

XX. *Thysanuræ Hibernicæ, or Descriptions of such Species of Spring-tailed Insects (Podura and Lepisma, Linn.,) as have been observed in Ireland; by R. TEMPLETON, Esq., R.A., Corr. Member of the Natural History Society of Belfast: with Introductory Observations upon the Order, by J. O. WESTWOOD, F.L.S. &c.*

[Read June 2, and July 7, 1834.]

Introductory Observations upon the Thysanura, by J. O. WESTWOOD.

MY friend Robert Templeton, Esq., previously to his departure from England, placed in my hands, for the purpose of its being submitted to the Entomological Society, the following paper, containing descriptions of various species of Thysanurous insects which he had observed in Ireland, accompanied by numerous figures, allowing me to make such additional remarks thereon as appeared serviceable by way of introduction.

If we look at the *Thysanura* merely as an order of animals whose characters and distinctive peculiarities have hitherto been greatly neglected, the attempt to investigate their structure and specific differences could not fail to meet with approval; but there are other circumstances which render the group of insects in question more especially worthy of attention. Firstly, from the rank which they hold amongst annulose beings, being one of those *questiones veratæ* which it is most desirable should be set at rest, and which it is natural to suppose can only be done by a series of minute investigations: thus, whilst Latreille and Leach consider these animals as true insects, Mr. MacLeay removes them far asunder, and places them with the Centipedes, Worms, and Lice in his class *Ametabola*.

In the next place, these insects offer a very valuable field of inquiry from the great modification which the various parts of the mouth undergo in the different groups, and which, when thoroughly investigated, may perhaps lead to the solution of those interesting questions respecting the real analogies of the parts of the mouth amongst the *Myriapoda*, *Arachnida*, and *Crustacea*, respecting which at present scarcely any two entomologists are agreed.

In some of these animals we find a development of the trophi as great as in some of the most perfect of mandibulated insects; whilst in others the mouth is so obscurely organized that neither Latreille nor Savigny has been able to trace its formation.

Other portions of the structure of these insects are not less interesting. The simple construction of the eyes, formed of a few ocelli alone in some of these insects, as in the *Iulidæ*, whilst in others they are short and perfectly reticulated;—the composition of the body, as in the typical *Annulosa*; but more especially the beautiful scales with which the body is covered, and the singular apparatus with which the tail is furnished, whereby the insect is enabled to leap to very considerable distances, and especially the peculiar organs with which the underside of the abdominal segments are furnished, and which being evidently the analogues of the false legs of the *Scolopendra*, prove the near approach made by these animals to the *Myriapoda*,—all deserve notice; but a more important peculiarity exists in the apparent want of spiracles along the sides of the body, and which Latreille, notwithstanding a very minute examination, was unable to discover.

There is still another circumstance which renders these insects especially interesting to the naturalist in general, resulting from those principles of natural arrangement which Mr. MacLeay has laid down in the 'Horæ Entomologicæ'. Thus, if we consider those annulose animals which are the least perfectly organized as forming a distinct class, containing within itself types not only of the other great divisions of the class, but also of each of the various subdivisions, we shall find the *Thysanura* holding an important place with respect to the distribution of the *Annulosa* in general. Thus they have been regarded by Mr. MacLeay as determining the situation of the *Orthoptera* amongst mandibulated insects, and of the *Amphipoda* amongst the *Crustacea*, on account of the saltatorial powers possessed in common by these different groups, and the setiform appendages of the tail. So in the groups into which the different orders are divided, *Ichneumon*, *Gryllus*, *Perla*, *Tenthredo*, and *Panorpa* are placed in analogous connexion, on account of the caudal appendages which they possess in common with the *Thysanura*.

In like manner, in the distribution of the *Coleoptera* into five groups, one of them is regarded as analogically representing the *Thysanura*, on account of the abdominal appendages of the body, although this group is but very slightly defined; whilst in the *Lepidoptera* Dr. Horsfield, by applying the same principles, has considered such genera as *Apatura*, *Paphia*, *Hipparchia*, &c. as analogically representing the *Thysanura*, especially in consequence of the two very strongly marked lengthened filiform or spinous appendages with which the abdomen of the larvæ is furnished.

And the same principle has been carried to a still further extent by Mr. Swainson in his 'Zoological Illustrations,' in which work it is

to be observed that the name of the order is invariably misspelt *Thrysanura*.

We are indebted to Latreille for a very valuable memoir upon this order, published last year in the first volume of the 'Nouvelles Annales du Muséum d'Histoire Naturelle', in which the most ample details are given relative to the structure of the different groups. He has not, however, given descriptions of the numerous species of the *Po-duridæ*. This blank has in part been filled up by Mr. Templeton.

It is to be regretted that even in this small group confusion has arisen in the nomenclature of the genera, resulting, as is so repeatedly the case, from proper regard being neglected to be paid to those particular species which constitute the types of the genera as originally constituted.

It is evident that the *Forbicina* of Aldrovandus was intended for the *Lepisma saccharina* of Linnæus. Geoffroy, although aware of this, sunk the Linnæan generic name *Lepisma*, and adopted that of *Forbicina*, adding a second species, *la Forbicine cylindrique*. Latreille, adopting the Linnæan name of *Lepisma* for the *saccharina*, properly considered that as *Forbicina* was evidently synonymous therewith, it would be improper to employ it even for Geoffroy's second species, to which he accordingly gave the name of *Machilis*. He, however, referred Geoffroy's species to the *Lepisma polypoda* of Linnæus, a step which, from the description of Dr. Leach, would appear to be incorrect. The last-named author, by sinking Latreille's name of *Machilis* and adopting Geoffroy's *Forbicina*, acted, as it seems to me, neither with correctness nor respect to his friend Latreille. He described the genus as having the antennæ shorter than the body, giving the *Lepisma polypoda* of Linnæus, and yet gave as synonymous the *cylindrique* of Geoffroy, who expressly says that these organs are longer than the body.

He likewise established another genus, *Petrobius*, upon a species found upon our coasts.

Latreille, however, in the memoir above noticed, considered the latter as not sufficiently distinguished from the other species of *Machilis*, which he divided into two sections: 1st, with antennæ longer than the body, including the *Forbicine cylindrique* of Geoffroy, under the new name of *Machilis annulicornis*, and the *Petrobius maritimus* of Leach; and, 2ndly, those with antennæ shorter than the body, including the species figured in his 'Genera Crustaceorum', and which he regards as the *Forbicina polypoda* of Leach, but doubts whether it be the *polypoda* of Linnæus*.

* I had hoped to have been enabled to clear up this doubt by an examination of the Linnæan specimens; but notwithstanding a careful and repeated search through

For want of specimens I have been unable to make such a minute examination of these insects as would enable me to speak upon the propriety of Latreille's entirely sinking the *Petrobius* of Leach; but I may be allowed to observe, that the littoral habits of that group seem to give it as great a claim to be considered distinct from the others, as that which separates the *Nebriæ* and *Helobiæ*, or *Bledius* and *Hesperophilus* amongst the *Coleoptera*.

Descriptions of the Irish Species of Thysanura,
by R. TEMPLETON, Esq.

INSECTA.—AMETABOLIA, *Leach*.

THYSANURA, *Leach*.

LEPISMADE, *Leach*.

LEPISMA, *Linn*.

Sp. 1. SACCHARINA, *Linn*.

Common, *John Templeton*.

FORBICINA, *Geoff*.

Sp. 1. POLYPODA, *Linn*.

Plate XI. Fig. 1.

Very common in dry stone ditches and mossy places.

Fig 1. Outline of the animal magnified. 1a. Head seen in front. 1b. Superiorly. 1c. Antenna. 1d. Last joint of the palpus. 1e. The fore leg. 1f. The hind foot. 1g. Jaws, which are very thin and membranous. 1h. Inside, showing the auxiliary legs; the back is placed to the right. 1i. The auxiliary foot, with which it ascertains the presence of the object against which the tail is adressed. 1k. A scale, much magnified, to show the lines producing the iridescence, from 9,000 to 11,000 in an inch.

PETROBIUS, *Leach*.

Sp. 1. MARITIMUS, *Leach*.

Common everywhere on our rocky shores.

PODURADE, *Leach*.

ORCHESELLA, *n. g.*

Antennæ 6- or 7-jointed, nearly as long as the body, filiform; *fork* developed.

the Linnæan cabinet, I have not been able to find a single species of the order. Mr. Templeton's species, which he names *polypoda*, enters into the second section, and is evidently identical with Dr. Leach's *polypoda*.

Sp. 1. ORCHESELLA FILICORNIS.

Plate XI. Fig. 2.

Head globular, a little flattened at the sides, black, a brownish patch posteriorly on the vertex and towards the neck. First 4 joints of the *antennæ* with black bases and white tips; 5th dark brown towards the apex, remaining joints pale, long, subequal, with minute hairs. *Thoracic rings* very hairy or spiny, especially towards the neck, including between the brownish green centres and the black margins irregular white maculæ. *Abdominal rings* not as hairy as the preceding; 1st pale greenish posteriorly, edges black, and parallel black lines at the anterior angles; 2nd jet black, except at the extreme lateral margins, and a narrow pale line posteriorly; 3rd pale, with a black square macula and two included white specks; 4th black, a triangular green space posteriorly, last ring green. *Legs* pale greenish, annulated with black.

Length 0·16 inch.

Common at Cranmore.

The young have the maculæ brownish, and often interrupted.

Fig. 2. Insect magnified. 2a. Left antenna.

Sp. 2. ORCHESELLA CINCTA (*vaga*, Fab.?).

Plate XI. Fig. 3.

Head globular, proportionably larger than in the preceding species; 1st, 2nd, and 3rd joints of the *antennæ* dark brown at the base, white at the apex; 4th intensely black, remaining joints reddish brown basally, with minute white apices. *Thoracic rings* intensely black, inclosing on each side an irregular longitudinal pale greenish patch. 1st *abdominal ring* pale greenish at the base, white at the apex, not so dilated as in the preceding species; 2nd and following *rings* intensely black, shining; *fork* white. *Legs* pale, annulated with brown.

Length 0·15 inch.

A few specimens at Cranmore.

Fig. 3. Insect magnified.

PODURA, Linn.

Antennæ 4- or 5-jointed, longer than the head; *fork* developed.

Sp. 1. PODURA PLUMBEA, Linn.

Plate XI. Fig. 4.

Body elongate cylindrical, thickly covered with purplish-blue scales,

which when detached exposed the surface, of a golden yellow colour. *Head* subtriangular; cephalic joints of the *antennæ* blackish, with yellow apices; last two joints livid, densely covered with minute whitish hairs. A dense row of strong whitish hairs directed forwards encircles the neck; others are found irregularly scattered over the thoracic and abdominal rings; a tuft at the apex; beneath pale brownish. *Legs* yellow; *tarsi* pale translucent, of last pair purplish red.

Length 0·14 inch.

Extremely common.

Fig. 4. The insect magnified. 4a. Left antenna. 4b. Configuration of the left eyes. 4c. Represents the mouth; x, the positions of the antennæ; +, a cylindric ring, moveable, and inclosing the manducatory organs; °, the labium, transverse, striated longitudinally in the middle, and with a minute hemispheric tubercle laterally, closely adpressed against ° in the state of rest. 4d. The labrum fimbriated at its apex along the diameters of two convex semicircles placed on the basal part of the lip °. There is no appearance of lateral pieces internally, or anything resembling maxillæ. These lips are moved to and fro with considerable rapidity, but seem to have little prehensile power, as they were unable to seize upon the minute hairs of the sable pencil which I passed into the mouth. A singular apparatus is protruded from the 1st abdominal ring beneath, which will be noticed under *Podura stagnorum*: it is common to all the *Poduræ*.

Sp. 2. *PODURA NITIDA*.

Plate XI. Fig. 5.

Body obovate, smooth, shining; *head* globular, a little produced anteriorly; *eyes* reddish brown. *Thoracic* and *abdominal rings* pale, with innumerable reddish brown streaks and spots, especially basally, and two or three strong hairs in the middle, a collar of similar hairs encircling the neck, and minute ones over the whole body. *Antennæ* and *legs* pellucid.

Length 0·09 inch.

Common at Cranmore in the grove.

Fig. 5. Insect magnified. 5a. Antenna of left side.

Sp. 3. *PODURA NIGRO-MACULATA* (*minuta*, Fab.?).

Plate XI. Fig. 6.

Body obovate, greenish or yellow, pale; *head* small, subtriangular, with a jet black fascia anteriorly including the eyes. *Posterior thoracic rings* a little mottled at the sides; *abdominal rings*, 1st and 2nd with a triangular black macula laterally near the apex; 3rd scutiform, large, broad, on each side of the middle

line a tripod, arising at the apex and directed forwards; 4th ring with its anterior angles black; last minute, immaculate.

Legs and *antennæ* pellucid, covered with minute hairs.

Length 0·06 to 0·08 inch.

Extremely common in the garden at Cranmore.

Fig. 6. Insect magnified. 6a. Antenna of left side, seen in profile.

Sp. 4. *PODURA ALBO-CINCTA.*

Plate XII. Fig. 1.

Body oval, black, covered with long hoary hairs. *Head* subglobular, rather large, whitish, a little obscured anteriorly. 2nd *thoracic ring* with its apical half white; 3rd *abdominal ring* with its basal half white. *Antennæ* and *legs* pellucid.

Length 0·04 inch.

Not uncommon at Cranmore, beneath tiles.

Fig. 1. Insect magnified. 1a. Antenna of left side.

Sp. 5. *PODURA CINGULA.*

Plate XII. Fig. 2.

Body cylindric, greenish, with brown sides. *Head* subglobular, truncate, posteriorly brown; *eyes* black. 2nd *abdominal ring* with a black base, the apical half white, shining. *Legs* and *antennæ* pale brown.

Length 0·05 inch.

A few specimens under a brick at Cranmore. This species will at some future period form the type of another subgenus.

Fig. 2. Insect magnified. 2a. Antennæ, the 1st joint extremely large.
2b. The profile of the fork. 2c. A leg. 2d. Tarsus and claws.

Sp. 6. *PODURA FULIGINOSA (grisea, Deg.?)*.

Plate XII. Fig. 3.

Body subcylindric, greenish black. *Head* subtriangular. *Antennæ* not much longer than the head; joints nearly equal. 1st *thoracic ring* much larger than the succeeding; 3rd *abdominal* also very large; a black line down the middle of the back. *Legs* short, tapering, pale greenish.

Length 0·05 inch.

A few specimens at Cranmore, under the bark of a rotting tree.

Fig. 1. Animal magnified.

Sp. 7. *PODURA STAGNORUM*.

Plate XII. Fig. 4.

Body elongate obovate, pale. *Head* ovate; *eyes* black. *Antennæ* not much longer than the head. *Thoracic* and *abdominal rings* equal in length, pale, with a greenish transverse fascia occupying the posterior half of each ring, interrupted in the middle, an elongate triangle, with its base at the apex of each ring, occupying that part.

Length 0·05 inch.

In some varieties a double row of black points down the back.

Extremely common at Cranmore, on the surface of little pools of stagnant water. March 1808.

Fig. 4. Animal magnified. 4a. The antennæ. 4b. Leg. 4c. The 1st and 2nd abdominal rings beneath, to show the position occupied by a singular erectile body, which is seen in profile when fully distended at fig. 4d. The animal has the capability of jutting this out at pleasure; and in some species its head is swollen beyond the dimensions of the peduncle, and stands up between the extremities of the fork, so as to lead me at first to suppose that it was useful in the springing of the little animal, but I now believe it to be the external sexual organ; when retracting, the head is first drawn in, then each portion successively, leaving ultimately a little depression in the ring.

ACHORUTES, n. g.

Antennæ 4-jointed, shorter than the head; *fork* obsolete.

Sp. 1. *ACHORUTES DUBIUS*.

Plate XII. Fig. 5.

Body subcylindrical, purplish black, shining; *wings* tuberculate and with scattered spines. *Head* large, subtriangular, truncate anteriorly; *eyes* remote from the base of the antennæ, which have the two first joints very short, the succeeding long and not much contracted. *Apex* of the *abdomen* ending obtusely.

Length 0·03 inch.

At Cranmore, on water. It cannot leap. Can it be the young of *P. aquatica*, Linn. ?*

Fig. 5. Animal magnified. 5a. Antenna. 5b. Under surface of the abdomen, showing the obsolete fork and the erectile process.

* *Podura aquatica* is common enough in Ireland. I had not, however, an opportunity of examining it attentively before I left Cranmore; but I should have placed it under *Achorutes* as a third Irish species, had I not been startled by the description given by Lamarck, *An. sans Verteb.* vol. v. p. 21, "P. nigra, aquatica; antennis corporis sublongitudine"; and by the remembrance of the ease with which it leaps.

Sp. 2. *ACHORUTES MUSCORUM.*

Plate XII. Fig. 6.

Body subcylindrical, turned posteriorly, and ending with two mammillæ, dark purplish. *Head* short triangular; *eyes* not remote from the base of the antennæ, which are very short, and have the 1st joint very large, the succeeding successively diminishing in size; last acuminate. *Legs* pale blue. *Rings* with strong spiny hairs in rows along the back; *hairs* usually arising in pairs.

Length 0·07 inch.

At Cranmore, under a rotting stick: it moves very slowly, and cannot leap.

Fig. 6. Animal magnified. 6 a. The antennæ. 6 b. A foot.

SMYNTHURUS, Latr.

Sp. 1. *SMYNTHURUS VIRIDIS, Fabr.*

Plate XII. Fig. 7.

Head yellow, anteriorly a brown mesial fascia ending in a transverse one at the vertex; posteriorly an irregular, broad transverse fascia. *Abdomen* subglobular, green, a pale mesial line ending in a black anal macula, and having two others contiguous, anterior to which is a 4-angular lightish patch, anteriorly bounded by irregular patches, ending in a dark transverse fascia; laterally dark green, mottled; near the neck two irregular transverse fasciæ, interrupted in the middle. *Antennæ* yellow at their base; *apex* darker brown. *Legs* pale brown, with darker coxæ.

Length 0·06 inch.

Common at Cranmore among plum-tree leaves which have fallen to the ground.

Fig. 7. Animal magnified. 7 a. The mouth.

Sp. 2. *SMYNTHURUS ATRA, Fabr.*

I have never seen more than one specimen in Ireland: it appears very common in Britain.

Sp. 3. *SMYNTHURUS SIGNATA, Fabr.*

Plate XII. Fig. 8.

Head yellow, transverse, an abbreviated brown mesial fascia; *eyes* black. *Abdomen* greenish yellow, lozenge-shaped, with three triangular brown maculæ on the sides behind the middle, their apices directed inwards; above the anus an intensely black rectangular macula, from about which stands out a tuft of white hairs. Beneath this macula a process separated by a channel, hairy, and having a ferruginous triangle in its middle line.

Antennæ yellow at the base, ferruginous at the apex. *Legs* pale, hairy, with two claws.

Length 0·06 inch.

Extremely common at Cranmore in the autumn under the fallen leaves in the grove.

Fig. 8. Animal magnified. 8 a. Profile. 8 b. Left antenna. 8 c. 1st and 2nd joints of the same antenna. 8 d. Last 2 joints (3rd and 4th) of the right antenna, showing the hairs arising in circles, and giving it the appearance of being numerously jointed, which it is not. 8 e. The tails.

XXI. *Description d'un nouveau Genre de Curculionites.*

Par M. A. CHEVROLAT, *Membre de la Soc. Ent. de France, &c.*

[Read July 7, 1834.]

Fam. CURCULIONIDÆ.

MICROXYLOBIUS,

Genus novum Curculionidum e divisione Cossonidum, Schh. ;

Character Generis.

ANTENNÆ crassæ, 10-articulatæ, ultra medium rostri insertæ; articulo 1mo (scapus) apice clavato, oculos attingente, funiculus 5 articulis; 2do conico; 3tio subtriangulari, 4—6 moniliformibus, clava ovata 4-articulata.

Rostrum capite longius, cylindricum, subarcuatum; scrobs obliqua, recta, infra oculos desinens.

Caput sub convexum, infrà gutturosum.

Oculi laterales, subdepressi, rotundati.

Thorax latitudine longior, subcylindricus, in medio perparum extensus, basi et apice truncatus circuatusque.

Scutellum nullum.

Elytra connata, subcylindrica, latescentia versus apicem, singulatim rotundata extremitate.

Pedes tot approximati; femoribus crassis inermibus; tibiis subarcuatis, apice unco recurvo armatis; articulo 1mo tarsorum conico, 2do brevi, 3tio bilobo, ultimo longo, biunguiculato.

Sp. 1. MICR. WESTWOODII.

Pl. X. Fig. 6.

Nigro-æneus, glaber; capite rostroque punctulatis, thorace con-