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The foraminifera of the Chuuk lagoon, and its value as teaching materials

HATTA Akio

Faculty of Education, Kagoshima University

Abstract

Analysis of the recent foraminifera, which is distributed to the Chuuk lagoon in the Federated States of Micronesia Chuuk state, and its practical use as teaching materials in education were considered.

Keyword: Chuuk lagoon, Recent foraminifera, teaching materials

The outline of investigation

Recent foraminifera in the Chuuk lagoon was studied with the cooperation of staff of the College of Micronesia (COM) in Chuuk. The obtained samples were treated to distinguish living material from emptiness material with rose bengal, and dried samples were taken out. The foraminifera was separated and judged at the laboratory of Kagoshima University.

Track lagoon extraction point

The sample was extracted around three islands, Piis, Romanum, and Ueno Island of the Chuuk lagoon island. Next, a sampling day, a place, the number of samples, and the depth of sample are shown.

2011－8－5	One sample from near a guesthouse, near the shore of the northeast part of Piis Island (1 m depth)
2011－8－6	Northeast of Island (From land to near reef) 1-4 (1 m depth)
2011－8－7	East of Island (From land to near reef) 1-4 (1 m depth)
2011－8－7	To Romanum Island
2011－8－8	From near shore of a guesthouse to near reef 1-3(1 m depth)
2011－8－9	In mangrove near a guesthouse 1-2 (1 m depth)
2011－8－10	From near shore to near reef 1-5 (1 m depth)
2011－8－11	To Ueno Island
2011－8－11	From near TrukStop Hotel of Ueno Island 1-5, Depth of No.1 is 2m, No.5 include much mud
2011－8－12	Beach sand near Blue Lagoon Hotel

Foraminifera

The extracted foraminifers were taken photo with the biological microscope and the clear pictures of the foraminifera were created by multi-in-focus image processing technical software. Next, an extraction place and the feature of extracted foraminifera are shown by photo.

Figure 1 shows sea grass in shore of Piis Island.

Figure 2 is showing growth of beach rock in Piis Island. The materials of beach rock are dead coral and foraminifers.

Figure 3 shows the foraminifera which can check existence with the naked eye (*Amphisorus* & *Homotorema*).

Figure 4-a shows *Amphisorus hemprichii* with scale of a ball-point pen and its size is 5.5mm.

Figure 4-b shows dry specimen. Figure 4-c is showing lateral side of *A. hemprichii.*

Amphisorus hemprichii Ehrenberg is showing the double row of drop shaped apertures and several additional openings in the lateral side.

Figure 5-a, b, and c are showing *Baculogypsina sphaerulata, Poroeponides lateralis,* and *Cymbaloporetta squammosa.*

Baculogypsina sphaerulata (Parker & Jones) was reported from the tropical Pacific region. *Poroeponides lateralis* (Terquem) is very similar to *Eponides repandus* (Fichtel & Moll), but the distribution of supplementary apertures extends and the primary spiral umbilical canal is less distinct than that of *Eponides repandus.*

Cymbaloporetta squammosa (d'Orbigny) is characterized in having a vaulted dorsal apex, in many cases colored purplish brown.

Figure 6-a, b, and c are showing *Cymbaloporetta plana, C. Plana* with a balloon chamber, and *Quinqueloculina* spp.

Cymbaloporetta plana (Cushman) differs in having a longer trochospiral portion and an annular series of fewer chambers per whorl at the immature stage. A balloon chamber grown at the mature stage of gamont generation.

Figure 7-a, b, and c are showing *Peneroplis planatus, Spirolina acicularis,* and *Gaudryina* sp.

Peneroplis planatus (Fichtel & Moll) distinguish with the flattened specimens from *P. pertusus.*

Spirolina acicularis (Batsch) is completely involute at the early stage and the chambers change from compressed to round in transverse section.

Practical use of the teaching materials in education

I introduce and propose to use foraminifera in biological education and environmental education with a clear picture of the foraminifera in this paper.

Moreover, I would like to propose to researchers and the staff of the College of Micronesia (COM) about the construction of the simple breeding environment of living foraminifera, and if possible, I would like to propose practice of the environmental education through breeding and observation of recent foraminifera of the Chuuk lagoon in the Federated States of Micronesia.

Acknowledgment

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Fig. 1. Coast of a Piis island, sea grass stock.

Fig. 2. Formation of a beach lock.

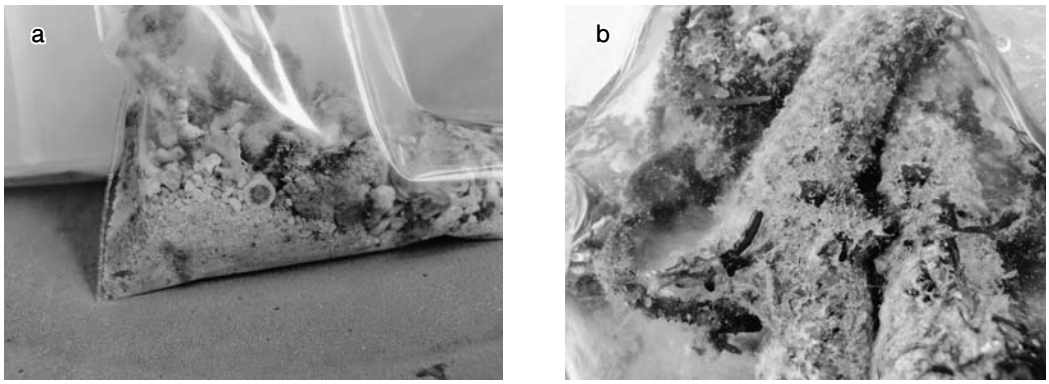
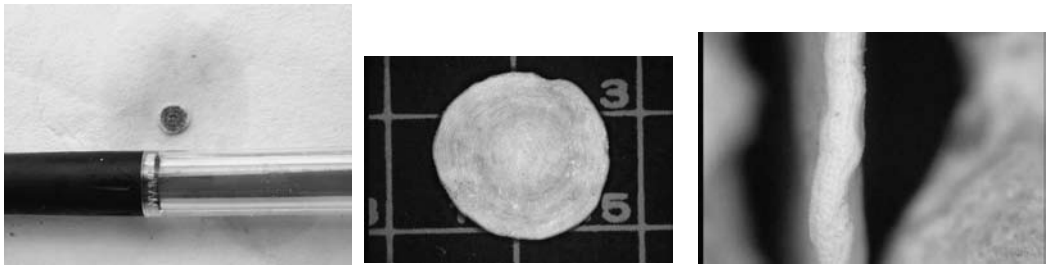


Fig. 3. Foraminifera which can check existence with the naked eye (*Amphisorus*(a) & *Homotorema*(b)).

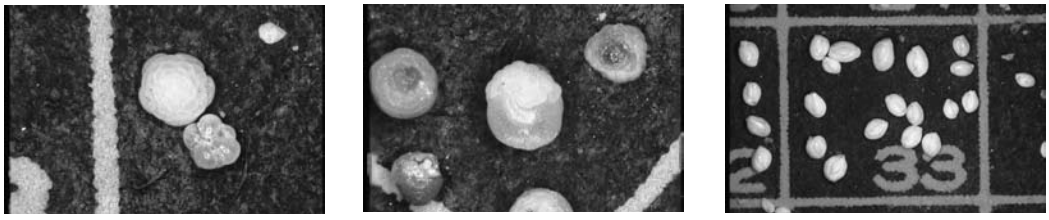


a b c

Fig. 4. *Amphisorus hemprichii* size=5.5mm (With scale of a ball-point pen (a); Dry specimen (b); Lateral side(c)).

a b c

Fig. 5. *Baculogypsina sphaerulata* (a), *Poroeponides lateralis* (b), *Cymbaloporetta squammosa* (c).



a b c

Fig. 6. *Cymbaloporetta plana*(a), *C. Plana* with a balloon chamber(b), *Quinqueloculina* spp.(c).

a b c

Fig. 7. *Peneroplis planatus*(a), *Spirolina acicularis*(b), *Gaudryina* sp.(c).

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