

ARACHNIDA. *By Rev. O. P.-Cambridge, M.A., C.M.Z.S.*

(Plate XIII.)

The few examples of Arachnida found during the Transit of Venus Expedition to Kerguelen's Land, were all apparently new to science. One, indeed, at present seems to me incapable of inclusion in any previously recognised order of Arachnids. The whole collection consisted of but five species; one of Araneidea, and three of Acaridea, the fifth, being that upon which I have founded a new genus, family, and order. At first sight this delicate little Arachnid gave me the idea of being a Chelifer deprived of its forcipated palpi; but a subsequent examination with a stronger lens showed me that it possessed palpi of an entirely different character from those of the pseudo-Scorpionides; and a final scrutiny under a still higher power led to the detection of the eyes: in the number and position of these there is displayed a remarkable similarity to the Solpugidea, while there are not wanting some general indications of affinity to the Araneidea. Its small size and general appearance when alive would probably induce one to refer it to the Acaridea; but the structure of the mouth-parts, the distinct cephalothorax and abdomen, and especially the character of the eyes, seem to preclude this allocation. It is possible, however, that when the Acaridea shall be more thoroughly worked out by some future arachnologist, the present anomalous little creature may become the type of a suborder, or perhaps of only a family of that order. Meanwhile in forming a distinct order for its reception, I desire to obtain the free criticism and opinion of arachnologists* more conversant than myself with some obscure groups of Acaridea, as to its true systematic position.

The following descriptions are reprinted from the Proc. Zool. Soc. Feb. 1876, pp. 259-265; and the plate is almost the same as in op. cit. pl. xix., the difference consisting chiefly in the addition of the figures of *Tullbergia*, and the greater enlargement of some of the others.

ACARIDEA.

ACARIDES.

Torynophora.

Body oval; a slightly indented transverse line towards the fore part on the upperside appears to mark the junction of the cephalothorax and abdomen. *Mouth-*

* Dr. T. Thorell inclines to the opinion that this Arachnid is an *Acarid*.

parts almost soldered together, leaving only the short palpi and the extremities of the *falces* traceable. *Legs* 8, slender, in 4 pairs (1-2 and 3-4 on each side), 5-jointed, and terminating with two somewhat S-curved claws springing from a small supernumerary or heel-joint. *Eyes* four, in two pairs, one pair on either side of the *caput*. *Falces* armed on the underside with serrated opposed edges. *Palpi* short, strong, 4-jointed, with a single strong curved jaw-like claw springing from its base on the upperside.

Torynophora serrata. (Plate XIII., fig. 2.)

Length about · 5 mm.

This minute Acarid is of an oval form, tolerably convex above, and of a uniform pale luteous colour. From the fore part of the cephalothorax four pointed processes project, each one terminating with a very small joint, from which springs a curious clavate or spoon-shaped bristle or tag; a few with a somewhat similar tag are dispersed thinly over the upper surface of the body, which is closely wrinkled, the wrinkles taking different, but regular, directions on the different parts of the body.

The *eyes* are very minute, in two pairs, one on either side of the *caput*; those of each pair are near together but not contiguous.

The *legs* are 5-jointed, slender, and not very long; they are armed with fine spines, bristles, and hairs, and terminate with two tarsal S-shaped claws, springing from a small terminal joint, and furnished beneath with some slender prominent clavate hairs. The legs are in pairs, the first and second, and third and fourth legs on each side having their basal joints respectively contiguous to each other, as in the genus *Trombidium*, and articulated to the fore half of the lower surface of the body.

The *palpi* are short strong, 4-jointed, and to the upperside of the base of the digital joint is articulated a strong curved claw.

The *maxillæ*, *labium*, and *falces* coalesce and form a kind of suctorial apparatus, towards the fore part of which on the underside are two opposed curved saw-edged processes.

Several examples of this curious Acarid, found under stones, were contained in in the Rev. A. E. Eaton's Kerguelen's Land collection. Being so very minute and delicate, they had suffered considerably by being preserved in strong spirit.

Fig. 2. *a*, upperside, highly magnified; *b*, underside without the legs; *c*, profile; *d*, leg of first pair; *e*, extremity of tarsus of ditto; *f*, palpi; *g*, extremity of one of the cephalic projections, highly magnified; *h*, one of the clavate hairs on abdomen, highly magnified; *k*, mouth-parts on underside, highly magnified; *o*, natural length.

ACARUS.

Acarus neglectus, sp. n.

Adult female. Length one third of a line.

The body is of an oval form, broadest towards the fore part, whence it narrows quickly to the extremity of the caput.

The *Cephalothorax* is very short and coalesces with the abdomen, being scarcely traceable by a fine suture. The whole is tolerably convex above, and of a dull yellowish, whitey-brown colour, furnished with a few fine bristly hairs on the upper side, and two longish divergent tapering plumose hairs projecting horizontally from the hinder part of the abdomen.

Eyes, none.

The *palpi* and *falces* are short, but of equal length. The former are 5-jointed, the basal joint being the longest, and the latter have a strong denticulate forcipated claw.

The *legs* are short, articulated to the under side of the fore half of the body, and do not differ much in length, their relative length being apparently 4, 3, 2, 1, or 4, 3, 1, 2. They are strong, tapering, and 6-jointed, the basal joints being, apparently, soldered to the under surface of the body, and the terminal or tarsal joint is undivided; their colour is a dull yellowish brown, and they are furnished with some strong spines beneath the two last joints, as well as with a few hairs of different lengths; the longest of the latter being one or two near the extremity of each of the tarsal joints, which last terminate with a strongish sickle-shaped claw.

The genital aperture is placed just behind the basal joints of the fourth pair of legs, and consists of an elongate brown slip on a circular pale yellowish-brown patch. The basal orifice is situated just beneath the hinder extremity of the abdomen, and has the appearance of a simple brown longitudinal line.

The examples from which this description has been made were contained

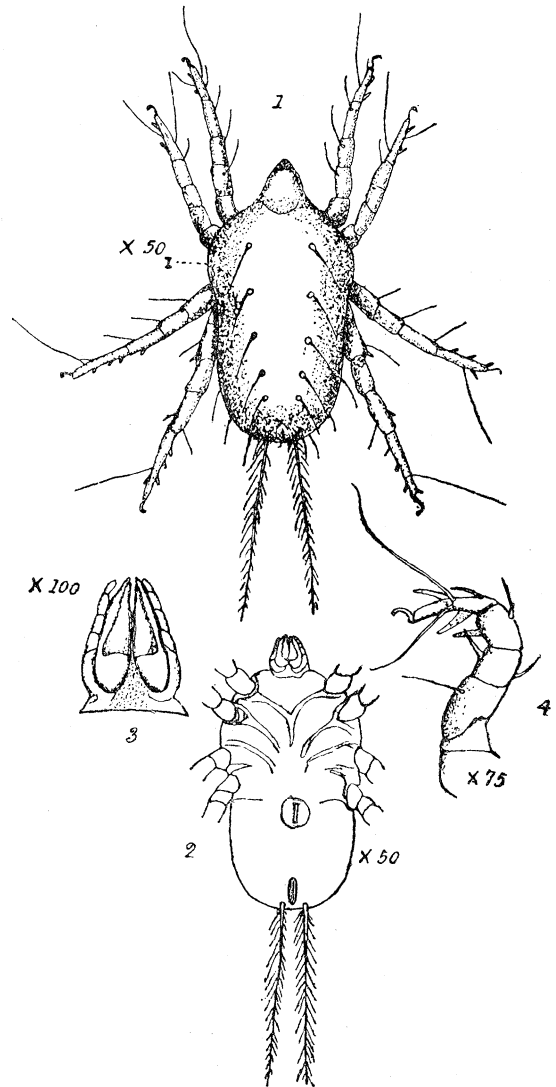


Fig. 1, from above; 2, from beneath; 3, falces and palpi beneath; 4, left leg of the second pair.

amongst a mass of fibrous web-like substance received from Mr. Eaton with the other Kerguelen Island Arachnids, but were overlooked at the time when those were described and figured in the Zoological Society's Proceedings for February 1876, pp. 259-265.

BDELLIDES.

Scirus. *C. Koch?*

Scirus pallidus. (Plate XIII., fig. 3.)

Length about 1 mm.

As far as I could ascertain from the single example contained in the Kerguelen Island collection, this small Acarid is an undescribed species of the genus *Scirus*. Its colour is a dull yellowish white, and there are a few obscure blackish markings in two parallel longitudinal lines along the upperside of the abdomen. The body and legs are furnished with a few longish pale semidiaphanous hairs. The *eyes* are in two pairs, those of each pair contiguous, and in the position indicated by the two small oval markings in figure 2 *b*. The only example received was injured by the action of the spirit in which it had been preserved, so that the exact details of its structure could not be satisfactorily observed; in the general appearance, however, of the beak-like mouth-parts there seemed to be but little difference from the genus *Bdella* and others nearly allied.

Hab.—Under stones near the lakes at Observatory Bay, in rather dry places.

Fig. 3. *a*, upperside; *b*, upperside of caput and mouth-parts, more enlarged, showing the position of the eyes; *c*, natural length.

IXODIDES.

Hyalomma, *C. Koch*.

Hyalomma puta. (Plate XIII., fig. 4.)

Length about 1.25 mm.

Body oval. *Cephalothorax* yellowish brown, strongly tinged with red on either side of its fore part and on the fore part of the caput.

Abdomen dark yellow-brown, and (as well as the cephalothorax) thinly clothed with short pale hairs; the hinder part of the abdomen is of a pale dull yellowish hue, and its margin is indented with four small elongate notches. On each side of the underpart, just behind the basal joints of the 4th pair of legs, is a roundish patch, whose surface appears to be covered with minute points, which may possibly be the plates of spiracular organs.

The *legs* are moderately long and tolerably strong, 7-jointed, the last or tarsal joint being very small; they are of a pale yellowish colour, marked underneath with patches of a bright shining orange red, and furnished with a few short hairs; each

tarsus terminates with two curved diaphanous claws springing from a small claw-joint; and beneath them is an oval sucker-like pad.

The *palpi* are five-jointed (including the basal joints or *maxillæ*); these latter are of a reddish colour and soldered to the labium; the colour of the palpi is similar to that of the legs; the terminal (or digital) joint is short and small; the next to it (or radial) is large and tumid, the other two joints short. The length of the palpi slightly exceeds that of the *falces*.

The *falces* are porrected in the form of a beak, and are armed beneath with numerous sharp hooks or teeth directed backwards.

Several examples of this Acarid were found by the Rev. A. E. Eaton on a Penguin (*Pygosceles taniatus*) in Kerguelen's Land; and he also found some on a reef of rocks between tide-marks, lurking in crevices.

Fig. 4. *a*, upperside; *b*, underside without legs; *c*, caput, palpi, and *falces*, more enlarged; *d*, natural length.

Pœcilophysidea.

External characters of the Order:—*Cephalothorax* and *abdomen* covered with a continuous epidermis of a rather slight texture, unsegmented, and united to each other throughout their whole breadth, the point of junction being clearly indicated by a traverse line or suture. *Palpi* filiform, and terminating with a single minute claw. *Legs* eight in number, their basal joints closely grouped together on the sternal surface of the cephalothorax, the tarsi terminate with two claws, between which is a slender pectinated style. *Falces* didactylous. *Maxillæ* coalescing at their base. *Labium* (properly so called) wanting. *Eyes* two.

PŒCILOPHYSIDES.

In its *general appearance* this curious little Arachnid seems to be a compound of the Spiders, Solpugids, Chelifers, and Acari. On its upperside it reminds one strongly of the Solpugidea, both in the massive *falces*, and its two eyes on a small tubercle at the fore extremity of the caput; its underside bears a strong resemblance in the *maxillæ* and *palpi* to the Araneidea; its profile resembles that of the pseudo-Scorpiones; while in its small size, continuous, delicate epidermis, and closely approximated thorax and abdomen, it shows a strong likeness to the Acaridea.

PŒCILOPHYSIS.

Eyes two, closely grouped on a small tubercle at the fore extremity of the caput, just between and above the base of the *falces*. *Falces* massive, as long as the cephalothorax, two-clawed, the upper claw fixed, the lower movable, and both curved. *Maxillæ* large, coalescing at their base, and produced at their inner extremity into a strong angularly pointed projection. *Labium* none, and *sternum* none, properly so called, the basal joints of the legs being articulated to the inferior surface of the

cephalothorax. *Abdomen* longer than the cephalothorax. A small elongate oval aperture towards the hinder part of the underside is probably the genital opening, while a still more minute orifice beneath its extremity is probably the anal aperture.

Legs moderately long and tolerably strong; they are 6-jointed, furnished with long bristles, and terminating in two S-curved claws, beneath which is a longish, slender, slightly upturned style, plumose or finely pectinated along its underside.

Palpi 4-jointed, similar to the legs in armature; the terminal (or digital) joint ends with a small hooked claw; and the bristles or hairs on it are long and plumose.

Pœcilophysis kerguelensis. (Plate XIII., fig. 5.)

Adult female. Length about .75 mm.

The *cephalothorax* is of a somewhat quadrate form, narrower before than at its junction with the abdomen; it is moderately convex above, and has a few long pale hairs or slender bristles directed forwards on its upperside; its profile line is nearly level; and the colour of the cephalothorax and abdomen is pale yellow, the legs and other parts being of a whitish hue.

The *eyes* are small, but close together near the hinder part of a small roundish tubercle or eminence, at the middle of the fore extremity of the caput.

The *legs* are 6-jointed, rather long, tolerably strong, not greatly differing in length, their relative length being 1, 4, 2, 3; they are furnished with long pale bristles; and the tarsi, which are undivided and with two claws, are curved somewhat in the form of an S; beneath them is a largish bristle or style, pectinated or plumose on its inferior side. The joints do not differ greatly in length, the first two or basal ones being the longest, and the rest nearly equal.

The *palpi* are similar, in their general armature, to the legs. The digital joint is longer than the radial, and of an ovoid form; its hairs are plumose, and the single terminal claw is sharply hooked and minute.

The *falces* are as long as the cephalothorax, very massive at the base and didactyle, the lower claw being movable and opposed to the upper one; both claws are curved, but project in the same straight line and in the same plane as the cephalothorax, which the falces equal in length.

The *maxillæ* are long, their inner extremities considerably produced into an angularly pointed form, and extending close beneath the falces, to about two-thirds of their length.

The *abdomen*, looked at in profile, is higher and more convex than the cephalothorax, and about double its length; its fore extremity is conterminous in its breadth with the cephalothorax, but is constricted laterally near the middle, the hinder extremity being rounded and obtuse; its upper surface is furnished with a few long pale hairs or bristles.

Several examples of this minute but most interesting Arachnid were found under stones in Kerguelen's Land by Mr. Eaton. Unfortunately, from their extreme

delicacy and small size, they had suffered severely from the action of the strong spirit in which they were immersed.

Fig. 4. *a*, upperside; *b*, profile without legs or palpi; *c*, extremity of tarsus of leg of second pair; *d*, digital joint of palpus; *e*, portion of falces and maxillæ in profile; *f*, natural length.

ARANEIDEA.

AGELENIDES.

Myro.

Cephalothorax oval, roundly truncated before, and moderately constricted on its lateral margins at the caput. Upper convexity moderate; profile-line slopes very gradually in a slightly curved line from the hinder slope to the ocular region; clypeus unusually narrow, almost obsolete. Spinners short, those of the inferior pair longest and strongest. *Eyes* eight, unequal in size and forming a rather large and somewhat oval area, enclosed by two longitudinal curved rows of three eyes each; the curves directed from each other; within this area, and towards its fore part, are two minute eyes near together in a transverse line. *Legs* not greatly different in relative length, which is 4, 1, 2, 3. Each tarsus terminates with three claws. *Maxillæ* large, curved towards the labium, much and roundly protuberant on the outer sides towards their extremity, which is rather obliquely truncated; the palpi issue from unusually near their lower extremities. *Labium* rather more than half the length of the maxillæ, very difficult to be seen clearly; but its form is apparently oblong, slightly rounded at the apex.

Myro kerguelensis. (Plate XIII., fig. 6.)

Adult male. Length nearly 4·7 mm.

The *cephalothorax* is of a yellow brown colour, the margins surrounded with a fine black line; the normal grooves and indentations are well marked, and suffused with dusky black, giving the thorax somewhat the appearance of radiating markings; the ocular region is furnished with some bristly black hairs; and some longer and finer ones are distributed along the central longitudinal line to the hinder slope.

The *eyes* are unequal in size, and form a largish hexagonal area on the fore part of the caput close to its fore margin; they may be described either as in two longitudinal curved rows of three eyes each, with two minute ones in a transverse line towards the fore extremity of the enclosed area, or as four pairs, a hinder pair, two fore lateral pairs, and a fore central pair; those of the hinder pair are separated by an interval of an eye's diameter, and each is also divided by an equal interval from the hinder eye of the lateral pair on its side; the eyes of each lateral pair are separated by a slight interval, not exceeding half the diameter of one of the fore

central eyes; the hind laterals are the largest of the eight; and the interval between the fore laterals is equal to about $1\frac{1}{2}$ diameter; the interval between the eyes of the fore central pair is equal to a diameter, the distance of each from the fore lateral on its side being rather greater; and that of each from the hind lateral is equal to the diameter of the latter; the interval between the fore lateral eyes and the fore margin of the caput is very slight indeed, being less than the diameter of one of the central eyes.

The *legs* are moderately long and strong; their relative length does not differ greatly, being 4, 1, 2, 3. They are of a brownish yellow colour, faintly and imperfectly annulated with dusky brown; the annulations are scarcely perceptible in some examples. They are furnished with spines, bristles, and hairs, some of the latter being at right angles to the different joints; each tarsus terminates with three curved claws, of which the inferior is much the smallest, and sharply bent downwards.

The *palpi* are similar in colour to the legs; furnished with hairs and a few bristles, and of moderate length and strength. The cubital joint is short and bent; the radial is slightly longer and spreads out gradually on its outer side into a somewhat irregularly shaped, prominent, but not very large apophysis at its fore extremity; the digital joint is long and rather narrow, similar in form to that of some species of *Tegegnaria*; the palpal organs are simple, and have a long curved filiform spine connected with them, and by which they are very nearly encircled; this spine issues from the base of the palpal organs, and curving first round their inner margin terminates on the opposite side.

The *falces* are long, strong, and vertical, prominent near their base in front, and similar in colour to the cephalothorax.

The *maxillæ* are similar in colour to the falces; their form has been already described above.

The *labium* has also been described. Its colour is dark blackish brown.

The *sternum* is heart-shaped, similar in colour to the legs, and furnished with hairs.

The *abdomen* is oval, moderately convex above, and does not project greatly over the base of the cephalothorax. It is clothed with hairs, some on the fore part of the upperside being prominent and of a bristly nature. Its colour is brownish yellow mixed with brown and black, a tolerably distinct pattern being visible on the upperside; that on the fore half consists of two longitudinal curved rows, each of three irregular yellowish spots, followed (on the hinder half) by a series of alternate yellowish and black angular bars or chevrons, the angles directed forwards; or the hinder half may be described as of a yellowish colour marked with a series of four or six black angular bars, which diminish in size towards the spinners; the underside of the abdomen is of a uniform blackish brown colour with an indistinct pale longitudinal line on either side.

The spinners of the inferior pair are strong but short, though longer than those of the superior pair.

The *female* resembles the male in general colour and markings; the sides of the abdomen, however, on the hinder half are paler than those of the male, and are marked with two differently sized oblique irregular blackish markings; the genital aperture is simple, but of a distinctive form.

Eight males and one female were received from the Rev. A. E. Eaton, by whom they were found on Kerguelen's Land under stones, and running also at times on the ground.

This spider (as above observed), the only one found on the island, is of great interest, being unmistakably allied to *Tegenaria* and *Agelena*, though quite distinct from both.

Fig. 5. *a*, upperside; *b*, fore part of caput and falces, from the front, showing the position of the eyes; *c*, profile; *d*, maxillæ and labium; *e*, *g*, left palpus in two positions; *h*, genital aperture (♀); *f*, natural length.

