

black, irregularly blackish cinereous towards the hind border; veins and halteres black; discal transverse vein straight, parted by nearly its length from the border, and by very much more than its length from the prebrachial transverse vein. Length of the body 2 lines; of the wings 3 lines.

Gen. DISCOMYZA, Meigen.

74. DISCOMYZA TENEBRIGUA. Mas. Nigricanti-pleca, capite piceo guttis testacea, antennis nigris basi testaceis, pectore pedibusque albis, femoribus tibiisque nigro fasciatis, alis nigricantibus apud costam nigris costa valde convexa.

*Male.* Blackish piceous, shining. Head piceous, with a testaceous dot in front; underside and pectus white. Antennæ black, shorter than the face, testaceous at the base; third joint conical; arista plumose. Abdomen not longer than the thorax. Legs white; femora and tibiae with black bands. Wings blackish, black along the costa, which is very convex; veins black; discal transverse vein straight, parted by more than its length from the border, and by nearly twice its length from the prebrachial transverse vein. Length of the body  $1\frac{1}{2}$  line; of the wings  $2\frac{1}{2}$  lines.

Descriptions of some New Species of Dipterous Insects from the Island of Salwatty, near New Guinea. By FRANCIS WALKER.

[Read March 3, 1864.]

Fam. MYCETOPHILIDÆ, Haliday.

Gen. MYCETOPHILA, Meig.

1. MYCETOPHILA OBSCURATA. Nigra, nitens, ore coxisque albidis, antennis basi flavescens, thorace subcompresso, alis cinereis apud costam nigricantibus.

Black, shining; mouth whitish; antennæ filiform, yellowish towards the base; thorax slightly compressed; legs rather long; coxæ whitish; hind tibiae with short slender spines; hind tarsi very minutely setulose. Wings dark cinereous, blackish along the costa; veins black; radial vein ending at two-thirds of the length of the wing; cubital ending at a little in front of the tip; subapical forked before the middle; subanal and anal veins distinct, the former not forked. Length of the body 2? lines; of the wings 4 lines.

The specimen here described is mutilated; it may form a new genus.

Fam. TIPULIDÆ, *Habiday*.Gen. LIMNOBIA, *Meig.*

2. LIMNOBIA FILIFORMIS. *Mas.* Lutescens, antennis nigris gracillimis corporis dimidio paulo longioribus, abdomine fasciis duabus dimidioque apicali nigris, pedibus nigris longis gracillimis, alis fasciis angustis.

*Male.* Pale luteous, shining, slender. Head and antennæ black; the latter curved upward, filiform, very slender, more than half the length of the body. Abdomen with black bands on the hind borders of the first and second segments; apical half black. Legs dark ochraceous, long, very slender; femora and tibiæ towards the tips and tarsi blackish. Wings blackish cinereous; veins black; a discal areolet; radial vein forked; first externo-medial vein not forked; one veinlet between the third externo-medial vein and the subanal vein, joining the discal areolet at a little before the middle of the latter. Length of the body  $5\frac{1}{2}$  lines; of the wings 12 lines.

Gen. PACHYRHINA, *Mæg.*

3. PACHYRHINA COLORATA. *Fam.* Lutea, palpis apice nigricantibus, antennis nigris basi luteis, thorace vittis tribus maculisque posticis quatuor nigris, abdomine fasciis tribus et triente apicali atris, femoribus anticis basi luteis, femoribus posticis lutescentibus apice nigris, alis subcinereis apice nigricantibus.

*Female.* Bright luteous. Palpi blackish towards the tips. Antennæ black, setose, luteous at the base. Thorax with three deep black stripes and with four hindward black spots; middle stripe broader in front, much longer than the others. Abdomen with three narrow deep black bands which are convex in front; apical third part deep black, chalybeous at the tip; oviduct luteous. Legs black, stout; fore femora luteous towards the base; posterior femora dingy luteous, black towards the tips. Wings slightly cinereous; tips with a blackish tinge; veins black, pale yellow at the base; stigma blackish brown. Length of the body 9 lines; of the wings 16 lines.

Gen. GYNOPLISTIA, *Westw.*

4. GYNOPLISTIA INSOLITA. *Fam.* Nigra, capite antico ferrugineo, antennis late pectinatis, abdomine fasciis quatuor apiceque luteis, femoribus luteis apice nigris, tibiis albo fasciatis, alis cinereis vitta costali nigra maculis tribus posticis nigricantibus.

*Female.* Black. Head ferruginous in front. Antennæ broadly pectinated, ferruginous at the base. Abdomen with four luteous bands on the fore borders of the segments; second band narrower than the first, broader than the third; fourth very narrow; tip and oviduct luteous. Legs stout; femora luteous, with black tips; tibiæ with a broad white band near the base. Wings cinereous, with three diffuse

tip of the wing; discal transverse vein straight, parted by one-fourth of its length from the border, and by very much more than its length from the præbrachial transverse vein.

12. *SOITA PSILOIDES*. *Mas.* Pallide lutea, tibiis anticis femoribus halteribusque pallide testaceis, alis cinereis apud venas subluridis vena transversa discali fusco nebulosa.

*Male.* Pale luteous, with black bristles. Femora and fore tibiae pale testaceous. Wings cinereous, slightly lurid along the veins; veins black, pale luteous towards the base; discal transverse vein clouded with brown hindward; halteres pale testaceous. Length of the body 5 lines; of the wings 8 lines.

Subfam. HYDROMYZIDES, *Fallén.*

Gen. NOTIPHILA, *Fallén.*

13. *NOTIPHILA ORTALIOIDES*. *Mas.* Nigra, thorace piceo tomentoso, tarsis piceis, alis nigris lituris quatuor interioribus parvis quatuorque exterioribus majoribus transversis albis.

*Male.* Black. Head and thorax with some black bristles. Eyes bare. Antennæ as long as the face; third joint linear, much longer than the second; arista plumose. Thorax with piceous tomentum. Tarsi piceous. Wings black, with eight white marks; four marks minute, near the base; four exterior, larger, transverse; discal transverse vein straight, parted by half its length from the border, and by very much more than its length from the præbrachial transverse vein. Length of the body  $1\frac{1}{2}$  line; of the wings 3 lines.

Facts relative to the Movements of Insects on Dry, Polished, Vertical Surfaces. By JOHN BLACKWALL, F.L.S.

[Read Nov. 17, 1864.]

(Abstract.)

As objections continue to be urged against the opinion that flies and other insects of various species are enabled to move on the vertical surfaces of highly polished bodies by the emission of an adhesive fluid from the numerous hair-like papillæ distributed over the inferior surface of their pulvilli, the statement of a few plain facts for the consideration of dissentients, and especially of those who still advocate the hypothesis that flies, in such instances as those referred to above, are supported in their movements mainly by the pressure of the atmosphere, may, perhaps, be deemed deserving of attention.

Without the slightest intention to undervalue the importance of microscopic researches into the organization of the parts in question, I may be permitted to remark that the careful observation of phenomena and judiciously selected and skilfully conducted experiments afford equal if not superior advantages with regard to the determination of the function they perform; and that the two methods of investigation should be pursued contemporaneously, and, as far as opportunities will admit, in combination.

Having clearly ascertained by repeated inspections of the pulvilli of flies under the microscope, both in a state of action and repose, that a vacuum cannot possibly be formed between them and smooth surfaces to which they are applied, unless the papillæ with which they are provided separately contribute to produce such an effect, it was immediately perceived that a decisive test of the truth or fallacy of this conjecture might be obtained by means of the air-pump, and the result of its application was to demonstrate, not only that flies can traverse the upright sides and the interior surface of the dome of an exhausted receiver while their physical energy is unimpaired, but also to establish the important fact that individuals occasionally remain fixed to the sides of the glass after they have entirely lost the power of locomotion, a circumstance which admits of only one explanation, namely, that an adhesive fluid is emitted from the extremity of their papillæ. The sole suggestion hitherto advanced, which has even the appearance of at all affecting the validity of the conclusion thus arrived at, is that the specific gravity of flies is so low that a very slight degree of adhesive power is sufficient to sustain them in the position they occupy; but, low as it undoubtedly is, it greatly exceeds that of atmospheric air, and it is evident that the efficiency of the adhesive agency to support them on a polished vertical surface *in vacuo*, thus conceded, must be ample to enable them to move on the glass of our windows in perfect security, under ordinary circumstances, without the adventitious aid of atmospheric pressure; the question of specific gravity, therefore, may be safely eliminated as being of no moment in any attempt to solve this interesting physiological problem.

The argument so much relied upon by opponents is, that if flies retained their position on polished vertical surfaces by means of an adhesive fluid emitted from the hair-like papillæ on the inferior surface of their pulvilli, they would, after remaining long in the situation, be unable to quit it by any muscular effort they