

## Geological and paleontological investigation of Rote Island, Indonesia

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Geological and paleontological studies of Rote Island have proven that the distribution of the Mesozoic rocks (especially Triassic, Jurassic, and Cretaceous) is broader than was thought by previous workers. The Paleozoic rocks are not exposed, but some fossils collected from the surface suggest that such rocks are present deep down in the subsurface of this island. The fossils were brought to the surface along with the other materials by mud volcanoes which are common on the island.

The presence of ammonite *Timorites* sp. (a float) in Rote Island indicates that age of the oldest rocks in the island is Permian, although no true outcrop was seen. The well exposed Mesozoic (Triassic, Jurassic, and Cretaceous) rocks are fossiliferous.

The Aitutu Formation consists of grey to greenish, maroon marl, thinly bedded and has an age from Carnian to Norian. The dating is based on the presence of some species of *Halobia* and *Monotis*. The presence of *H. (H.) austriaca*, *H. (H.) styriaca*, and *H. (H.) charlyana* indicates a Carnian to Early Norian age, and

the presence of *Monotis (M.) salinaria* suggests that the Aitutu Formation is up to the Late Norian. The Wailuli Formation consists of light grey to black layers of fine sandstones in the lower part and calcareous sandstone to sandy limestone in the upper part. The age of Wailuli Formation is indicated by the presence of *Ostrea* sp., *Perisphinctes timorensis*, *Belemnopsis moluccana*, *B. galoi*, *B. stolleyi*, *Orbyrhynchia* sp. *Irianites* sp. to be Bathonian to Berriasian. No attempt has been made to subdivide the stages into more detailed subdivisions due to the poor preservation of the beds and the fossils. The Nakfunu Formation which consists of calcilutite with chert interbeds exposed in Termanu area has a Cretaceous age; radiolarians such as *Dictyomitra* sp. indicate an Albian (Early Cretaceous) age. Trace fossils, such as a large paramoudra, are also found.

Based on paleontology, the Triassic (Aitutu Formation) has been overturned which is shown by the wrong position between *Monotis* and *Halobia* in the measured section.

**Key words:** Aitutu Formation; Wailuli Formation; Nakfunu Formation; *Halobia*; *Monotis*; belemnites; ammonites; overturned