

I take this opportunity to state, in reference to my report in the 'Annals' for November 1872, that the white variety of *Tectura testudinalis*, Müll., of which I obtained many fine specimens in Iceland, is likewise met with on the North-British coasts; and, possessing seemingly as strong claims to varietal distinction as many other named varieties do, I trust my proposed designation may not be deemed inappropriate.

I may also call attention to a slight printing-error which occurred on page 373, viz. *Punctura* instead of *Puncturella*.

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XXX.—Description of *Labaria hemisphaerica*, Gray, a new Species of Hexactinellid Sponge, with Observations on it and the Sarcohexactinellid Sponges generally. By H. J. CARTER, F.R.S. &c.

AT the request of Dr. Gray I have examined *Labaria hemisphaerica*, the sponge sent by Dr. A. B. Meyer to the British Museum from Singapore ('Annals,' vol. xi. p. 235, March 1873); and the following is its general and microscopic description.

Labaria hemisphaerica, Gray.

Sponge sarcospiculous, hexactinellid, now dry and colourless. Cup-like, massive, hemispherical, convexo-concave. Sides thick, margin obtuse, round, slightly contracted, concavity shallow. Surface of interior even, uniform; that of the convexity or exterior the same, but interrupted here and there by the presence of linear spicules, which project microscopically in a line round the outer border of the margin, then disappear, leaving a plain convex surface, but reappear towards the lower third, where, gradually becoming longer and congregated into small tufts, they finally end in a large stem-like bundle, which on issuing from the base of the sponge is half an inch wide, and spreads out into a tassel two inches long. Vents? (see *Obs.*). General structure of the body chiefly composed of smooth nail-like spicules, with four-armed heads, of different sizes, varying from such as can be easily seen with the unassisted eye down to microscopic minuteness, all knit together by the nail-like shaft being directed inwards, and the crucial arms expanded and interweaving with each other horizontally; thus, with the largest spicules on the surface, and their arms bent a little inwards, the whole are bound down, as well over the concavity as over the convexity, into a firm basketwork with even exterior. Internal structure, as seen by transmitted light through the surface, cavernous or largely cancellous, with

the tortuous tubular cavities coming close to the surface on each side. Microscopic structure of the surface also composed of the same form of nail-like spicules, but exceedingly minute, and with their arms all spiniferous, not smooth, and their shafts directed outwards instead of inwards; their crucial heads applied to the arms of the larger body-spicules, or so inserted into the dermal sarcode filling up the interspaces of the latter as to form, by the intercrossing of their arms, a minute rectangular network or veil, in the interstices of which respectively the pores are situated,—the shafts of these spicules, which are just visible to the naked eye, being so thickly spined, so numerous, and so close together all over the sponge, both inside and out, as to present a continuous white layer, interrupted only by the heads of the largest nail-like spicules of the body and the projecting tufts of long linear spicules towards its lower part. Spicules of five kinds, viz.:—1. The nail-like spicule of the body, which is smooth in all its parts, and glistening throughout, consisting of a shaft of variable length and head of four arms, also variable in length in the same spicule and generally; arms slightly curved towards the shaft and parting at right angles from the end of the latter, leaving a rectangular smooth area in the centre, which, from its glassy transparency and dark appearance *in situ*, forms, with a portion of the arms which is also uncovered by the white dermal crust, a remarkable feature. 2. The linear or fusiform spicule, which may be smooth throughout or partially or entirely spined. It varies in length from microscopic minuteness to two inches long, the latter or long ones alone possessing a double hook at the free extremity. The spines of the minute forms vary in their amount of inclination to the shaft, being in some spicules almost parallel with it, while in others they are widely divergent, and for the most part directed *from* the sponge, but not always. In the larger and longer forms, of which there are also two kinds, the shaft is either smooth up to its termination in the double hook, or at first smooth, then spiniferous, and just before it terminates in the double hook smooth again, the spines being directed *towards* the sponge. At the commencement of the spiniferous portion in the latter (for that *in* the sponge is comparatively smooth) the spines are wide apart and hardly perceptible, but by degrees increase in size, number, and approximation as the shaft of the spicule increases in size, when they may be observed to form a spiral line round it, much like the bracket-steps of a flagstaff, which again passes into single separate spines, as above stated, just before its termination, the shaft also again reappearing for a short distance in a smooth but

diminished form, which soon expands into a flat portion that terminates in the double hook,—the double hook being compressed and crescentic in the smooth form, and *twice* the breadth of that in the spiniferous ones, where, on the other hand, the body is a little thicker and the hooks a little more recurved, still always opposite. 3. The minute surface-spicule is also nail-like, and consists of a bushy plumose shaft furnished with four rays parting from the fixed end of the former at right angles, and directed a little forwards or away from the shaft, cup-like,—the plumose appearance of the shaft arising from the presence of a number of long spines, which, originating all round it, are inclined towards its free or pointed extremity; while the arms are equally spined, but with short conical eminences, especially towards their abruptly pointed extremities: among these spicules there are also two kinds, viz. one thick, short, and stout, and the other comparatively long and slender, with the shaft slightly curved or turned to one side. 4. The birotulate spicule, consisting of a straight shaft, sparsely spinous in the centre, and expanding at each end into eight blades or arms, which are altogether recurved dome-like towards the centre of the shaft. 5. A minute hexaradiate spicule, the arms of which are equal, opposite, and furnished with three or four spines of unequal length, and irregularly disposed towards the extremities.—The smooth nail-like spicule, No. 1, is confined to the body of the sponge, where it forms the chief part of that structure; while the long arms of the larger ones, which are confined to the surface both on the outside and inside of the cup, have their extremities incurved and buried amongst the surrounding ones. The second, linear or fusiform spicules in their minuter form are confined to the body, where they are arranged vertically, and for the most part parallel to, and in company with, the vertical shafts of the nail-like spicules, appearing, as before stated, in a line round the outer border of the margin of the cup, then disappearing on the convexity of the body, and reappearing in their largest forms towards its lower third, finally ending in the thick long tuft at the base. No. 3, the minute plumose nail-like spicule, is confined to the surface, where the concavity formed by the advanced direction of the arms of the head is applied, through the dermal sarcode, to the arms of the large nail-like spicules of the body, or, as before stated, is fixed in the dermal sarcode between the interstices of the latter, where the arms lie parallel to each other for their *whole* extent. Of the exact position of No. 4, the birotulate spicule, I am not certain, because the surface ones have for the most part fallen out; but, judging from its

position in other similar sponges, and of those which still remain in *Labaria*, it should be interspersed among the plumose spicules, while No. 5 may be dispersed throughout the body generally.

Average size of the largest spicules of each kind:—In No. 1 the length of the arms varies in the same spicule, so that the longest shaft and longest arm generally may be set down at about 3-12ths inch long, with a thickness at the base of about 25-1800ths inch. No. 2 in its longest form appears to be about two inches, with a maximum thickness in the shaft of about 7-1800ths inch; while the spread of the double hook at the free extremity in the *smooth* form is about 38-1800ths, and in the spiculiferous one about 17-1800ths inch. The short stout form of No. 3 (the surface-spicule) averages about 10-1800ths long, and the slender variety about 15-1800ths. No. 4 in its largest size is about 15-1800ths long, and No. 5 (the microscopic spicule) about 8-1800ths inch in diameter from end to end of its arms. Size of specimen:—Greatest horizontal diameter outside $1\frac{3}{4}$ ths inch, vertical $1\frac{1}{2}$ ths inch; diameter of outlet of basal tuft $\frac{1}{4}$ ths inch; diameter of outer margin of concavity $1\frac{1}{4}$ ths inch; greatest diameter of concavity $1\frac{1}{4}$ ths inch; thickness of wall of cup $\frac{5}{24}$ ths inch; diameter of basal tuft of spicules about $\frac{1}{4}$ ths inch.

Hab. Marine.

Loc. Unknown, from Singapore.

Obs. In the above description nothing has been said about the position of the "vents," chiefly from the fact that there is no appearance of any distinct ones in the concavity of the sponge; and although 8-10 holes appear at irregular distances round the outer border of the margin of the cup, and about twice as many scattered over its outer surface or convexity, still, from these having been artificially filled with bristle-like fragments of long stout spicules from another sponge, for the purpose hereafter mentioned, I am by no means certain that these holes are not artificial. From analogy one would feel inclined to say that they *are* artificial; for, as a rule, into the concavity (erroneously termed "cloacal"), whether cup-like or tubular (in the great "Neptune's cup," in which a child might sit down, or in that of the calcareous sponge *Grantia ciliata*, into which the head of a pin can hardly be inserted), the vents chiefly open and the pores are chiefly outside. As instances of this in the sarcospiculous Hexactinellidæ, with which we are now chiefly concerned, *Holtentia Carpenteri* and *Rossella velata*, W. Thomson, and *Crateromorpha Meyeri* and *Rossella philippinensis*, Gray, if not also *Pheronema Annae*, Leidy, and *P. Grayi*, Kent, may be cited. In *Meyerina*

*claviformis**, Gray, and *Hyalonema* (*Carteria*, Gray), where the cavity is very narrow and contracted in the former, and in the latter is occupied by the conical end of the glass cord, which actually passes through the entire sponge so as to project beyond its summit, the "vents" are, respectively, partially and entirely on the outside; indeed in *Hyalonema* there is no concavity. What the condition may be in the great *Askonema setubalense*, Kent, I do not know, not having any thing but a shred of this sponge, sent to me by my kind friend Dr. J. E. Gray, from a portion which was brought from Lisbon to England by Mr. Kent. Where the great specimen of *Askonema*, about a yard wide at the mouth and twenty-four inches high, may be, which was dredged up off Cape St. Vincent while Mr. Gwyn Jeffreys superintended the operations on board H.M.S. 'Porcupine,' in 1870 ('Depths of the Sea,' by Prof. W. Thomson, p. 428, fig. 67), I am ignorant. It is not with me; and therefore I am not answerable for its description.

Still, as regards the vents of *Labaria*, it might be observed that if there is no appearance of them in the cup, it is not improbable that the holes on the convexity may have been artificially made. Again, it may be stated that the intervals between the arms of the nail-like spicules of the surface in the *convexity* are so large, and the short plumose ends of the surface-spicules so inadequate to close them, that some of *these* interspaces may have served for vents. But the absence of sarcode throughout this sponge, from the cause hereafter to be mentioned, fails to supply that roundness to its openings which otherwise would make the vents unmistakable.

As regards, again, the "pores" of *Labaria*, analogy here leads to the inference that they existed in the interstices of the reticulation formed on the surface by the arms of the surface-spicules, as above stated.

We now come to the specific characters of this sponge; and these rest chiefly on the form of the double hook at the end of the *smooth*, long, anchoring-spicule of the base, and on the spiniferous condition of the arms of the minute surface-spicule No. 3. Fortunately there is no doubt about the latter; for in *Hyalonema*, *Holtentia*, and *Pheronema*, Gray, with which these spicules might otherwise be confounded, the arms are *smooth* and not spiniferous. Even in *Meyerina*, also, they are so scantily spined that they might be almost termed smooth.

But the case is not so clear with respect to the double hook at

* For a description of *Meyerina claviformis* and *Crateromorpha Meyeri*, see 'Annals,' vol. x. p. 110 (August 1872).

the extremity of the *smooth* anchoring-spicule, since in *Euplectella*, *Hyalonema*, *Holtenia*, and *Meyerina*, whose anchoring-tufts respectively are composed of the two kinds of spicule, viz. *smooth* and *spiniferous*, the termination of the extremity in the former appears to be always absent. In none of these sponges have I ever been able to find it; and my examinations have often been repeated in different specimens varying in size from a quarter of an inch, in some of those dredged up on board H.M.S. 'Porcupine,' to the adult forms obtained from this and other sources. The hooked extremity of the *spiniferous* anchoring-spicules in all the sponges last-mentioned I have been able to obtain, but *never* one of the *smooth* anchoring-spicules until I came to the specimen of *Labaria* under consideration, wherein both *smooth* and *spiniferous* anchoring-spicules still, to a great extent, retain their respective hook-like terminations.

It has been already stated that the double hook at the end of the *smooth* anchoring-spicule in *Labaria* has twice the spread of that terminating the *spiniferous* one; and if this were the case in *Hyalonema* and *Meyerina* respectively, where the *smooth* anchoring-spicules so much exceed the others in size, as well as in *Euplectella* and *Holtenia*, where they are all much longer and larger than in *Labaria*, it is no wonder that they were left in the mud where these sponges originally grew, or were subsequently broken off by "smoothing down the root-like lock," to make it look more beautiful! or, indeed, torn off by the ruthless "tangle."

Still further, with reference to the terminal hooks of the *spiniferous* anchoring-spicule of *Labaria*, I think I can perceive a microscopic difference in form between them and those of *Meyerina*, which they so much resemble, that might be given in a figure more satisfactorily than it can be described, because it is so trifling. But however close the resemblance may be here, the difference between the terminations of these spicules in *Labaria* and those of *Holtenia*, and of *Pheronema Grayi* as figured by Mr. Kent (Monthly Microscop. Journ., Nov. 1870, pl. xiii. fig. 16), is so strongly marked that it is impossible (of course, under the microscope) to confound the two,—that of *Holtenia* and *Pheronema Grayi* being in the form of a harpoon, while that of *Labaria* tends to the form of a crescent; that is to say, the spines of the double hook in the former are much recurved, while in the latter they are much more expanded. I do not wish to insist upon these differences strongly, but state them only as the result of my examinations.

So rare is it to find any of the spicules composing the cord

in *Hyalonema* with the terminal hooks present, that I have only observed it in four instances, and all in one small specimen, of which the body is half an inch long and the cord of the same length. They occur close to the body, while those which were at the ends of the longer spicules forming the cord have all, as usual, been broken off. In this case, too, they are on the spined and not on the smooth spicules. As regards the *position* of the hooks, they are double, and both on one side like a claw in two of the instances, and in the other two triple, but two of these appear to be opposite, anchor-like. Fortunately they are not all the same in all four instances, or the inference might have been that the terminal hooks of these spicules in *Hyalonema* were all on one side, claw-like, or all opposite, anchor-like, as the case might have been; still the third spine in the latter also gives a lateral predominance. The specimen, which is mounted, was dredged up on board H.M.S. 'Porcupine,' and sent to me by Prof. W. Thomson. It bears no polype on the cord.

The little crucial-headed spicule of the surface in *Labaria*, with its plumose shaft ready to be depressed as the area about which it is situated may require to be more or less closed, is common to the sponge part of *Hyalonema* (*Carteria*, Gray), *Holtenia*, and *Pheronema Grayi*, and probably also to *Pheronema Annae*, Leidy, with the exception of the arms being thickly spined instead of smooth, as before mentioned.

Then No. 4, the birotulate spicule ("multidentate," Bbk., f. 60), of all sizes below its largest form (for it should be borne in mind that they grow from small to large), is also specifically characteristic of *Hyalonema*, *Holtenia*, and *Pheronema Grayi*. No other sarcospiculous hexactinellid that I know of possesses this spicule; and therefore I am at a loss to conceive how Schmidt should have named the sponge described and figured by him in his 'Atlantisch. Spongien-fauna' (p. 14, Taf. 1. figs. 1-6) "*Holtenia*."

In *Rossella velata*, W. Thomson, and *Rossella philippinensis*, Gray (which are sarcospiculous, hexactinellids), we may observe "the minute, equiarmed, hexradiate spicule" to pass from (1st) the equiarmed hexactinellid with bifurcated and pointed extremities, to (2nd) the same with capitate extremities ("spinulostellate," Bbk., f. 190), and, lastly (3rd), into an undescribed form, where the ends of the arms are terminated by a small, conical, tubercled inflation, presenting a short straight spine on the apex, which spine is surrounded by almost innumerable linear filaments rising each from one of the tubercles, attaining various heights, and bending outward like the expanded petals of a tubular flower, forming one of the most exquisite

objects in nature. It might be termed "pappiform," flexed and simple, in contra-distinction to another kind, in which the filaments are straight and capitate. A similar spicule, though not so complicated, is arrived at through a similar transition in both the *Euplectella*, viz. those forms respectively with and without silicified sarcode; but here the ends of the filaments, seldom more than 8, are *capitate* and spined on the outer side, claw-like. This form (the "floricomo" of Bbk., f. 194) also occurs in the two sarcospiculose hexactinellid sponges in the museum of the Jardin des Plantes, named respectively by Prof. W. Thomson *Habrodictyon speciosum* and *H. corbicula* ('Annals,' 1868, vol. i. p. 122 &c., pl. iv. f. 1 e).

(In *Hyalonema*, too, the birotulate spicule also sometimes takes on a hexactinellid form, which, of course, if possible, renders it a still more beautiful object.)

But the transition to which I have first alluded seems to be characteristic of *Rossella*, and the third or florescent form so like that figured by Schmidt ('Grundzüge einer Spongienfauna des atlantischen Gebietes,' pl. i. f. 6), that, in the absence of the "birotulate spicule," it seems to me that *Holtenia Pourtalesii* must be more nearly allied to *Rossella* than to *Holtenia Carpenteri*, Thomson, more particularly, too, as the large spicule of the surface (*op. cit.* pl. i. f. 4) is furnished with large spines, in which it agrees with the same kind of spicule in *Rossella antarctica* (Ann. 1872, vol. ix. pl. xxi. figs. 1-4) (of course, this genus has been established since the publication of the 'Atlantisch. Spongienfauna' in 1870); while, on the other hand, the minute nail-like spicule with crucial head and plumose shaft which Schmidt figures in connexion with *Sympagella nux* (*op. cit.* pl. i. f. 2), and alludes to as characteristic also of the little specimen of the hexactinellid for which he has provisionally suggested the name of "*Holtenia saccus*" (*op. cit.* p. 15), is, to a certain extent, characteristic of the Hexactinellidæ possessing the *birotulate* spicule—but not altogether, as the partial extension of the sixth arm, or of the shaft &c., shows.

The minute, equiarmed, hexaradiate spicule with long irregular spines at the ends of the arms in *Labaria* (No. 5), is also common in *Meyerina*, and may be the type in these sponges of the "1st" form of it that I have described in *Rossella* (p. 281). It is chiefly upon the presence in great numbers of this form, somewhat modified in *Habrodictyon corbicula*, that Prof. W. Thomson has been induced, provisionally, to separate this species from his *Habrodictyon speciosum* (Ann. l. c. pl. iv. f. 2 a). But this kind of spicule occurs in too many of these sponges and too much modified ever to be of any specific value.

Add to this the presence of little, clear, silicified spheres, formed of concentric layers round a minute cavity or cell, which have not been mentioned in the above description of *Labaria* because they appear to be rather accidental than normal products, receiving elucidation from a new species of *Dictyocylindeus* among sponges collected by Col. Pike, U. S. C. at the Mauritius, and forwarded to Prof. Dickie, of Aberdeen, who sent them on to me for examination, wherein such spheres abound in all degrees of elongation, passing at last into a lengthened spicule of the normal form,—thus showing that they are caused by arrest of development in the original cell, which elongates itself normally into the entire spicule—but failing in this, continues to increase in size spherically by the addition of silicified concentric layers to its surface.

As regards the sarcospiculose hexactinellid sponges called *Lanuginella pupa*, Sdt., and *Aulodictyon Woodwardii*, Kent, respectively, I am unable to state any thing further than that, if young specimens of larger sponges, they must wait until the latter are found for their fully developed specific characters, while, if already adults, they have not yet been sufficiently described for this.

There is a spicule, though, in *Aulodictyon Woodwardii*, Kent (*op. cit.* fig. 22), which, so far as my observation extends among the Hexactinellidæ, is peculiar to this species; but this is rather a vitreous than a sarcospiculose sponge, and belongs to the Aphrocallistidæ, of which I shall have more to say hereafter.

Sympagella nux, Sdt., too, seems to be a compound of both sarcospiculose and vitreous Hexactinellidæ; for part of its spicules are sheathed (like those of *Euplectella aspergillum*) in silicified sarcode or silicified horny substance, the rest being free. Still this is only a permanent condition of what takes place in all the vitreous sponges, where the spicules are formed first in the sarcode free, and then enclosed in silicified sarcode or silicified horny substance, as the case may be. The "3rd" form of minute, equiarmed, hexaradiate spicule, which I have described at p. 281 as being so beautiful, I have since found to be equally abundant in *Sympagella*, together with the 2nd or capitate one; so that, as at first thought, this is not peculiar to *Rossella*, and may be found to be still more common by further observation*.

* I have just found, too, in a mounted specimen, that the form No. 3 (at p. 281) also exists in *Crateromorpha Meyeri*, but with straight capitated "filaments," instead of bent ones without heads, more like Schmidt's figure of that in *Holtenia Pourtalesii* ('Atlantisch. Spongienfauna,' pl. i. f. 6). *Crateromorpha* and *Rossella* are very much allied in many other points, which I shall mention on a future occasion.

Lastly, in the rough anchoring-spicules of the glass cord of *Hyalonema*, there is a feature well figured by Dr. Gray in his description of this beautiful object, in the 'Proceedings of the Zoological Society,' as far back as 1857 (p. 280), which receives complete elucidation from corresponding spicules in *Meyerina* and *Labaria*, and which, from its resemblance to fractured layers of the spicule coming off in ragged circles, is apt to be mistaken for the latter, but which, in *Meyerina* and *Labaria*, is seen to resolve itself into a more lengthened spire of prominent processes like the bracket-steps of a flagstaff, only continuous. This is chiefly apparent on the thickest part of the shaft, and may also be indistinctly observed in *Hyalonema*; but on tracing the spire downwards, or towards the free end of the spicule, the bracket-like processes become each surmounted by a spine; then they pass into distinct separate spines, always recurved or directed towards the sponge, but still maintaining a spiral arrangement, which, lengthening out as the spines become more widely separated, finally ends with the last spine on the shaft. Thus the abrupt part of the spiral line is *always* directed towards the sponge; and in a small specimen dredged up on board H.M.S. 'Porcupine,' I observe that this feature is continuous throughout the *body* of the sponge (*Carteria*, Gray) to its very summit, where it may serve as much for attachment of the sponge as for anchoring it in the mud—being, too, at this period, as distinctly spined in the sponge-head as any similar spicule of *Meyerina* or *Labaria* &c. is out of it; indeed, here nothing but the form of the terminal hook distinguishes the spicule of *Hyalonema* at this period from that of *Holttenia* of a similar size.

In *Euplectella* the famous "cross" in the central canal of the long-spined spicule shows itself close to the last two spines of the shaft, while the canal afterwards terminates in a lash of branches in the midst of the many-spined terminal head. In the spined spicule of *Meyerina* a cross canal is seen in the head just before the central canal terminates, which may have relation to the two spines which are opposite. At all events there is no cross near the last spines of the shaft, as in *Euplectella*. The same is the case in both kinds of anchoring-spicule in *Labaria*. In *Hyalonema* I cannot say how the central canal terminates in the ends of the anchoring-spicules, as the only instances I possess are in the mounted specimen to which I have alluded, which does not admit of being brought within quarter-of-an-inch focus, the microscopic power necessary for this determination.

On the sponges whose horny substance and sarcode is silicified, viz. the Coralliospongiæ, in part, of Dr. Gray, I hope to

offer some remarks in my next paper, which will be on one of the specimens dredged up on board H.M.S. 'Porcupine,' and I think that I may then be able to show the transition of Schmidt's "Corallistes" into his genus *Pachastrella* (Bowerbank's *Hymeniacion* *Bucklandi*), thence into *Stelletta*, and finally into *Geodia*,—thus confirming their separation from the vitreous Hexactinellidæ established by Schmidt, who has described and figured them under the family name of "Lithistidæ," in his 'Grundzüge einer Spongienfauna des atlantischen Gebietes.'

I have stated above that the sarcode which chiefly holds the spicules of a sponge together, especially in its dried state, has in this specimen of *Labaria* been destroyed—and also that fragments of the long spicules of another sponge have been introduced into *Labaria* for the purpose of deception, whereby it had become difficult to establish the position of the "vents."

Although, however, *Labaria hemispharica* has thus been much injured and disfigured, sufficient has been stated to show that enough still remains to establish its general form and chief specific characters with certainty. It is not a perfect specimen, from two causes: viz., first of all, the sarcode, as is commonly the case with sponges that have been allowed to get damp (and this is almost inevitable where the salt has not in the first instance been taken out of them by soaking in fresh water before they are finally dried), has been destroyed (by *Mucoridæ*, probably), which has thus deprived the spicules generally of their chief support; and, secondly, the native who had the specimen for sale, finding that it was thus falling to pieces, and in order to make the most of it, took a bunch of the long spicules of *Meyerina claviformis* (for they are easily recognized), and making a tassel of them, four and a half inches long, by binding their upper ends together into a conical form with the fibre of some plant about the size of coarse thread, pushed this into the centre of the basal tuft of *Labaria*, and so into the body of the sponge, securing it there by thrusting in shorter fragments from the same source in groups all round the sides, which gave the sponge a cat-whiskered appearance, with a very large basal tuft.

It was not possible to detect this fraud at first, as the end of the tassel was so completely concealed in the body of *Labaria*, and covered by its *own* natural basal tuft (which, as above stated, is only two inches in length), while the cat-whisker-like groups at the sides also appeared so natural that minute examination and an acquaintance with the intimate structure of such sponges alone led to detection—rendered still more perplexing by the absence of the sarcode in the sponge generally,

which, if present, would have held on the real spicules, and have allowed the false ones to be easily extracted, thus causing doubt as to which spicules did and which did not really belong to the sponge.

At first the whiskered groups were observed to be composed of spicules far too robust for the size and nature of the sponge; then it was found that their inner ends were in many instances passed through the body, *above* the bottom of the cup, and then that they were abruptly broken off at their concealed or inner ends instead of passing into a finely attenuated extremity. Many of the robust form of spicules in the basal tuft, too, were observed to be in size out of all proportion to the size and nature of *Labaria*; besides, a few which fell out were observed to be fragments of much longer ones. Finally, by turning aside a little of the basal tuft which really belongs to the sponge, and which appeared to be twisted out of place, the end of the tuft bound round with the fibre was discovered.

I have thus noticed in detail this fraud in order that others may not be misled by similar practices; while they should be discountenanced by those who deal with the natives for such sponges, as their object is to present a saleable rather than a natural specimen, and the practice will cease when they find that the latter is most valued.

XXXI.—*On a Crustacean of the Genus Zia.*
By the Rev. THOMAS R. R. STEBBING, M.A.

THE little Crustacean represented in the accompanying figure I took last August in a ditch near Copthorn Common in Surrey. At the first glance it presents an obvious resemblance to animals of the genus *Philoscia* (Latreille), which Spence Bate and Westwood, in their standard work 'The British Sessile-eyed Crustacea,' make synonymous with Koch's genus *Zia*. They introduce their description with the following remarks:—"It is a curious circumstance that the animals of this genus, common as they are, and well described by Latreille and Zaddach, should have been unknown to Brandt, Lereboullet, and Milne-Edwards, who have affirmed that the genus ought to be re-united to *Oniscus*, whereas it is in fact more nearly allied in several respects to *Ligia*. The typical species appears to have been figured by Koch under the name of *Ligia melanocephala*, which in his generic table he subsequently altered into the generic name of *Zia*, giving, however, fifteen joints to the antennæ, the flagellum being represented as composed of ten articulations."

Upon examining my little Copthorner, I found, first of all,