The diagnosis given above of *T. flava*, however, as drawn up by Sars from Dalyell's figure and description, by no means correctly represents the species found by me at Oban, and which, I cannot doubt, is that indicated by Dalyell, more especially as both were found affecting *Sacculina carcini*. It appears to me that Sars has laid too much stress on the comparative length of the pedicel as constituting a specific character. It will be seen that whereas in *T. Bœckii* the pedicel is three or four times as long as the body of the animal, in *T. Korenii* it is said to be about equal in length, while in *T. flava* it is "much shorter than" the zoœcium. Now I find very wide difference in the length of the pedicel in the animals constituting the group which I found at Oban: in some full-grown specimens the pedicel is shorter than the zoœcium; in others it is slightly longer; in others, again, it is two or three times as long. Specific characters, therefore, derived from the length of the pedicel seem in a very great measure to break down. The zoœcia closely correspond with those figured by Sars of *T. Korenii*: the general form is the same; the position of the frenaculum agrees; and there is the same angle at the lower extremity of the ventral concave and more membranous area. Having only found my specimens after they had been preserved in spirits, and the lophophores being in every instance strongly retracted, I am unable to speak with accuracy as to the number of the tentacles, which Sars states are eighteen in *Korenii* and twenty in *flava* and *Bœckii*. The budding young agree with Sars's figures 6, 7, 8, representing this state in *Korenii*; and the animals are connected by a creeping stolon.

Bearing in mind, then, that reliance cannot be placed on minute details in the drawings of Dalyell, I am constrained to come to the conclusion that no valid grounds exist (as far, at any rate, as we as yet know) by which to distinguish the Scotch species, which affects *Sacculina carcini* and is the type of Dalyell's *Triticella flava* from the Norwegian form found by Sars on *Calocaris Macandrewi*, and that the latter must be regarded as a synonym—further, that great latitude must be allowed with respect to the length of the pedicels, which in *T. flava* show great variation, and are often not only as long as described in *Korenii*, but show a great approach to the very long supports of *T. Bœckii*. The higher position of the frenaculum in *T. Bœckii* appears to be its chief character.

XIV.—*On* Holasterella, *a Fossil Sponge of the Carboniferous Era, and on* Hemiasterella, *a new Genus of Recent Sponges.*

By H. J. Carter, F.R.S. &c.

[Plate XXI.]

In my description of Mr. James Thomson's fossil sponges from the Carboniferous Limestone of the South-west of Scotland ('Annals,' 1878, vol. i. p. 133), I have stated that Dr. Millar had brought to my notice a stelliform spicule, "like a double star back to back," which is described and illustrated (pl. ix. fig. 11 &c.). It is also stated (p. 134 ib.) that the three different spicules mentioned and figured "appear" to have belonged to "three different sarcohexactinellids respectively," of which the first (viz. fig. 8 &c.) had only been identified with the Hexactinellida or sexradiate-spicule sponges. If, however, a six-rayed form *only* is to be considered indicative of a hexactinellid sponge, then the two other stelliform spicules, which have respectively many more rays, must be considered indications of the existence of sponges which did not belong to the hexactinellid order. And this is now evidently the case; for the fossil sponge about to be described will be found to have been *exclusively* composed of the many-rayed spicule (fig. 11, *op. et loc. cit.*).

This interesting species, which has lately been discovered, and was forwarded to me in four pieces by Mr. James Thomson of Glasgow, on the 2nd November last, I will now describe, so far as the lapidification permits, under the name of

Holasterella conferta, n. gen. et sp. (Pl. XXI. figs. 1–8.)

Fossil solid, massive, club-shaped, rising from a subcylindrical base which, increasing gradually and subcylindrically upwards, terminates rather suddenly in an expanded, globular, lobate head (Pl. XXI. fig. 1, *a*, *b*, *c*, *d*). Colour white. Composition, opaque, translucent and transparent heavy spar (sulphate of barytes), according to the position, with glistening aspect over the face of fracture and dull exterior. Surface even, irregularly undulating throughout; presenting here and there more or less ovoid, sharp-margined depressions or pits of different sizes, which appear to have been the abodes of old and young crustaceans respectively (fig. 1, *f*, and fig. 2, *a*, *a*). Internal structure solid throughout, having been composed *exclusively* of stelliform spicules irregularly thrown together; apparently faced by a layer of much smaller ones, arranged in some parts (which appear to be perfect, fig. 1, *h*, and fig. 2)

so as to present a minutely convoluted appearance, in the interstices of which minute round holes exist, indicative of the position of the pores (fig. 2, *b*). Vents not observed, but the canals of the excretory system evident internally. Stellate spicule *normally* composed of twelve rays or arms, viz. six above (that is, with five round an axial one), and the same below, but less regularly disposed, projecting from a central inflation, which is most evident in the smaller or younger forms; the six upper rays during growth remaining almost stationary, while those below undergo the chief increase in size, so as to produce a stellate like the one to which I have alluded, in which some of the smaller arms or rays of the head occasionally appear to be microspined (figs. 4, 5). But since this is the *normal* form, and only seen in the young stellate, the regularity becomes for the most part widely departed from as the stellate increases in size, when the rays, sometimes rendered more numerous by bifurcation (fig. 5, *a*), and sometimes less by abortive development, often terminate in a most irregular form, composed of four to fourteen rays or more, variable in length and variously disposed; while the central inflation, which does not keep pace with the enlargement of the arms, remains hardly appreciable (compare figs 4 and 8). Diameter of largest stellates about 1-6th inch (fig. 3), size of smallest stellate seen (from the surface) about 1-545th inch in diameter. The larger spicules are confined to the interior; and the small spicules occupy the surface both of the sponge itself and of the excretory canals, mixed with the pointed ends of the rays of the larger spicules in the latter, which project freely into them (fig. 8), while the larger spicules again, where still provided with the head surmounted by the six smaller ones (figs. 4, 5), are so arranged in some parts of the surface of the sponge as to present a number of rosettes like stars more or less approximated. Size of entire specimen $5\frac{3}{4}$ inches high, greatest diameter of head 2 inches, diameter of base or stem $\frac{3}{4}$ inch.

Hab. Marine.

Loc. Highest bed of Upper Limestone of the Carboniferous rocks of the south-west of Scotland, near Glasgow.

Obs. This specimen, which was originally entire, but on extrication became broken into four pieces, and reached me in this state, was easily put together for the purposes of illustration and description, as fig. 1, *a*, *b*, *c*, *d*, shows. The accumulation of the mineral (sulphate of baryta) of which it is composed, having more or less thickened the body (that is, the central inflation) and rays of the stellates respectively, has thus caused them also to become more or less amalgamated

with and attached to each other, so as in many specimens not only to obscure the form of the stellate, but to convert the whole into a solid mass. Hence it is only here and there that a comparatively complete form can be detached; while the union of the rays of the different stellates, where in contact with each other, being without inflation or additional material at these points, leaves one in doubt as to how much, if not all, of this attachment may be due to the effect of fossillization, and that, in their original state, they were thus all separate. The cleavage, too, of the mineral being perpendicular to the long diameter of the ray and easily effected, causes, from their lamellar structure and extreme brittleness, the rays, where adherent to one another, even in the slightest degree, to yield to the force necessary to separate them without fracture, and thus defies all attempt to obtain a *perfect* spicule. Nor is it very clear what amount of central inflation originally existed in the spicules generally; for the accumulation of the fossilizing material having spread from these points especially, and, as already stated, the inflation which is chiefly evident in the smaller spicules (fig. 8) not keeping pace with the development of the lower arms, whereby the latter appear to be almost bodiless (that is, without central inflation, fig. 4), this also is not easily determined.

Judging, however, from the entire want of fossilized fibre, like that which exists in the vitreous Hexactinellida, and, therefore, the Holorhaphidotic character of the aggregated stellates, it seems probable that they were not only originally *ununited*, but that the sponge did belong to the Holorhaphidota, in which order it might form a new group among the Suberitida, coming in provisionally after that of "Laxa" under the name of "Holasterellina."

Again, the presence of the ovoid depressions (fig. 2, *a a*) sunk into the surface, which, leading to no outlets internally, could not be connected with the excretory canal-system, are almost identical in form with those to which I have alluded in my paper on the Parasites of Sponges under the head of "Crustacea" ('Annals,' 1878, vol. ii. p. 157), having been observed in the Holorhaphidota *only* (that is, not in any vitreous sponge), and especially in the Suberitida, where the head of the amphipod occupies the largest end of the ovoid pit. It is just possible for this reason also that these spicules were originally connected together by flaky sarcode, like that of the Suberitida of the present day, and thus Holorhaphidotic. Had I never noticed such depressions in the existing sponges with the crustaceans respectively in them, I should have been inclined to regard this as a peculiar character on the

surface of the fossil sponge. Thus it is interesting to find that at that remote period a crustacean parasite nestled in the surface of the Holorhaphidotic sponges as at the present day.

But up to this time no recent sponge has been made known which possesses, for the most part, a comparatively bodiless stelliform spicule of this kind only—that is, a stellate without central inflation. The globostellate or spiniglobate spicule of *Chondrilla nucula*, Sdt., is thus totally different in form, and the sponge itself inclined to a horizontal rather than an erect growth.

There are, however, recent sponges which are partly composed of stellate spicules of a similar form, and thus so far resemble *Holasterella*, and which also appear to belong to the Suberitida. Thus *Xenospongia patelliformis*, Gray (Proc. Zool. Soc. 1858, p. 230), is half composed of bodiless stellates of different sizes, together with a long, setaceous, linear, acuate spicule, and a new genus, which I am about to describe presently under the name of "*Hemiasterella*."

Besides the more perfect portions of *Holasterella*, Mr. Thomson has kindly sent me many other fragments of this sponge, more or less consolidated by the fossilization, all of which come from a compact earthy rock or stratum of an ochraceous or ferruginous colour that does not effervesce with acids. It has already been stated that they are composed of white, opaque, translucent, and transparent "heavy spar" (sulphate of barytes), according to its position, which having in many instances assumed a subpisolitic structure, from the mineral chiefly accumulating round and extending outwards from the central inflation or body of the stellates respectively, in which, the points of one or more of the rays only being sometimes projecting, a more or less solid mass of crystalline material is produced, and the spheroidal portions average 1-12th inch in diameter. It should here be remembered that not effervescing with acids is no test that the material is *siliceous*!

Thus, then, the stellate represented in fig. 11 ('Annals,' 1878, vol. i. pl. ix.) has been identified *in situ*, and the sponge thus found to which it belongs; and thus also we may fairly anticipate that some day the same thing may happen to the stellate (fig. 10 ib.) and the sponge to which *this* belongs also be identified; if not, to other spicules of a different form which may be abundant in the same deposit, such as fig. 11, to which I shall now allude.

This spicule is cylindrical and smooth, with straight shaft and obtuse round ends bent upon the shaft in the same direction (fig. 11). It varies much in measurement, losing, like the spicules of all other sponges, in one way, viz. in length,

what it gains in the other, viz. in thickness, but averaging 1-22nd by 1-120th inch in its greatest dimensions. It is possible that these spicules also may have become thickened during fossilization; but even then they have very much the appearance of the sausage-shaped form characterizing some of the large-spiculed Renierida (group 4, viz. Crassa) of the present day, though much thicker than the latter.

I might also add here that Mr. Thomson has sent me some specimens of limestone which came from the Carboniferous system of the west coast of Ireland, found on the western side of Black Head, County Clare, at the southern entrance of Galway Bay. Here he computes the limestone to be about 3000 feet thick, and overlain inshore by the "Yoredale Shales."

These specimens are of two kinds—viz. one obtained about 700 feet from the summit, and the other from the talus of the scarp below.

No. 1 consists of a mass of very small crystals of quartz, typical of a stratum 3 feet in thickness, showing by their weathered-out rhomboidal cavities *in the mass*, and their granular structure, that they have been formed *in* the limestone, now more or less occupying their interstices, while the *geodic cavities* of the mass are lined by large and more *perfect* crystals of the same mineral. What the origin of this accumulation of quartz crystals in the limestone may have been, there is no evidence to show, although, by the apparently round and pointed form of some of those in the *mass*, together with their rhomboidal excavations, so characteristic of the fossil spicules of *Hyalonema Smithii* ('Annals,' 1878, vol. i. pl. ix. fig. 4 &c.), it is possible that they may be transformed sponge-spicules; and this seems to have been the opinion of Dr. Westropp, late of the Geological Survey of Ireland, who, Mr. Thomson states, visited the locality from which the specimens were obtained. But, until the *form* of a sponge-spicule can be undoubtedly recognized among them, they must remain conjectural. Silex, in such a position, is not likely to occur without organic origin; and sponges are almost the only organisms that could supply it.

Over one portion, the dark brown spherular apothecia of a saxicolous lichen sunken into the limestone and occupying exclusively the intervals between the quartz crystals, seems to point out at once the preference of the lichen for, as well as the presence of, the limestone.

No. 2 represents the typical structure of "sheets" of dark limestone about 1½ inch thick and 18 by 12 inches square, found among the talus at the foot of the scarp mentioned.

These sheets are more or less traversed perpendicularly by a columnar structure of the limestone itself, which is often white and looks very much like the *fluted* fossil cord-spicules of *Hyalonema Smithii* (fig. 13 &c. pl. ix. 'Annals,' *l. c.*)—an opinion that seems at first to be strengthened by the other minute organisms of the rock (among which there are fragments of sponge-spicules) being all composed of the same kind of *white calcite*, contrasting strongly with the black colour of the limestone in which they are imbedded. But here also no sponge-spicule can be recognized by its definite form, and the white *columnar* calcite appears in veins rather than in ends of columns on the horizontal section. Thus with much appearance here, again, of organic origin, there is nothing to substantiate it satisfactorily.

Hemiasterella, n. gen.

Having described and illustrated the interesting fossil sponge from the Upper Carboniferous Limestone lately sent to me by Mr. James Thomson, I naturally recur to my knowledge of the recent sponges to see if there are any kinds known which might be linked with this species; but, as already stated, I can find none exactly, although there are sponges which are partly composed of stellates and partly of linear spicules *alone*, which is the next grade perhaps to that of being composed of the former *only*.

Of these sponges we know *Xenospongia patelliformis*, as before stated, to be one; and two others have been found in the late Dr. Bowerbank's collection, now in the British Museum, which, as they are new and nearly allied in spiculation to *Holasterella conferta*, will at once be described under the generic appellation of "*Hemiasterella*," *i. e.* half composed of stellates which, for the most part, as before stated, are bodiless or without inflation at the point of junction at the rays.

Hemiasterella typus, n. sp. (Pl. XXI. fig. 9, *a*, *b*.)

General form bowl-shaped, elliptical, with thin flexible wall and deep-toothed irregular edges, proliferous on the inner side. Colour white. Substance cork-like. Surface shallow-rugose-reticulate on each side, covered with a white incrustation of little stellates through which long setaceous acuates project. Pores and vents not conspicuous, the latter probably numerous and small, being the outlets of so many small excretory systems, as is generally the case with this kind of sponges. Internal structure tough, areolar, composed of light flaky sarcode, charged with long acuate spicules and little stellates like those of the incrustration, presenting a light yellow colour. Spicules of two kinds, viz.:—1, skeleton-spicule, long, acuate, smooth, curved, and gradually sharp-pointed, 1-15th inch long by 1-900th inch thick in its greatest dimensions (fig. 9); 2, flesh-spicule, stelliform, rays variable in number, four to eight, straight, smooth, sharp-pointed, meeting in the centre without inflation, largest about 1-720th inch in diameter, and of all sizes below this (fig. 9, *a*, *b*). The former chiefly confined to the internal structure, and the latter to the incrustation; but both equally mixed throughout the interior. Size of specimen 11 by 4 inches across the brim, 6 inches deep, wall about 1-6th inch thick.

Hab. Marine.

Loc. —— ?

Obs. Examined in the dry state. This specimen, which I found, without label, in the late Dr. Bowerbank's collection, seems, from its tough, flexible, and light cork-like consistence, to belong to the second family of my Holorhaphidota, viz. the Suberitida, where it might come in as a new group under the name of "Hemiasterellina," from its being half composed of stellates without inflation of the centre. With the exception of *Xenospongia patelliformis*, I have met with no recent sponge with such a large proportion of similar stellates in its spiculation. Certainly in *Hymeraphia spiniglobata*, a new species to be hereafter described, the proportion of stellates is equally great; but then they are totally different in form, being spiniglobate, and the sponge itself hitherto has only been seen in the state of a mere film as regards thickness. (Bk. coll. no. 715.)

Hemiasterella affinis, n. sp. (Pl. XXI. fig. 10, *a*, *b*, *c*.)

Long, narrow, conical, cylindrical, excavated, cup-like, apparently fringed or toothed on the margin of the orifice, which has been partly worn off, proliferous on the outer side. Colour white. Substance tough, flexible, cork-like. Surface shallow-rugose-reticulate on each side, covered with a white incrustation of little stellates, which is thickest on the outer side, through which long acerate spicules project. Pores and vents not conspicuous; the latter probably numerous and small, being the outlets of many small excretory systems, as is generally the case in these sponges. Internal structure tough, areolar, composed of light flaky sarcode charged with long acerate spicules and little stellates like those of the surface, presenting a light yellow colour. Spicules of two kinds, viz.:—1, skeleton-spicule, long, acerate, smooth, curved, and

gradually sharp-pointed, 1·25th inch long by 1-900th inch thick in its greatest dimensions (fig. 10); 2, flesh-spicule, stelliform, rays straight, smooth, sharp-pointed, variable in number, from four to ten, of which seven appears to be the average (fig. 10, *a*, *b*), centre or point of junction of the rays sometimes with (fig. 10, *c*) and sometimes without a slight inflation or body, largest stellate about 1-600th inch in diameter, and of all sizes below this: the former chiefly confined to the internal structure, and the latter to the incrustation, but both equally mixed throughout the interior. Size of specimen, which is imperfect both above and below, 5 inches long; orifice 2½ inches in diameter; lower end, which has been broken off, solid, 1½ inch in diameter. Cavity conical, nearly as deep as the length of the specimen in its present state.

Hab. Marine.

Loc. —— ?

Obs. Examined in the dried state. It will be observed from the description that this sponge is very like the last, although sufficiently different in the *acerate* form of the skeleton-spicule &c. to be designated "*affinis*," but must, of course, be placed in the same genus. The remarks applied to the foregoing specimen equally apply to this. (Bk. coll. no. 679.)

In my "Observations" on Mr. Thomson's fossil sponge I have noticed that *Xenospongia patelliformis* is half composed of bodiless stellates similar to those of *Holasterella conferta*, together with a long, setaceous, acuate spicule, by which, on the other hand, it becomes in spiculation more closely allied to *Hemiasterella typus*; but as *Xenospongia patelliformis*, by reason of its peculiar form and mode of growth, cannot come under the genus *Hemiasterella*, it might be made the type of a separate group among the Suberitida, together with *Halicnemia patera*, Bk. (Mon. Brit. Spong. vol. iii. pp. 31, 32, pl. xv.), although the latter has a spined acerate flesh-spicule instead of a stellate.

Placospongia melobesioides, Gray (Proc. Zool. Soc. 1867, p. 128), = *Geodia carinata*, Bk. (ib. 1874, pl. xlvi. fig. 1 &c.), is another sponge of this kind; that is, its spiculation chiefly consists of the siliceous ball, like that of *Geodia*, and a pinlike spicule; but being accompanied by a *minute* spiniglobate ball like that of *Chondrilla nucula*, together with a zigzag or spinispirulate one like that of the Suberitida, to say nothing of its peculiar form and mode of growth, it too must be made the type of a distinct group in this family. The "siliceous ball" of *Geodia* also commences in a minute, simple, star-like spicule, which in abnormal development is often more or less retained till it equals in size the full-grown "ball" itself; and thus its ontogenetic origin is determined.

A similar transition of the flesh-spicule is, according to Schmidt, met with in his *Vioa Johnstonii*, where in one instance the spiculation consists of an acerate skeleton with stelliform flesh-spicule (Spong. Adriat. Meeres, Taf. vii. fig. 17, 1862), and in the other of a pinlike skeleton-spicule with a zigzag or spinispirulate flesh-spicule (Spongienf. atlant. Geb. Taf. vi. fig. 18, 1870). This is explained at p. 5 (ib.); but the transition of the acerate to the pinlike skeleton-spicule is not mentioned, whereby I should be inclined to give a different name to either one or the other; for if we are to follow this reasoning, then *Placospongia* in spiculation might, but for its other flesh-spicules, be accounted the same as *Xenospongia*—that is, half composed of stellates and half of skeleton-spicules, like *Hemiasterella*. Little, however, as the value of the flesh-spicule in specification appears to be under these circumstances, it is not so under full development, which is the point most useful to remember in specific distinction. At the same time, as I have before stated, the form of the flesh-spicule, *taken alone*, when in combination with other spicules is not of much value: thus the first form of the spiculation of *Vioa Johnstonii* appears to me to indicate a form of spiculation specifically different from the second; and while the first bears a similar spiculation to that of *Hemiasterella affinis*, the second does not do so. Colour has nothing to do with it. Lamarck's *Alcyonium purpureum* and an undescribed species in the Liverpool Free Museum, both different suberitic sponges from South Australia, possess a similar spiculation to that of the "second" form of *Vioa Johnstonii* described by Schmidt, together with the remarkably beautiful carmine colour possessed by the latter.

I am aware that the terms *Holaster* and *Hemiaster* are used for species of the Echinodermata; but I can find no more expressive ones for the fossil and recent sponges above described than *Holasterella* and *Hemiasterella*, in which the terminal affix must differentiate the names from those of the Echinoderms.

EXPLANATION OF PLATE XXI.

Fig. 1. *Holasterella conferta*, n. sp. (fossil), natural size. *a*, head; *b*, upper part of body; *c*, lower part; *d*, stem; *e e*, dotted lines indicating lost portions; *f*, puncta representing abodes of crustacean parasites; *g*, ends of excretory canals in a broken part.

Fig. 2. The same. Portion of surface, magnified, to show *a a*, form of pits of crustacean parasites among *b*, meandriniform grooves and pores. Taken from the part marked "*h*" in fig. 1.

Fig. 3. The same. Largest form of spicule. Natural size. Diagrammatic.

Fig. 4. The same. Typical form of large spicule, magnified, to show spines or aborted rays of head, composing, in juxtaposition and *in situ*, the surface in some parts. Copied from fig. 11, 'Annals,' 1878, vol. i. pl. ix.

Fig. 5. The same. Head of same, more magnified, to show micro-spination of central ray, and *a*, bifurcation of a lateral one. Also copied from *l. c.*

Fig. 6. The same. Small spicule with twelve to fourteen rays. Much magnified. Diagrammatic.

Fig. 7. The same. Large spicule with fewer rays and slightly inflated centre. *a*, end view; *b*, lateral view. Much magnified.

Fig. 8. The same. Group of small spicules *in situ* taken from surface of large excretory canal in the outer part of the sponge. Relatively magnified. Showing:—*a a*, arms of large spicules; *b b*, small spicules with central inflation and arms more or less broken off; *c c c*, arms attached to each other. Scale 1-24th to 1-830th inch.

Fig. 9. *Hemiasterella typus*, n. sp. (recent sponge). Skeleton-spicule, linear, acuate; magnified (scale 1-24th to 1-1800th inch). *a*, flesh-spicule, stelliform; magnified (same scale). *b b*, forms with from four to eight rays, more magnified.

Fig. 10. *Hemiasterella affinis*, n. sp. (recent sponge). Skeleton-spicule, linear, acerate; magnified (scale 1-24th to 1-1800th inch). *a*, flesh-spicule, stelliform; magnified (same scale). *b b*, other forms, more magnified; *c*, one with central inflation.

Fig. 11. Spicule, fossil (? of a Renierid sponge), magnified; abundant in the same deposit with *Holasterella conferta*. (Scale 1-48th to 1-1800th inch.)

XV.—*On two new Species of Fishes from the Bermudas.* By Dr. A. Günther, F.R.S.

Mr. J. Matthew Jones, who for several years past has paid especial attention to the fishes occurring at the Bermudas (see 'Annals,' 1874, vol. xiv. pp. 370, 455), has again succeeded in discovering two species which appear hitherto to have escaped observation. The types have been kindly presented by the discoverer to the British Museum.

Gerres Jonesii.

D. $\frac{9}{10}$. A. $\frac{3}{7}$. L. lat. 49. L. transv. $\frac{5\frac{1}{2}}{10}$.

The height of the body is two sevenths of the total length (without caudal). Præorbital and præoperculum entire, the latter with the angle slightly rounded. The groove for the processes of the intermaxillaries does not extend to the vertical from the centre of the eye, is elongate, and entirely free from scales. The snout is as long as the eye, and equals the width of the interorbital space. The spines of the fins are slender, the second of the dorsal slightly exceeding half the length of the head, and being more than twice as long as the second of the anal fin, which is stoutish and shorter than the eye. Uniform silvery.

Six specimens, from 6 to 9 inches long, were obtained.

Belone Jonesii.

D. 25. A. 22.

The free portion of the tail is rather depressed, somewhat broader than deep, the lateral line terminating in a low black-coloured keel. The length of the head is less than one third of the total (without caudal); its upper surface is broad, flat, striated; frontal bones diverging behind, leaving a broad space between them which is covered by skin; this space tapers in front, and is closed between the orbits. Maxillary entirely hidden by the præorbital. Jaws and teeth strong; vomerine teeth none; tongue rough. The diameter of the eye is two thirds of the width of the interorbital space, and two fifths of the length of the postorbital portion of the head. Body stout, not much compressed; pectoral fin as long as the postorbital portion of the head. Ventral fin midway between the root of the caudal and the eye. The middle and hinder dorsal and anal rays subequal in length, short, the last terminating at a considerable distance from the root of the caudal. Caudal fin deeply lobed. Scales very small, irregular and adherent.

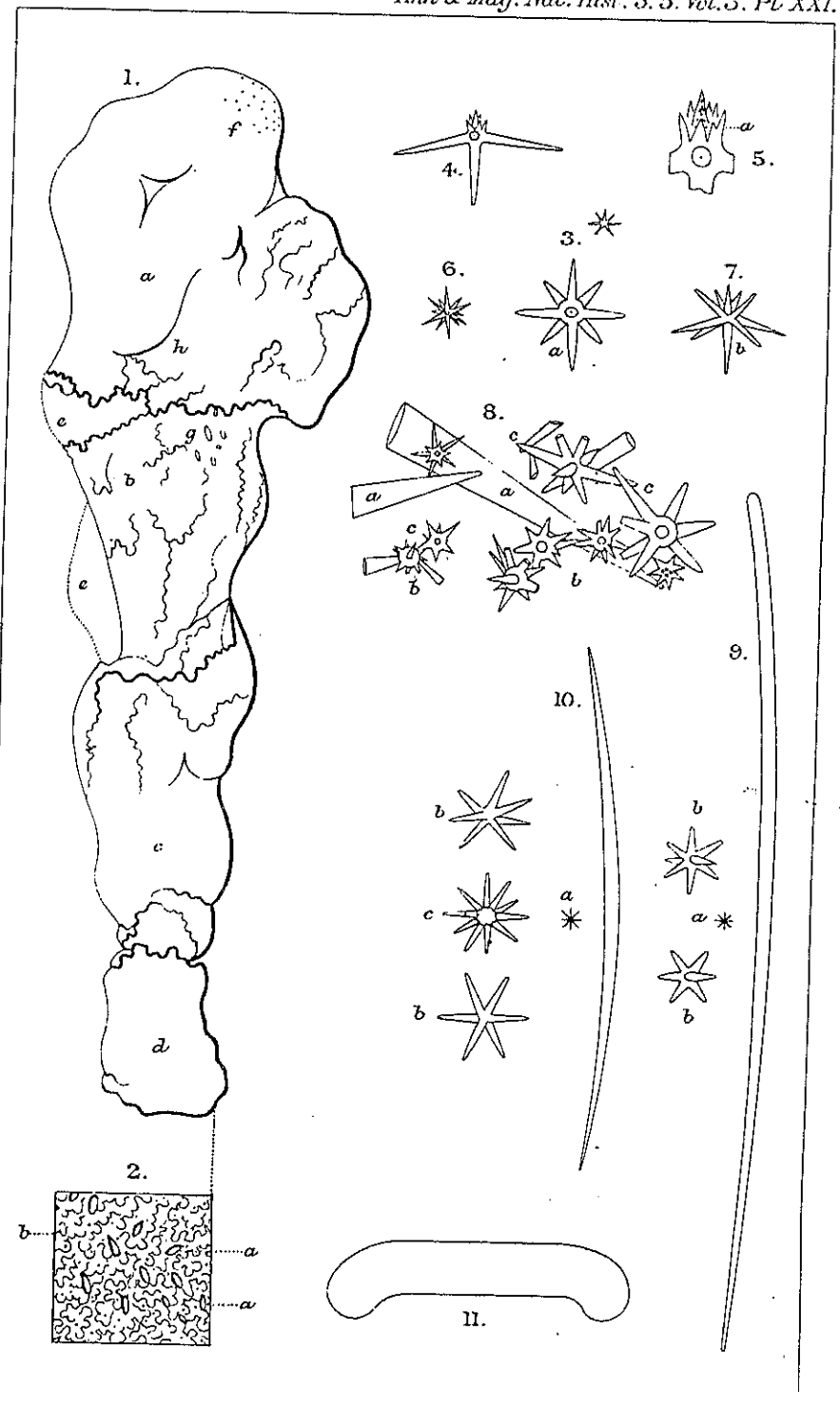
A single specimen, 3 feet long, was obtained.

XVI.—*Remarks on Munier-Chalmas's Classification of the* Dactyloporida*. By Dr. Fr. Toula†.

The segments of *Cymopolia barbata*, Lamx., are so nearly identical with those of *Dactylopora*, Lamk., that the latter must be considered as founded on fragmentary portions of *Cymopolia*. This generic name ought therefore to be adopted, as it applies to complete organisms, while Lamarck's, although a prior name, denotes mere fragments. Prof. Decaisne, in 1842, proved several marine organisms (*Cymopolia* among them), which

* "Observations sur les Algues calcaires appartenant au groupe des Siphonées verticillées (*Dasycladées*, Harvey) et confondues avec les Foraminifères:" note de M. Munier-Chalmas, &c. (Comptes Rendus de l'Acad. des Sci. vol. lxxxv. no. 18, Oct. 29, 1877, pp. 814-817).

† Imper. Geolog. Instit. Vienna, Report, August 31, 1878. Communicated by Count Marschall, F.G.S.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c
c
b
b
9.
10.
b
a
c
a
b
b
a
b
11.