

**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 $18^{\circ} 52'$ - $19^{\circ} 0'$ N and longitudes $95^{\circ} 8'$ – $95^{\circ} 15'$ 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) foraminiferal species under (7) genera all belonging to (6) families and also one ostracoda species under (1) genera are recognized. They are *Rotalia bonata*, *R. koeboeensis*, *R. beccarii*, *Ammonia annectens*, *Cibicides dorsopustulosus*, *C. koeboeensis*, *C. bantamensis*, *Uvigerina crasscostata*, *U. multicostata*, *Bolivina gesteri*, *Robulus inornatus*, *R. inornatus*, *Textularia malacaensis*, *Globigerina praebulloides*, *G. triloba immature* and *Thalmanina 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.

CONTENTS

CHAPTER	Page
ABSTRACT	i
ACKNOWLEDGEMENT	iii
CONTENTS	iv
LIST OF FIGURES	vii
LIST OF TABLES	xiii
I INTRODUCTION	1
1.1 Location and Size	1
1.2 Geographic Settings	1
1.3 Regional Geologic Setting	1
1.4 Methods of Study	11
1.4.1 Field Method	11
1.4.2 Laboratory Method	11
1.4.3 Statistical Method	13
1.5 Previous Work	13
1.6 Nature and Purpose of Problems	14
II GEOLOGICAL SETTING	15
2.1 General Statement	15
2.2 Upper Pegu Group	15
2.2.1 Pyawbwe Formation	20
2.2.2 Kyaukkok Formation	22
2.2.3 Obogon Formation	28
2.3 Irrawaddy Formation	30
2.4 Plateau Gravel	33
2.5 Alluvium	33

III	SEDIMENTOLOGICAL CHARACTERISTICS	35
3.1	Petrography	35
3.1.1	General Statement	35
3.1.2	Petrography of the sandstones of Kyaukkok Formation	35
3.1.3	Detrital Fraction	37
3.1.4	Diagenesis	45
3.1.5	Provenance	47
3.1.6	Discussion	52
3.2	Mechanical Analysis of Sands	53
3.2.1	General Statement	53
3.2.2	Graphic Presentation	53
3.2.3	Statistical Parameters of Grain Size	62
3.2.4	Discussion	63
3.3	Heavy Mineral Analysis	64
3.3.1	General Statement	64
3.3.2	Description of heavy minerals	65
3.3.3	Discussion	72
3.4	Sedimentary Facies Analysis	72
3.4.1	General Statement	72
3.4.2	Tidal Channel Facies	73
3.4.3	Sand Flat Facies	84
3.4.4	Mixed Flat Facies	84
3.4.5	Channel Facies	86
3.4.6	Sand Bar Facies	87
3.4.7	Bay/Lagoon Facies	87
3.4.8	Mud Flat Facies	89
3.4.9	Distributary Channel Facies	92
3.4.10	Shoal or Beach Facies	92
3.4.11	Interpretation	93
3.4.12	Discussion	93
3.5	Sequence Stratigraphic Implication	96
3.5.1	General Statement	96
3.5.2	Discussion	97

IV	ICHOLOGICAL CHARACTERISTICS	102
4.1	Introduction	102
4.2	General Statement	103
4.3	Ichnology	103
4.3.1	Ichnogenus <i>SKOLITHOS</i> Haldemann, 1840	103
4.3.2	Ichnogenus <i>OPHIOMORPHIA</i> Lundgren, 1891	107
4.3.3	Ichnogenus <i>CYLINDRICHNUS</i> Toots in Howard, 1966	108
4.3.4	Ichnogenus <i>PSILONICHNUS</i> Fürsich, 1981	108
4.3.5	Undifferentiated burrow	109
4.4	Paleoenvironmental Analysis	110
4.5	Paleoenvironmental Interpretation	112
4.6	Discussion	114
V	FORAMINIFERAL CHARACTERISTICS	115
5.1	Distribution of the foraminiferal species	115
5.2	Systematic classification	115
5.3	Interpretation	125
5.4	Discussion	126
VI	GEOLOGICAL STRUCTURES	127
6.1	Regional Structural Setting	127
6.2	General Statement	127
VII	ECONOMIC ASPECTS	129
7.1	General Statement	129
7.2	Construction Materials	129
7.3	Industrial Materials	129
VIII	SUMMARY AND CONCLUSION	130
	REFERENCES CITED	134
	PLATES	