

## Sedimentary environment of reef limestones in Kuzu area, Sano city, Tochigi Pref.

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The Nabeyama Formation, which consists of Middle Permian carbonate rocks were deposited upon a seamount, is distributed in Kuzu area, Sano City, Tochigi Prefecture. The Nabeyama Formation is divisible into three Members: The Lower Limestone Member, the Middle Dolostone Member and the Upper Limestone Member which are established by Yanagimoto (1973). We surveyed three routes in Kuzu area and collected 47 samples. The study of sedimentary environment is based on observation on thin sections.

The Lower Limestone Member mainly consists of bedded dark gray limestone. These limestones are abundant in lime-mud and partly contain peloids. These can be classified as lime-mudstone, wackestone or packstone. According to these features, it could be presumed that sedimentation of the Lower Limestone Member probably occurred in the bottom of lagoon. In addition, grainstone occurs a little, which indicates influence of storm. The lowest part of the Nabeyama Formation includes volcanoclastic grains. This is the evidence that volcanic island existed above sea-level surrounded by reef.

The Middle Dolostone Member is mostly crystalline. It has been regarded as result of dolomitization. There is no evidence which indicates primitive sedimentary environment of the Middle Dolostone Member.

Almost all parts of the Upper Limestone Member are massive light gray limestone. Most of them contain lime-mud and classified as lime-mudstone, wackestone or packstone. There is abundant in lime-mudstone and grainstone is not found in scope of our survey. The Upper Limestone Member could be presumed that deposited in calm environment like bottom of lagoon, the Lower Limestone Member likewise.

The Nabeyama Formation is covered by Triassic conglomeratic limestone and Jurassic siliceous shale. The conglomeratic limestone contains gravels of Permian limestone which derived from the Nabeyama Formation. It indicates fall of sea-level in Upper Permian or Lower Triassic. In addition, Jurassic siliceous shale is presumed to be deposited in the deep sea. It shows that top of the seamount moved to deep sea by Jurassic.

The research was supported by Science Mentor, which the Japan Science Society projects.

Keywords: Limestone, Sedimentary environment, Kuzu