

five small greyish-white spots: secondaries, the costal margin, a streak in the cell, and three spots below the cell all greyish white, the inner margin of the wing irrorated with greyish-white scales; the fringes of both wings black. Underside very similar to the upperside, but with the white markings more distinct and with the base of the primaries steel-blue. The head, antennae, and tegulae bluish black, slightly metallic; the collar bright orange; thorax and abdomen black, the underside of the abdomen greyish white; the legs black on the upperside, white on the underside.—*Female* very similar to the male, but the markings larger and purer white.

Expanse, ♂ 2 $\frac{7}{10}$, ♀ 3 inches.
Hab. China, Hunan (*Mus. Druce*).

Fam. Limacodidae.

Phocodermia betis, sp. n.

Primaries reddish fawn-colour, the basal half of the wing the darkest; a pale brown line crosses the wing from the costal margin near the apex to the inner margin near the base; a narrow dark brown submarginal line extends from the apex to the anal angle; the fringe brownish fawn-colour; secondaries uniformly pale fawn-colour. Head, thorax, and abdomen fawn-colour; palpi dark brown; legs brown.

Expanse 2 $\frac{1}{2}$ inches.
Hab. China, Hunan (*Mus. Druce*).
This species is allied to *P. velutina*, Kollar.

Cania hatia, sp. n.

Primaries pale yellowish brown, darkest along the costal margin; two narrow brown lines cross the wing about the middle, extending from the costal to the inner margin: secondaries pale yellowish brown; the fringes of both wings the same colour. Head, thorax, abdomen, and legs pale brown.

Expanse 1 $\frac{1}{2}$ inch.
Hab. China, Hunan (*Mus. Druce*).

XXXVI.—*Neorophagus Diptera attracted by the Odour of Flowers.* By E. E. AUSTEN, Zoological Department, British Museum.

THE British Museum has recently received from Mr. J. H. Hart, F.L.S., Superintendent of the Botanical Department, Trinidad, W.I., a series of Diptera, accompanied by the following note:—" . . . You mentioned you would at any time be glad of Diptera. Herewith I send you a miscellaneous collection caught in a flower of *Aristolochia gigas*, var. *Sturtevantii*. This flower gives off an odour indistinguishable from that of carrion, so much so that it has on several occasions attracted the vultures of our island (*Cathartes aura*) and set our workmen hunting for dead fowls &c. The plant is an introduction, but we have a smaller and similar one, a native. I think it may be taken, therefore, that the flies will represent the carrion-flies of our district."

Unfortunately, owing to the fact that they were not sent pinned, but simply wrapped in an envelope of stout paper, which was inserted in a cardboard case for transmission, the specimens arrived in fragments; consequently the task of determination, never an easy one in the case of flies belonging to the present group, has been rendered vastly more difficult. However, so far as I have been able to make them out, the Diptera forwarded by Mr. Hart belong to the following species, which, it will be observed, are all of them true Muscidae (including Anthomyiinae):—

1. *Lucilia*, sp.
2. *Lucilia*, sp. alia. } Some half-dozen specimens of each.
3. *Comptosia macellaria*, F. Twelve specimens.
4. *Tachinina*, gen. et sp. incert. A single specimen.
5. *Musca domestica*, L. A single female.
6. *Sarcophaga*, sp. Two males, two females.
7. *Ophyra censevens*, Wied. One male, six females.

In the case of each of the species of *Lucilia* above referred to the wings are yellowish, with the apical third brown, while the antennae, face, and cheeks are orange-yellow; in one of the species, however (the larger, ranging apparently from 9 to 11 millim. in length), the frontal stripe and pleurae are also orange-yellow, while in the other and smaller species the frontal stripe, except a spot immediately above the base of the antennae, is black, and the pleurae are metallic green. In each species the greater portion of the first abdominal segment

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is yellow or orange. The larger of the two species appears to be closely allied to, if not actually conspecific with, a specimen from Mexico (*ex Coll. Sanders*), placed in the Museum collection under *Musca*, and labelled "*femorata*, W." in Walker's handwriting—therefore presumably a type. I have, however, failed to discover where this species was described. Moreover, the Museum collection already contains undetermined specimens of both of the Trinidad species of *Lucilia* from the Amazon, collected by Bates. I did not myself meet with either during a recent expedition to the Lower Amazon, but no doubt the species are widely distributed in the Neotropical Region.

Comptosia macellaria, F., the most numerously represented species in the above list, is also the most interesting, since its larvæ, known as "screw-worms" in the south and west of the United States, besides attacking various domestic animals, have frequently caused death in the human subject by their ravages in the nasal fossæ and frontal sinuses*. For this reason the species was described by Coquerel † as *Lucilia hominivoræ*, from specimens bred from larvæ the attacks of which had proved fatal to a French convict in Cayenne. According to one of Dr. Coquerel's informants similar cases are pretty common among the French convicts in Guiana, and an instance of non-fatal attack has been reported from Trinidad itself †. P. S. de Magalhães, in recording the fly as having been bred from larvæ from the nasal fossæ of the human subject at Rio de Janeiro, points out § the wide distribution of the species, which ranges from the Argentine and Chili to the southern United States of North America. I myself met with it on the Amazon and the Pará River.

The solitary Tachinid sent is a mere fragment, which it

* Cf. Ann. & Mag. Nat. Hist. ser. 5, vol. xii. (1883) pp. 353-355. † Ann. Soc. Ent. Fr. sér. 3, t. vi. (1858), pp. 171-176. See also Coquerel, Ann. Soc. Ent. Fr. sér. 3, t. vii. pp. 233-237: "Nouveaux cas de Mort produit par la *Lucilia hominivoræ*, et description de la larve de ce Diptère."

† *Vide* 'Trinidad Field Naturalists' Club,' vol. i. no. 3, Aug. 1892, pp. 59-61. See also a paper entitled "The Cattle Fly, *Comptosia macellaria*," by C. W. Meaden (*ibid.* vol. ii. no. 11, Dec. 1895, pp. 279-281), dealing with the presence of the larvæ in some places on cattle. The author states that he has never observed the fly on dead animals: this is curious, as at Mosquito, on the Pará River, I took it on a dead kid. From "Observations on the Insects of Jamaica," by William Jones (Journ. Institute of Jamaica, vol. i. no. 8, Dec. 1893, p. 372), it would appear that attacks by this fly on human beings are common enough in Jamaica, or, at any rate, were so in the earlier part of this century. § Bull. Soc. Zool. France, t. xx., 1895, p. 117.

is quite impossible to determine. Its occurrence at all in such company is difficult to understand, unless it had visited the flower as it would visit any other, since the Tachinidæ are met with on flowers and leaves, and are not necrophagous; their larvæ are well known as internal parasites of caterpillars and other insects.

I am not aware that *Musca domestica*, L., has hitherto been recorded from Trinidad, though the species is known to occur in Brazil and in Porto Rico and Guadeloupe in the Antilles. I have nowhere seen it in such swarms as in a house about two miles from Pará. It is probable that this species is now cosmopolitan, having been carried by ships all over the civilized world.

The specimens of *Sarcophaga* are in so hopeless a condition that it would be futile to attempt to determine the species, which, however, belongs to the group without the dorso-central bristles. The median of the three stripes on the thorax has a distinct narrow dark line on each side of it, and the anus of the female orange-red, and the middle and hind tibiæ of the male are clothed on the inside with long hair.

Ophyra cenesens was described by Wiedemann (Auss. zweifl. Insekten, ii. p. 435. 29) from New Orleans and has been recorded by Macquart (Dipl. Exot. 1^{er} Suppl. p. 203. 4) from Galveston, Texas. I may add that Schiner ('Fauna Austriaca,' Diptera, i. p. 620) mentions that he once found the European *Ophyra amblyra*, Mg., in countless numbers round a dead horse.

So far as I have been able to discover, no instance of necrophagous Diptera being attracted by malodorous flowers has as yet been recorded from the New World. The late Mr. C. V. Riley found the larva of a *Sarcophaga* feeding on the putrid insect-remains in the pitchers of two species of insectivorous plants—the spotted trumpet-leaf (*Sarracenia variolaris*, Michx.) and the yellow trumpet-leaf (*S. flava*, L.). Riley described the fly as *Sarcophaga sarracentæ*, but afterwards thought that it might be only a variety of the common European *S. carnaria*, L.* Here, however, the dead insects and not the flower itself had formed the attraction. But in the Old World several cases similar to the present have been described. M. Schnetzler, writing "On the part played by

* Riley, Trans. St. Louis Acad. of Nat. Sci. iii. p. 239; 'Science Gossip,' 1874, pp. 274-275, fig. 182; Canad. Ent. vi. pp. 209-214, fig. 26; Seventh Ann. Rep. Ins. State of Missouri, 1875, p. 181.

Insects during the Flowering of *Arum crinitum*, Ait.* states that the spathe of this flower "diffuses so strong an odour of putrid flesh that the insects which deposit their eggs upon decomposing animal matters are attracted by it." *Lucilia caesar*, L., visits the flower in numbers and oviposits among the viscous hairs lining the interior of the spathe. All the flies found by M. Schmetzler at the bottom of the spathe were dead, and the author gives reasons for considering that the insects may furnish nitrogenous nutriment to the plant through the medium of fluid contained in certain hairs which clothe a great part of the inner surface of the spathe. Other flies, however, less pressed to oviposit may not penetrate further than the stamens, and may thence convey the pollen to the stigmas or fly away to lay their eggs in the spathe of another plant, on the stigmas of which they deposit the pollen which they have carried away from the stamens of the former one. Doubtless the Trinidad flies perform a similar office for *Aristolochia*.

Dr. Ch. Coquerel, in discussing the reason why *Comptosia macellaria*, Fabr., sometimes attacks man, mentions that the blow-fly (*Calliphora vomitoria*, L.) † oviposits on *Arum dracontium*, L. (= *Dracontium vulgare*, Schott), being deceived by the corpse-like odour of the plant †.

Mr. H. O. Forbes, in recording the discovery of "a fine new species of that curious family the Rafflesiaceæ," which he found growing on the side of the volcano called Dempo, in Sumatra, writes:—"It smelt powerfully of putrid flesh, and was infested with a crowd of flies, which followed me all the way as I carried it home" ‡.

Lastly, I am informed by Lieut.-Col. C. T. Bingham that *Amorphophallus campanulatus*, Roxb., an arum which has been introduced into S. Tenasserim by the Malays and is now very common in that district, gives off a most overpowering and fetid odour of carrion from its livid purple spadix, and is most attractive to flies.

* Ann. & Mag. Nat. Hist. ser. 5, vol. iv. pp. 399-400 ('Comptes Rendus,' Sept. 3, 1879, p. 508).

† ? *C. erythrocephala*, Mg.

‡ Coquerel, Ann. Soc. Ent. Fr. sér. 3, t. vi. (1858) p. 176.

§ Henry O. Forbes, 'A Naturalist's Wanderings in the Eastern Archipelago' (1885), p. 206.

XXXVII.—Description of a new Species of Satyrid Butterfly from Costa Rica. By H. GROSE SMITH, B.A., F.E.S., F.Z.S., &c.

Oreochistus cothionides.

Male.—*Upperside*. Anterior wings resemble *O. cothion*, Salvin. Posterior wings, discal area bright tawny, with a broad marginal border of dark brown, irregularly indented by the tawny area between the veins; a dark brown spot centred by a white dot situate in the tawny area between the two lowest median nervules, and two similar contiguous spots above the anal angle, as in *O. cothion*. The discal area becomes darker tawny brown towards the base and inner margin, the darker area extending transversely from the middle of the costa and crossing the cell a little beyond its middle towards the anal angle, where it merges in the dark brown marginal border. The female resembles the male.

The *underside* does not differ appreciably from *O. cothion*.

Hab. Cartago, Costa Rica.

Expanse of wings 2½ inches.

Described from one male and two female specimens. At first I thought this insect might be the female of *O. cothion*; but there being both sexes in the collection, and possessing a female of *O. cothion* which does not differ from the male, I conclude that the very distinct colouring of the upperside of the posterior wings justifies me in describing it as distinct from *O. cothion*. The specimens were sent by Mr. Underwood with a good series of *O. cothion* from the same locality.

XXXVIII.—On Mammals from Celebes, Borneo, and the Philippines recently received at the British Museum. By OLDFIELD THOMAS.

THE specimens referred to in the present paper were mostly collected by Messrs. Charles and Ernest Hose in N. Celebes and by Mr. Alfred Everett at the extreme south of the same island, and both at about the same date, October to December 1895. One of the chief objects of these naturalists was to obtain for our National Museum specimens of the numerous small mammals that have been described of late years from the island of Celebes and have hitherto been unrepresented in the British Museum. This object has