On Two Species of Simple Corals from Kagosima-ken, Kyûsyû*

By

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Recently S. ENDÔ of the Institute of Geology and Palaeontology, Tôhoku Imperial University, during his collection of fossil plants from several localities near the city of Kagosima, Kagosima-gun, Kyûsyû, fortunately obtained some marine fossils, among which were discovered two species of simple corals.

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Among the two corals, *Deltocyathus orientalis* DUNCAN, is known to be living in the waters around Japan, ranging from Aomori-ken at the north to the East Indies, Indian Ocean and Mediterranean Sea at the south and at the west. As fossil it is known from the Pliocene and Pleistocene of the Kwantô region of Central Japan, the Pliocene of Taiwan, Plio-Pleistocene of the Ryûkyû Islands, and from the Upper Pliocene of Ceram. The Present record of this coral from Unoki, Yosida-mura, Kagosima-gun, Kagosima-ken (Reg. No. 65019), is a new locality.

Although *Deltocyathus orientalis* is represented by only two specimens in the material from Unoki, it is remarkably abundant in the Ryûkyû limestone formation of Kikai-zima in the Ryûkyû Islands, it is expected to occur in larger numbers in the fossil layer at Unoki by future collection.

The other coral, *Heteropsammia* cf. *ovalis* SEMPER, which is from Kuwanomaru, Yosida-mura, Kagosima-gun (Reg. No. 65018), is not very well preserved, and although its generic position can be settled easily, its specific position is rather difficult owing to its being somewhat water-worn. *Heteropsammia ovalis* is known to occur from the Younger Cenozoic rocks of Mindanao in the Philippine Islands, Plio-Pleistocene of Ceram, Miocene of Java, Pliocene of Taiwan, Pliocene of Sikoku, Pliocene of the Kwantô region of Central Japan, and from the Plio-Pleistocene of the Ryûkyû Islands. As known at present, there are no living records of this interesting species.

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However, *Heteropsammia cochlea* (SPENGIER), a recent coral from the Philippine Islands in 25 fathoms, the East Indies in 15-83 meters, and also from off Seto-Kanayama, Wakayama-ken in 46 meters and from off Karatu, Saga-ken in 106 meters; is more or less similar to *Heteropsammia ovalis*. Also very closely related to the doubtful fossil from Kuwanomaru are *Heteropsammia ovalis formosensis* YABE and EGUCHI and *H. ovalis japonica* YABE and EGUCHI, the former from the Ryûkyû limestone formation of Kikai-zima in the Ryûkyû Islands, and the latter from the Byôritu beds of Taiwan. If the present fossil were perfect, it appears that it might belong to *H. ovalis japonica*. *Heteropsammia* was also recorded by J. MAKIYAMA from the Pliocene Sasage beds of Tiba-ken.

Heteropsammia ovalis and *Deltocyathus orientalis* occur together in the Ryûkyû limestone formation of Kikai-zima in the Ryûkyû Islands and in the Byôritu beds of Taiwan, elsewhere they are not known to occur in association. The geological age of the former mentioned formation is Plio-Pleistocene while that of the latter is Pliocene, thus the geological range of *Heteropsammia ovalis* is from the Miocene (of Java) to the Lower Pleistocene, while that of *Deltocyathus orientalis* is from the Pliocene to recent.

Both of the mentioned simple corals are not sedentary forms but belong to the free type, and therefore are generally restricted to sandy bottoms or to those consisting of fine material. Among the deep-sea corals the ones just mentioned belong to the shallow water forms and inhabit a sea-bottom generally within the depth of fifty meters, although there are still deeper records. Therefore, if a bold conclusion can be brought about, the writer believes that the shell-beds in which the present corals were found may not have been laid down at a depth not exceeding some fifty meters, seeing that the corals thrive in such a depth.

The geographical and geological distributions of the two corals mentioned above is as follows.

Deltocyathus orientalis DUNCAN¹⁾. Type locality:—Off Minosa-mati, Kitamuro-gun, Mie-ken. 52 fathoms.

Deltocyathus orientalis DUNCAN (x 5).
From Unoki, Yosida-mura, Kagosima-ken. (Reg. No. 65018)

1: Lateral view, 2: Basal view,
3: Calicular view.

1) *Deltocyathus orientalis* DUNCAN, 1876, Proc. Zool. Soc. London, p. 431, pl. 38, figs. 4-7; YABE and EGUCHI: 1932, Proc. Imp. Acad., Vol. VIII, No. 8, p. 388; YABE and EGUCHI: 1932, Proc. Imp. Acad., Vol. VIII, No. 9, p. 442; YABE and EGUCHI: 1937, Sc. Rep. Tôhoku Imp. Univ., Sendai, 2nd Ser., Vol. XIX, No. 1, p. 135, pl. XX, figs. 1-10. *Deltocyathus lens* ALCOCK, 1902, Siboga Expeditie, Monographie, Vol. VII a, p. 19, pl. 11, figs. 16, 16a; GRAVIER: 1920, Res. Camp. Sc. Monaco, fasc. LV, p. 36, pl. 3, figs. 47-54, pl. 13, figs. 200, 201; UMBROVE: 1925, Report Pleistocene and Pliocene Corals from Ceram, p. 4, pl. 1, figs. 8-10.

Geographical distribution:—Aomori-ken, 152-168 m., Miyagi-ken, 40-344 m., Hukusima-ken, 170 m., Tiba-ken, 59-269 m., Sagami Bay, 106-446 m., Off Izu, 145 m., Suruga Bay, 188 mm., Kôti-ken, 106-344 m., Nagasaki-ken, 90 m., Simane-ken, 75-183 m., Hukui-ken, 113 m., Akita-ken, 93 m., Aomori-ken (Kyûroku-sima), 210 m., Philippine Islands, 522 m., East Indies, 590-397 m., Indian Ocean 4,914 m., Atlantic Ocean, 599-914 m.

Geological distribution:—Pliocene and Pleistocene of Tiba-ken, Pliocene of Kanagawa-ken, Pliocene of Ibaraki-ken, Pliocene of Kôti-ken, Pliocene of Taiwan, Upper Pliocene of Ceram, Plio-Pleistocene of Kikai-zima, Pliocene of Okinawa-zima, Ryûkyû Islands. Besides the present new locality of Unoki, Yosida-mura, Kagosima-gun, Kagosima-ken.

Heteropsammia cf. *ovalis* SEMPER¹⁾. Type locality of *H. ovalis*, Maasin on the coast of Agusan, Mindanao, Philippine Islands (Younger Cenozoic). Besides Kuwanomaru, Yosida-mura, Kagosima-gun, Kagosima-ken.

鹿兒島縣產化石孤生珊瑚2種(摘要)

江口元起

鹿兒島市外吉田村附近の含植物化石凝灰岩層の調査中、遠藤誠道博士は多数の海棲生物化石を採集された。其の中に *Deltocyathus orientalis* DUNCAN 及び *Heteropsammia* cf. *ovalis* SEMPER の2種の遊離孤生珊瑚がある。前者は吉田村鵜木より、後者は吉田村桑の丸よりの材料で、何れも小形で砂底又は泥質海底に遊離して生活する種である。*H. cf. ovalis* は磨滅して正確な鑑定は困難であるが *D. orientalis* は青森縣沖より蘭印地方、印度洋、大西洋にまで分布する興味ある種で化石としても鮮新統以後の各地に知られる。附近では大島郡喜界島の琉球石灰岩の異相とされる石灰質砂層中に最も多産する。新産地として、分布が興味を索くので現在の各地の水深を特に記した。

(孤生珊瑚の様に密集して石灰岩を形成する代りに分布が廣いから今後各地の海成層中に知られるものと信ずる。又地層の對比には案外價值あるものがある。)

1) *Heteropsammia ovalis* SEMPER, 1872, Generationswechsel bei Steinkorallen. Zeitschr. für wiss. Zool., Leipzig, Bd. XX, p. 266, pl. 20, figs. 11a, 11b; FAUSTINO: 1927, Recent Madreporia of the Philippine Islands. Monograph 22, Bureau of Science Manila, Philippine Islands, p. 238, pl. 76, figs. 9, 10.