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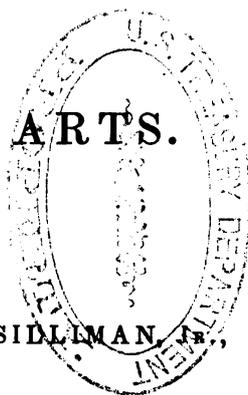
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It is well known that where mere contact (without metallic continuity) is made by metals conveying the galvanic current, the metals become most heated at the points of contact, and if the current be frequently broken, the heat at these points is still more augmented. It is for this reason we are able to use various kinds of metals for the experiment, without reference to their conducting powers and expansibilities.

Washington, D. C., Dec. 3d, 1849.

ART. XVI.—*On four new species of Hemiptera of the genera Ploiaria, Chermes, and Aleurodes, and two new Hymenoptera, parasitic in the last named genus; by S. S. HALDEMAN.*

**PLOIARIA MACULATA**, *Hald.* 1847. *Proceed. Acad. Nat. Sc.* 3, 151. Brown, darker beneath, above whitish sericeous; head subglobular posteriorly, eyes black and prominent, a transverse impression between them: antennæ and feet annulate with brown and white: mesonotum fulvo-sericeous, with an oblong marginal dark brown macula; base transversely rectilinear between the wings, with a pale medial elongated spine directed backwards between the closed wings: superior wings pale gray covered with whitish reticulations and pale brown maculæ; apex and a larger marginal triangle towards the base, dark brown, divided by pale reticulations, which leave a series of large spots around the apex.—2 lines long. Pennsylvania in June and July: rare. This species is the analogue of the European *P. vagabunda*, to which it bears a close resemblance. The first description was taken from a mutilated specimen.

**CHERMES CASTANÆÆ**. Flavous, thorax, pectus, and eyes black; wings translucent, inner half of the stigma scarcely discolored; 1st and 3d transverse nervure normal; 2d arising from the middle of the 1st and terminating in the normal position; posterior wings without nervures: feet and antennæ pale fuscous. The wingless individuals are entirely flavous, with the eyes rufous. Inhabits both sides of the leaf of the chestnut, forming lines along the midrib, and causing the leaf to curl. Pennsylvania in August and September.

**ALEURODES ABUTILONEA**. White, body pale flavous, with a tinge of greenish: wings each with a single nervure, the superior ones with two irregular obscure bands across them, and a circular apical spot: eyes black, double upon each side, inferior ones large and prominent: thorax above, with large irregular fuscous spots; abdomen with 3 or 4 transverse lines of the same color: rostrum as long as the head, 2-articulate, apex black: antennæ with the basal articulation robust: feet with short hairs, slender, dimerous.  $\frac{1}{2}$  lin. long.

*Larva* oval, plane above and beneath, elevation about one third the length, periphery vertical; pale flavous, the larger individuals with a conspicuous dark dorsal vitta.

Found upon the lower surface of the leaves of *Sida* (*Abutilon*) *abutilon*, to which the larva is immovably attached. It is sometimes so abundant that there are from 50 to 100 in half an inch square, causing the leaf to curl and die. The perfect insect is very active, walking and flying readily, and leaping from 1 to 1½ inches. It seems nearest allied to *A. bifasciatus*, *Steph.* When the imago first appears the wings are more translucent and the dark fasciæ are entirely wanting, so that it might be taken for a distinct species.

Burmeister's figure of *A. proletella*, *Lin.*, exhibits 2 nervures, probably because the wings were in contact when drawn, which, on account of their translucency, would allow the nervures of both to be seen at the same time. Found in Pennsylvania from August to the middle of October.

*A. corni*. Size and general appearance of *A. abutilonea*: body pale flavous: eyes black; wings pure white, without bands. Pennsylvania in September and October; the larva and imago on the inferior surface of the leaves of *Cornus sericea*.

*Larva* flavous, the disc of the larger individuals dark brown: the margin is ciliate with white. A great many are destroyed in the larva state by *Amitus corni*, *Hald.*, a minute parasitic hymenopterous insect.

*AMIRUS*, (a new genus.) Minute, robust, head transverse, eyes with distinct facets; palpi 0. Antennæ shorter than the body, filiform, geniculate; in the ♂ densely verticillate from the 3d articulation, 10-articulate, scapus somewhat curved, thickened towards its apex, nearly as long as the 3 following; 2d short and thick, *subfusiform*, its apex truncate; 3d as long as the 2d but thinner, and obconic; 4th nearly as long as the 2d and 3d united, robust towards its apex: 5-9 cylindrical and subequal, but becoming shorter towards the apex; apical artic. elongate conical with its apex acute: in the ♀ 8-articulate, shorter than in the male, with the fusiform apical articulation longer, exceeding the 2 preceding ones; the 2d artic. is *robust*, and longer than in the ♂. Thorax robust and elevated, mesonotum with an entire transverse impression. Wings covered with scattered hairs; about as long as the entire body, the greatest width of the anterior ones equalling one-third their length; widely ciliate from the apex to their middle on the posterior side: entirely *without nervures*; anterior ones with the radial margin obtusely concave; posterior ones nearly as long as the anterior ones, and ⅓d of their width, middle of their anterior margin slightly advanced and provided with 2 hooks for attachment to the anterior pair. Abdomen sessile, movable, depressed, convex above and below, subcordate,

fully as wide as the thorax, but longer, basal segment composing  $\frac{3}{4}$  of the whole, besides which there are 4 small segments ( $\varnothing$ ): ovipositor not exerted. Feet ( $\delta$   $\varnothing$ ) slender elongate, pentamerous, posterior femora incrassated, anterior tibiæ with an inferior apical bifid spine curved beneath the basal artic. of the tarsus, which is concave beneath, and armed with a dense pectiniform series of bristles as in *Cinetus*.

The chief sexual distinction is that (in addition to the scapus) in the  $\delta$  the 2d and 4th articulations of the antennæ are incrassated, and in the  $\varnothing$  only the 2d, which is moreover one of the longest in the  $\varnothing$  and one of the shortest in the  $\delta$ . Their clothing is also distinct, being long, rigid, and curved forward in the  $\delta$ , and short and straight in the  $\varnothing$ . The antennæ have no pedicellus, although, from their translucency at the joints, the round base of the 2d articulation moving in the first, bears some resemblance to one.

The want of palpi and the ciliate wings would place this genus in Mr. Westwood's subfamily Mymarides, the wings however, are not narrowed, and there is no vestige of a nervure, so that I prefer considering it as a distinct type under the name Amitides. The name, from  $\alpha$ ,  $\mu\epsilon\tau\omicron\varsigma$  (*a thread*), is in allusion to the absence of nervures.

**A. ALEURODINUS.** Polished back, clothed with minute white hairs; a transverse impression above the mouth; antennæ rufous, apex brownish; anterior feet and all the trochanters and tarsi, pale rufous; posterior tarsi, the final joint of the others, and the base of the anterior femora, discolored.  $\frac{3}{4}$  millim. long, or  $1\frac{1}{4}$  to the end of the wings in repose.

Parasitic in the larva of *Aleurodes corni*, *Hald.*, of which it destroys a great many. I found it with that insect beneath the leaves of *Cornus sericea*, on the margin of a water course. It leaps, walks and flies with facility, and when touched, simulates death. The antennæ are kept in a constant state of vibration. I have kept them a week or more, living in confinement. The ova (crushed from the ovaries) are fusiform, rounded at one extremity and produced at the other like the neck of a flask.

Two mutilated specimens of another species of parasite were raised with the preceding and imperfectly examined. The color is pale flavous; the wings have a subcostal nerve not quite straight, ending in a short stigmal branch about the middle, the wings in all other respects as in *Amitus*; feet slender and apparently pentamerous; eyes black, covered with numerous short erect bristles, more distinct than in *Chelonus*: head, thorax and abdomen closely united, thorax large, abdomen with the sides parallel and the apex obtusely rounded, in one specimen ( $\delta$ ?) the abdomen seems but half the width of the thorax, and in the other its sides form straight lines with it; antennæ (see annexed

figure) 5-articulate, shorter than the body, scapus narrowed towards its apex, 2d articulation obconic, 3d and 4th very short, 5th oar-shaped, (whence the generic name,) longer than all the preceding united, widened towards the apex, which is obtusely rounded. It may possibly be parasitic in the larva of the *Amitus* described above, as it is somewhat less in size. I propose to name the genus *ERETMOCERUS*, and the species *E. CORNI*.

Columbia, Pa., Dec., 1849.



## SCIENTIFIC INTELLIGENCE.

### I. CHEMISTRY AND PHYSICS.

1. *On the comparative Cost of making various Voltaic Arrangements*; by Mr. W. S. WARD, (Proc. Brit. Assoc., 1849, in Athen., No. 1142.)—The author stated that a series of calculations founded on data, produced to the Chemical Section at Swansea, showed the efficient power of three generally used forms of battery known as Smee's, Daniell's, and Grove's, would be equal when 100 pairs of Smee's, 55 pairs of Daniell's or 34 pairs of Grove's were used, and that the expense of working such batteries as regards a standard of 60 grains of zinc in each cell per hour, would be about 6*d.*, 7½*d.* and 8*d.* respectively.

This communication led to conversations on the economy of the electric light and electro-magnetic engines, in which Dr. Faraday, Mr. Shaw, Mr. Hunt, Mr. Elkington and other gentlemen joined. Dr. FARADAY remarked on the imperfect character of the electric light, and its inapplicability for the purposes of general illumination; all objects appearing dark when the eye was embarrassed by the intensity of the electric arc.—Mr. SHAW and Dr. PERCY instanced the magneto-electric machines which are employed at Birmingham for electro-plating, in which the current cost of the motive power—viz., a steam-engine to put the magneto-electric machine in action, was the only working cost.—Mr. ELKINGTON stated that they had never been induced to abandon the voltaic battery which they employed in their manufactory, finding it more economical than the magneto-electrical machine of which he was the patentee. He also stated the remarkable fact that a few drops of the sulphuret of carbon added to the cyanid of silver in the decomposing cell, had the property of precipitating the silver perfectly bright, instead of being granulated so dead as it is when thrown down from the solutions ordinarily employed.

2. *Researches on Wax*; by BENJAMIN COLLINS BRODIE, (Phil. Mag. for Oct., 1849, p. 244.)—In this Journal for May, 1849, we have given an abstract of the first and second memoirs of the author upon this subject; the present is a continuation of the same investigation, and we can bestow upon it no higher praise, than to say that it is throughout characterized by the ability and conscientious accuracy which commended the previous memoirs to the confidence of chemists. In these