A NEW SPECIES OF LASIOPTERA WITH OBSERVATIONS ON CERTAIN HOMOLOGIES.

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The gall midge described below was received from William H. Patterson of the Agricultural School, St. Vincent, W. I., under date of November 28, 1910 accompanied by the statement that it was reared from stem galls on purslane, *Portulaca oleraceæ* Linn. With this sending there was a Hymenopteron, associated with the gall midge, and presumably parasitic thereupon, which was determined by Mr. Crawford through the courtesy of Dr. L. O. Howard of Washington, D. C., as *Lochites auriceps* Ashm.

Lasioptera portulacae sp. nov.

Male. Length 1.5 mm. Antennæ short, sparsely haired; 14 segments, the third and fourth slightly fused, the fifth with a length about equal to its diameter, the distal segment slightly produced, narrowly rounded apically. Palpi; the first segment rectangular, second a little longer, narrowly oval, the third as long as the second, more slender, the fourth as long as the third. Mesonotum, scutellum, postscutellum and abdomen a nearly uniform dark brown, the first somewhat shining. Wings hyaline, costa dark brown, the discal spot small, whitish, subcosta uniting therewith near the basal third. Halteres reddish brown, fuscous subapically. Legs a variable yellowish-brown, the articulations of femora and tibiæ and the tarsal segments basally a light yellowish; claws stout, strongly curved, unidentate, the spur large, stout; pulvilli nearly as long as the claws. Genitalia; basal clasp segment long, slender; terminal clasp segment strongly swollen basally; dorsal plate divided, the lobes narrowly rounded, sparsely setose apically; ventral plate rather broad, broadly rounded and sparsely setose apically. Harpes broad, irregular, strongly chitinized distally; style short, stout.

Female. Length 1.5 mm. Antennæ short, sparsely haired, dark brown; 19 segments, the third and fourth slightly fused, the fifth with a length hardly equal its diameter, the distal segment reduced, ovoid. Palpi nearly as in the male, the distal segment a little longer than the third. Color characters nearly as in the opposite sex, the ovipositor with a length nearly equal that of the abdomen, yellowish, the terminal lobes with a length three times the width, narrowly rounded apically and thickly setose; acicula apical, acute, and with a length twice that of the terminal lobes.

Exuviæ. Length 2 mm., whitish transparent, slender; antennal cases short, thoracic horns short, slender; wing cases extending to the third abdominal segment, the leg cases to the fifth, the dorsum of the abdominal segments thickly covered with short, stout spicules.

Larva. Length 1.75 mm., rather stout, whitish or yellowish-orange; breastbone slender, expanded distally, narrowly bidentate; posterior extremity broadly rounded.

Type C. a2113, New York State Museum.

The female of the above described Lasioptera is extremely interesting because of the terminal acicula being practically identical with the much better known needle-like appendage on the tip of the abdomen of Asphondylia and certain close allies. A study of this organ, to which we have applied the name acicula, shows that this structure in the two genera is homologous and, furthermore, that it occurs in a more or less developed condition among many of our gall midges, particularly those having a long ovipositor or with the acicula chitinized and modified to form a piercing organ. The acicula is essentially a chitinized rod arising from an arched, furcate base and tapering to an acute point. It may be apical as in Asphondylia, Schizomyia, Monarthropalpus, Sackenomyia and Trotteria, or subapical, less chitinized and frequently nearly concealed by other tissues. This latter obtains in many species of Lasioptera, Rhabdophaga, Dasyneura, Contarinia and numerous other genera. The acicula usually occurs at the base of the apical segment of the ovipositor and is occasionally forced out by the manipulation necessary in making a balsam preparation. In Baldratia and Stefaniella it appears to be composed of a pair of rather widely separated rods terminating in irregular, acute, subapical processes, while the minor lobe in these two genera is strongly chitinized, acute apically and may possibly serve as a piercing organ. This compound structure of the acicula may also be seen in Asteromyia and other related genera, though the two long rods composing its shaft are much more nearly approximate. The process of fusion is complete in the very effective acicula of Asphondylia. The development of this organ is somewhat less in Schizomyia, while in Trotteria it is a blade-like rather than an aciculate structure. Monarthropalpus and Sackenomyia both have the acicula modified to form a rather stout, curved, not particularly acute organ.

The recognition of the homology above outlined necessitates a careful examination of the apparently peculiar dorsal pouch of Asphondylia. A study of the structures on the distal segment of the ovipositor in Schizomyia, Monarthropalpus and Sackeno-

myia shows that in each case there are rudimentary lobes homologous with our "terminal lobes" at or near the base of the acicula. It is only a step from the conditions described in the Lasioptera named above, with its well developed terminal lobes and the apical acicula arising just below, to follow the reduction and migration of these organs cephalad as in Monarthropalpus and Sackenomyia, and to proceed from this to what we find in Asphondylia with its highly developed terminal lobes apparently at the base of the ovipositor. The relationship obtaining in the last named form is due simply to the mechanical necessity of having at the apex of the abdomen a sufficient length of invaginating tissue to permit the withdrawal of the extremely long acicula into the body of the female. Obviously, under these conditions there must be either reduction to practical extinction or migration, and in the case of Asphondylia the latter prevailed and was accompanied by an increase in size of the terminal lobes and their modification to form the peculiar dorsal pouch.

TWO NEW SPECIES OF HOLCASPIS FROM MEXICO.

By William Beutenmuller.

American Museum of Natural History, New York City.

Holcaspis weldi, sp. nov. (Plate 12, fig. 2).

Female. Head dusky yellowish brown, finely and evenly rugose, slightly pubescent. Antennæ dull brown, 14-jointed, rather stout, third joint long and slender, second subcylindrical, fourth joint shorter than the third and thick at the end, following joints shorter and sub-equal. Thorax dull yellowish brown, finely but distinctly punctate and slightly hairy. Parapsidal grooves distinct, and almost reaching the collar. Median groove continuous and broadest at the scutellum. Anterior parallel lines scarcely evident. Lateral grooves fine and not distinct. Pleuræ finely rugose. Scutellum dull yellowish brown, evenly rugose, with a linear depression along the middle and a groove-like depression across the base. Abdomen dark brown, paler dorsally, finely punctate and hairy along the sides. Legs dull yellowish brown, middle and hind femora darker, femora rather stout. Last tarsal joint and claws large and stout. Wings dusky hyaline, somewhat clouded, veins stout and brown. Radial area open. Areolet large. Cubitus almost reaching the first cross-veins. Length 3–4 mm.

Gall. In clusters on the terminal twigs and leaves of *Quercus reticulata*.

Monothalamous. Globular, thin-shelled, yellowish and tinged various shades of pink and red, covered with a dense rusty brown, pubescence, which may be rubbed off with the fingers. Inside there is a rounded kernel held in position by radiating