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SOME RECENT AND FOSSIL CORALS OF THE GENUS
STEPHANOPHYLLIA H. MICHELIN FROM JAPAN

BY

HISAKATSU YABE and MOTOKI EGUCHI

With 2 Plates and 3 Text-Figures

One of 14 specimens of *Stephanophyllia* referred to in this note is from the Tateyama-wan, while all the others are from the younger Cenozoic deposits of the Kwantô region; all the specimens are stored in our Institute of Geology and Palaeontology, Tôhoku Imperial University, and a preliminary study of them has been made by Mr. S. HANADA, whom we wish to thank in this undertaking.

As HANADA correctly identified, there are two species represented in our materials, namely, *Stephanophyllia fungulus* ALCOCK and *Stephanophyllia formosissima* MOSELEY, both of which are hitherto known only as living from the Pacific.

A. ORTMAN once described a living species *Stephanophyllia superstes* ORTMAN, from the Sagami-wan on a material in DÖDERLEIN's collection; except for this, we have no other previous record of the occurrence of the living and fossil *Stephanophyllia* in Japan.

We are now in position to place on record a new locality of the living *Stephanophyllia formosissima* and several localities of the fossil *Stephanophyllia fungulus*.

Stephanophyllia is one of the interesting genera of simple corals. Its earliest form was recorded from the Cenomanian of England; later forms are known from various parts of Europe in deposits of various geological ages, Upper Cretaceous to Pliocene; from North America we are informed with one species from the Eocene. The distribution of the recent species seems to be confined to the Pacific.

Stephanophyllia MICHELIN 1841

1841. *Stephanophyllia* H. MICHELIN: Article Astrée du Dictionnaire de Science naturelle, Supplement, 1, p. 484 (original paper not accessible).
- 1840-47. *Stephanophyllia* H. MICHELIN: Iconographie Zoophytologique, p. 32.
1850. *Stephanophyllia* MILNE EDWARDS et J. HAIME: British Fossil Corals, Introduction, p. 53.
1860. *Stephanophyllia* MILNE EDWARDS et J. HAIME: Histoire naturelle des Coralliaires ou polypes proprement dits, Tome III, p. 108.
1860. *Stephanophyllia* E. DE FROMENTEL: Introduction à l'étude des polypiers fossiles. Soc. d'émulation de Besançon, Paris, p. 242.
1871. *Stephanophyllia* A. E. REUSS: Die fossilen Korallen des Oesterr.-Ungar. Miocäns., Denkschrift k. Acad. Wiss. Math.-Nat. Cl., Wien. Bd. XXXI, p. 197.
1884. *Stephanophyllia* P. M. DUNCAN: A Revision of the Families and Genera of the Sclerodermic Zoantharia, E. and H., p. 173.
1887. *Stephanophyllia* P. POCTA: Anthozoen der Böhmischen Kreide-formation, p. 30.
1927. *Stephanophyllia* L. A. FAUSTINO: Madreporaria of the Philippine Islands, p. 244.

The genus *Stephanophyllia* was first established by H. MICHELIN¹ for the following three Tertiary corals from Italy :

Stephanophyllia elegans (BRONN) MICHELIN
Stephanophyllia imperialis MICHELIN
Stephanophyllia italica (MICHELOTTI) MICHELIN

The first species is usually accepted as the genotype by later authors and the last one was transferred by MILNE EDWARDS and J. HAIME to *Turbinolia*, who in their British Fossil Corals,² 1850, described a number of species of *Stephanophyllia* under the following generic diagnosis :

“Corallum simple, free and presenting no trace of adherence. Wall discoidal, horizontal. Calice circular and open. Septa tall, thin, crowded, not projecting laterally beyond the edge of the mural disc, covered with conical granulations on each side, and all, excepting those of the first cyclum, united by the inner edge. Costae delicate, straight, composed of simple series of obscure granulations, and radiating regularly from the centre of the mural disc to its circumference. No epitheca.”

In the same year W. LONSDALE³ described a small species,

Stephanophyllia michelini LONSDALE

from the Hampshire Chalk, in which the upper surface of the corallum is simply vaulted and not depressed at the center.

Ten years, later, M. EDWARDS and J. HAIME⁴ revised the generic diagnosis in their Histoire naturelle des Coralliaires, with a short additional account on the septal cycles. The species mentioned in this occasion are 8 in number and are divided into two groups as follows :

Group I. *Stephanophyllia* (proper)

Stephanophyllia elegans (BRONN) MICHELIN
Stephanophyllia discoides M. EDW. and H.
Stephanophyllia nysti M. EDW. and H.
Stephanophyllia imperialis MICHELIN

Group II. Lenticular *Stephanophyllia* (*Discopsammia* D'ORBIGNY)

Stephanophyllia suecica M. EDW. and H.
Stephanophyllia bowerbankii M. EDW. and H.
Stephanophyllia radiata (GOLDF.)
 = *S. astreata* M. EDW. and H.
Stephanophyllia clathrata (HAGENOW) M. EDW. and H.

Of these species, the last one is accepted by most of the modern authors as a *Micrabacia* and the last but one as a *Cyclabacia*. *Micrabacia* and *Cyclabacia* belong to the Family Fungidae and are systematically separated from the genus *Stephanophyllia* which is a member of Eupsammidae characterised by having wall perforated and septa united at their inner margin.

In 1880, M. DUNCAN⁵ described a new Eocene coral

Stephanophyllia indica DUNCAN

from Ithirk, Sind, India.

¹ H. MICHELIN: Iconographie Zoophytologique, 1840-47, p. 32.

² M. EDWARDS and J. HAIME: A Monograph of the British Fossil Corals, 1850, pp. 13, 34 and 54.

³ W. LONSDALE, in F. DIXON: Geology and Fossils of the Tertiary and Cretaceous Formation of Sussex, 1850, p. 323.

⁴ M. EDWARDS and J. HAIME: Histoire naturelle des Coralliaires ou polypes proprement dits, Vol. III, p. 108.

⁵ P. M. DUNCAN: Sind Fossil Corals and Aleyonaria, Mem. Geol. Surv. India, Ser. XIV, Vol. I, 1880, p. 56.

In the following year, H. N. MOSELEY¹ for the first time described two living species from the southeastern Pacific on the samples of the Challenger Expedition, which are:

Stephanophyllia formosissima MOSELEY

Stephanophyllia complicata MOSELEY

Three years later M. DUNCAN² described the genus in the follow way:

"The corallum is simple, free, discoid, with a horizontal wall. Calice circular, with five cycles of septa, and some of a sixth, not projecting outwards, but large, high, thin, and close, uniting by their upper and internal borders, the primaries only being free, with conical projecting points on their sides. Septal edges dentate more or less near the axial spaces, and the laminae are of fused trabeculae more or less perforate. Columella distinct, in a well-marked calicular fossa. Costae straight, delicate, and radiating regularly from the center of the base to the circumference, and formed of granules moderately distinct. Wall regularly perforate."

In the same work, *Discopsammia* D'ORBIGNY is regarded as a subgenus of *Stephanophyllia*.

Later addition to our knowledge on *Stephanophyllia* consists in discoveries of *Stephanophyllia celsa* POČTA³ from the Turonian of Bohemia, *Stephanophyllia superstes* ORTMAN⁴ from the Sagami Bay, 100-200 fathoms, *Stephanophyllia implexa* DENNANT⁵ from the Miocene of Victoria, Australia, *Stephanophyllia fungulus* ALCOCK⁶ from the southeastern Pacific, *Stephanophyllia californica* NOMLAND⁷ from the Eocene of Mount Diablo, Contra Costa County, California, and *Stephanophyllia neglecta* BOSCHMA⁸ from the north point of Nuhu Jaan, Kei-Islands, 90 meters deep.

So far as we know at present there are 11 fossil species and 5 living species already described in the genus, and one of the living species is now found also as fossil in a young Cenozoic formation of Japan.

Stephanophyllia differs from *Micrabacia*, *Cyclabacia* and other discoidal simple corals by having the horizontal wall distinctly perforated and septa united at their inner margin. Its nearest ally is *Leptopenus* MOSELEY,⁹ with two living species, one from the southern Indian Ocean (*Leptopenus discus* MOSELEY) and the other from the southeastern Pacific (*Leptopenus hypocaelus* MOSELEY); in these corals the septa and wall are very coarsely perforate or rather formed of trabeculae on a fragile framework.

All the species of *Stephanophyllia*, living and fossil, are divisible into 4 groups or subgenera, chiefly according to the nature of columella.

1. *Discopsammia* D'ORBIGNY.

Subgenotype: *Stephanophyllia bowerbankii* M. EDW. and H. from the Lower Chalk of England.

Columella rudimentary or almost absent; septa rather compact and arranged as in Text-figure 1 in the subgenotype.

¹H. N. MOSELEY: Deep-Sea Madreporaria, Challenger Report, Vol. II, Pt. VII, 1881, p. 201.

²P. M. DUNCAN: A Revision of the Families and Genera of the Sclerodermic Zoantharia, E. and H., 1884, p. 173.

³P. POČTA: Anthozoen der Böhmische Kreide-formation, 1887, p. 30.

⁴A. ORTMAN: Studien über Systematik und geographische Verbreitung der Steinkorallen, Zoologische Jahrbücher 3, 1888, p. 160.

⁵J. DENNANT: Description of New Species of Corals from the Australian Tertiaries, II, Trans. Roy. Soc. South Australia, 1899, p. 283 (original paper not accessible; cited after ALCOCK and FELIX).

⁶A. ALCOCK: Report on the Madreporaria of the Siboga Expedition, Siboga Expeditie, Monogr. XVIa, 1902, p. 40.

⁷J. O. NOMLAND: Corals from the Cretaceous and Tertiary of California and Oregon, Bull. Dep. Geol. Univ. Cal, Publ., 1916, p. 60.

⁸H. BOSCHMA: The Madreporaria of the Siboga Expedition, Part IV, *Fungia Patella*, Siboga Expeditie, 96 Livr., Monogr. XVI d, 1923, p. 16.

⁹H. N. MOSELEY: op. cit., p. 204.

Stephanophyllia bowerbankii is the earliest form of the genus, and there are three other species belonging to this subgenus, namely:

Stephanophyllia suecica D'ORBIGNY from the Senonian of Sweden,
Stephanophyllia celsa POCTA from the Turonian of Bohemia,
Stephanophyllia michelini LONSDALE from the Senonian of England.

This subgenus is, so far, confined to the Cretaceous in geological range.

2. *Stephanopsammia*, nov.

Subgenotype: *Stephanophyllia discoides* M. EDW. and H. from the Eocene of England.

Columella better developed, papillose and circular in cross section; columellar fossa distinct, rather deep. Septa apparently compact, but occasionally perforated in certain species; arranged as in Text-figure 2 in the subgenotype.

Beside the genotype,

Stephanophyllia indica DUNCAN from the Ranikot Group of India,
Stephanophyllia californica NOMLAND from the Eocene of California,
 also certainly belong to this subgenus, while
Stephanophyllia implexa DENNANT from the Miocene of Victoria (Australia)
 and
Stephanophyllia neglecta BOSCHMA living near Kei-Islands,

may also be its members. Likewise, *Stephanophyllia superstes* ORTMAN, living in the Sagami-wan may possibly belong to it; this species was first believed by ORTMAN to be a *Discopsammia*, but this reference is evidently an error and it is, we believe, a species of *Stephanopsammia*, unless his specimen is a juvenile example of a species of the next group.

3. *Stephanophyllia* s. str.

Genotype: *Stephanophyllia elegans* (BRONN) MICHELIN from the Miocene of Italy.

Columellar fossa distinct, columella compact, lenticular in cross-section. Septa rather compact, but occasionally perforated in certain species, arranged as in Text-figure 3 in the genotype.

Other members of this group are:

Stephanophyllia imperialis MICHELIN,
Stephanophyllia nysti M. EDW. and H.,

both from the Miocene of Europe,

Stephanophyllia fungulus ALCOCK,

from the Pliocene and Pleistocene of Japan, and living in the Pacific.

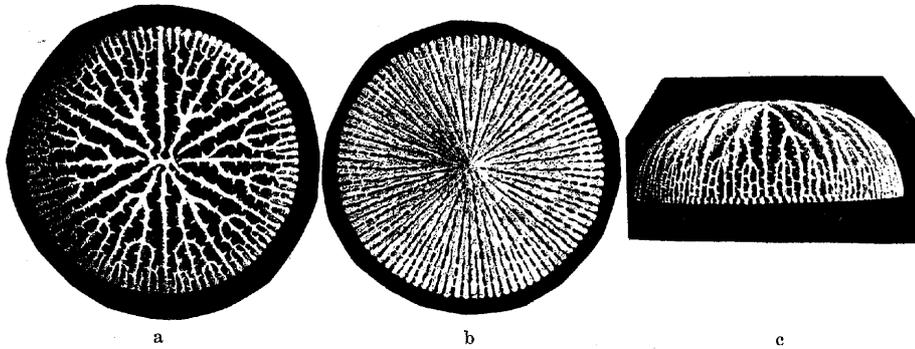
4. *Letepsammia* nov.

Subgenotype: *Stephanophyllia formosissima* MOSELEY, living in the Pacific (Japan, Philippines, and Sandwich Islands).

This is a type somewhat transitional to *Leptopenus* MOSELEY.

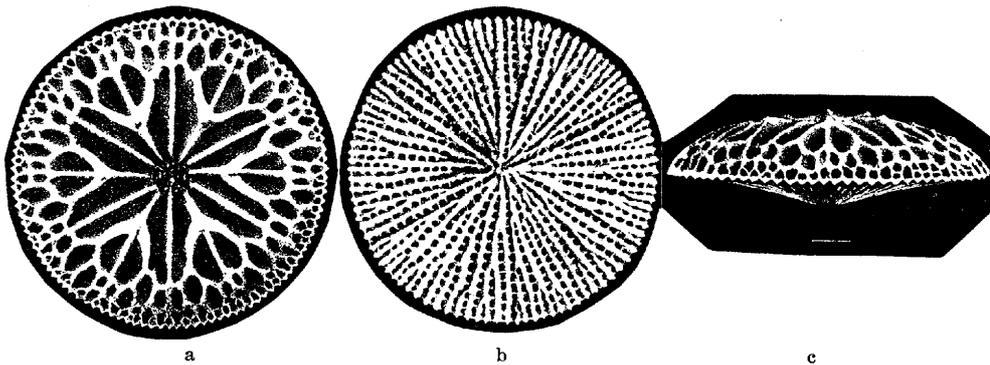
Skeletal elements very delicate. Columellar fossa distinct, deep; columella spongy, well developed. Septa usually and horizontal wall always coarsely perforated, being a network of slender trabeculae. Pores of the horizontal wall circular, coarser, and are easily distinguished from the smaller, elongate or oval perforations in the other subgenera, cited above.

Text-Figure 1.



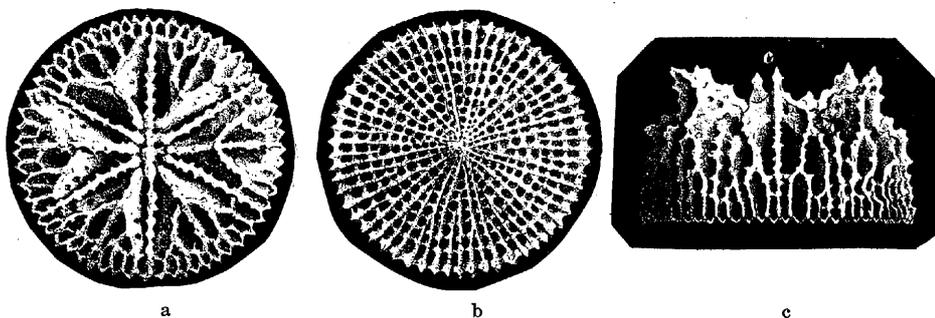
Stephanophyllia (Discopsammia) bowerbankii M. EDW. & H. (copy of M. EDWARDS and J. HAIME, British Fossil Corals, Cretaceous, Pl. IX, Figs. 4, 4a, 4b). Magnified.

Text-Figure 2.



Stephanophyllia (Stephanopsammia) discoides M. EDW. & H. (copy of M. EDWARDS and J. HAIME, British Fossil Corals, Tertiary, Pl. VI, Figs. 3a-c). Magnified.

Text-Figure 3.



Stephanophyllia (s. s.) elegans (BRONN) MICHELIN. (copy of A. E. REUSS, Die Fossilen Korallen des Oesterreichisch-Ungarischen Miocäns, Pl. XIV, Figs. 6a-c). Magnified.

Stephanophyllia fungulus ALCOCK

Pl. VIII (I), Figs. 1 a-c, 2 a-c, 3 a-c, 4 a-c, 5 a-c, 6 a-c; Pl. IX (II), Figs. 1 a-c, 2 a-c, 3 a-c, 4 a-c, 5 a-c, 6 a, b, 7 a-c, 8 a-c.

1902. *Stephanophyllia fungulus* ALCOCK: Systematic Account of the Siboga Deep Sea Madreporaria, p. 40, Pl. V, figs. 35, 35a, 35b.

1927. *Stephanophyllia fungulus* FAUSTINO: Recent Madreporaria of the Philippine Islands, p. 245, Pl. LXXVII, figs. 9-11.

“As in *Stephanophyllia complicata* and certain other species, the columella (which is a stout upstanding lamina) stands in a star-shaped fossa, and each ray of the star is bisected by a primary septum. Corallum of coarsish texture, circular, without trace of adherence, the under-surface or wall flat or only very slightly convex, the upper surface very strongly and evenly convex. Costae of equal size, distant from centre of edge of disc, bifurcating again and until it becomes 96 in number. The perforations between the costae form over 20 concentric rows. Septa strongly convex, coarsish, with the edge more or less crenate, in six systems and five complete cycles. Those of the first cycle are independent, except that they are united with the immediately adjacent quinarys by a few trabeculae. Perhaps the most conspicuous of all the septa, are the two quinarys in each system which lie next to the primaries that bound the system; these quinarys curve inwards and finally unite with each other in front of the secondaries, a paliform nodule often making the part of junction. The two outermost quinarys in each system form, in fact, a delta so connected with the septa of all the other cycles (except the independent primaries) that these appear to arise from the delta by a series of successive and very regular bifurcations. The calicular space not included within the deltas has the form of a beautifully regular six-rayed star, each ray of which is longitudinally bisected by a primary septum. The columella is a stout vertical plate, the free edge of which may be entire or crenate. The shallow calicular fossa, the sides of the columella, and the edge of the septa are sometimes studded with coarse granules. The diameter of the largest specimens is 15 mm.”

The above description of the Siboga materials quoted from ALCOCK's report is also well applicable to our later Cenozoic fossils figured on the accompanying plates. These show some slight individual variation, in the convexity of the basal disc, the development of columella and the proportion of height and diameter, and one constant divergence of them from ALCOCK's figure lies in their basal disc, which is relatively lower.

Dimensions (in mm.):

	1	2	A	3	4	5	6	7	8	9	10	11	12	13
Diameter	14	13	12	11.5	11	10.5	9.5	9.5	8	4	10.5	8.5	9	8.5
Height	6	5	4.5	5.5	4	4	5	4.5	3	1.7	5	4	3.5	3.2
Length of columella	4	3	2.7	3	2.5	2.5	1.7	2	2.5	?	2.5	3	2.5	2.5
Breadth of columella	0.6	0.6	1.2	1.2	0.5	0.5	0.4	0.4	0.4	?	0.8	0.5	0.3	0.3
Number of septa	100	99	96	96	96	92	99	92	96	49	96	98	92	
Height of disc (costated area)	2	1.3	2.3	2	1.5	1.7	1.2	2	1	0.5	2	1.2	1	1

Localities :

A. ALCOCK's type, southern end of Sula Sea, living.

- 1, 6, 7. Ochi-Shimoshinden, Shitô-mura, Sambu-gun, province of Kazusa;¹
Kiyokawa-beds Reg. Nos. 41013, 41016, 41015.
2. North of Owashi, Naka-mura, Kimitsu-gun, province of Kazusa;²
Kiyokawa-beds Reg. No. 41014.
3. Jizôdô, Makuta-mura, Kimitsu-gun, province of Kazusa;³
Kiyokawa-beds Reg. No. 28287.
4. Nishi-Higasa, Akimoto-mura, Kimitsu-gun, province of Kazusa;⁴
Umegase-beds Reg. No. 41012.
5. Nishiyatsu, Koito-mura, Kimitsu-gun, province of Kazusa;⁵
Sanuki-beds Reg. No. 28288.
- 8, 9. Mimata, Fusamoto-mura, Isumi-gun, province of Kazusa;⁶
Kiwada-beds Reg. No. 41017.
- 10, 11, 12, 13. Atebi, Makuta-mura, Kimitsu-gun, province of Kazusa;⁷
Kiyokawa-beds Reg. No. 41047.

Foreign distribution :

Southern end of Sulu Sea; Station 100 of the Siboga Expedition, lat. 6°11'N., long. 120°37'.5 E., 450 m. deep, 5 examples, all dead (ALCOCK).

***Stephanophyllia formosissima* MOSELEY**

Pl. VIII (I), Figs. 7a-c, 8a-c.

1881. *Stephanophyllia formosissima* MOSELEY: Challenger Deep-Sea Madreporaria, p. 201, Pl. IV, fig. 11; Pl. XIII, figs. 6, 7; Pl. XVI, figs. 8, 9.
1902. *Stephanophyllia formosissima* ALCOCK: Systematic Account of the Siboga Deep-Sea Madreporaria, p. 39.
1907. *Stephanophyllia formosissima* VAUGHAN: U. S. Nat. Mus. Bulletin 591, p. 146, Pl. XLIV, figs. 2, 2a.
1927. *Stephanophyllia formosissima* FAUSTINO: Recent Madreporaria of the Philippine Islands, p. 244, Pl. LXXVII, figs. 7, 8.

The original description of *Stephanophyllia formosissima* given by MOSELEY runs as follows:

“The corallum is discoid, with the base flat in the centre and slightly curved towards the margin. It is white, and very light and fragile, much more so than in *Stephanophyllia complicata*, being composed of a fine trabecular network, through which the light penetrates freely, as through a fine sieve, when the coral is held up to it. The base is composed of a series of fine, radiating, costal rods connected by transverse trabeculae, which have a general concentric disposition. The septa are composed, like the remainder of the corallum, of fused trabeculae; but these are stouter than those composing the base, and more perfectly fused, so as to form, in most regions, continuous plates pierced by rounded perforations. There are six systems of septa and five cycles. The upper margins of the septa rise in a curve from point a short space from the margin of the

¹上總國山武郡市東村越智下新田. ²上總國君津郡中村大藪. ³上總國君津郡馬來田村地藏堂. ⁴上總國君津郡秋元村西日笠.
⁵上總國君津郡小糸村西谷. ⁶上總國夷隅郡總元村三叉. ⁷上總國君津郡馬來田村當日.

calicle, and ascending to some height above the level of the base, sink down again internally to the wide, oval fossa occupied by the columella. The primary and secondary septa are straight. Their upper margins lie at a lower level than those of the remaining septa, and are only very slightly toothed. The primary septa are free from adherence. The margins of the tertiary, quaternary, and quinary septa are deeply dentate, the teeth being curved towards the columella. The quinary, quaternary, and tertiary septa fuse with one another laterally and by their upper margins at successive distances from the periphery of the corallum forming six deltoid masses of septa. The tertiary septa forming the sides of these deltoid masses are bent over, sloping away from the primary septa, so that at the apex of the delta the upper margins of these tertiary septa fuse and cover over the inner ends of the secondary septa. There is no separation of the septal interspaces into chambers as in *Stephanophyllia florealis* by development of synapticulae; but the quaternary and quinary septa are more or less bent over above, so as to fuse along part of their upper margins and roof in the spaces between them. The septa correspond to the interspaces between costae. The columella is a large oval spongy mass composed of fine trabeculae."

"Extreme diameter of the largest specimen, 39 mm. Extreme height, 11 mm. Smaller specimens measure 25 mm. and 20 mm. respectively."

H. N. MOSELEY who established this species has at disposal several (dead?) specimens of the Challenger Expedition from Cebu (Philippine Islands) and Kei Islands.

Later A. ALCOCK without giving a particular name, distinguished a variety from the typical species, on two specimens of the Siboga Expedition from the Station 45 7°24' S., 118°15'.2 E. 794 m. deep and Station 234 8°43'.1 S., 127°16'.7 E. 828 m. deep. According to him, these specimens differ from the typical ones of MOSELEY by having thinner but not perforated septa which are wavy at the margin; besides, the septa of the first and second cycles are as high as, or even higher than, any of the later cycles in his specimens.

Subsequently T. W. VAUGHAN reported several specimens obtained from the Sandwich Islands; these slightly differ from the specimens of MOSELEY by having a circular columellar fossa, and the septa of the first and second cycles are almost as high as the others as in the variety ALCOCK's.

A single dead specimen from the Sagami-wan before us is much worn along the periphery; it is somewhat convex at the base, measures 16 mm. in the maximum diameter without restoration of the lost part, and possesses 5 cycles of septa well developed. In the character of septa, it agrees fairly well with MOSELEY's type, while it has a circular columella in common with VAUGHAN's specimens from the Hawaiian waters.

Locality: 10 miles off Sunosaki, province of Awa¹ (Honshû); a dead specimen dredged by S. HANADA. Reg. No. 38292.

Foreign distribution:

Off the Kii Islands;

Station 192 of the Challenger Expedition, lat. 5.42° S., long. 13.2°25' E., 129 fathoms.

Off Cebu, Philippine Islands;

Station 209 of the Challenger Expedition, lat. 18°10' N., long. 123°55' E., 95 fathoms.

¹安房國洲ノ崎.

Near Philippine Islands ;

- Station 95 of the Siboga Expedition, 5°43'.5 N., 119°40' E., 522 m.
- Station 256 of the Siboga Expedition, 5°26'.6 S., 132°32'.5 E., 397 m.
- Station 302 of the Siboga Expedition, 10°27'.9 S., 123°28'.7 E., 216 m.
- Station 45 of the Siboga Expedition, 7°24' S., 118°15'.2 E., 794 m.
- Station 284 of the Siboga Expedition, 8°43'.1 S., 127°16'.7 E., 828 m.

South coast of Molokai Island ;

- Station 3838 of the Albatros Expedition (1902), 92-212 fathoms.
- Station 3855 of the Albatros Expedition (1902), 127-130 fathoms.

Northern coast of Maui Island ;

- Station 4080 of the Albatros Expedition (1902), 178-202 fathoms.

Pailolo Channel, between Molokai and Maui Islands ;

- Station 3856 of the Albatros Expedition (1902), 127 fathoms.
- Station 4101 of the Albatros Expedition (1902), 122-143 fathoms.

North coast of Molokai Island ;

- Station 3906 of the Albatros Expedition (1902), 66-96 fathoms.

West of Hawaii Island ;

- Station 4045 of the Albatros Expedition (1902), 147-198 fathoms.

PLATE VIII (I)

Stephanophyllia fungulus ALCOCK

Loc. : Nishiyatsu, Koito-mura, Kimitsu-gun, province of Kazusa. Reg. No. 28288.

- | | | | |
|---------------------------|-----|---------------------------|---------|
| Fig. 1 a. Calicular view. | ×1. | Fig. 2 a. Calicular view. | Ca. ×5. |
| Fig. 1 b. Basal view. | ×1. | Fig. 2 b. Basal view. | Ca. ×5. |
| Fig. 1 c. Lateral view. | ×1. | Fig. 2 c. Lateral view. | Ca. ×5. |

Stephanophyllia fungulus ALCOCK

Loc. : Jizôdô, Makuta-mura, Kimitsu-gun, province of Kazusa. Reg. No. 28287.

- | | | | |
|---------------------------|-----|---------------------------|---------|
| Fig. 3 a. Calicular view. | ×1. | Fig. 4 a. Calicular view. | Ca. ×5. |
| Fig. 3 b. Basal view. | ×1. | Fig. 4 b. Basal view. | Ca. ×5. |
| Fig. 3 c. Lateral view. | ×1. | Fig. 4 c. Lateral view. | Ca. ×5. |

Stephanophyllia fungulus ALCOCK

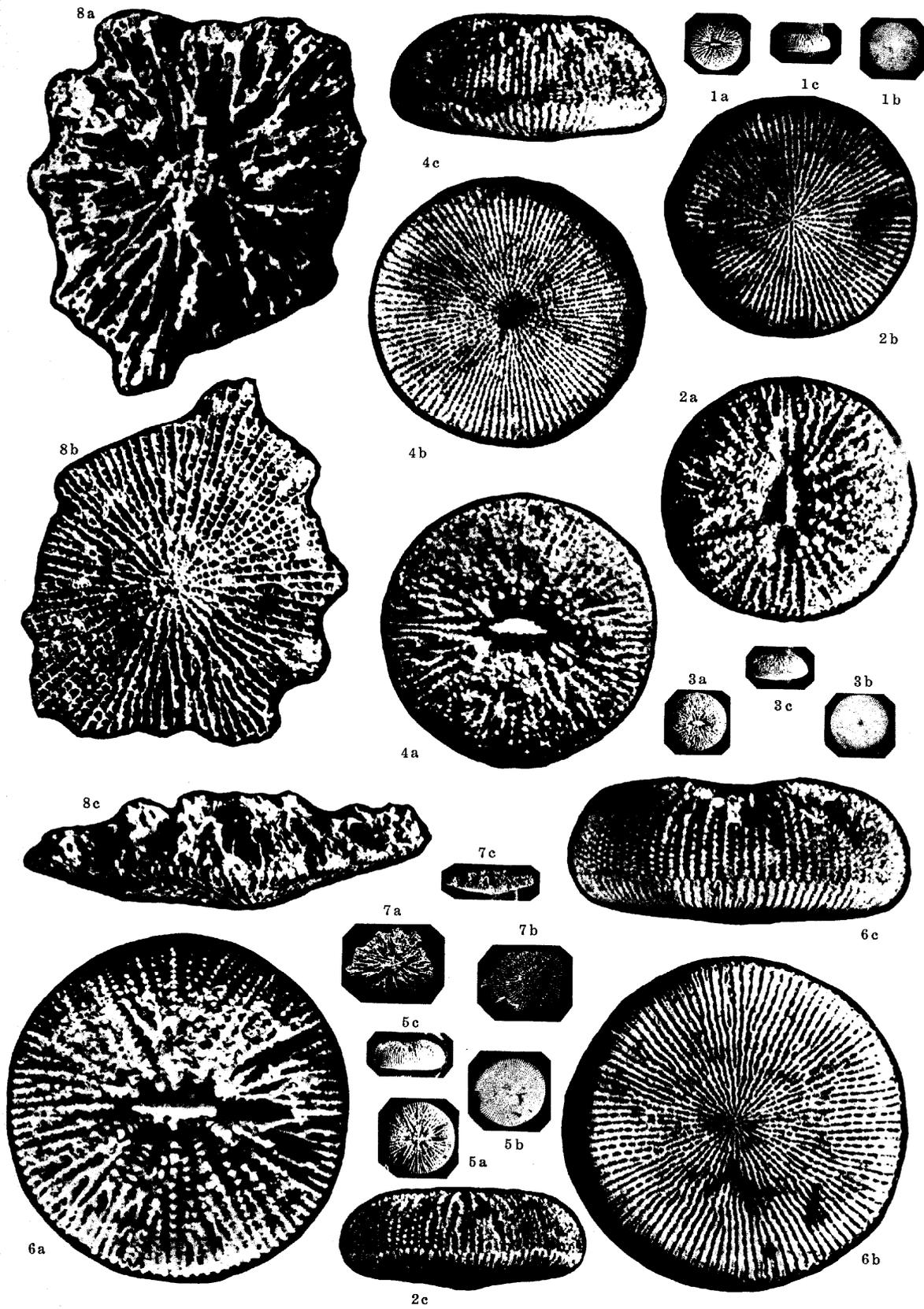
Loc. : Ochi-Shimoshinden, Shitô-mura, Sambu-gun, province of Kazusa. Reg. No. 41013.

- | | | | |
|---------------------------|-----|---------------------------|---------|
| Fig. 5 a. Calicular view. | ×1. | Fig. 6 a. Calicular view. | Ca. ×5. |
| Fig. 5 b. Basal view. | ×1. | Fig. 6 b. Basal view. | Ca. ×5. |
| Fig. 5 c. Lateral view. | ×1. | Fig. 6 c. Lateral view. | Ca. ×5. |

Stephanophyllia formosissima MOSELEY

Loc. : Sagami-wan, 10 miles off Sunosaki, province of Awa. Reg. No. 38292.

- | | | | |
|---------------------------|-----|---------------------------|---------|
| Fig. 7 a. Calicular view. | ×1. | Fig. 8 a. Calicular view. | Ca. ×5. |
| Fig. 7 b. Basal view. | ×1. | Fig. 8 b. Basal view. | Ca. ×5. |
| Fig. 7 c. Lateral view. | ×1. | Fig. 8 c. Lateral view. | Ca. ×5. |



M. Shimakura photo.

PLATE IX (II)

Stephanophyllia fungulus ALCOCK

Loc. : Mimata, Fusamoto-mura, Isumi-gun, province of Kazusa. Reg. No. 41017.

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|---------------------------|-----|---------------------------|-----|
| Fig. 1 a. Calicular view. | ×1. | Fig. 2 a. Calicular view. | ×5. |
| Fig. 1 b. Basal view. | ×1. | Fig. 2 b. Basal view. | ×5. |
| Fig. 1 c. Lateral view. | ×1. | Fig. 2 c. Lateral view. | ×5. |

Stephanophyllia fungulus ALCOCK

Loc. : Ochi-Shimoshinden, Shitô-mura, Sambu-gun, province of Kazusa. Reg. No. 41015.

- | | | | |
|---------------------------|-----|---------------------------|-----|
| Fig. 3 a. Calicular view. | ×1. | Fig. 4 a. Calicular view. | ×5. |
| Fig. 3 b. Basal view. | ×1. | Fig. 4 b. Basal view. | ×5. |
| Fig. 3 c. Lateral view. | ×1. | Fig. 4 c. Lateral view. | ×5. |

Stephanophyllia fungulus ALCOCK

Loc. : Nishi-Higasa, Akimoto-mura, Kimitsu-gun, province of Kazusa. Reg. No. 41012.

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|---------------------------|-----|---------------------------|-----|
| Fig. 5 a. Calicular view. | ×1. | Fig. 6 a. Calicular view. | ×5. |
| Fig. 5 b. Basal view. | ×1. | Fig. 6 b. Basal view. | ×5. |
| Fig. 5 c. Lateral view. | ×1. | | |

Stephanophyllia fungulus ALCOCK

Loc. : Atebi, Makuta-mura, Kimitsu-gun, province of Kazusa. Reg. No. 41017.

- | | | | |
|---------------------------|-----|---------------------------|-----|
| Fig. 7 a. Calicular view. | ×1. | Fig. 8 a. Calicular view. | ×5. |
| Fig. 7 b. Basal view. | ×1. | Fig. 8 b. Basal view. | ×5. |
| Fig. 7 c. Lateral view. | ×1. | Fig. 8 c. Lateral view. | ×5. |

Stephanophyllia fungulus ALCOCK

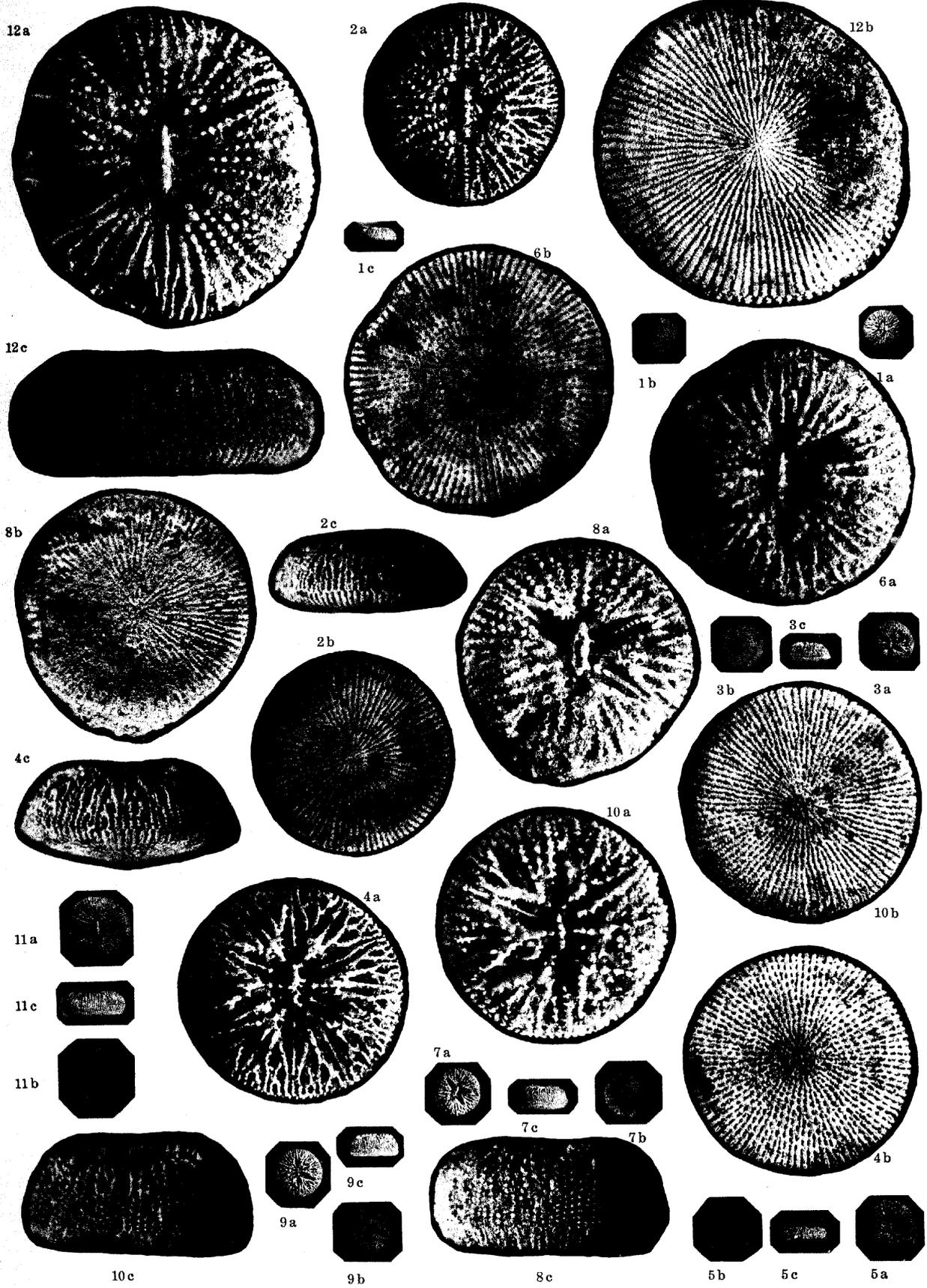
Loc. : Ochi-Shimoshinden, Shitô-mura, Sambu-gun, province of Kazusa. Reg. No. 41016.

- | | | | |
|---------------------------|-----|----------------------------|-----|
| Fig. 9 a. Calicular view. | ×1. | Fig. 10 a. Calicular view. | ×5. |
| Fig. 9 b. Basal view. | ×1. | Fig. 10 b. Basal view. | ×5. |
| Fig. 9 c. Lateral view. | ×1. | Fig. 10 c. Lateral view. | ×5. |

Stephanophyllia fungulus ALCOCK

Loc. : Owashi, Naka-mura, Kimitsu-gun, province of Kazusa. Reg. No. 41014.

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|----------------------------|-----|----------------------------|-----|
| Fig. 11 a. Calicular view. | ×1. | Fig. 12 a. Calicular view. | ×5. |
| Fig. 11 b. Basal view. | ×1. | Fig. 12 b. Basal view. | ×5. |
| Fig. 11 c. Lateral view. | ×1. | Fig. 12 c. Lateral view. | ×5. |



M. Shimakura photo.