Xysticus ontariensis, n. sp.

Male 4 mm. long. First and second legs 9 mm. Cephalothorax dark brown, showing a middle stripe very indistinctly. The first and second legs have the femur and patella dark brown, and the rest of the leg pale. The third and fourth legs are spotted as usual but not very strongly marked. The abdomen has

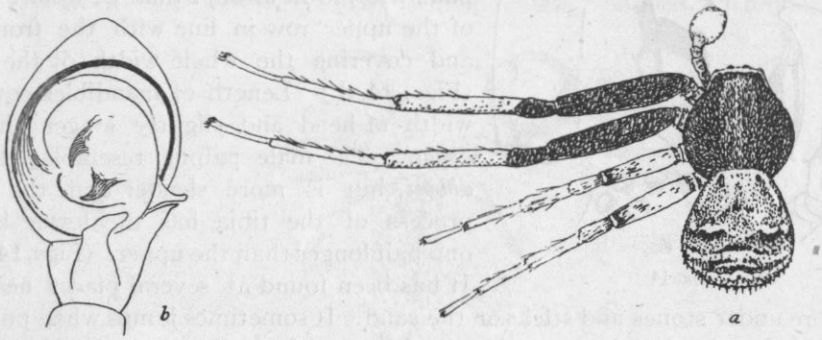

Fig. 16

two irregular brown patches on the front half, and three or four transverse stripes behind all with irregular outlines and variable colour. (Fig. 16, a.) The male palpus has the tibia white. The palpal organ has the two processes on the under side, simple hooks turned toward each other as in *X. gulosus*, with which this species has been confused. (Fig. 16, b.)

Cloyne, Ontario, A. B. Klugh; Wellesley, Massachusetts.

NOTES ON COCCIDÆ—III. (HEMIPTERA).*

BY G. F. FERRIS, STANFORD UNIVERSITY, CALIFORNIA.

Continued from Can. Ent., vol. 50, p. 332.

Genus **Stigmacoccus** Hempel.

1903. Fernald, Cat. Coccidæ, p. 20.

Monophleboid Coccidæ in which the adult female possesses mouth-parts, legs and antennæ, the latter 7–8-segmented; immature stages without legs and with the antennæ reduced to mere chitinized points, with an anal tube formed by the chitinization of the posterior portion of the alimentary canal, this tube terminating at its inner extremity in a series of tentacle-like processes. Abdomen in adult and penultimate stages with 8 pairs of spiracles.

Type of the genus, *Stigmacoccus asper* Hempel.

Notes.—The original description of the type species was based upon the adult alone and the immature stages have not been described. In general the genus appears to be quite similar to *Xylococcus*, but the very peculiar character of the anal tube alone seems sufficient grounds for its separation.

Whether the genus *Perissopneumon* Newstead is a synonym of *Stigmacoccus*, as Cockerell has indicated, is perhaps doubtful.

Stigmacoccus asper Hempel.

Fig. 17.

Penultimate stage. Enclosed in a test, as described by Hempel for the adult female. Body more or less spherical, with the anal opening high up on the dorsum. Derm membranous throughout, except for a small, circular,

chitinized area surrounding the base of the anal tube, everywhere beset with small, spike-like spines. Legs lacking. Antennæ reduced to mere chitinized points. Anal tube of a very distinctive type (Fig. 17A), its inner end terminating in a series of tentacle-like processes (in my single specimen 7 in number), these processes and the tube itself thickly beset with pores. Dermal pores of three types. Of these, one (Fig. 17B) is more or less 8-shaped, with one of the loculi

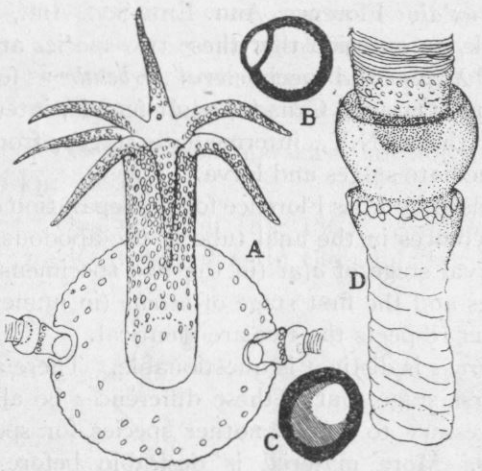

Fig. 17.—*Stigmacoccus asper* Hempel. A, anal tube, with chitinized area and spiracles at its base; B, 8-shaped pore; C, simple pore, from clusters about spiracles; D, spiracle, external opening at lower end.

much smaller than the other. Another resembles the first in shape, but is much smaller and is borne at the inner end of a short duct. The third (Fig. 17C) appears as a simple ring with the enclosed area partially chitinized. The pores of the last type form clusters about the spiracles; those of the first two types are scattered about over the body. Eight pairs of abdominal spiracles present, all of the type indicated in Fig. 17D. The last abdominal pair are situated at the edge of the circular, chitinized area which surrounds the base of the anal tube.

Material examined. Part of the type material, this including a single immature individual.

Genus **Xylococcus** Loew.

1903. Fernald, Cat. Coccidæ, p. 32.

1917. Florence, Ann. Ent. Soc. Am., vol. 10, p. 147.

This genus has been assigned by previous authors to the subfamily Margarodinæ because of the supposed absence of mouth-parts in the adult female. I have at hand a series of adult females of *X. macrocarpæ* Coleman, and in this series practically every stage from a complete absence of mouth-parts to mouth-parts which are to all appearances functional is represented. It appears from this series that the foundations of the mouth-parts are probably always present, but that in some instances they do not become chitinized.

I have not observed mouth-parts in the adult females of other species of *Xylococcus*, but the number of specimens examined is small, and it is not at all improbable that the examination of a long series would reveal conditions similar to those found in *X. macrocarpæ*.

It is becoming increasingly evident that the distinction heretofore drawn

between the Monophlebinæ and the Margarodinæ on the basis of the presence or absence of the mouth-parts in the adult female cannot be maintained.

Xylococcus betulæ Perg.

1898. *Xylococcus betulæ* Pergande, U. S. Dept. Agric., Div. Ent., Bull. 18, n. s., p. 18.

1917. *Xylococcus alni* Florence, Ann. Ent. Soc. Am., vol. 10, p. 158.

There is, I think, no question that these two species are identical. I have at hand the types of *X. alni* and specimens of *X. betulæ* as follows: from "cherry birch," Port Colborne, Ontario, Canada, adult female, intermediate stages and larva; from beech, Ithaca, N.Y., intermediate stages; from beech, Michigan, adult female, intermediate stages and larva.

The characters used by Miss Florence for the separation of *X. alni* are hardly sufficient. The differences in the anal tube of the apodous stages are not constant. The first larval stage of *alni* (in the two specimens examined) has 6–7 median ventral pores and the first stage of *betulæ* (in numerous specimens) has but 5, but in all other respects the two are identical.

Whether *X. quercus* is distinct is questionable. There appear to be certain differences in the first stage, but if these differences be allowed as of specific value it will be necessary to name another species for specimens taken from *Quercus californicus*. More material is desirable before forming any conclusions.

X. macrocarpæ Coleman is very distinct. I would separate this from *X. betulæ* by the following characters:

Adult female with the derm of the dorsum practically destitute of spines; anal tube of apodous stages with pores at the inner end only; marginal pores of first stage sessile, *X. macrocarpæ* Coleman.

Adult female of the dorsum everywhere quite thickly beset with slender spines; anal tube of apodous stages with pores both at the inner end and near the base; marginal pores of first stage borne at the inner end of short ducts.....*X. betulæ* Pergande.

Genus **Kuwania** Ckll.

1903. Fernald, Cat. Coccidæ, p. 30.

1909. Cockerell, Can. Ent., vol. 41, p. 56.

Monophleboid Coccidæ in which the adult female appears normally to lack mouth-parts but with the legs and antennæ present; tarsal claw without digitules, the tibia with numerous digitule-like hairs on the inner side at its apex; intermediate stages without legs and with the antennæ reduced to mere chitinized points, anal tube lacking. Four pairs of abdominal spiracles present in adult and penultimate stages, these on the anterior segments of the abdomen.

Type of the genus *Kuwania quercus* (Kuwana).

Notes.—I am inclined to doubt that *K. zeylanica* (Green) is congeneric with *K. quercus*. The immature stages have not been described, and it is upon these that the matter will largely depend, the adults of all of these forms being quite similar. I have at hand an adult female of *K. zeylanica* which differs from the same stage of *K. quercus* in having well-developed mouth-parts with a distinct mentum, and in having 6-8 pairs of abdominal spiracles.

Kuwania quercus (Kuwana).

Fig. 18

1903. Fernald, Cat. Coccidæ, p. 30..

1917. Ferris, Can. Ent., vol. 49, p. 377, fig. 39b.

The general characteristics of the adult female have been described by Kuwana, but there remain certain points of interest. The mouth-parts appear really to be lacking as they are absent in all of numerous preparations examined It is not impossible, however, that further examination would reveal a condition similar to that found in *Xylococcus macrocarpæ*.

There are four pairs of abdominal spiracles (not noted by Kuwana), these of the type shown in Fig. 18. D.

Penultimate stage. Oval in form (Fig. 18C). Antennæ reduced to mere chitinized points. Spiracles arranged as in the adult but of a quite different

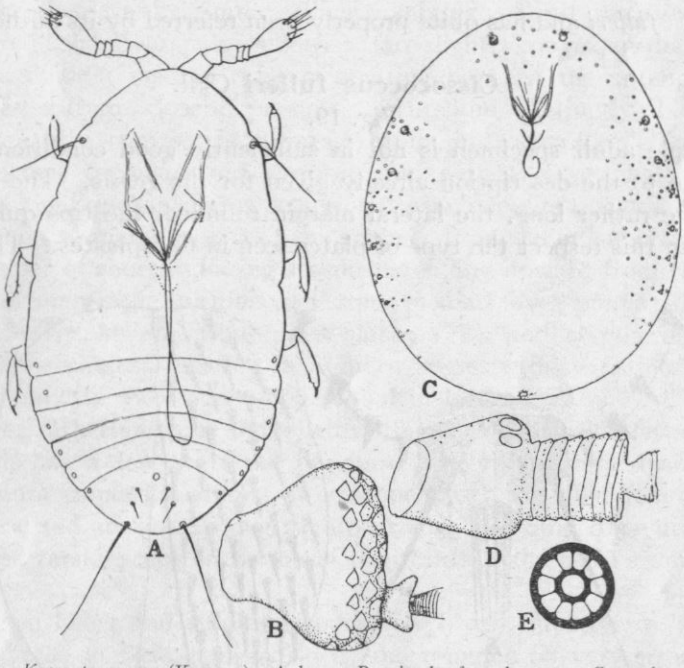

Fig. 18.—*Kuwanta quercus* (Kuwana). A, larva; B, spiracle of apodous stage C, apodous stage; D, spiracle of adult; E, pore of apodous stage.

form (Fig. 18B). Margins of the body with large, circular pores (Fig. 18E), these most numerous toward the head. Anal opening simple, without an anal tube.

First stage larva. (Fig. 18A). The description given by Kuwana appears to be accurate except for the statement, "Margins of the body with capitate hairs." These hairs do not appear in my specimens. The larva is so minute that I have been unable to detect the arrangement of the spiracles, or, indeed, whether or not they are present. Each abdominal segment bears at the margin a small object that may be either a pore or a spiracle.

Material examined. Preparations from the type material.

Genus **Cissococcus** Ckll.

Coccidæ referable to the subfamily Coccinæ. Adult female with the anal plates borne at the apex of a low prominence, their dorsal surface beset with numerous small spines; antennæ and legs present but extremely small; stigmatic depressions apparently lacking, their presence not indicated by differentiated spines. First stage larva likewise without differentiated stigmatic spines.

Type of the genus *Cissococcus fulleri* Ckll.

Notes.—The original description of this genus is much in error. The author states, "Belongs to the Eriococcini. *Larva* typically Eriococcine, with rows of dorsal spines. . . *Adult* . . . with a pair of plates simulating those of the Lecaniinæ." The larva is in all respects of the type usual in the Coccinæ (=Lecaniinæ) and is entirely without dorsal spines. The anal plates of the adult are very much of the type seen in *Ceroplastes*, except for the numerous spines on the dorsal surface. In spite of the gall-making habit the genus is indeed possibly close to *Ceroplastes*.

The species described by Ehrhorn as *Cissococcus ? oahuensis* has nothing to do with *C. fulleri* and has quite properly been referred by its author to a new genus.

Cissococcus fulleri Ckll.

Fig. 19.

My single adult specimen is not in sufficiently good condition to permit adding much to the description already given for the genus. The anal plates (Fig. 3C) are rather long, the lateral margin rounded, the tips quite pointed, resembling in this respect the type of plates seen in Ceroplastes. There appear

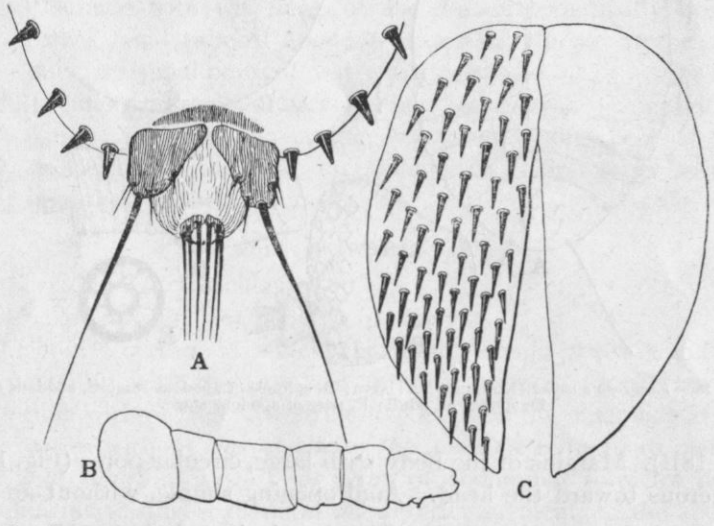

Fig. 19.—*Cissococcus fulleri* Ckll. A, posterior extremity of abdomen of larva, showing the eversible anal tube, which is characteristic of the Coccinae; B, antennæ of larva, setæ not indicated; C, anal plates of adult, spines of dorsal surface indicated in but one plate.

to be no marginal spines. The antennæ are extremely minute, with the number of segments undeterminable; the legs are likewise very small but possess the normal parts.

The first stage larva bears a marginal series of short, stout spines (Fig.

19A); the antennæ are 6-segmented, rather short and stout; there are no dorsal spines.

Material examined. Part of the type material.

Corrections to Earlier Papers.

In my description of *Stomacoccus platani* (2) the caption for Fig. 38B has been omitted. This is the antenna of the prepupa of the male. On page 376 it is stated that the antennæ of the prepupa of the male are 8-segmented, while the figure shows 9 segments. The figure is correct.

In the redescription of *Cryptokermes brasiliensis* Hempel (3), the second line on page 222 reads in part, "posterior portion of anal ring." This should read, "posterior portion of alimentary canal."

*THREE NEW SPECIES OF BRACONIDÆ.

BY C. F. W. MUESEBECK, ITHACA, N.Y.

Apanteles phigaliæ, n. sp.

Female.—Length 2.2 mm. Black, shining. Head transverse, broad; mandibles reddish brown; palpi yellowish; face slightly convex, medially punctate, and with a distinct median ridge originating between the antennæ; antennæ black. Mesoscutum closely punctate; scutellum distinctly but shallowly punctate, slightly convex; both mesoscutum and scutellum shining. Mesopleura punctate cephalad and ventrad, and with a large, shallow, perfectly smooth and highly-polished area posteriorly, which does not possess the crenulate fovea common to many species of the genus. Propodeum smooth and shining, with a number of short radiating striulæ extending upward from the middle of the posterior margin; no median carina nor median fovea present.

Wings.—Tegulæ and wing-bases black; veins and stigma brown; radius and transverse cubitus meeting in a sharp angle, with a distinct heel at the point of union, the two veins about equal in length. Legs.—All coxæ black, the posterior rather smooth, above with a basal elongate-oval flattened shining area, which has a few scattered punctures; all trochanters dusky; fore and middle femora somewhat dusky at extreme base, the hind femora dusky at extreme base and apex and along the upper edge, the hind tibiæ dusky at apex, and the hind tarsi, except on the basal two-thirds of the basal segment, entirely dusky.

Abdomen black and shining, moderately broad; first tergite almost twice as long as broad at base, parallel-sided, and rounded off very strongly at apex so that apex is much narrower than base, almost entirely smooth and polished, only the extreme apex being weakly punctate; plate of second dorsal segment triangular, very narrow at base, and three times as broad as apex as at base, three-fourths as long down the middle as broad at apex, and very slightly, or not at all, shorter than the third plate; the basal middle of this plate is smooth and polished, while the apical margin and the apical angles are finely rugulose. The membranous margins along the apical half of the first tergite and all of the second are fuscous, and exceedingly broad along the second plate, the mem-

2. Canadian Entomologist, vol. 49, p. 375-378, figs. 36 to 39, (1917)
3. Canadian Entomologist, vol. 50, p. 221-225, (1918)

*Contributions from the Gipsy Moth Laboratory, United States Bureau of Entomology, Melrose, Highlands, Mass.