

systematic and bionomic entomology; he has published many important works on economic entomology but above all he is now, and has for many years been the efficient chief and leader of the Bureau of Entomology, and as such has acquired a world-wide and deserved reputation. Under the enlightened and liberal administration of Dr. Howard the growth of the Bureau of Entomology has been really marvellous. It has become a model for the many similar, though much smaller, institutions that have been established of late years in many countries.

To those of our members who are not acquainted with the history of the National Academy of Sciences the following entomological notes may be of interest: Since the organization of the Academy the following entomologists were elected members of the Academy: Dr. John L. Leconte who was one of the charter members, Dr. A. S. Packard, Mr. Samuel Scudder, Prof. W. M. Wheeler (in 1912) and Dr. L. O. Howard in 1916. Of these Leconte, Packard, and Scudder are dead, leaving only two living members viz. Wheeler and Howard. Some other members wrote entomological papers viz. S. S. Haldeman, Alpheus Hyatt, Joseph Leidy, and Charles S. Minot who are now dead, and Mr. E. S. Morse and Prof. Wm. Trelease among the living members, but all these were elected to the Academy for work in other fields of Science.

The following program was presented:

A SYNOPSIS OF THE GENUS CALAPHIS.

(Homoptera, Aphididae.)

BY A. C. BAKER.

The genus *Calaphis* was erected by Walsh (1862) for his species *betulella*. It was not until some years later that Walker (1870) erected his genus of the same name. One species only was for years referred to the genus but quite recently Gillette (1910) has referred other species here. A study of the forms found in this country has led the writer to place in the genus five species.

Del Guerico (1913) erected the genus *Siphonocallis* with *betulæcolens* Fitch as type. In studying this species and compar-

ing it with *betulella* one thing is noted to distinguish the two generically. The radial sector is always absent in *betulella*. In some specimens of *betulaecolens* it is however very faintly indicated. In the species *alni* described in this paper the radial sector is absent normally and the wing is very similar to that of *betulella*. In some specimens, however, this vein is indicated in much the same way as in *betulaecolens*. In the other two species the vein is sometimes strongly indicated and sometimes very faintly indeed. Considering this variation in the presence of the vein the writer feels that it can hardly be considered a good character on which to distinguish two genera. He therefore makes *Siphonocallis* a synonym of *Calaphis*.

Wilson (1910) in his description of the genus *Calaphis* when speaking of the antennae, gives as a character "sixth about one-half the length of the spur." While this character holds for the type species it is evidently a specific character for it does not hold true for any of the other species, even for *alni*, which is undoubtedly very close to *betulella*. If this character were considered, a new genus would have to be erected for each species included in the present paper.

The characters of the genus may be given as follows:

Antennae longer than the body, slender, and armed with short spine like bristles; segment six with the unguis much longer than the base; antennal tubercles prominent, vertex armed with a few hairs; wing veins more or less bordered with black and with the radial sector absent or faintly indicated; cornicles short, somewhat tapering, broadened at base; cauda knobbed; anal plate bilobed; both cauda and anal plate with numerous long stout hairs.

- A. Unguis of segment VI nearly six times as long as base; antennae uniform dusky or black; media not much thinner than other veins of wing.....*alni* n. sp.
- B. Unguis of segment VI about five times as long as base; antennae alternately banded with yellow and black; media much thinner than the other veins of wing.....*castaneoides* n. sp.
- C. Unguis of segment VI about four times as long as base; antennae uniform dusky or black; media much thinner than the other veins on the wing..... *castaneae* Fitch.
- D. Unguis of segment VI between two and three times as long as base:
 - (1) Head and thorax longitudinally striped with black. All wing veins heavily bordered with black...*betulella* Walsh.
 - (2) Head and thorax not so striped; wing veins not heavily bordered with black.....*betulaecolens* Fitch.

Calaphis betulella Walsh.

Measurements of antennae of the alate viviparous female are as follows: IV, 1.04 mm.; V, 0.752 mm.; VI, (0.24 mm. + 0.56 mm.). Segment III, almost smooth or very finely imbricated, armed with many short stiff spine like hairs about 0.048 mm. long and armed on its basal half with 12 or 13 small almost circular sensoria. Segment IV, more distinctly imbricated and armed with similar spines, but without sensoria. Segment V, like segment IV, with the imbrications most distinct distad, and with an elongate fringed distal sensorium fully 0.128 mm. long. Segment VI, with a similar elongate fringed sensorium at base of unguis. Head with a few hairs but with no capitate ones. Cornicles 0.144 mm. long and 0.112 mm. wide at the base, tapering and somewhat flaring.

Calaphis betulaecolens (Fitch).

Aphis betulaecolens Fitch.

Callipterus betulaecolens Monell.

Callipterus betulae Thomas.

Callipterus betulaecolens (Fitch) Oestlund.

Siphonocallis betulaecolens (Fitch) Del Guercio.

Calaphis betulaecolens (Fitch) Gillette.

The color characters of this species were well given by Walsh in his original description.

This species was described as an *Aphis* by Fitch (1851). Later Monell (1879) described his *Callipterus* of the same name, not knowing positively that it was the same species. Oestlund (1887) referred Monell's species to Fitch's name. The excellent description given by Davis (1910) is referred positively to Monell's species which Davis knew, but doubtfully to Fitch's species. In the National Museum collection there are two specimens of *betulaecolens* bearing Fitch's label and marked type.

These specimens are part of the original lot in the Fitch collection and they were mounted from that collection by Mr. Theo. Pergande. Through the kindness of Mr. Davis the writer has had an opportunity to examine Monell's type and this agrees in all details with Fitch's specimens. There is therefore no doubt that the two species are the same.

Following are a few notes on the alate viviparous female:

Antennal segments, average measurements I, 0.144 mm.; II, 0.08 mm.; III, 0.96 mm.; IV, 0.7 mm.; V, 0.544 mm.; VI, (0.144 mm. + 0.56 mm.). Segment III, is armed with 10 to 13 oval sensoria on the basal half and somewhat imbricated distad. Segment V, has the distal sensorium fringed and somewhat elongate though not nearly as elongate as that of *betulella*. The sensorium at the base of the unguis of VI, is likewise not as elongate as in the species mentioned. Head with a few hairs. Cornicles about 0.144 mm.; long, nearly cylindrical though somewhat tapering and flaring.

Calaphis castaneae (Fitch).*Callipterus castaneae* Fitch.*Calaphis castaneae* (Fitch) Gillette.

The original description of this species given by Fitch (1856) is, although short, sufficient to characterize it, owing to the striking coloration of the insect. Few references to the species occur but it is by no means rare in the Eastern States and in some localities it is quite abundant.

In order to be positive of his determination the writer examined the Fitch collection of Aphididae and located three pinned specimens bearing Fitch's label. Considering their age and the method of mounting, these specimens are in good shape and upon mounting in balsam prove that the insects Fitch had were the same species as that met with about Washington. In one specimen the radial sector is absent from the wing in much the same way as in *betulella* Walsh. In fact a series of specimens show that this vein varies greatly. Sometimes being strongly present and sometimes very faint indeed.

Alate viviparous female.—Antennal measurements average as follows: I, 0.144 mm.; II, 0.08 mm.; III, 0.96 mm.; IV, 0.544 mm.; V, 0.432 mm.; VI, (0.176 mm. + 0.544 mm.). Segment III, is finely imbricated and armed with numerous fine bristle-like hairs not as stout as those of *betulella*. On the basal half of the segment there are about eight circular sensoria. The head is armed with hairs which are rather more prominent than those of the two species mentioned previously. Cornicles somewhat shorter than those of the type species being 0.096 mm. long and about as wide at the base as they are long.

Calaphis castaneoides, n. sp.

Alate viviparous female.—Morphological characters: Antennae as follows: I, 0.096 mm.; II, 0.064 mm.; III, 0.784 mm.; IV, 0.432 mm.; V, 0.368 mm.; VI, (0.16 mm. + 0.8 mm.); Segment III, with 6 to 10 circular sensoria. Forewing 2.21 mm. long and about 0.738 in width. Cubital and anal veins heavier than the media. Radial sector absent or but very faintly indicated at one extremity. Cornicles 0.16 mm. long and about 0.192 mm. broad at base. Cauda and anal plate normal.

Color characters: Very similar to those of *castaneæ* which the species resembles greatly. Antennae with the basal half of segment IV and V and often the middle of III, light or yellowish, the remainder dark. In this the species differs from *castaneæ* in which the antennae are uniformly colored. Wings with the anal vein, the upper half of the cubital and the lower margin of the stigma bordered with black. Tibiae and feet black, the middle portion of the tibiae often yellowish.

This species bears much the same relation to *castaneae* that *walshii* Mon., does to *bella* Walsh. It is distinguished principally by the greater length of the unguis of the sixth segment.

Described from specimens in balsam mounts taken on *Castanea* at Washington, D. C. 1900.

Type Cat. no. 20210 U. S. Nat. Mus.

***Calaphis alni*, n. sp.**

Alate viviparous female.—Morphological characters: Antennae as follows: I, 0.128 mm.; II, 0.064 mm.; III, 0.88 mm.; IV, 0.672 mm.; V, 0.592 mm.; VI, (0.224 mm. + 1.28 mm.). Segment III is very faintly imbricated and armed with very short stiff hairs much shorter than those on the antenna of the other species. On its basal three-quarters the segment is armed with about 14 circular sensoria in a row. The sensoria on the distal extremity of V and on VI at the base of the unguis are elongate, that on VI being 0.048 mm. long. The head is armed with several hairs which are somewhat knobbed. Prothorax with similar hairs. Forewings 2.56 mm. long and about 0.88 mm. wide. Veins distinct; radial sector absent; cornicles 0.128 mm. long and about 0.112 mm. wide at base, distinctly tapering, imbricated, anal plate not deeply cleft. Abdomen covered with capitate hairs.

Color characters: General color yellowish; antennae and tibiae dusky or black wings with the cubitus and anal veins somewhat bordered with black. The other veins and the stigma faintly bordered. Cornicles dusky. Abdomen marked with black usually with a large black patch between and in front of the cornicles.

Apterous viviparous female.—Morphological characters: Antennae as follows: I, 0.128 mm.; II, 0.064 mm.; III, 0.672 mm.; IV, 0.368 mm.; V, 0.368 mm.; VI, (0.16 mm. + 0.96 mm.). Segment III, imbricated and armed with 6 to 10 circular sensoria in a row. Head with prominent capitate hairs, in fact the entire body is covered with these hairs; many of which have a funnel shaped extremity. Cornicles as in the alate form. Length from vertex to tip of abdomen 2.24 mm. Color characters: Antennae and tibiae dusky to black; body marked with black usually with a blotch on the head, a band across the prothorax, a similar one caudad of it and a band across the abdomen in front of the cornicles. The remainder of the dorsum spotted with black.

Described from specimens in balsam mounts taken by Mr. Theo. Pergande on alder near Washington, D. C., 1899.

Type Cat. No. 20211 U. S. Nat. Museum.

Other specimens of males and oviparous females taken on the same plant near Washington and at Vienna, Va. by the writer, appear to be the same species. We are not describing them, however, since they have not been taken in company with the viviparous forms.

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THE TACHINID GENUS ARGYROPHYLAX B. & B.

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This genus was proposed by Brauer and Von Berganstamm¹ for the reception of a single individual from St. Thomas, West Indies and described many years previously by Wiedemann² as *Tachina albincisa*. An additional specimen of the latter species was discovered by Van der Wulp in the Biologia Centrali Americana³ material which specimen he states Professor Brauer saw and identified as *Argyrophylax albincisa* Wied. I have recently received two specimens reared at Rio Piedras, Porto Rico, January 24, 1912, by T. H. Jones from *Nacaleia indicata* Fabr. These specimens seemed to be identical with Van der Wulp's specimen mentioned above, although his description of the same is very brief. Therefore in order to allay all doubt as to the matter I have secured a comparison of one of the reared

¹ Zweifl. d. Kaiserl. Mus., IV, 163; V, 343.

² Auss. Zweifl., II, 334 (*Tachina*).

³ Biolog. Dipt. II, 485, Pl. XIII, fig. 19.



Baker, A. C. 1916. "A synopsis of the genus *Calaphis* (Homoptera, Aphididae)." *Proceedings of the Entomological Society of Washington* 18, 184–189.

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