. The provenance for the sandstone of the study area consists of an uplifted crystalline basement terrane and low to medium-grade meta- sedimentary terrane of continental block provenance. Heavy mineral species also support the above fact. Hence, the possible main source may be the western ranges and the igneous belt of Myanmar.

Grain - size analysis from loose and friable sandstone samples indicates that the sediments are unimodal and cumulative frequency curves are noted as S-shaped curves with slight differences.

The values of the median and mean diameter are not so much different from each other. But the mean diameter is generally little greater than the median diameter. The sediments are moderately sorted to moderately well sorted, and fine-skewed to coarse-skewed. The majority of these sandstones are leptokurtic. These characteristics indicate a beach environment.

The vertical sequence of Kyaukkok Formation in the study area preserved regressive sequence in the lower part and transgressive sequence in the upper part. As sea-level rose, marine waters gradually flooded valleys and tidally influenced sedimentation prevailed. The transgression can be interpreted as the maximum sea-level rise at the end of Burdigalian

(15Ma) on the global eustatic curves. Mixed flat, sandbar and channel facies are late transgressive sequences formed as a result of continued sea-level rise which flooded the valleys until the next regression phase.

The Kyaukkok Formation of the study area consists at least (9) sedimentary facies such as tidal channel facies, sand flat facies, mixed flat facies, channel facies, sand bar facies, bay/lagoon facies, mud flat facies, distributary channel facies and shoal or beach facies.

The abundance and poorly diversified trace fossils having totally four ichnogenera are distributed in the lower part of Kyaukkok Formation. They are *Skolithos, Ophiomorpha, Cylindrichnus*, *Psilonichnus, and* undifferentiated burrows. The ichnological evidences show that the water depth may be a mixture of marine, intertidal, supratidal and periodic subaerial exposure.

In the Kyaukkok Formation, (12) foraminifaral species under (7) genera all belonging to (6) families and also one ostracoda species under (1) genera are recognized. They are *Rotalia bonata, R. koeboeeñsis, R. beccarii* , *Ammonia annectens, Cibicides dorsopustulosus, C. koeboeensis, C. bantamensis*, *Uvigerina crasssicostata*, *U. multicostata*, *Bolivina gesteri, Robulus inorntus, R. inornatus*, *Textularia malacaensis*, *Globigerina praebulloides, G. triloba immature* and *Thalmannia* cf. *fusa.*

Based on the sedimentological, ichnological, and foraminiferal characteristics, the depositional environments of the Kyaukkok Formation may be supratidal, beach, intertidal and subtidal with stable saline marine, high energy, low turbidity, normal oxygen content, high alkalinity and sufficient light.

The synclinal axis of Pyay Basin passes through the eastern part of the present area, so that the study area lies on the western flank of the Pyay Basin. In general, the study area is structurally very simple. The general trend is NNW-SSE and it swings nearly N-S in the southern part of the area. The strata of the area are dipping homoclinally to the east with dip amounts which range from 20 to 50 degrees. Any major folds or faults are noticed in the study area.

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