

Recent Discovery of The Paleozoic Corals from Eastern Margin of The Central Belt of Myanmar

Maw Maw Myint¹ and Kan Saw²

Abstract

The slightly metamorphosed cherty limestone unit exposed in the area, about 45 km north of Sagaing, Sagaing and Wetlet Township. The stratigraphic status of these limestones outcropping intermittently on the west side of the Sagaing fault is a matter of dispute until the first finding of Upper Paleozoic fauna (Myint Thein et.al, 1982). Some specimens of colonial rugose corals, indicator of Paleozoic age, were discovered from this limestone unit. An attempt is made to describe the distribution of the unit and to support the stratigraphic status.

Keywords: Minwun Range, Metamorphosed Paleozoic Limestone Unit, Rugose Coral

Introduction

Location and Size

The study area lies between Sheinmaga and Htonbo villages, about 45 km north of Sagaing in Sagaing and Wetlet Townships, Sagaing Division. The area covers parts of the topographic map sheet 84 N/14, 15, and 16 (Fig. 1). It is a marginal zone fringing the eastern edge of the Central Myanmar Belt. The Sagaing Fault is the major tectonic feature of the area, cutting all lithologic units. This right lateral fault, running N-S in direction, roughly divides the region into two distinctly different geologic areas; viz, Minwun Range in the west side and Sagaing Ridge in the east side of the fault.

During the field season of 1987, some specimens of colonial rugose corals, indicator of Paleozoic age, were discovered from the upper part of slightly metamorphosed cherty limestone unit. These limestones occurred discontinuously in a narrow, N-S linear belt of Minwun Range on the west side of the Sagaing Fault. The present report is an outcome of this finding.

¹ Lecturer, Department of Geology, Meiktila University

² Professor (Retired), Department of Geology, Mandalay University

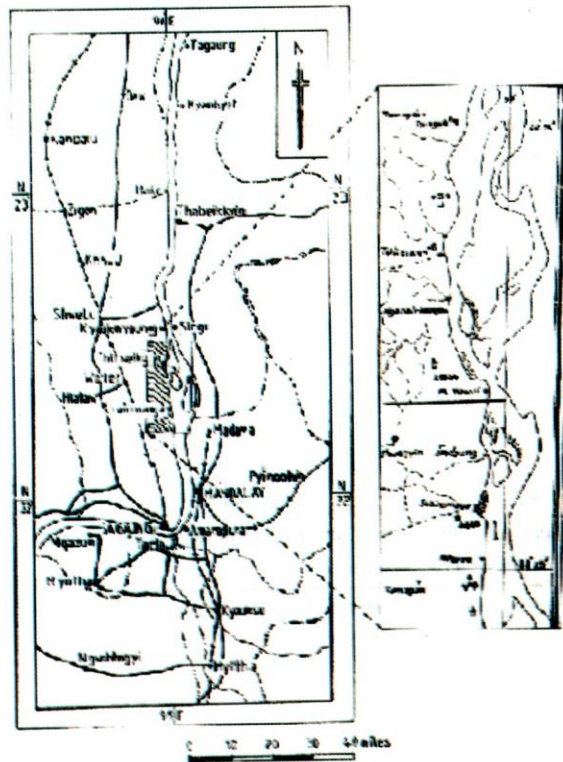


Fig.(1) – Location map of the study area.

Previous Works

Before 20th century, no detailed geological investigation of our country has been carried out. This fact is obtained reviewing the literature on the geology of Myanmar. Since 1990, myraid of geological investigations of Myanmar have been published, especially of the present area that included in the morphotectonically well known region.

Earlier than 1982, these limestones were regarded as Carboniferous by Chhibber (1934), as Cretaceous by Clegg (1941), Mitchell et.al.(1976) and Myint Thein et.al.(1981).

Win Swe (1970) previously interpreted them as exotic blocks which have been tectonically transported.

Kan Saw (1976) presumed, on the basis of lithologic similarrity between these limestones and those from the Shan Plateau region, that they may be regarded as of Paleozoic age.

Myint Oo Than (1980) correlated between these limestones and Orbitolina limestones of the First and Second Defiles of the Ayeyarwaddy.

In 1982, Dr. Myint Thein and others first discovered the Carboniferous bryozoans and Permian fusulinids from the limestone exposed at 6 km W of Zithaung village, Tigyaing Township, northern continuation of fossil-bearing limestone unit of the present area.

In later, Myint Thein (1986) considered the age of these carbonate rocks as possible Triassic based on stratigraphic position.

Present Work

General Statement

Based on the principal lithologic characteristics, the limestone of the area can be divided into two units, namely from lower to upper, metamorphosed Paleozoic limestone and metamorphosed Mesozoic Limestone Unit. In this report, only one unit..... the metamorphosed Paleozoic limestone unit bearing the fossil corals is described.

Distribution

This unit is well exposed at Ngatite Taung, 16 km northwest of Sheinmaga and at Shwenyaungtaung Taung, 2 km east of Shwegyin village. The unit pinches out to the west of Yelamaw village where it is covered by Cenozoic sediments. Geological map of the area and fossil localities are shown in Fig. (2).

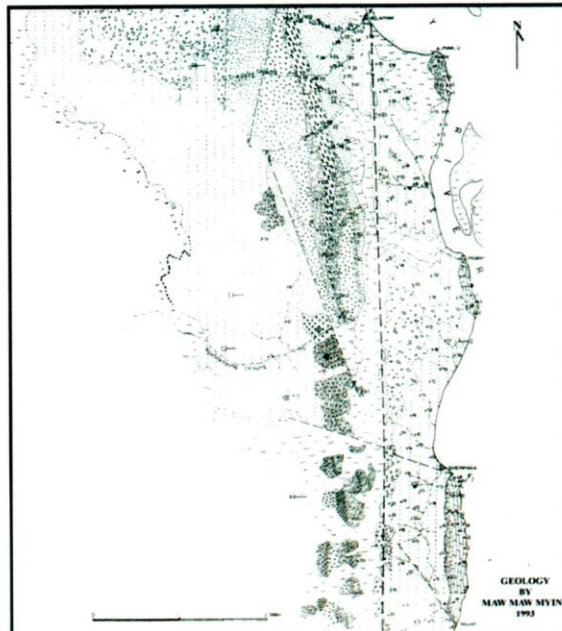


Fig.(2) Geological Map of The Study Area

Lithology and Thickness

This unit mainly consists of massive micritic limestone, dark bluish grey to dark grey, with numerous secondary calcite veinlets, and are slightly metamorphosed. The maximum thickness of the unit is approximately 50m. The limestones are hard and compact, but brecciated and jointed in places due to slight metamorphism. Smooth, rolling terrain and ill-defined drainages are distinctively observed on the aerial photos. It is dark bluish grey or may be lighter in fresh surface. A number of chert lenses and other silica bands (0.6-5 cm) are parallel to the bedding in the upper part of the unit. The lower part is locally thinly bedded and striking SSE-NNW.

Stratigraphic Relationship

This limestone is an inlier within the rocks of Cenozoic age. On the eastern side of Shwenyaungdaw Taung, it is unconformably overlain by the Eocene strata of Male Formation. The relationship between the Eocene strata and this limestone unit may be defined as of an unconformity due to the presence of basal conglomerate at the boundary between these units. The unconformable contact attitude as discordance. The western sides of Shwenyaungdaw Taung and Ngatite Taung are covered by pebbly sand rocks of the Irrawaddy Formation.

Stratigraphy

On the basis of following points; (1) newly finding fossil evidence, (2) similarity of lithologic attributes, and (3) field relation, these limestones can be divided into two units; viz., (1) Metamorphosed Paleozoic Limestone Unit, and (2) Metamorphosed Mesozoic Limestone Unit. However, in this report, only one unit the Metamorphosed Paleozoic Limestone Unit bearing a rugose coral horizon ... is described.

This reported unit is correlatable to the Plateau Limestone of the Shan State.

Generalized composite stratigraphic column of the study area is shown in Fig. (3).

AGE	LITHOLOGY	STRATIGRAPHIC UNIT AND THICKNESS (M)	DETAILS OF ROCKS	DESCRIPTION
PLEISTOCENE	CLAY	Young Terrace Deposit	0-1	Clayey, yellow, and friable sand
CENOZOIC	SANDSTONE	Irrawaddy Formation	0-1	Medium to coarse grained, micaceous, and friable sandstone
			1-2	Coarse grained, micaceous, and friable sandstone
Eocene	SANDSTONE	Male Formation	0-1	Coarse grained, micaceous, and friable sandstone
			1-2	Medium to coarse grained, micaceous, and friable sandstone
CENOZOIC	SANDSTONE	Irrawaddy Formation	0-1	Medium to coarse grained, micaceous, and friable sandstone
			1-2	Coarse grained, micaceous, and friable sandstone
Mesozoic	SANDSTONE	Metamorphosed Mesozoic Limestone Unit	0-1	Medium to coarse grained, micaceous, and friable sandstone
			1-2	Coarse grained, micaceous, and friable sandstone
Paleozoic	SANDSTONE	Metamorphosed Paleozoic Limestone Unit	0-1	Medium to coarse grained, micaceous, and friable sandstone
			1-2	Coarse grained, micaceous, and friable sandstone
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Fig. 3. Generalized composite stratigraphic column of the study area.

Finding and Discussion

In this study, poorly preserved colonial rugose corals were collected from the cherty limestone outcrop at Ngatite Taung (grid ref: 453047), on the western flank of Minwun range, 3 km WNW of Sheinmaga village. The internal structures of the corals are obscure due to strong recrystallization. Corallites are uniformly elongated as they were probably deformed by a compressive force. (Fig.4).

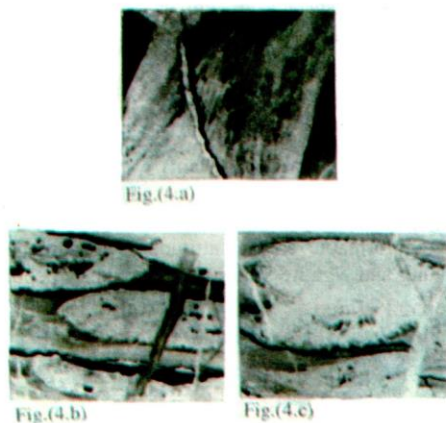


Fig-(4) Photomicrograph of the Rugose Coral (a) longitudinal section (b)&(c) cross section.

However, these corals were confidently identified by Dr. Aye Ko Aung. The fact that they show major and minor septa as well as triangular shaped bases at their corallite wall, indicates the appearance of coral Rugosa. The Rugosa commonly occur in the Paleozoic strata and never extend beyond that period.

In the present work, these limestones can be divided into two units, (1) Metamorphosed Paleozoic Limestone Unit and (2) Metamorphosed Mesozoic Limestone Unit. The earlier unit is regarded by the present author's new finding of relict fossil (unidentified Paleozoic corals).

Conclusion

- The presence of limestone outcrops west of the Sagaing Fault has been known for a long time. However, the chronostratigraphic position of these limestones has not settled as they bear no fossils.
- In 1982, Dr. Myint Thein and others firstly discovered the Carboniferous bryozoans and Permian fusulinids from the limestone at Minwun Range in the area between Tigyaing and Katha. This finding, lighting on the paleontology and Stratigraphy of the limestones of Minwun Range, pointed out the wider distribution of Paleozoic limestone strata towards the eastern margin of the Central Belt of Myanmar.
- The present discovery of rugose corals in the same unit, but in different location, support the idea of Myint Thein et.al.(1982).

- Based upon the faunal evidences, the limestone unit may be regarded as of Carboniferous-Permian in age and correlated with the Upper Plateau Limestone of La Touche (1913), Moulmein Limestone of Oldham (1956) in Mon State, and Thitsipin Limestone of Garson at. al. (1976) in Southern Shan State.
- The discovery of the authentic Paleozoic fauna in the limestone of Minwun Range strengthens, the fact that the Paleozoic sea has extended more to the west than what was generally accepted earlier.

Acknowledgement

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