*Recent and Fossil Corals of the Family Oculinidae from Japan**

By

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The family Oculinidae is here used in the sense redefined by VERRILL, and corresponding to MILNE-EDWARDS and HAIME's Oculinacae; the latter authors originally included in the Oculinidae not only Oculinacae, but also Stylasterinacae, which now constitutes an independent hydrozoan family. Although oculinid corals from Japan are rather few in the number of genera and species, their presence in the Japanese seas was already known to European naturalists nearly a century ago.

The present article deals with some recent and fossil species of this family from Japan. The recent species are the two deep water corals, (1) *Madrepora* cf. *oculata* LINNÉ and (2) *Cyathelia axillaris* (ELLIS and SOLANDER), the former well known under the name *Amphelia oculata*, a cosmopolitan species, but made known for the first time that they are living also in Japanese waters, while the latter is a characteristic species of the Indo-Pacific ocean, established on a type specimen from Japan. Of the Japanese fossils stored in the Institute of Geology and Palaeontology, Tôhoku Imperial University, there are specimens representing two new species of the genus *Enallhelia*, one Jurassic and the other Cretaceous. This is the first record of the distribution of enallhelian corals outside Europe.

Oculinids also occur in the younger Cenozoic deposits of Japan, most of the specimens now at hand belonging to the genus *Madrepora*, although indeterminate specifically owing to poor preservation.

I wish to take this opportunity of recording my indebtedness to Emeritus Professor H. YABE for much help and constant encouragement in my studies.

Family Oculinidae VERRILL

Oculinidae MILNE-EDWARDS et J. HAIME, 1849, Comp. rend. Acad. Sci., t. 29, p. 68 (pars).

Oculinacae MILNE-EDWARDS et J. HAIME, 1860, Hist. nat. corall., t. 2, p. 105 (Stylasterinidae excluded).

Oculinidae VERRILL, 1868, Trans. Conn. Acad. Art & Sci., vol. 8, p. 514.

Type genus *Oculina* LAMARCK. Geological and geographical distribution of the type genus; Upper Cretaceous to Recent. (Recent species restricted to the Atlantic Ocean.)

The most remarkable characteristic of oculinid corals is the solid or compact coenenchyma, by which they are easily distinguished from the corals of all the

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other families of the *Hexacoralla*. The coenenchyma is often vesicular, only in the living shallow water corals of the genus *Aerhelia* in which respect this genus somewhat resembles the astraeid *Galaxea*.

The geological range of the Oculinidae is Jurassic-Recent, its earliest members from the Middle Jurassic of Europe belonging to the *Enallhelia* d'ORBIGNY and *Euhelia* MILNE-EDWARDS et HAIME; the former genus has a wide range from Middle Jurassic to Lower Cretaceous (Neocomian-Urgonian), its geographical distribution now extending to Japan.

The species now to be described of fossil and recent oculinid corals from Japan represented in our collection are:

- 1) *Madrepora* cf. *oculata* LINNÉ Recent; common in all the seas bordering Japan, 80-400 m.
- 2) *Cyathelia axillaris* (ELLIS et SOLANDER) Recent; central and southwest Japan, some 200 m.
- 3) *Enallhelia nipponica* EGUCHI, nov. Lower Cretaceous, Monobegawa series, Osima, Rikuzen.
- 4) *Enallhelia nipponica somaensis* EGUCHI, nov. Upper Jurassic, Torinosu limestone; several localities in Sikoku and Honsyû.

Genus *Madrepora* LINNÉ

Madrepora (pars) LINNÉ, 1758, Syst. Nat., ed. 10, p. 793 (cited after VERRILL, 1902)

Oculina (pars) LAMARCK, 1816, Anim. sans Vert., t. 11, p. 284.

Amphelia and *Lophelia*, MILNE-EDWARDS et HAIME, 1848, Comp. rend. Acad. Sci., t. 29, p. 69.

Amphelia, *Lophelia* and ? *Sclerohelia* MILNE-EDWARDS et HAIME, 1850, Ann. Sci. Nat., (3), t. XIII, p. 75.

Amphihelia, *Lophohelia* MILNE-EDWARDS et HAIME, 1858, Hist. nat. corall, t. 2, pp. 116 & 118.

Madrepora VERRILL, 1902, Trans. Conn. Acad. Arts & Sci., vol. XI, p. 110. (with synonym).

Madrepora VAUGHAN, 1906, Bull. 59, U.S. Nat. Mus., p. 80.

Genotype; *Madrepora oculata* LINNÉ. Recent; type loc., Atlantic; geological range; Miocene to Recent.

Madrepora cf. *oculata* LINNÉ

Pl. 6(5), Fig. 1.

Compare;

Madrepora oculata LINNÉ, 1758, op. cit., p. 793.

Amphelia oculata MILNE-EDWARDS et HAIME, 1850, op. cit., p. 69.

Amphihelia oculata MILNE-EDWARDS et HAIME, 1858, op. cit., p. 119 (with synonym).

Madrepora cf. *oculata* LINNÉ, which is a common species in the Japanese waters, is very variable in the size and shape of columella, depth of calice, and in the presence or absence of pali and paliform lobes. One of them figured here (Pl. 6(5), Fig. 1) is the most common type, and is indistinguishable from *Amphihelia adminicularis* REHBERG¹⁾, originally from Japan, while several larger speci-

1) H. REHBERG: 1892, Neue und wenig bekannten Korallen. Abh. Nat.-w. Ver. Hamburg, Bd. 12, p. 10, pl. IV, fig. 1.

mens from the Sagami-nada agree well in every respect with the description of *Madrepora oculata* by MILNE-EDWARDS and J. HAIME and with the figure given by ELLIS and SOLANDER¹⁾. The Atlantic species is fairly variable, but our *Madrepora* cf. *oculata* seems to exceed it in this respect; the variation being frequently exhibited by different parts of the same colony. There is a type, part of which colony is very similar to *Madrepora kawaiensis* VAUGHAN²⁾, from the Hawaiian seas, although in other parts it is distinct from it in the shape of the calices, the surface ornamentation of the branches, and other features. Since, in our preliminary study of the Japanese deep water corals³⁾, we had nothing but small fragmental specimens of the present species, we assigned some of them to *Amphelia oculata* and some to *Sclerohelia* sp. However, with better material now in hand, we find that features characteristic of the two forms are exhibited in different parts of one and the same colony. The corals of the Oculinidae, mentioned by ALCOCK in his "Siboga Deep Sea Madreporaria"⁴⁾, may also be safely included in the range of variation of the present species.

When the Pacific and Atlantic forms have been proved to be conspecific, then *M. oculata* will be found to be a true deep sea coral, cosmopolitan in distribution. Our materials came from the following localities:

- Sagami Bay (Okinose or Okinoyama, 100-300 fathoms, Reg. Nos. 43415, 43419, 58925, 59161, 60619, 56563 (Sôyô-maru St. 271, 82 meters); off Enosima, Kanagawa-ken.)
- Soto-Bôsyû (off Katuura, Tiba-ken, 100 m.)
- Suruga Bay (off Omae-zaki, Sizuoka-ken, 214 m, Sôyô-maru St. 188.)
- Tusima Strait (117 m, Reg. No. 58919, Sôyô-maru St. 462.)
- Wakasa Bay (72 m, Reg. No. 60422, Sôyô-maru St. 594; vicinity of Wakasa-Bay, 58-230 m, Mr. H. NIINO'S collection.)
- Toyama Bay (93 m, Reg. No. 60424, Sôyô-maru St. 584.)
- Near Sado Island (145 m, Reg. No. 56564, Sôyô-maru St. 595; off N. of Sado, 145 m, Reg. No. 60412.)
- Off Nosiro, Akita-ken, 145 m, Reg. No. 56567, Sôyô-maru St. 637.
- Kyûroku-zima, Aomori-ken.

Genus *Cyathelia* MILNE-EDWARDS et HAIME

Cyathelia MILNE-EDWARDS et HAIME, 1848, op. cit., p. 68.

Cyathohelia MILNE-EDWARDS et HAIME, 1858, op. cit., p. 110.

Genotype; *Cyathelia axillaris* (ELLIS and SOLANDER). Recent; type loc. Japan.

1) J. ELLIS and D. SOLANDER: 1786, Natural History of Many Curious and Uncommon Zoophytes Coll. from Various Parts of the Globe. p. 153, pl. 36.

2) T. W. VAUGHAN: 1906, Recent Madreporaria of the Hawaiian Islands and Laysan. U. S. Nat. Mus., Bull., 59, p. 81, pl. VIII, figs. 1-3.

3) H. YABE and M. EGUCHI: 1932, A Study of the Recent Deep-Water Coral Fauna of Japan. Proc. Imp. Acad., Vol. VIII, No. 8, p. 387.

4) A. ALCOCK: 1902, Report on the Deep-Sea Madreporaria of the Siboga-Expedition. Monogr. Siboga Exped., Bd. XVIa, p. 34-36.

Cyathelia axillaris (ELLIS and SOLANDER)

Pl. 6(5), Figs. 2, 3.

Madrepora axillaris ELLIS and SOLANDER, 1786, op. cit., p. 153, pl. 13, fig. 5.*Oculina axillaris* LAMARCK, 1816-18, Histoire naturelle des animaux sans vertèbres (2éd., p. 456, 1836); DANA, 1848, WILKE's Exploring Expedition, Zooph., p. 593.*Cyathelia axillaris* MILNE-EDWARDS et HAIME, 1850, British Fossil Corals, Introduction, p. 20; MILNE-EDWARDS et HAIME, 1850, Monographie des Oculinides, Ann. des Sci. nat., (3), t. XIII, p. 72.*Cyathohelia axillaris* MILNE-EDWARDS et HAIME, 1858, op. cit., p. 110; DUNCAN, 1876, Notice of Some Deep-Sea and Littoral Corals from the Atlantic Ocean, Caribbean, Indian, New-Zealand, Persian Gulf, and Japanese Seas. Proc. Zool. Soc. London, p. 438; MOSELEY, 1881, On the Deep Sea Madreporaria. Chall. Rep., Zool., Vol. 11, p. 175; ALCOCK, 1898, An Account of the Deep-Sea Madreporaria Collected by the Royal Indian Marine Survey Ship Investigator, p. 28; BEDÔT, 1907, Madreporaires d'Amboine, Revue suisse de Zool., t. 15, p. 145, pi. 15, figs. 1-3.

Cyathelia axillaris (ELLIS and SOLANDER) is somewhat similar to the preceding species, its characteristics having been described fairly accurately by MILNE-EDWARDS and HAIME in their original diagnosis of the genus *Cyathelia*, which is monotypic. The type locality of this species is Japan.

The present specimens agree well with the figures of *Madrepora axillaris* given by ELLIS and SOLANDER, as well as with the figures and description of *Cyathelia axillaris* by MILNE-EDWARDS and HAIME and others. That they belong to this species is confined by comparison.

This species, with its distribution in the Indo-Malayan region, thrives in deep water of the Japanese seas, its northernmost distribution being the Bôsyû coast on the Pacific side and Tomioka on the western side of Kyûsyû (East China Sea). The localities are:

Off Kominato, Tiba-ken, depth unrecorded. Reg. No. 58960.

Sagami Bay, 100-200 fathoms. Reg. No. 56560, 43414, 57495, 58924.

Off Mtkomoto-zimâ, near Simoda-mati, Izu Peninsula. Reg. No. 40994.

Off Seto-Kanayama, Nisimuru-gun, Wakayama-ken. Reg. No. 50237.

Off Tomioka, Amakusa-gun, Kumamoto-ken. Reg. No. 41940, 58959, 57495.

Off Moluccas, lat. 0°48'S., long. 126°55'E., 825 fathoms (MOSELEY); Amboina (BEDÔT); Off Malabar coast, 444 fathoms (ALCOCK); Off Madras coast, Bay of Bengal, 88 fathoms (ALCOCK).

Genus *Enallhelia* MILNE-EDWARDS et HAIME*Enallhelia* MILNE-EDWARDS et HAIME, 1849, op. cit., p. 69.*Enallhelia* MILNE-EDWARDS et HAIME, 1850, op. cit., p. 21.*Enallhelia* MILNE-EDWARDS et HAIME, 1858, op. cit., p. 123.Genotype; *Enallhelia compressa* (GOLDFUSS). Jurassic; Europe.*Enallhelia nipponica* EGUCHI, nov. sp.

Pl. 6(5), Figs. 4-7.

Corallum arborescent, branching profusely and forming large bushy masses; branches subcylindrical, 2-20 mm in diameter, terminal ones slender. Calices deep, with margin pro-

jecting slightly upward, circular or oval, arranged in two alternate series on opposite sides of slender terminal branches, spirally on larger ones, and almost without order on thick basal ones or stems; usually 1.5-2.5 mm in diameter, and similarly spaced on slender branches. Septa on regular hexameral plan, usually in two cycles, sometimes with rudimentary ones of third cycle; those of first cycle reach styliform columella at center. Columella projecting in calicular hollow, rarely somewhat compressed. Coenenchyma compact or solid, well developed, especially in larger branches or stems.

Remarks: The above description is based on combined observations of a number of well preserved specimens in hand, in surface view [as well as those viewed in transverse and tangential sections. Most European species of the genus are discriminated by features exhibited by the terminal branches, some of them probably mere synonyms of the others, seeing that, from what we have now found, in this genus, the coral stocks show considerable variation in a number of features in their various parts. If it had not been for the abundant material in hand, our species would have been separated into two or more different species.

Enallhelia nipponica, which is similar to *E. cf. rathieri* d'ORBIGNY, described by De ANGELIS¹⁾ from the Urganian of Italy, and which is smaller than *E. rathieri*, described by FROMENTEL²⁾ from the Neocomian of France, lies intermediate between the Italian and French forms, but the great variation in size and arrangement of calices, seen in this species, has not yet been reported of any foreign species. *E. elegans* (GOLDFUSS)³⁾ and *E. compressa* (GOLDFUSS)⁴⁾, both from the Jurassic of Europe, and *E. gracilis* (d'ORBIGNY) FROMENTEL⁵⁾ from the Neocomian of Europe, and the other allied species. The first species differs from the present by having corallites more elongated, and calices with more elevated calicular margin, and differing from the second by larger calices with more numerous septa, and from the third by much narrower calices.

Locality; Yogai, Ôsima-mura, Motoyosi-gun, Miyagi-ken. Reg. No. 39728. Monobegawa series (Lower Cretaceous).

This species, which forms a coral zone in the lower part of the lower Cretaceous series of Ôsima, is exposed on the present sea beach at a part of the locality where the coral zone is abraded, with the matrix weathered away and appearing exactly like a recent reef. The diameter of the largest colony measured more than a metre.

Enallhelia nipponica somaensis, EGUCHI, nov. subsp.

Pl. 6(5), Figs. 8-9.

Corallum branching, with terminal branches less crowded than in typical form; branches

1) G. De ANGELIS d'OSSAT: 1906, I Coralli del Calcarea di Venassino. Atti della R. Acad. d. Sci. fis. e mat. di Napoli, Vol. XII, Ser. 2, No. 16, p. 39, pl. 11, fig. 23.

2) De FROMENTEL et FERRY: 1861, Peleontologie française, Terrain crétacé, t. 8, p. 381, pl. LXXXIII, fig. 1.

3) E. BECKER: 1875, Die Korallen der Nattheimschichten. Palaeontographica, Bd. 21, p. 134, pl. 36, figs. 3-5.

4) E. BECKER: 1875, op. cit., p. 133, pl. 26, fig. 2.

5) De FROMENTEL: 1857, Description des Polypiers fossiles de l'étage Neocomian, p. 22.

narrower than 3 mm, even at basal part; subterrate, terminal ones more or less flexuous or irregularly subcylindrical. Coenenchyma scanty. Corallites tubular, slightly ascending, with distal margin obliquely truncated; calices circular or oval, shallow, 0.7–1.25 mm in diameter, arranged alternately in two opposite rows, owing to alternate subterminal gemmation, with outer lip expanded outward. Septa regularly stellate, 12 in number, arranged in two cycles of hexameral plan; 6 septa of first cycle much broader than those of second, extend to near columella, often with inner margin slightly expanded or bifurcated. Columella small, styliform. Costae distinct only near calicular margin, subequal, delicate, 24 in number.

Remarks: Although the type specimen (Reg. No. 65261) of this subspecies, which is firmly imbedded in a dark-gray limestone, having only a few branches exposed on the weathered surface, does not allow of satisfactory observation of its surface features, there is no doubt that its branches are rather wide apart and arranged somewhat without any order, suggesting a more lax colony than in the type form of this species. All the other diagnostic features, such as the solid coenenchyma and the circular corallites with stellate septa, styliform columella, etc. are seen in thin sections.

This subspecies, with its delicately built colony, is distinguished from the type form of the species described above by having somewhat flexuous, more slender branches, emerging at wider angles, and bearing decidedly smaller calices. It also differs from almost all the European species hitherto known, including *E. elegans*, with similarly projected calices as ours, by having much smaller calices.

Localities and geological formations are as follows:

Torinosu limestone group.

Tomizawa, Yahata-mura, Sôma-gun, Hukusima-ken. Reg. No. 65261, 65263.

Totikubo, Kamimano-mura, Sôma-gun, Hukusima-ken. Reg. No. 65262.

S. of Hayama, Kamimano-mura, Sôma-gun, Hukusima-ken. Reg. No. 65264.

W. of Koike, Kamimano-mura, Sôma-gun, Hukusima-ken. Reg. No. 65265.

Nakayama, Isigami-mura, Sôma-gun, Hukusima-ken. Reg. No. 67360.

Kosyô, near Itukaiti-mati, Nisitama-gun, Tôkyo-hu. Reg. No. 65319.

Similar remains are common in many other sections cut from the Torinosu limestone from the various localities enumerated below, and although it has not been proved that they are specifically identical with the holotype, they show the wide distribution of the corals of the same genus in our Torinosu limestone.

Localities of *Enallhelia* sp.

Hanabata, Togano-mura, Takaoka-gun, Kôti-ken. Reg. No. 65353.

Mimikiri, near Sakawa-mati, Takaoka-gun, Kôti-ken. Reg. No. 65267.

Mitoda, Kamo-mura, Takaoka-gun, Kôti-ken. Reg. No. 65268.

Kunimi, Asô-mura, Takaoka-gun, Kôti-ken. Reg. No. 65318.

Explanation of Plate 6(5)

- Fig. 1. *Madrepora* cf. *oculata* LINNÉ. Recent; Loc. Sagami Bay, ca. 100 fathoms. Reg. No. 43451. $\times 1$.
- Figs. 2, 3. *Cyathelia axillaris* (ELLIS and SOLANDER). Recent; Loc. Sagami Bay, ca. 100 fathoms. Reg. No. 56560. Fig. 2, $\times 1$; Fig. 3, $\times 3$.
- Figs. 4-7. *Enallhelia nipponica* EGUCHI. Lower Cretaceous (Monobegawa series). Loc. Yôgai, Ôsima-mura, Motoyosi-gun, Miyagi-ken. Reg. No. 39726. Fig. 4, weathered surface, $\times 1$; Fig. 5, terminal branchlets in diagonal section, $\times 1.5$; Fig. 6, larger branches or stems in cross section, $\times 1.5$; Fig. 7, a slender branch showing calices in cross section, $\times 3$.
- Fig. 8. *Enallhelia nipponica somaensis* EGUCHI. Section. Upper Jurassic (Torinosu limestone group). Loc. Tomizawa, Yahata-mura, Sôma-gun, Hukusima-ken. Reg. No. 65261 (type specimen). $\times 4$.
- Figs. 9-11. *Enallhelia nipponica somaensis* EGUCHI. Section. Upper Jurassic (Torinosu limestone group). Loc. Near Koike, Kamimano-mura, Sôma-gun, Hukusima-ken. Reg. No. 65266. $\times 4$.

日本産 Oculinidae (摘要)

江口元起

Oculinidae (枇杷柄石科) は MILNE-EDWARDS 及 James HAIME (1848) により定義された枝状群體を形成する太西洋特有の *Oculina* 属を含む深海珊瑚の 1 科で, VERRILL により用ひられた如く, 本来の科より Stylasterinidae を除く六射珊瑚の 1 群を指す。

本科の珊瑚は樹状に分枝せる群體と緻密な石灰質の Coenenchyma (共同骨格) が發達して, 特に群體下部の棒状部は厚くなり calice (莢) はその中に埋まるを特徴とする。Eupsammidae 珊瑚とは群體の形で似て居るが, 後者は多孔質の共同骨格の發達せる點で區別する。Galaxiidae なる現在珊瑚礁上に見る 1 群 *Acrhelia* 及 *Galaxea* 兩属を含む 1 科の存在で Stylinidae との密接なつながりを示す。

現在の種は日本沿岸より下記の 2 属 2 種がある。

- 1) *Cyathelia axillaris* (ELLIS and SOLANDER)
- 2) *Madrepora* cf. *oculata* LINNÉ

何れも深海性珊瑚で, *Cyathelia axillaris* は“ふたりびわがらいし”と稱される我國房州沖以南暖海の 100 尋線附近に普通な種で, 枝の先端では通常 1 莢絲に同時に 2 つの新らしい莢を發芽して生長を續ける點と莢口部に直径を増す朝顔の花に似た莢形に特徴著しい。西は五島沖以南に知られる。日本近海産東北帝大地質學古生物學教室所藏の資料は次の如くである。

蒼鷹丸採集品 (St. 188, 345, Reg. No. 56566), 千葉縣房丸採集品 (外房州 St. 15, Reg. No. 59045), 神奈川縣小港沖 (Reg. No. 58960), 相模灣 (Reg. No. 8300), 三崎沖, よどみ (Reg. Nos. 43414, 58924), 伊豆, 神子元島 (Reg. No. 40994), 和歌山縣瀬戸沖 (Reg. No. 50237), 熊本縣天草島, 富岡沖 (Reg. Nos. 41940, 58959, 57495, 56560)。

MILNE-EDWARDS 及 HAIME, P. M. DUNCAN, H. N. MOSELEY 等も古く日本産を報告した。但し其正確な地點は示さず。蘭印 Moluccas 沖 825 尋 (MOSELEY, Amboina BEDÔT), 印度洋 Bengal 灣 88-444 尋 (ALCOCK)。

Madrepora oculata LINNÉ は *Amphelia oculata* として知らるる細枝状の象牙質珊瑚, 枝端は極めて細く各珊瑚個體は互に枝の兩側に斜交して交互に發芽増殖する特有の種で, 枝の太さ及び莢の太さ, 特に pali 小柱の發達に著しい變異あり, 在來 *Amphelia*, *Loohohelia*, *Sclerohelia* 等異つた屬名の下に取扱はれたことのある種で, VAUGHAN によりハワイ産のものが *Madrepora kauaiensis* VAUGHAN として報告された。但し同一群體に各屬の特徴及び多くの近似種の特徴を認め得る。曾て日本産として REHBERG により報告された *Amphelia*

adminiscularis REHBERG も明かに本種を指す。日本海沖に多い *Sclerohelix* sp. として矢部教授と筆者の取扱った材料も明かに本種である。北は津軽海峡附近より日本海岸及び太平洋岸の日本全土に分布する。明かに深海性珊瑚である。莢は前種よりはるかに小形である。主として蒼鷹丸採集品で下記の諸地点より採集された。584, 595, 610, 637, 188, 271, 462, 三崎沖, 沖ノ山附近に最も普通の種, 太平洋・印度洋・地中海及大西洋を通じて共通種で, 大西洋では特にノルウエー沖よりさへ知られる。福井縣沖には特に本種の豊富な漁礁がある。*Madrepora* 属の密集せる海底には一見造礁珊瑚様の觀を呈する場合があり, 實際新第三期や第四期層中には此の深海珊瑚石灰岩とも稱し得べき物がある。

日本の第三紀層及び更新世の海成層中には相當廣く分布せる *Madrepora* 属の化石が在る。一般に枝端の破片のみで完全な資料は得られない。島根縣・千葉縣・青森縣等の各地よりの資料がある。但し種の鑑定に耐へる資料は少い。

珊瑚礁地方に見る唯一の枇杷柄石科は *Acrhelix horrescens* DANA なる種がある。但し本種は *Galaxea* 属と共通の特性を多分に備へるため, 筆者は 1 亜科として *Galaxiidae* とした。パラオ島では岩山灣の或地域に極めて豊富な生育地を觀察した事がある。

化石枇杷柄石科の最も古い代表者は *Enallhelix* 属及び *Euhelix* 属で, 侏羅紀中部より記録される。其中最も種數に富み分布廣きは *Enallhelix* 属で, 歐洲中部侏羅紀及び下部白堊紀層に限り知られて居た。

筆者は昭和 3 年 (1928 年) 陸前大島 (宮城縣本吉郡大島村) の下部白堊紀層中の珊瑚類研究中, 同村要害海岸の露頭に凡ど例外なしに *Enallhelix* 属のみよりなる枝狀珊瑚化石帶を注意した。黑色頁岩中に夾在するもので, 表面の風化により凡ど今日の珊瑚礁上に於ける *Acrhelix horrescens* の群生を思はせる。唯現在の物は軟體部の薄い被覆のため暗褐色を呈せるに反し, 黑色をなして一部海水面に洗はれてゐるのみである。大島産の珊瑚化石中では最も保存の良い物で, 歐洲の各地 Neocomian-Urgonian の地層中に知られる *Enallhelix rathieri* FROMENTEL と近似し, 又同様の分布で知られる *Enallhelix gracilis* M. EDW. & H. と似た點あり, 其の兩性質を夫々一部備へる中間の種として *Enallhelix nipponica* EGUCHI とした。本種は其の後未發表のまゝ殘されたが, 多數の資料により薄片として觀察するに何れも骨格の内部が緻密な石灰質に滿され僅かに珊瑚體の内部のみが黑色頁岩で滿されて殘る。但し現在の *Madrepora* 属其他の枇杷柄石科の代表者を薄片にして比べて始めて之は 2 次的に結晶して滿されたものでなく本來緻密な共同骨格の發達せるためなる事を知り得た (第 6 圖)。

鳥巢石灰岩中の珊瑚は極少數を除いては外部, 特に珊瑚體の形態の充分觀察される資料は少い。但し薄片には意外に良く保存された物がある。

多數の薄片中に大島産の *Enallhelix nipponica* の斷面と甚だ似た資料がある (第 8 圖及第 9 圖)。表面の枝はより開いた角度で分枝し, 細枝端は細く, 莢も一層直徑が小さい。Septa (隔壁) は *Enallhelix nipponica* の尖端部に於ける莢と同様六射系の 2 回即ち 6+6 で一般により纖細な構造を示す。在來知られた歐洲中部—上部侏羅紀の 8 種, 下部白堊紀の 2 種があるが, 何れの種よりも莢の直徑小さい點で區別出来る。本種を *Enallhelix nipponica somaensis* EGUCHI nov. とする。模式産地, 福島縣相馬郡八幡村富澤 Reg. No. 65349, 採集者岩井淳一。分布, 相馬地方鳥巢石灰岩, 富澤, 小池, 其他に最も個體數に富む。其他産地は, 東京府下五日市附近秋川河岸炭坑跡, Reg. No. 65139; 高知縣高岡郡加茂村耳飛田, 同佐川町附近美都岐, 同吾桑村國見附近, 但し Reg. No. を附せざる物は保存良好ならず, 同定に多少疑ある物。

以上本題下に日本産枇杷柄石科珊瑚の現在の種属の分布と化石 (中生代) 種の 1 新種 (但し 1931 年以來手記以外に未發表) 及び其の 1 新亜属を記載した。

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KUMAGAI photo.