larvæ of *Caradrina ambigua*, an insect which had recently occurred in England in countless numbers. They were bred from ova laid by a female taken on the South Devon coast, and fed indiscriminately on low plants. Mr. M. Burr read a paper supplementary to Mr. Green's previous communication on *Dyscritina*, and definitely referred the imagos to the genus *Diplatys*, *D. longisetosa*, Westw., being a good species, and Mr. Green's new form proving to be *D. nigriceps*, Kirby. Dr. Chapman communicated a paper on the larva of *Eriocephala Allionella*, which he stated to be essentially similar to that of *E. calthella*, previously described by him.—W. F. H. Blandford, *Hon. Secretary*.

SUPPLEMENT TO "A SYNOPSIS OF BRITISH *PSYCHODIDÆ*."

BY THE REV. A. E. EATON, M.A., F.E.S.

(*Continued from* 2nd *series*, *vol.* viii, *page* 125, *June*, 1897).

Psychoda, Latreille (1796), restricted (Hal., MS.), Walker (1856).

Syn. *Psychoda*, Lat., Précis d. caract. gen. d. Ins., p. 152 (1796); [Hal., M.S.], Walk., Ins. Brit. Dipt., iii, 254 (1856); Schiner, Ins. Aust. Dipt., ii, 635 (1864); Van der Wulp, Dipt. Neerl., i, 314 (1877). *Tinearia*, *Schill. (*fide* West.). *Maruina*, F. Mül., MS., Trans. Ent. Soc. London for 1895, p. 480 (part); Etn., *op. cit.*, p. 489.

The major divisions of *Psychoda*, established *ante*, 2nd ser., vol. iv, 33, steps 7 and 7*a*, and the tabulation of species of the 1st Section, *op. cit.*, p. 129, illustrated in vol. v, pl. iv, Ps. 1—6, are here adapted for wider application.

Affinities nearest with *Pericoma*, Section III, if judged according to the distribution of the bristling hair of the wings; but in certain features of the neuration an approach is made to the 4th and 5th Sections of that genus, as may partly be inferred from the tabulation cited, and comparison of the figures. *Maruina*, because of the form of the male genitalia, is here scheduled as an additional Section of *Psychoda*, on the assumption that the neuration towards the base of the wing was inaccurately represented by Müller, and will be found conformable in its main features to that of *Psychoda*. Figures of densely hairy, undenuded wings *in situ*, have invariably overtaxed the ability of artists to illustrate with exactitude the details of neuration near the wing-roots; and in this particular the most recently published figures of *Psychodæ* are as worthless in critical value as those of Leeuwenhoek and Frisch, cited by Linné and De Geer.

Males of *Psychoda* (probably immature), with stunted antennæ are frequently met with: the beaks of joints in the flagellum not having attained their full length, cause the verticils of long hair to be

more deeply imbricate, or more widely spread, than in fully developed specimens. Flies of *Pericoma*, Section III, are liable to the same deformity.

Major Sub-Divisions of Psychoda.

A. Wing lanceolate, acuminate at the end of the præbrachial nervure, and with a shallow sinus in the posterior margin from near the anterior pobrachial to near the anal nervure; neuration, towards the base of the wing, imperfectly explored. Inferior ♂ genital appendages longer than their basis and unitemacular, as in *Ps. phalænoides*, L. Hair of the dorsum, bristling hair of the wings, and structure of ♂ antennæ unrecorded. No species* described. Syn. *Maruina*, F. Mül., MS., Trans. Ent. Soc. London for 1895, p. 480, pls. x and xi (part). Type, *M. pilosella*, *idem*, *loc. cit.* (undescribed). Refer, *op. cit.*, pp. 483–493 (1895) ..... *Psychoda*, Section O.

B. Wing ovate-lanceolate, acute at the end of the præbrachial nervure; radius forked beyond the bifurcation of the pobrachial nervure, or else the posterior radius short and free; bristling hair, in some parts of the wing, extended beyond the shortest line drawn from the end of the subcosta to the end of the anal nervure. Antennæ in both sexes liable to individual variation in the number of joints beyond the 13th, and comprised with it in the 11th or terminal, globose or ovoid, compound verticil of hair of the flagellum; when 16-jointed, the last three joints are minute, subequal to each other, and closely moniliform, without beak or apiculus; when 14-jointed, the terminal joint, smaller than the 13th, is globular and apiculate; when 15-jointed, a terminal joint of this last form is preceded by a small globular joint; 13th joint globular, with hardly any beak; 12th to 3rd joints bulbose, usually with long subfiliform beaks and globular bulbs, the latter sometimes slightly oval in the baseward joints; scape short, clad with short scales; the 2nd joint stout and globular. Hair of the flagellum arranged in eleven verticils of long hair, each involucrate at the base by a whorl of much shorter, appressed, but reversible hair, and constituting, when the beaks of the joints are long, a closely moniliform series; but short beaks cause the verticils to be wide and cupuliform. Articular appendages present from the 3rd to the 13th joint, hyaline, linear or tænoid, with seemingly thickened edges, one pair to a joint (or rarely two pairs), inserted close together at the inner base of the verticil of long hair, but widely divergent in elongate, opposed, subspiral curves of about one turn each in length, that bring them near together again towards their extremities.

B. Bristling hair present on the subcosta, ending in proximity to the wing-margin. Dorsal hair bristling on all the abdominal segments. Ovipositor rostrate, horny, exserted, but in repose erect or subreclinate, as in *Pericoma* and *Ulomyia*. Beneath the wing-base in the ♂, on the nervures bounding the basal cells, also on the margin between the

* *Psychoda nigra*, Banks, The Canadian Entomologist, xxvi, 331 (1894), judging by what is mentioned of its wings, may possibly be a *Maruina*; but this Section of *Psychoda* is unknown in Europe.

alula and the posterior fringe, and again very sparingly at the extreme bases of the costa and axillar nervures, are lanceolate or linear scales, succeeded for only a very short distance by flattened hairs; these are followed by ordinary hair. Type, *Ps. phalænoides*, L. ..

Psychoda, Section I.

b. Bristling hair wanting on the præbrachial, posterior pobrachial, and anal nervures; its endings on the others lie in the circumference of a slightly truncate, semi-ellipsoidal curve, approximate to the wing-margin, and with the ending on the cubitus directly opposite that on the anterior pobrachial, considerably beyond that on the postical.

† Inferior ♂ genital appendages distinctly longer than their basis, and uni-tenaculate; tenaculum relatively short...

Species Nos. 2—4, Brit.

†† The same appendages subequal in length to their basis, short and stout, tri-tenaculate in the British species, but uni-tenaculate in the Algerian; tenaculæ relatively long...

Species No. 1, Brit.; XVI, Alg.

bb. Bristling hair wanting on the posterior radius, præbrachial, posterior pobrachial, and anal nervures; its endings on the cubitus and anterior pobrachial distant from the margin, but on the other nervures adjacent thereto; those on the cubitus and postical directly opposite each other, and a little beyond the ending on the anterior pobrachial nervure. Inferior ♂ genital appendages very little longer than their basis, slender and uni-tenaculate; the tenaculum hardly one-fourth the length of the appendage...

Species No. 5, Brit.

B.B. Bristling hair wanting on the subcosta. Dorsal hair bristling on only the first abdominal segment, smooth on the remainder. External ♀ genitalia valvular, short and obtuse, somewhat as in *Sycorax*. Beneath the wing-base in the ♂, on the nervures bounding the anterior basal cell, and at the extreme base of the mediastinal nervure, are rather short, obovate, appressed scales; the other nervures thereabouts are clad either with flattened hairs, or with linear or acicular scales. Type, *Ps. humeralis* (Hoffmgg., MS.), Meig.... *Psychoda*, Section II.

b? Bristling hair also wanting on both branches of the radius, on the præbrachial, posterior pobrachial, and on the anal nervures; its ending on the radius conterminous with the stem, subopposite that on the cubitus, both distant from the wing-margin and far interior to its ending on the anterior pobrachial; this last is farther from the margin than the endings on the postical and axillar nervures, which approach nearer and nearer thereto. Inferior ♂ genital appendages subequal in length to their basis, stout and bi-tenaculate; the tenaculæ slender and relatively long .....Species, No. 6, Brit.

SECTION O OF PSYCHODA (*Maruina*, F. Mül., MS.).

If (as is probable) the insect be virtually unicolorous, or without wing-markings, like many species of the next Section, Müller's omission to describe the typical species is intelligible. Characters of importance, that should be recorded, are noted in the preceding tabulation, in step **A**.

SECTION I OF PSYCHODA; British species, Nos. 1—5, and Algerian, No. XVI.

Refer *ante*, 2nd ser., vol. iv, p. 33, step 7, and p. 129; also vol. v, pl. iv, Ps. 1—5 (details), and the above tabulation, steps **B**, B.

Affinities nearest with the preceding Section, but approaching the 3rd Section of *Pericoma* in the distribution of the bristling hair upon the wing; the British species scheduled *b*, †, in the tabulation of Major Sub-Divisions of *Psychoda* (just above) making a near approach to the Algerian *Pericoma*, No. X (*ante*, 2nd ser., vol. vii, p. 130, step d^2d^2); and those tabulated *b*, ††, approaching less closely *P. advena* (*loc. cit.*, step d^2). The affinity of *Psychoda* to the 5th Section of *Pericoma*, and to *Ulomyia*, in another feature, has been referred to already in connection with that Section (*ante*, 2nd ser., vol. vii, p. 120).

The species are here arranged in their revised order, but their original numbering is retained: hence the sequence Nos. 2, 3, 4, 1, and 5.

2. PSYCHODA PHALÆNOIDES, Linné.

Tipula alis deflexis cinereis ovato-lanceolatis ciliatis, Linn., Fn., Suec. [ed. i], p. 336, No. 1148 (1746).—*T. phalænoides*, *id.*, Syst. Nat. [ed. x], p. 588, No. 32 (1758); *id*, Fn. Suec. [ed. ii], p. 438, No. 1771 (1761); Müller (1764); Linn., Syst. Nat. [ed. xii], ii, 977, No. 47 (1767); Fabricius (1775, &c.); De Geer, Mém. p. serv. à l'Hist. d. Ins., vi, 422, No. 30, tab. xxvii, 6—9 (1776); *id.*, Abhandl. z. Gesch. d. Ins., vi, 158, taf. xxvii, 6—9 (1782); Retz., C. De Geer, Gen. and Sp. Ins., p. 196, No. 1297 (1783); Gmélin, Linn. Syst. Nat. [ed. xiii], i, par. v, p. 2825, No. 47 (1788); Rossi, Fn. Etrusc., p. 273 (1790); Berkenhout (1795, &c.)?; Schrank, Fn. Boica, iii, 82, No. 2349 (1803); and any other authors attributing spotless wings to the species thus named.—*T. nervosa*, Schrank, *op. cit.*, *l. c.*, No. 2350.

Bibio phalænoides, Geoff., Hist. Abrég. d. Ins., ii, 572, No. 4 (1762); Fourcroy, Ent. Paris, ii, 515, No. 4 (1785); Olivier, Encyclop. Méthod.

Psychoda muraria, Latreille, Hist. Nat. d. Crust. et Ins., xiv, 293 (1805).—*Ps. phalænoides*, Fab., Syst. Antl., p. 49 (1805); Lat. (1809, &c.); Lamarck (1816, &c.); Walker, Ins. Brit. Dipt., iii, 255 (1856); Schiner, Fn. Aust. Dipt., ii, 637 (1864); v. d. Wulp, Dipt. Neerland., i, 315 (1877); Etn., *ante*, 2nd ser., vol. iv, 129 (1893), and vol. v, pl. iv, Ps. 2 [details] (1895).—*Ps. nervosa*, Meig., Syst. Beschr. [ed. i], i, 106 (1818), and *id.* [ed. ii], i, 84 (1851); Macquart, Ins. Dipt.

Nord, France, p. 168 (1824); Haliday, Ent. Mag., i, 148 [list] (1833); Macq., Hist. Nat. Ins. Dipt. [Suites à Buffon], i, 164 (1834); Perris, Ann. d. Sc. Nat. France (2), xiii, 346—8, pl. vi, fig. B [pupa, not larv.] (1840); Rossi, Dipt. Aust., p. 6 (1848); Curt., Journ. Roy. Agricult. Soc., x, part i [No. xxiii, July], p. 103, pl. v, 47—50 [pupa] (1849); Zetterstedt, Dipt. Scand., ix, 3706 (1850).

♂. Antennæ usually 14-jointed, and, when fully developed, reaching nearly to the middle of the wing, but often stunted; in the former condition the verticils of long hair of the flagellum compose a smooth moniliform series of subspherical cupules, the open end of one cupule fitting the base of the next. Hair of head and body impure white, or whitey-brown anteriorly, but light brown from certain standpoints posteriorly. Wings in the living fly blueish ash-grey, or dove colour, the blue and reddish iridescence of the membrane mingling with the colour of the hair, which changes with posture from white to whitey-brown; wing-margin in transmitted light opaque, but otherwise concolorous with the disc; fringes shifting from satiny-white to whitey-brown or greyish when turned about, the costal fringe in suitable positions becoming dark, independently of the posterior fringe. At the base of the wing, viewed from in front, the hair of the tegulæ appears white or whitey-brown, but the "humeral tuft" arising from the thickened portion of the costa opposite the mediastinal (this thickening is sometimes piceous in dried specimens), and overlying the costal fringe thereabouts, although matching with the fringe from certain standpoints, readily shifts to dark brown or grey, and even to blackish towards the roots of the hairs. Bifurcation of the radius perhaps always interior to the end of the axillar nervure. Genital segment often inverted, probably by torsion during copulation (an accident that frequently occurs in *Pericoma exquisita*); basal joint in the superior appendages sub-cylindrical, subequal in length to the forceps-basis; apical joint subulate, very slightly curved. Inferior appendages neatly forficulate, at first very shortly convergent from their insertions and thereabouts rounded off beneath, then for a short space subparallel with each other, slightly arcuate upwards throughout, and finally gently incurved towards their tips; each of them subulate with the extreme point suddenly acute, nude dorsally, but elsewhere beset with rather long, dense, spreading hair; tenaculum exactly apical, slightly foreshortened by perspective in the cited figure; from other standpoints more slender and subspatulate, or narrowly ob-triangular and rounded off at the obtuse angle. Indumentum of legs glossed with dull satiny-white; the appressed scales narrowly linear.

♀. In dried specimens of this species the legs are usually rather darker, and the wing-neuration a little more distinct than in *Ps. albipennis*, but the body is not always more opaque; in fact, the specific identity of *Psychodæ* of this sex, unaccompanied by males from the same localities, cannot always be guessed at with certainty. The name *nervosa*, Schrank, was probably applied to worn specimens of the female.

The larvæ feed upon all sorts of decaying vegetable substances, and the geographical dispersion of this species is doubtless extensive. The flies abound in the British Islands, Haliday being the authority for Ireland, and Mr. J. J. F. X. King's collection for Scotland (Loch Maree, 1890, 4 ♂, 1 ♀). A Maltese ♀ specimen in the British

Museum (Nat. Hist.) possibly belongs here; but this is doubtful, since the species has not yet been met with in northern Africa. Faded specimens of *Ps. humeralis* in windows are liable to be mistaken for *phalænoides*, if the distribution of bristling hair on the wing be disregarded. When the wings are denuded as well as the body, a difference in the gait of the flies, and in the form of the verticils of hair of the antennæ, suffice for their distinction.

The females of *Ps. phalænoides* are common agents in the fertilization of *Arum maculatum*, L., creeping down into the spathes, often in considerable numbers, when the pollen ripens. Once at the bottom they have to remain until the sterile filaments wither and set them free. Meanwhile, through fluttering and tumbling about, they soon become miserable objects denuded of hair, and many perish. The dead are usually eaten by other insects, and by *Oniscidæ*. Where Curtis speaks of *Ps. nervosa* sometimes swarming about drains (*loc. cit.*, 1849), there may have been some confusion of the species with *Ps. sexpunctata*, seen with the naked eye.*

3. Psychoda albipennis, Zetterstedt.

Ps. albipennis, Zet., Dipt. Scand., ix, 3708 (1850); Schiner, Fn. Aust. Dipt., ii, 637 (1864); v. d. Wulp, Dipt. Neerland., i, 315 (1877); Etn., *ante*, 2nd ser., vol. iv, 130, step 3*a*, and vol. v, pl. iv, Ps. 3 (details).

Similar to *Ps. phalænoides*, but, sex for sex, on an average smaller. Easily distinguished by differences in the ♂ genitalia, illustrated in *loc. cit.* from a dried preparation; for comparison with the superior appendages of freshly killed specimens, the upper fig., Ps. 3*a*, is the best. Inferior appendages much the same as in the former species.

♀ Hardly separable, when faded, from dried specimens of *Ps. phalænoides* of this sex; but when in prime condition, newly killed, and correspondingly illuminated, the wings appear whiter; the costal fringe and the tuft of hair on the thickened portion of the base of the costa, by which the fringe thereabouts is overlain, do not, on being shifted about, assume quite so dark a grey tint as in that insect; the callus nearer the base of the costa is of a lighter colour; and the fleshy parts of the body beneath the hair are of rather a light colour, although (like the callus) often quite as dark when dried. Besides what is said about the wing-neuration in the explanation of the figures cited, given in *op. cit.*, vol. v. 27, it is noteworthy that the variations illustrated are independent of sex, and that the radial fork is sometimes as short as in the fig. Ps. 1, *loc. cit.* Both species are liable to be represented in collections of *Diptera* by females exclusively, no doubt through these being larger, and therefore easier to pin than males.

A species of wide foreign distribution, abundant in England, and

* It may be stated here, once for all, that the bibliographical references to old authors given in this article under the head of particular species are limited each to the author cited, and do not extend to his citations of earlier authorities. It would demand more space than the matter is worth, to note every instance where the synonymy of palæographic entomology is at fault.

obtained by Mr. King in Scotland (Loch Maree, 1890, 2 ♂, 13 ♀). It occurrs in Algeria, and perhaps even at the Cape of Good Hope, a ♀ of this, or of a closely allied species, now in the British Museum (Nat. Hist.), having been captured by the author in 1874 at Rondebosch, in the grounds of the Governor's country house at the foot of Table Mountain.

The larvæ feed on decaying vegetable matter; in 1894—5 the fly was reared upon rotten turnip by Mr. C. O. Waterhouse.

Psychoda degenera! Walker, List Dipt. Ins. Brit. Mus., part i, 33 (1848), described from a single ♂ from St. Martin's Falls, Albany River, Hudson's Bay, and likened to *Ps. nervosa* (*phalænoides*), approaches *Ps. albipennis* in structure of the genitalia. This indication may suffice for the identification of the species in that locality without actual comparison of specimens with the type; the description is "catalogical," and of no account, but cannot well be added to without fresh material.

Psychoda cinerea, Banks, "The Canadian Entomologist," xxvi, 331 (1894), may rank doubtfully in this Section, assuming the black colour of the scales on the tarsi to be dependent upon the direction of the light. The genitalia of the male seem from the description to have been shrivelled up by overpowerful fumes of something in the killing-bottle—a common accident that cannot be too carefully guarded against by collectors, especially in hot weather.

4. Psychoda sexpunctata, Curtis, = alternata, Say.

Tipula ‡ *phalænoides*, var., Scop., Ent. Carn., p. 324, No. 864 (1763).

‖ *Trichoptera* ‡ *phalænoides*, Meig., *Klassif. d. Zweifl., Bd. i, 43 (1804).

Psychoda ‡ *phalænoides*, *id.*, System. Beschr. [ed. i], i, 104 (1818); *id.*, *op. cit.* [ed. ii], i, 82 (1851); Macq., Ins. Dipt. Nord France, p. 116 (1824); *id.*, Hist. Nat. Ins. Dipt. [*Suites à Buffon*], i, 164, pl. iv, 12 and 13 (1834); Bouché, Naturgesch. d. Ins. [Act. Nov. Acad. L. Cæs. Nat. curios.], p. 28, tab. ii, 20 [larva and head] and 22 [pupa] (1834); Zett., Ins. Lappon., 824 (1840); *id.*, Dipt. Scand., ix, 3702 (1850); Siebke, Nyt Mag. f. Naturvid., p. 53, No. 823 (1850); Lucas, Bull. Soc. Ent. France (1885), p. xliii [habit].—*Ps. alternata*, Say, *W. Q. R., ii [Long's 2nd Exped.], p. 358 (1824); *id.* [ed. Le Coute], i, 242 (1859); ? Williston, Ent. News, iv, 114 (1893); Banks, Ca. Ent., xxvi, 330 (1894); ? Willist., Trans. Ent. Soc. London (1896), p. 283, pl. ix, 49 [wing undenuded].—*Ps. sexpunctata*, Curt. Brit. Ent., xvi, 745 (1839); Walker, Ins. Brit. Dipt., iii, 255, pl. xxvi, 1*a* to *i* [details] (1856); Schiner, Fn. Aust. Dipt., ii, 636 (1864); v. d. Wulp, Dipt. Neerl., i, 314, pl. ix, 12 and 13 [details] (1877); ! Etn., Ent. Mo. Mag., 2nd ser., iv, 130 (1893), and v, pl. iv, Ps. 4 [details] (1894).—*Ps. marginepunctata*, *Roser, *fide* Walker [*inter synon.*, *op. supra cit.*, iii, 255 (1856)].

Wings light brownish-grey, with whitish markings on the disc in the bristling hair (seen best when the wing is pointed towards the light over a dark background), and with six or seven small spots at the margin, formed of dark hairs inclined outwards, viz., a brown or blackish spot, interior to the fringe, at the end of every nervure that has bristling hair (except the mediastinal), set off by a whitish spot that marks the ending of the bristling hair; also, in or about the middle of the

wing, a transverse series of whitish spots, forming a broken zigzag fascia, commencing with one of the former whitish spots on the subcosta, and ending with that on the axillar nervure, advancing obliquely over the base of the radial fork and over the cubitus, to its salient angle on the anterior pobrachial, opposite the end of the axillar nervure, and having its re-entering angle on the postical nervure, opposite the radial bifurcation, or interior to this in the male; also a whitish spot on the axillar nervure, nearly midway between the end of the fascia and the fold of deflection. Over white paper, from certain positions, a portion of the base of the wing also appears whitish, and the ground colour of the wing shifts from light brownish-grey to light grey. When resting on a wall, in the evening, the insect is apt to appear blackish-grey. Fringes match with the prevailing tint of the wing, but readily shift to a darker tint, or reflect a lighter dull satiny gloss. The dark spots, above mentioned, at the margin are relatively small and rarely equal in size, the three at the posterior margin being usually more distinct than those at the costa, and the spot of the axillar often slightly larger and more strongly marked than either of the other two; that of the subcosta blending with some dark hair on the anterior radius, appears to be the biggest of all, but lacks sharpness of definition, and is often nebulous; and when there are only six spots instead of seven, it is usually the spot of the posterior radius which is missing. Tints of iridescence of the wing-membrane chiefly red, green, and yellow. Hair of head, antennæ, body, and legs whitish, with the same changeable tints of grey and brown as the wings; the parts underlying the hair, light coloured in life, grow darker in drying. Antennæ (usually 14-jointed) reach in the ♂ only to the base of the wing. Joints of palpi enumerated in the order of lessening length, 4, 2, 3, 1. Basal joint in the superior ♂ appendages short and moderately stout; apical joint longer, and, when dried, narrowly and acutely falcate, with a slight median dilatation. Inferior ♂ appendages similar to those of the preceding species; the limb in profile subulate-acuminate; hair dense and long; tenaculum short and slender.

Common in England in the resorts of *Trichomyia urbica* and pigsties during summer and autumn, and also at cattle-drinking places. In Algeria, abundant in all French towns, and by streams in their neighbourhood, not excepting Biskra, on the border of the Sahara; found frequently on board passenger steamers in the harbours, flying in at the port-holes. The possibility of its following commerce to different parts of the world is obvious, and may account for its occurrence in N. America, if the species described by Say, cited above, be the same as the European insect. Unless disproved on comparison of specimens from both these continents, their specific identity may be assumed on the authority of Banks's description.

1. Psychoda lucifuga (Hal., MS.), Walker.

Pericoma lucifuga, [Hal., MS.], Walker, Ins. Brit. Dipt., iii, 257 (1856).—*Psychoda lucifuga*, Verrall, List Brit. Dipt., p. 10 (1888); Etn., *ante*, 2nd ser., vol. iv, 129, step 2, and vol. v, pl. iv, Ps. 1 (detail).

Resembles *Ps. phalænoides* (2) in the colour of the wings, but may be dis-

tinguished therefrom in the net by having light brown pubescence on the thorax, through which (under a lens) the sutures appear as dark lines. Hair of the dorsum also dense and brownish. Fringe of the wing (when pointed towards the light over a dark background) light brownish, like the hair of the nervures in dried specimens; the wing-margin, from certain standpoints, defined by a dark line; when newly killed, the fringes, from certain directions, appear blackish-grey; but when shifted, the fringe of the alula and the tuft on the thickened portion of the costa by the fold of deflection become concolorous with the pubescence of the thorax. Haliday's description is good, but the markings attributed to the legs are entirely dependent upon illumination. Antennæ 15- to 16-jointed, reaching in the ♂ to about the middle of the wing. Basal joint in the superior ♂ appendages short and moderately stout, convex externally, and flattened or subconcave on the inner side; apical joint twice the length of the first, tapering from the base to a slender point, or claw-like, acuminate and obliquely decurved. Inferior ♂ appendages stout, narrowly ovoid-oblong; tenaculæ moderately divergent, equal, slender, relatively long, wiry, or very narrowly linear-cuneate.

Discovered by Haliday in Ireland at Holywood and Blarney. Abundant locally in miry places under trees, especially in wet coppices, in hilly parts of East and West Somersetshire; ascending to 1300 ft. under Dunkery Beacon. September and October.

(*To be concluded in the next No.*)

ON THE HABITS OF *LIOTHULA OMNIVORA*, FERRDAY.

BY W. W. SMITH, F.E.S.

During the last two years my boys have collected a considerable number of the case-dwelling larvæ of this interesting apterous moth. When brought home it is their custom to tie fresh twigs of wattle and willows to the end of long pieces of strong thread, and suspend them from the ceiling over the sitting room table, and attach the larval cases to them. The experiment has proved very interesting and instructive to the boys, while it has also revealed some new and hitherto unknown habits of these larvæ.

When first attached to the suspended twigs the more matured larvæ inhabiting the larger cases occasionally remain motionless, and do not commence feeding for a week or a fortnight after. When they become hungry they generally feed well, but consume very little food for their size. They generally feed all over the twigs, and occasionally reach the thread which they ascend to the ceiling, and attach their dwelling to it, or to the paper on the walls. We have had several remain crawling over the ceiling or the papered walls for a