

the original type. It is quite otherwise with the skeleton-spicules. Even their well-chosen name indicates that a similar significance belongs to them as to the bony framework of the Vertebrata. The skeleton-spicules of the Hexactinellida form the most conservative part of the body of these characteristic sponges. With extraordinary tenacity they stick to the fundamental type of the sexradiate; and although in the highest ramifications of the stem, the Pollakidæ, many aberrant forms are produced by reduction of the rays, they can always be referred back to the sexradiate.

[To be continued.]

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XXXV.—On some new and little-known Spiders from the Arctic Regions. By the Rev. O. P. CAMBRIDGE, M.A., C.M.Z.S., &c.

[Plate VIII.]

THE spiders comprised in the following notes have been received at various times during the last few years:—two from Spitzbergen, from the Rev. A. E. Eaton; others from Mr. E. Whymper, from North Greenland; and, more lately, those found by Capt. H. W. Feilden and Dr. Hart during the Arctic Expedition in search of the North Pole, in the years 1875–76.

Descriptions and notes of four of the species received from Mr. E. Whymper in 1870 (two of them, *Erigone Whymperi* and *Dictyna borealis*, being considered new to science) were printed about six or seven years ago; but their publication, as part of an intended faunistic work on North Greenland, appears to have been postponed *sine die*. Of the thirteen species here recorded, five belong to the genus *Erigone*, Sav., two to *Linyphia*, two to *Lycosa*, and one each to the genera *Dictyna*, *Tegenaria*, *Thanatus*, and *Tarentula*. Three species of *Erigone*, one of *Linyphia*, the *Tegenaria*, *Dictyna*, and *Tarentula* appear to be undescribed.

#### ARANEIDEA.

##### Fam. Dictynides.

##### Gen. DICTYNA, Sund.

*Dictyna borealis*, sp. n. Pl. VIII. fig. 1.

Adult female, length  $1\frac{1}{2}$  line, length of the cephalothorax  $\frac{3}{4}$  line; relative length of the legs 1, 2?, 4, 3.



*Cephalothorax* yellow-brown, the sides and hinder part being strongly suffused with blackish brown, leaving a short, broad, longitudinal, central, yellow-brown band on the fore part of the upperside; this band is a little constricted near the middle, and has two dusky longitudinal lines on its fore part; the normal grooves and indentations are perceptibly, but not strongly, marked; the caput is rounded above, highest behind the eyes, and slopes gradually on all sides. The whole cephalothorax is more or less clothed with greyish and yellowish hairs, disposed somewhat in longitudinal lines on the upperside forwards, and becoming rather bristly near and below the eyes. The clypeus is low, its height being less than half that of the facial space; it is a little prominent and rather upturned at its lower margin.

The *eyes* are disposed in two transverse rows curved away from each other (*i. e.* the foremost row has its convexity directed forwards, and the hinder row backwards); or they may also be described as in four pairs; those of each lateral pair are contiguous to each other and seated obliquely on a small tubercle; the foremost eyes of these pairs appear to be the largest of the eight, and those of the fore central pairs the smallest; the intervals between the four eyes which form the front row are as nearly as possible equal, while the two hind central eyes are a little further from each other than each is from the end one on its side. The four central eyes form a square whose foremost side is the shortest.

The *legs* are rather paler in colour than the cephalothorax, and broadly, but obscurely, banded with dusky brown; they are strong, but not very long; those of the first pair are the longest, those of the second are very little, if at all, longer than those of the fourth, and the third pair are the shortest; they are furnished with hairs only; each tarsus ends with three claws; and there is, no doubt, a "calamistrum" on the outer side of each of the metatarsi of the fourth pair; though this portion of the only remaining leg of the fourth pair in the example described had been denuded of its armature, and the calamistrum could not, therefore, be seen.

The *palpi* are short, and similar to the legs in colour and armature, the digital joints terminating with a small black curved claw.

The *falces* are rather long, very strong at their bases, and (when looked at in front) curved, the convexities of the curves directed outwards; their colour is yellow-brown, and they are furnished with greyish yellow bristly hairs; the fang is small and rather weak.

The *maxillæ* are rather long, strong, and greatly inclined



towards the labium, over which their extremities almost meet; they are also slightly curved, enlarged, and rounded on their outer sides towards their extremity.

The *labium* is of a subtriangular form, truncated at the apex, the width at the middle being, however, rather greater than at the base.

The *sternum* is oval, pointed behind, of a yellow-brown colour, margined with black, and with an indistinct blackish central longitudinal marking.

The *abdomen* is oval, very convex above, and projects moderately over the base of the cephalothorax; its ground-colour is dull yellowish, clothed rather thickly with short greyish hairs; the central longitudinal line of the upperside is occupied by a long dark band, broadest in the middle, with angular points on its sides, and pointed both at the fore margin of the abdomen and just above the spinners, where it ends. The fore part of the band is black, the rest dark yellow-brown margined with black (the margins differing in breadth and intensity) and comprising indistinctly the ordinary transverse angular lines or chevrons in its area. The rest of the upper surface is thinly speckled with black; and the sides are marked with blackish and somewhat oblique lines and markings; the underside is similar in colour to the upper, and has a central longitudinal blackish line, with another, broken and less conspicuous, on each side. The spinners are short and strong; and at the base, immediately in front of the two inferior ones, is the transverse inframaxillary organ always found correlated (at least in the female sex) with the calamistra of the metatarsi of the fourth pair of legs.

A single example taken in July 1867 near the Illartlek glacier, North Greenland, was received from Mr. E. Whymper in 1870. It is closely allied to, but, I think, distinct from, *Dictyna hamifera*, another Arctic spider, described by Dr. T. Thorell in 1872.

#### Fam. Agelenides.

#### Gen. TEGENARIA, Latr.

#### *Tegenaria detestabilis*, sp. n.

Adult female, length  $3\frac{3}{4}$  lines.

This spider is very closely allied to *T. Derhamii*, Scop., resembling it in general form and structure; it is, however, smaller, paler in colour, and the falcies are not prominent at their base in front as in that species.

The whole spider is of a pale dull brownish yellow colour,



the cephalothorax being rather the darkest. The markings on the abdomen appear to be of the same character as those of *T. Derhamii*; but they were almost obsolete, being only visible just above the spinners. The palpi and legs are furnished with numerous long hairs and some long, but not very strong, spines; the abdomen also is clothed with numerous long coarse hairs.

The only example examined had been damaged by an attempt at preservation in turpentine, whereby the eyes were too much concealed to admit of any critical examination; they appeared, however, to resemble very nearly those of the species before mentioned. For the same reason the exact form of the genital aperture was scarcely plain; but it seemed to differ decidedly from that of *T. Derhamii*. And, on the whole, I think it is of a hitherto undescribed species.

The example above described was found in Lieut. Giffard's cabin, in Dobbin Bay, on the 28th of August, 1876, during the Arctic expedition under Capt. Nares.

#### Fam. Theridiides.

#### Gen. ERIGONE, Sav.

##### *Erigone Whymperi*, sp. n. Pl. VIII. fig. 2.

Adult male, length  $1\frac{1}{4}$  line.

The cephalothorax is of a deep, shining, black-brown colour; the caput is convexly elevated, and the abdomen is of a dull but glossy black; the legs are yellow-brown, tinged with reddish brown; and the palpi are of a similar colour, the digital joint, however, is darker, and the palpal organs are deep red-brown.

This spider is very nearly allied to several others, such as *E. longipalpis*, Sund., *E. dentipalpis*, Wid., *E. atra*, Bl., *E. remota*, L. Koch, *E. arctica*, White, and *E. psychrophila*, Thor., all of which it closely resembles in form and general structure; it is, however, smaller than the last two species; but, in the absence of a lengthened series, size is scarcely to be depended upon, as I have found that several of the above species vary considerably in regard to the size of different individuals. The present may be distinguished from all those mentioned above, as well as from some others also closely allied, in several minor points of structure, and especially by the form of the radial joint of the male palpus and the structure of the palpal organs. From *E. dentipalpis*, Wid., *E. promiscua*, Camb., and *E. syriaca*, Camb., it may be separated at once by the



absence of a small tooth-like spine on the underside of the radial joint; from *E. spinosa*, Camb., it may be distinguished easily by the direction of the prominent spur beneath the fore extremity of the cubital joint; in the present species this spur has a slightly backward direction, while in *E. spinosa* it is directed strongly forwards: the same difference is also observable in *E. psychrophila*, Thor., in which the long curved form of this spur affords another remarkable distinction from *E. Whymperi*. From *E. remota* the present spider differs at a glance in the comparative shortness of the palpi, though it is perhaps more nearly allied to this species than to either of the others; while from all the above-mentioned species the form (before alluded to) of the radial joint of the palpus will readily distinguish it: this joint, slender at its junction with the cubital joint, enlarges gradually to its anterior extremity, where it is divided, or continued, into two principal lobes or projections; the longest but least strong of these is situated behind and is pointed at its extremity, of a somewhat conical or subangular form, and curved inwards towards the palpal organs; the other projection is formed by the production of the upper extremity of the joint, rather on the inner side, into a broad, strong, obtuse lobe, on the outer and upper margin of which is a prominent, somewhat angular point, which has a slenderish, slightly curved, blunt-pointed, prominent appearance from some points of view. On the outer side of the radial joint are a few black bristles, of which several form a small cluster near its outer extremity.

The digital joint is large, rounded at its base on the upper side, and gradually tapering to its extremity; it is longer than the radial joint, and comprises the palpal organs, which are well developed and complex.

The *eyes* are nearly equal in size and are rather closely grouped together; the four forming the hinder row are equidistant from each other; the two central eyes of the front row are near together but not quite contiguous to each other; each is separated from the lateral eye on its side by an interval about equal to that which divides the two hind central eyes. The four central eyes form very nearly a square, the fore side being the shortest; those of each lateral pair are almost contiguous and are situated upon a slight tubercle.

In both sexes the lateral margins of the cephalothorax are armed with tooth-like spines, those in the female being the least conspicuous; this lateral armature is usual in the males of this group, but rare, so far as I am aware, in the females. At this moment I do not remember its presence in any other species; but possibly it may exist in some other species, with



the females of which I am not acquainted. The margins of the cephalothorax in *E. spinosa* are granulose only.

This spider was received in 1870 from Mr. E. Whymper (with whose name I have connected it). It was found in two localities of North Greenland in June and August 1867, at and near Jacobshavn, among moss floating on the surface of freshwater pools near the seashore.

*Erigone arctica*. Pl. VIII. fig. 3.

*Micryphantes arcticus*, White, Sutherland's Journal, &c. ii. Appendix, p. ccx, figs. 11, 12.

I have concluded a specimen of this group, received from Spitzbergen (from the Rev. A. E. Eaton) in June 1874, to be the *Micryphantes arcticus* of Adam White (*l. c. supra*). It is very similar and very nearly allied to *E. longipalpis*, Sund., but differs from it in various slight particulars, especially in the much shorter radial joint when compared in length with the cubital; the digital joint of the palpus is also proportionally smaller; and the spider itself was rather larger than any example I have yet seen of *E. longipalpis*.

*Erigone psychrophila*. Pl. VIII. fig. 4.

*Erigone psychrophila*, Thor. Œfvers. af Kongl. Vet.-Akad. Förhandl. 1871, p. 689.

So far as a crushed specimen enables me to judge, this spider is larger than *E. longipalpis*, Sund., but closely resembles it in colours, general structure, and appearance. One very remarkable character, however, is furnished in the male by the great length and curved form of the spur beneath the fore extremity of the cubital joint of the palpus. This joint considerably exceeds in length the radial; and the spur alluded to is directed forwards, strongly curved, and tapering to a rather fine point; its length considerably exceeds that of the joint to which it is attached; and its point extends to the middle of the palpal organs, which appeared to be less complex than those of *E. longipalpis* and others. The specimen from which these notes were taken had been crushed in the process of mounting on a microscopic slide; so that possibly the apparent near contact of the extremity of the spur with the palpal organs may have arisen merely from the mode of mounting. The great length and form of the spur alluded to distinguishes this species from all others of the group as yet known.

This spider was one of those found in the late Arctic Expedition. There was, however, no note connected with



the specimen above described, indicating the exact locality of its capture; but two females, much crushed and injured in mounting, though probably of this species, were labelled  $82^{\circ} 33' N.$  lat., June 21 and 24, 1876, and perhaps this may have been also the locality in which the male was found.

Both sexes have been found in Spitzbergen, *vide* T. Thorell, *l. c. supra*.

*Erigone provocans*, sp. n. Pl. VIII. fig. 5.

Adult male, length 1 line.

The *cephalothorax* is of a short oval form, very nearly round; the lateral constrictions on the margins of the caput are scarcely perceptible, and the normal grooves and indentations are not strong. The occiput is rather gibbous, and has two or three slender erect bristles on it, but it has no distinct or abrupt elevation. The margin of the clypeus is rounded, and the height of it is about half that of the facial space. The colour of the cephalothorax is yellowish brown, the sides much suffused with a darker hue, and marked with some fine radiating lines indicating the ordinary thoracic grooves; a dark line also runs from the hind central eyes to the hinder part of the thorax, enlarging in a diamond-form at the posterior part of the occiput.

The *eyes* are very small, but in the usual general position; they form a transverse oval figure, each line being equally curved in an opposite direction. Those of the hind central pair are smallest, and separated from each other by about two eye's diameters, the interval between each of them and the lateral of the same row on its side being considerably greater. The fore centrals are contiguous to each other, and with those of the hind central pair form a short oblong figure, whose anterior side is shortest; those of each lateral pair are seated rather obliquely and contiguously on a strongish tubercle; the foremost of the lateral eyes appear to be the largest of the eight.

The *legs* are slender and tolerably long, their relative length being, as far as could be ascertained, 4, 1, 2, 3; their colour is a pale yellow-brown; and they are furnished with fine hairs and a very few slender erect bristles.

The *palpi* are similar in colour to the legs, not very long, but tolerably strong. The cubital and radial joints are very short, the latter spreading out on all sides in a sort of mushroom shape; the digital joint is of an oval form, and its length equals, or perhaps exceeds, that of the cubital and radial joints together; the palpal organs are tolerably complex,



with several curved spines and spiny processes towards their fore extremity.

The *falces* are neither very long nor strong; they are slightly divergent, and have a strong backward inclination, being also of a rather paler colour than the cephalothorax.

The *maxillæ* are very short, rather strong, and slightly inclined to the *labium*, which is also very short and broad, and, with the *sternum* (which, however, is darker), of the same colour as the cephalothorax.

The *abdomen* is of tolerable size, of a regular oval form, and projects considerably over the base of the cephalothorax; it is of a black-brown colour, probably very glossy in life, and clothed with short hairs.

The *female* is larger than the male, but resembles it in form and colours. The form of the genital aperture is simple, but characteristic.

Adults of both sexes were found during the late Arctic Expedition in latitude  $82^{\circ} 27'$  and  $82^{\circ} 33'$  in June 1876.

*Erigone vexatrix*, sp. n. Pl. VIII. fig. 6.

Adult female, length rather more than  $1\frac{1}{2}$  line.

This spider resembles *E. provocans* very closely in the profile of the cephalothorax, as well as in its colours, but, besides being much larger, the lateral marginal constrictions at the caput are distinctly marked; the eyes also differ somewhat in relative position, the intervals between those of the hinder row being equal. The *falces* are much stronger, less directed backwards, and (in profile) are considerably prominent at their base in front. The legs also are stronger, especially the femoral joints; they have more numerous slender erect bristles, and are of a clearer yellow-brown colour than those of *E. provocans*. The abdomen is oval, jet-black, glossy, clothed with coarse hairs, and projects considerably over the base of the cephalothorax. The genital aperture is of a semicircular form, situated in front of a roundish prominence.

This spider was found during the late Arctic Expedition at Discovery Bay by Dr. Hart, M.D.

Gen. LINYPHIA, Latr.

*Linyphia sobria*.

*Linyphia sobria*, Thor. Cefvers. af K. Vet.-Akad. Förh. 1871, p. 688.

An adult of each sex was received from Spitzbergen, where they were found by the Rev. A. E. Eaton and kindly sent to me in June 1874.



This species is nearly allied to *L. tenebricola*, Wid., though perhaps more nearly still to *L. leprosa*, Ohl., being larger than *L. tenebricola*; but it differs decidedly from both these species as well in the structure of the male palpal organs as in the form of the genital aperture of the female.

*Linyphia turbatrix*, sp. n.

This spider is similar in size to *L. tenebricola*, and resembles it also very nearly in colours and markings; the adult female, however, may be at once distinguished by a rather slender prominent bent process directed backwards from the larger process connected with the genital aperture.

Two adults (both females) were received in 1872 from Mr. E. Whymper, by whom they were found in North Greenland. The male is unknown to me.

Fam. Thomisides.

Gen. THANATUS (Koch).

*Thanatus formicinus* ?

*Araneus formicinus*, Clk. Aran. Suec. Stockholm, 1757.

*Aranea rhomboica*, Walck. Faun. Par. ii. p. 228, et *Thomisus rhomboicus*, Tabl. d. Ar. p. 38.

*Thomisus rhomboicus*, Hahn, Die Arachn. i. p. 111, tab. xxviii. fig. 83.

*Philodromus formicinus*, Sund. 1832, p. 229.

*Philodromus rhombiferens*, Walck. Ins. Apt. i. p. 559.

*Thanatus formicinus*, Koch, Uebers. des Ar.-Syst. i. p. 28.

An immature female of what I believe to be this species was sent to me by Mr. E. Whymper in 1870. It was found by him near Jakobshavn, North Greenland, towards the end of June. Although found in Sweden, and generally distributed throughout Europe, Western Asia, and North Africa, *Thanatus formicinus*, Clk., has never yet been recorded in the British Islands.

Dr. T. Thorell (Öfv. af K. Vet.-Akad. Förh. 1872, p. 157) describes a *Thanatus* from Disco Island, Greenland (*Thanatus arcticus*, sp. n.), with which the spider I have above recorded is perhaps identical.

Fam. Lycosides.

Gen. LYCOSA, Latr. (ad partem).

*Lycosa glacialis*.

*Lycosa glacialis*, Thor. Öfv. K. Vet.-Akad. Förh. 1872, No. 2, p. 159.

Numerous examples, some adult, but mostly immature, of



both sexes of this spider were received in 1870 and 1872 from Mr. E. Whymper, by whom they were found in various localities in North Greenland. Three examples, much shrivelled and damaged, were contained among the Arctic-Expedition Arachnids found by Capt. Feilden; but I believe them to be of this species: these were labelled "Hayes Sound, N. lat. 79°;" and two examples, one of each sex, were among those found by Dr. Hart in Discovery Bay. In the unpublished descriptions of N.-Greenland spiders, before referred to, this spider is recorded as *Lycosa septentrionalis*, Westr.; and *L. saccata*, O. Fabr. Fauna Grœnl. no. 208, is placed among its synonyms. I am, however, now convinced that these determinations are erroneous (see the next species here recorded).

The *adult male*, which was unknown to Dr. Thorell, resembles the female in general colours and characters; but the femora and tibiæ of the legs are more or less suffused and marked with dark brown. The *palpi* are strong, their colour is like that of the legs; the digital joint is large and equals in length that of the radial and cubital joints together, its colour is black-brown, and (together with the radial joint) it is pretty thickly clothed with hairs. The palpal organs are well developed; their hinder half consists of a strong, roundish, prominent, corneous lobe, surmounted by a strong, pointed, spiny process with a somewhat angular point at the middle of its fore margin: the point of this process is directed outwards; and in front of it, near the outer margin of the digital joint, are two other smaller spines, close together; one of these is strongly hooked or reaphook-shaped, the other is a small, simple, slightly curved, pointed spine; on the outer side of these is the prominent curved termination of a strong process which has its origin on the inner side of the joint. There is no claw at the extremity of the digital joint.

Both sexes of this spider may be at once recognized by the bifid termination of the ordinary central yellow stripe at the thoracic junction of the cephalothorax. This stripe has generally the form of a barbed arrow-head with its point directed backwards. The next spider, however (*Lycosa grœnlandica*, Thor.), has also a shortened central thoracic stripe, but it is less distinctly bifid than in the present species, in which the two limbs of this portion are considerably divergent. In *L. grœnlandica* also the lateral stripes on the cephalothorax are broken up into several distinctly separated markings of different sizes, while in *L. glacialis* they are continuous.



*Lycosa grænländica.*

*Lycosa grænländica*, Thor. Öfvers. af K. Vet.-Akad. Förh. 1872, No. 2, p. 157.

*Aranea saccata*, O. Fabr. Fauna Grœnl. p. 228.

Immature examples of both sexes and one adult female of this fine spider were received from Mr. E. Whymper (by whom they were taken in North Greenland) in 1872.

It is nearly allied to *L. amentata*, Clerck, but is larger and more brightly and distinctly marked, and the genital aperture is very different. From *L. glacialis* it may be easily distinguished, not only by the difference of the thoracic stripes (noted above in the description of that species), but also by its distinctly annulated legs.

This spider does not appear to have been met with during the late Arctic Expedition.

## Genus TARENTULA, Sund.

*Tarentula exasperans*, sp. n. Pl. VIII. fig. 7.

Adult male, length  $3\frac{2}{3}$  lines.

The *cephalothorax* is oval, rounded behind, and gradually narrowing to the fore extremity; the lateral constrictions at the caput are slight; and the sides are of a gradually sloping character, somewhat depressed towards the lower margins. It is of a deep black-brown colour: the central longitudinal stripe is broad and distinctly marked; it runs from the foremost of the four large eyes quite through to the hinder extremity, towards which it narrows gradually; the margins of this stripe dilate in a curved form just behind the ocular area; the inner part of this portion is marked with dark brown, the rest of the stripe being of a reddish yellow colour, and the whole of it clothed with short greyish-white hairs: the lateral stripes are very indistinct, being chiefly marked by short greyish-white hairs.

The *eyes* are in the ordinary position; the line formed by the posterior pair is longer than that of the middle pair, but not very greatly; the foremost row is the shortest; and the interval between the two central eyes is greater than that between each and the lateral eye next to it; the four large eyes form very nearly a square, its posterior side being the longest.

The *legs* are tolerably long and strong; those of the fourth (or hinder) pair are the longest, and those of the third pair the shortest; they are of a dark brown colour (the femoral joints being of the deepest hue), and are furnished with hairs, bristles, and spines: there are faint traces of annulation on the hinder



legs; but numerous short grey hairs give the prevailing tinge of colour to them all.

The *palpi* are moderate in length and strength; they are of a dark blackish brown colour and furnished with hairs and a few strong bristles, especially on the radial joint, which is equal in length to the cubital, though not quite so strong; the digital joint is not very large; it is, however, longer than the radial, but not so long as the radial and cubital joints together; the palpal organs are simple, with a short, curved, pointed, strongish spine towards the fore extremity on their outer side; the digital joint has no claw at its anterior extremity.

The *falces* are tolerably long, moderately strong, straight, conical, and a little directed backwards towards the sternum; they are of the same colour as the cephalothorax.

The *maxillæ*, *labium*, and *sternum* are of the normal form, and of a deep brown colour.

The *abdomen* is oval, broadest behind, somewhat truncated at its fore extremity, and considerably convex above, especially at the fore part; the upperside is clothed pretty densely with short grey pubescence; the normal elongate marking on the fore half is reddish yellow-brown before, but black-brown on the hinder part; it has a sharp prominent point near the middle on each side; and the hinder extremity is truncated, with its outer corners elongated in a pointed form. A longitudinal row of alternate black and greyish white spots runs from outside the termination of the anterior marking to the spinners; and within the area comprised by these two rows of markings are several short, indistinct, dark, angular bars or chevrons in a longitudinal line. The underside is dark brown, also clothed with short grey pubescence; the spinners are very short and moderately strong, the inferior pair being the shortest and strongest.

This spider, which appears to me to have been hitherto undescribed, was found by Dr. Hart, during the late Arctic Expedition, in Discovery Bay. It may be distinguished readily by the form of the central longitudinal thoracic stripe.

#### *List of Spiders.*

*Dictyna borealis*, sp. n.  
*Tegenaria detestabilis*, sp. n.  
*Erigone Whymperi*, sp. n.  
 — *arctica*, White.  
 — *psychrophila*, Thor.  
 — *provocans*, sp. n.  
 — *vexatrix*, sp. n.

*Linyphia sobria*, Thor.  
 — *turbatrix*, sp. n.  
*Thanatus formicinus*, Clerck.  
*Lycosa glacialis*, Thor.  
 — *grœnlandica*, Thor.  
*Tarentula exasperans*, sp. n.



EXPLANATION OF PLATE VIII.

- Fig. 1. *Dictyna borealis*, sp. n., ♀: *a*, profile of cephalothorax; *b*, fore part of caput and falces; *c*, *maxillæ*, *labium*, and *sternum*; *d*, spinners; *e*, natural size of spider.
- Fig. 2. *Erigone Whymperi*, sp. n., ♂: *a*, profile without legs; *b*, fore part of caput and falces; *c*, *d*, *e*, palpus of ♂ in different positions; *f*, genital aperture of ♀; *g*, natural size of spider.
- Fig. 3. *Erigone arctica*, White: *a*, left palpus of ♂, from the outer side; *b*, natural length of palpus.
- Fig. 4. *Erigone psychrophila*, Thor.: right palpus of ♂, from the inner side above.
- Fig. 5. *Erigone provocans*, sp. n.: *a*, spider, enlarged; *b*, profile without legs; *c*, left palpus, from beneath on the outer side; *d*, natural length of spider.
- Fig. 6. *Erigone vexatrix*, sp. n., ♀: *a*, spider, enlarged; *b*, profile without legs; *c*, fore part of caput and falces; *d*, genital aperture, in perspective; *e*, ditto, in front; *f*, natural length of spider.
- Fig. 7. *Tarentula exasperans*, sp. n., ♀: *a*, spider, enlarged; *b*, palpus and palpal organs; *c*, natural length of spider.

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XXXVI.—*On the Changes produced in the Siliceous Skeletons of certain Sponges by the Action of Caustic Potash.* By W. J. SOLLAS, M.A., F.G.S., formerly Scholar of St. John's College, Cambridge.

[Plate IX.]

AMONGST the various problems which have arisen in the difficult study of the sponges, that as to the exact nature of the skeletal network of such genera as *Farrea*, *Dactylocalyx*, and *Aphrocallistes* has not been one of the most easily solved.

Bowerbank, who was the first to express an opinion on the subject, regarded the vitreo-hexactinellid network as the exact representative amongst the Silicea of the horny network of the kerataceous sponges. In the latter he had previously distinguished two marked types—one in which the horny fibres are solid throughout (*Spongia officinalis*), and another in which the axis of the fibre is occupied by a hollow canal (*Verongia*). The same difference he now stated to exist amongst the siliceous-netted sponges, and upon it separated the genera *Dactylocalyx*, *Iphiteon*, and *Myliusia*, the fibres of which he regarded as solid, from certain other genera (*Kaliapsis*, *Farrea*, and *Purisiphonia*), which he considered to possess canaliculated or "fistulose" fibre. The interpretation next advanced appears to have originated with the late Dr. Gray, and was adopted with wider application by Professor Sir Wyville Thomson\*, who,

\* 'Annals and Magazine of Natural History,' February 1868, p. 114.





Pickard-Cambridge, Octavius. 1877. "On some new and little known spiders from the Arctic regions." *The Annals and magazine of natural history; zoology, botany, and geology* 20, 273–285.

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