

another snail; and we frequently find during the winter months large colonies of hibernating snails attached firmly to one another. After selecting a suitable locality the first act is to throw out from the mantle-margin, in which the secreting function would seem to be especially active, sufficient material to glue the edge of the shell firmly to the subjacent surface. When this has been accomplished, the epiphragm is completed by a secretion from the general surface of the phragmatogenic disc.

On the approach of spring, and when the conditions rendering necessary the presence of an epiphragm no longer exist, the snail once more awakens from its sleep, and the central opening in the phragmatogenic disc again makes its appearance, and gives exit to the foot and head of the snail, which then, pressing on the membranous epiphragm, ruptures it, and thus allows the animal to enter freely into all its relations with the surrounding medium.

Descriptions of new Species of *Forficulidæ* in the Collection of the British Museum (Nat. Hist.), S. Kensington. By W. F. KIRBY, F.L.S., F.E.S.

[Read 18th June, 1896.]

(PLATE XX.)

SINCE the publication of my "Revision of the *Forficulidæ*" (Linn. Soc. Journ., Zool. vol. xxiii. pp. 502-531), little of importance has been published on the family, except an article by De Bormans in the 'Biologia Centrali-Americana,' and the descriptions of a few new species by De Bormans, Brunner von Wattenwyl, and others. *Forficulidæ* are insects which are seldom collected, and they generally arrive as single specimens, which are frequently damaged, or, if perfect, are not sufficiently well marked to render it advisable to characterize them from a single specimen, necessarily representing only one sex. Consequently, I have only about a dozen new species to describe in the present paper; but some of them are extremely handsome and remarkable forms acquired from the collection of the late Mr. Pascoe and from other sources.

There is an error in my Table of Genera (pp. 504-505 of the above-quoted paper), which it may be as well to take the present opportunity of conspicuously rectifying. On p. 504, 2nd &

3rd cols., line 9, for "*Brachylabis*. S. America, Java," read "*Anisolabis*. General Distribution"; and on p. 505, 2nd & 3rd cols., line 8, for "*Anisolabis*. General Distribution," read "*Brachylabis*. S. America."

GENUS APACHYS, *Serv.*

APACHYS PASCOEI, sp. n. (Pl. XX. fig. 1.)

Long. corp. (absque forcip.) 35 millim.; lat. 7 millim.; long. tegm. 10 millim.; al. 5; term. segm. cum pygid. 10; long. forcip. 8.

Male. Head black, shining; a deep semicircular depression between the eyes on the vertex; face below the antennæ testaceous, blackish at the lower end of the clypeus. Antennæ broken (15 joints remaining), blackish brown, the second joint reddish; scape broad, about twice as long as broad, testaceous at the extremity; the 2nd transverse, the 3rd twice as long as broad, the 4th, 5th, and 6th transverse, the remainder gradually lengthening, but the last remaining hardly twice as long as broad. Thorax black, shining, longer than broad, narrowed in front; scutellum triangular, very large; a central groove running from the occiput to the scutellum; elytra shading into chocolate-brown or reddish, the basal two-thirds slightly lobate at the sides, where they are edged with whitish. Visible portion of the wings yellow in the middle, and more ochreous outwardly. Abdomen reddish, blackish towards the sides, the front segments longitudinally striated, the terminal segment strongly granulated; the pygidium very large, subrotund, obtusely angulated at the extremity, with the lateral angles indicated by slight projections. Forceps nearly semicircular, but incurved before the middle, beyond which they are slightly flattened; a strong ridge on the inner side at the base. Legs smooth, shining, blackish, shading into chocolate-brown or testaceous; femora thickened; second joint of tarsi very small, third joint nearly twice as long as second.

Hab. Sylhet.

The genera *Apachys* and *Tagalina* are generally characterized as having the first joint of the tarsi no longer than the second; but this is by no means an invariable character. *Apachys*, however, may be recognized at once by the semicircular forceps, placed before the base of the very large pygidium. The present species is from the collection of the late Mr. F. P. Pascoe, and

is one of the finest earwigs known, being nearly twice as large as any previously described species of *Apachys*, and equalling a *Pygidicrana* in size.

The specimen is carded, which interferes with a complete examination. This is the first species recorded from the mainland of Asia, though the genus occurs in Africa, Borneo, Sumatra, and New Guinea. It appears to be most nearly allied to *A. Beccarii*, Dubrony, from New Guinea, but the latter is a much smaller species, with the exposed part of the wings broadly bordered with brown.

Genus PYGIDICRANA, *Serv.*

PYGIDICRANA FORCIPATA, sp. n.

Long. corp. (absque forcip.) 23·5 millim.; long. forcip. 10 millim.

Male. Head black, clypeus testaceous below, lower mouth-parts reddish. Vertex testaceous in the middle, this colour projecting in two points both in front and behind, and also on each side, behind the eye. Antennæ with at least 30 joints, brown; the scape testaceous, pyriform, and much expanded; the flagellum with the joints towards the base transverse, but the succeeding ones gradually becoming longer and thinner. Pronotum half as long again as broad, convexly narrowed in front, and also slightly narrowed, but truncated, behind; testaceous, with two black bands, diverging beyond the middle but nearly meeting behind. Scutellum yellowish, forming a slightly acute triangle; a narrow groove runs from the occiput to the scutellum. Tegmina blackish; projecting portions of wings testaceous. Abdomen blackish, dull; terminal segment and forceps more shining, somewhat castaneous, and expanded. Forceps with a projection on the inside at the base, ending in three blunt teeth, then curving round, and projecting a tooth inwards at two-thirds of their length, beyond which they are nearly straight, very distinctly denticulated on the inner edge, and terminating in a sharp hook turned inwards. Legs testaceous, femora more or less varied with black, broad, flattened, and strongly carinated in the middle.

Hab. Para.

From the collection of the late Mr. F. P. Pascoe.

Allied to *P. v-nigra*, *Serv.*, but the black tegmina and the different form of the forceps are amply sufficient characters for its identification.

PYGIDICRANA EGREGIA, sp. n. (Pl. XX. fig. 3.)

Long. corp. (absque forcip.) 30 millim.; long. forcip. 8 millim.

Female. Head black, the greater part of the head behind the eyes covered by a testaceous patch not extending to the margins, narrowed in front, and ending in a sharp projection on each side before the eye; palpi reddish, testaceous towards the base. Antennæ 35-jointed; scape testaceous, black at the tip, twice as broad as long, and stouter than the flagellum. Flagellum reddish brown, darkest at the extremity; the first two joints a little broader than long, the next three annular, the remainder longer than broad and generally lengthening, the last five slenderer than the rest. Pronotum almost globular, truncated behind, testaceous, narrowly edged with black in front, and with a thick U-shaped mark, with a heavy base, resting on the hinder margin. Scutellum yellow. Tegmina black, with two wide testaceous bands running from the base—one spindle-shaped, ceasing at about two-thirds of the length of the tegmina; the other lateral, submarginal, and extending for the whole length of the tegmina, except for the outer black edging. Projecting portion of wings testaceous, with the outer half brown. Abdomen stout, pubescent, with the sides nearly parallel; the terminal segment thickly granulated. Forceps very thick, converging to a point at the extremity, a strong ridge above at the base, the lower inner edge denticulate, especially towards the base; a rather stronger tooth just beyond the middle. Legs testaceous, slightly lined with black, and with the joints marked with black.

Hab. Santa Catharina.

From the collection of the late Mr. F. P. Pascoe.

A very fine species, allied to *P. v-nigra*, Serv., but larger, darker, and with longer forceps.

Genus CYLINDROGASTER, Stål.

I cannot agree with De Bormans in regarding the genus *Cylindrogaster*, Stål, as the same as *Diplatys*, Serv., though I have not yet seen a specimen of the latter genus.

CYLINDROGASTER NIGRICEPS.

Cylindrogaster nigriceps, Kirb. Journ. Linn. Soc., Zool. xxiii. p. 507 (1890).

This species was described from Hong Kong. Other specimens have since been received from Bombay and Ceylon.

CYLINDROGASTER RUFESCENS, sp. n. (Pl. XX. fig. 2.)

Long. corp. cum forcip. 11 millim.; segm. term. cum forcip. 2·3 millim.

Female. Head, pronotum, tegmina, and exposed part of wings reddish chestnut; mouth-parts yellow, with a transverse reddish band, and reddish beneath; antennæ light reddish brown, with yellow incisions; legs yellow, femora and tibiæ mostly reddish in the middle. Wings extending beyond the tegmina for fully half the length of the latter; pronotum rather large, the sides and hinder border lighter, slightly raised, bordered within by a rather distinctive blackish U-shaped mark. Abdomen rufo-testaceous, the forceps, and the greater part of the terminal segment reddish. Forceps as long as the latter, stout, contiguous, incurved and pointed at the tips.

Hab. North India (*Capt. Reid*).

This is a stouter insect than the female of *C. nigriceps*, and differs from it also in its colour, larger pronotum, and longer wings.

Genus LABIDURA, *Leach*.

LABIDURA (?) WALKERI, sp. n. (Pl. XX. fig. 6.)

Long. corp. cum forcip. 22 millim.; long. forcip. 8·5 millim.

Male. Rufo-castaneous, pubescent; head and pronotum black, shining, clypeus bordered below with testaceous, palpi yellowish; antennæ testaceous, shading into brown; legs testaceous. Pronotum rather longer than broad, with a central groove, crossed by a transverse one beyond the middle, and with two slight depressions in front. Exposed part of the wings rounded off at the sides; the suture testaceous. Abdomen with segments 3–5 with a moderate-sized lateral spine on each; segment 2 with a small tubercle; segments 2–7 with a double row of short striæ in front, on each side of the back; terminal segment slightly grooved in the middle, and finely punctured towards the sides. Forceps nearly straight, slightly curved inwards in the middle, and then again outwards, the points turned rather sharply inwards at the extremity. No projecting teeth, but a row of small denticulations towards the base on the lower edge.

Hab. Hong Kong (*J. J. Walker*).

Differs from all the described species of the group of *L. sex-*

spinosa, Dohrn, by the absence of large teeth on the inner edge of the forceps.

The spiny *Labiduræ* should form a new genus, but I have not sufficient materials before me at present to characterize it.

Genus *PSALIS*, *Serv.*

PSALIS BORNEENSIS, sp. n.

Long. corp. cum forcip. 21 millim. ; lat. 5 millim. ; long. segm. term. cum forcip. 7 millim.

Female. Black, shining, with long scattered setæ on the legs and sides of the body. Antennæ with 10 joints preserved ; scape linear, about thrice as long as broad ; joints 3 and 4 moniliform, the rest longer than broad, those of the flagellum bearing short whorls of hair. Pronotum about as broad as long, with a central groove, not extending to the hinder part, which is somewhat raised ; the sides are also raised. Exposed part of wings obtuse, with a reddish spot at the base of the suture and a larger one beyond it. Abdomen not tuberculate, thickly but rather finely punctured, and milled at the extremities of the segments ; terminal segment longitudinally punctate-striate, and grooved in the middle. Forceps rather longer than the terminal segment, very stout, contiguous, hooked at the extremity, with about 3 short obtuse teeth on the inside towards the base. Femora smooth, expanded, and hollowed beneath ; tarsi clothed beneath with golden hair, the second joint with a tuft projecting beneath the third.

Hab. Baram, N.W. Borneo.

Closely allied to *Psalis indica*, Burm., of which it may even be a melanotic form. *P. indica* was placed by Dohrn in *Labidura*, but is certainly much nearer allied to the American species of *Psalis*.

Genus *ANISOLABIS*, *Fieber.*

ANISOLABIS OCCIDENTALIS, sp. n. (Pl. XX. fig. 5.)

Long. corp. 20 millim. ; segm. term. cum forcip. 5 millim.

Female. Head reddish, shining ; antennæ and legs testaceous yellow. Antennæ 20-jointed ; scape linear, stouter than the flagellum ; 3rd joint twice as long as broad ; 2nd, 4th, and 5th about as long as broad, the rest becoming gradually longer ; thoracic segments rufo-testaceous, obsolete bordered behind with blackish. First segment of abdomen blackish brown, with a dark red shine ; abdomen finely punctured, most distinctly

towards the extremity. Forceps longer than the last segment, very stout, contiguous at the base and curving inwards at the tips; towards the base is a strong tooth on the inner edge, which is finely denticulated beyond.

Hab. Cape Leeuwin, W. Australia.

Described from two specimens. Resembles *A. littorea*, White, from New Zealand, but is more slender, lighter in colour, and the forceps is differently formed.

Genus SPARATTA, *Serv.*

SPARATTA APICALIS, sp. n. (Pl. XX. fig. 7; 7 *a*, pygidium and forceps.)

Long. corp. cum forcip. 10 millim.; segm. term. cum forcip. 3 millim.

Shining black, mouth-parts testaceous; antennæ dirty yellowish brown, the joints white at the base; head with a conspicuous white line crossing the vertex before the occiput, and running round the front of the clypeus; legs dirty yellow, the femora brown; terminal segment luteous, often more or less blackish in the middle. Forceps luteous, gradually curved, denticulated to the middle on the upper and inner carinæ, and with a small tooth about the middle of the latter; in the male, the tips are black, and more strongly incurved than in the female. Pygidium in the male short, broad, with a tubercle at the sides, and barely convex in the middle; in the female almost square, with a tubercle at the angles, and the centre but slightly projecting in a very obtuse angle.

Hab. Theresopolis (*Fruhstorfer*); Rio (*Fry*).

A very distinct species, probably allied to *S. pelvimetra*, Serville; but in that species the abdomen is described as reddish fulvous, with the extremity darker.

SPARATTA CLARKII, sp. n. (Pl. XX. figs. 8; 8 *a*, pygidium and forceps.)

Long. corp. cum forcip. 14 millim.; segm. term. cum forcip. 7 millim.; long. forcip. 3.5 millim.

Head, pronotum, tegmina, and exposed part of wings black and shining, lower edge of clypeus grey, palpi luteous. Antennæ with the scape and the short 2nd joint black, the latter more or less reddish; the following joints reddish to about the 8th or

9th, when they again become black. Abdomen, forceps, and legs luteous, the terminal joint of the abdomen often blackish, and the tibiæ always black. Forceps flattened, triquetral, with a row of tubercles on the upper ridge, and also on the inner ridge, to beyond the middle, where there is a strong triangular tooth; the tips strongly and suddenly incurved; in the female these characters are less strongly marked. In the male the pygidium is short and rounded; in the female it is long and narrow, twice as long as broad, with a strong tubercle at each angle, and the centre triangularly pointed.

Hab. Tejuca, Petropolis, and Constancia (*Rev. Hamlet Clark*); Theresopolis (*Fruhstorfer*).

SPARATTA PYGIDIATA, sp. n. (Pl. XX. fig. 10; 10 *a*, pygidium and forceps.)

Differs very slightly from the last species in colour, except that the terminal segment is less frequently marked with blackish, and the tibiæ are more brown than black, and the elytra, &c. have a slight purplish shine. In the male, the pygidium is shorter, broader, and less convex than in *S. Clarkii*, and the tubercles on the lower carina of the basal half of the forceps before the tooth are more regularly arranged. In the female, the pygidium is very short and broad (much broader than long), with a much shorter projection in the middle.

Hab. Rio Janeiro (*Fry*).

These species are so closely allied that they can only be separated by the different shape of the pygidium, which is most conspicuous in the female. They are allied to *S. rufina*, Stål, and *S. Schotti*, Dohrn, and are perhaps confounded with them in collections. *S. pygidiata* answers so well to Stål's description of *S. rufina*, that I should have regarded it as that species, but that Stål does not mention the strong central tooth on the inner edge of the forceps beyond the denticulations. Dohrn's description is shorter than Stål's, but he compares the species with *S. pelvimetra*, Serville, which has the forceps very sharply angulated. He also mentions that the scape of the antennæ was black in his specimens; the rest being red. Stål says: "Antennis articulis subelongatis, flavotestaceis, extus fuscescentibus." The British Museum at present possesses no specimen which I can refer to the true *S. rufina*. The male specimen from Guatemala, described and figured by De Bormans in the 'Biologia

Centrali-Americana' as "*Sparatta pelvimetra* var. *rufina*," agrees with the descriptions of typical *S. pelvimetra*, Serville, even to the thorax being reddish; and as such I shall regard it, unless further material, when obtained, proves it to be a distinct species.

Sparatta Clarkii and *S. pygidiata* differ from *S. Schotti*, Dohrn, in the antennæ. Those of *S. Schotti* are described as brown, with joints 9-12 pale. There is a female specimen labelled *S. Schotti* from Mexico in the Godman and Salvin collection, which has brown antennæ, with the two basal joints blackish (8 only preserved). The pygidium is moderately long and broad, with the lateral angles well marked, and the central part projecting rectangularly and longer than the basal part. It is evidently distinct, for the head and pronotum, which ought to be red in typical *S. Schotti*, are shining black. It may be called *S. Bormansi*.

SPARATTA SEMIRUFA, sp. n. (Pl. XX. figs. 4, 4 a.)

Long. corp. cum forcip. 10-12 millim.; long. forcip. 2-3.5 millim.

Rufo-testaceous; tegmina and exposed part of wings violet-black, shining; antennæ 14-jointed, and, as well as the palpi, luteous or brownish yellow; head with a large square brownish patch in front, mouth-parts clothed with yellowish hair; pronotum usually with a short dark dash on each side; elytra with the margins, and sometimes the base, shading more or less into testaceous. Forceps long, with the basal half nearly straight, and with several serrations on the inner edge as far as a strong tooth just beyond the middle, then gradually incurved. In the female they are stouter, and the tooth, which is placed before the middle, is much smaller and more obtuse, and the denticulations preceding it are much smaller than in the male. The pygidium in both sexes is short and broad, with the lateral angles projecting strongly outwards, and the central part moderately convex.

Hab. Igaurassu (near Pernambuco), Brazil.

This species agrees with the very brief description of *S. Schotti*, Dohrn, except that in *S. Schotti* the antennæ should be brown, with joints 9-12 pale.

Genus SPHINGOLABIS, *De Bormans*.

I have taken the present opportunity of figuring three interesting species of this genus, which, though previously described, had not been figured before.

SPHINGOLABIS VARIEGATA. (Pl. XX. fig. 9.)

Sphingolabis variegata, Kirb. Journ. Linn. Soc., Zool. xxiii p. 526 (1891).

Hab. Sierra Leone.

SPHINGOLABIS (?) SUBAPTERA. (Pl. XX. figs. 12, 12a.)

Sphingolabis (?) *subaptera*, Kirb. Journ. Linn. Soc., Zool. xxiii. p. 527 (1891).

Hab. Queensland.

SPHINGOLABIS ERICHSONI. (Pl. XX. figs. 11, 11a.)

Apterygida Erichsoni, Dohrn, Stett. ent. Zeit. xxiii. p. 231, note (1862).

Forficula ruficeps, Erichson (nec Burm.), Arch. f. Nat. viii. (1) p. 246 (1842).

Hab. Tasmania.

A conspicuous species, easily recognizable by Erichson's diagnosis alone, even without his more detailed description: "Nigra, nitida, capite forcipeque rufis, pedibus testaceo-variis."

EXPLANATION OF PLATE XX.

Fig. 1. *Apachys Pascoei*.

2. *Cylindrogaster rufescens*.

3. *Pygidicrana egregia*.

4, 4 a. *Sparatta semirufa*.

5. *Anisolabis occidentalis*.

6. *Labidura Walkeri*.

7, 7 a. *Sparatta apicalis*.

8, 8 a. *Sparatta Clarkii*.

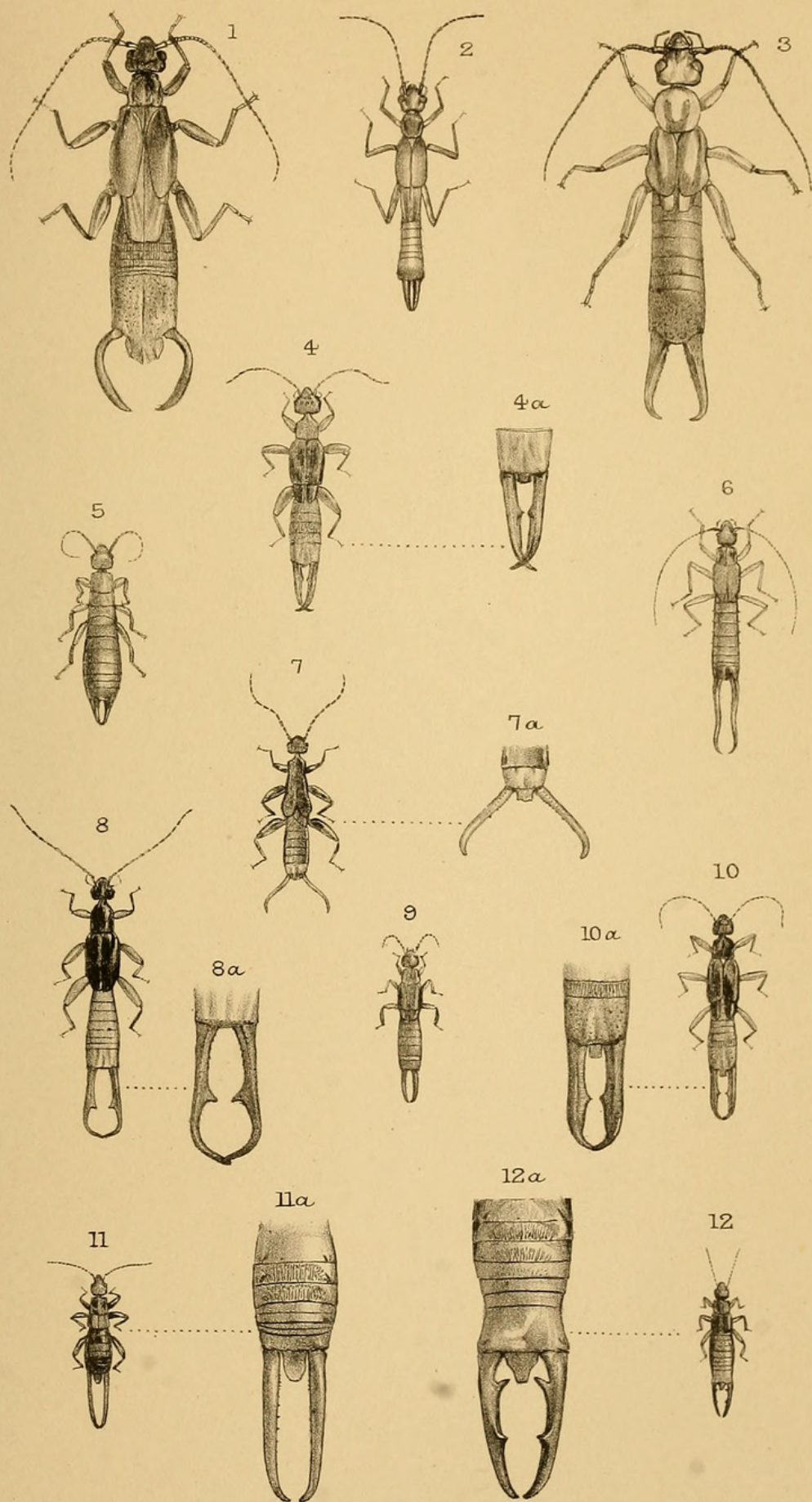
9. *Sphingolabis variegata*.

10, 10 a. *Sparatta pygidiata*.

11, 11 a. *Sphingolabis Erichsoni*.

12, 12 a. *Sphingolabis* (?) *subaptera*.

Figures 1, 3, 5, 6, 9, 11, and 12 are represented of the natural size; figures 2, 4, 7, 8, 10 are enlarged twice. The separate figures of the forceps &c. are enlarged four times, except fig. 11a, which is enlarged only three times.





Kirby, W. F. 1896. "Descriptions of new species of Forficulidae in the collection of the British Museum (Nat. Hist.), S. Kensington." *The Journal of the Linnean Society of London. Zoology* 25, 520–529.

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