## ART. XVIII.—*Some New* Coccidae.

By G. BRITTIN.

[*Read before the Philosophical Institute of Canterbury, 1st July, 1914.*]

IN the following paper are the descriptions of nine new species of *Coccidae*. With the exception of two species forwarded to me by my friend Mr. R. W. Raithby, from Crushington, near Reefton, they are the result of about eighteen months' consistent search in and around Oamaru. I have been reluctantly compelled to hold over several doubtful species, owing to the fact that the late Mr. Maskell's type collection is at present not available for reference, having been for the last six years in the United States, and also to his diagnosis and drawings of some species not being full enough for identification.

During the last few years the classification of the *Coccidae* has undergone a complete revision, and in accordance with the law of priority many long-standing names have been changed and new genera erected. For instance, the subfamily *Lecaniinae* has now been altered to *Coccinae*, and the genus *Dactylopius* to *Pseudococcus*. With numerous alterations of a similar nature, and the scarcity of good literature on the subject, a study of the New Zealand species is rather a difficult task. Apart from the late Mr. Maskell's work on the subject, apparently nothing is known of the New Zealand *Coccidae*, and that a thorough investigation into this important group of the *Hemiptera* will have to be made sooner or later there can be little doubt. Mr. R. Newstead, F.R.S., who is an authority on the English *Coccidae*, in a letter recently, says that "the whole question of redescribing the New Zealand species will have to be gone into again." This is becoming more necessary as new species make their appearance, and it is now known that some of the Australian species have, since Maskell's time, permanently established themselves in the Dominion.

The illustrations accompanying this paper have, as far as possible, been done on a uniform scale, and the approximate magnification has been given.

In conclusion, I beg to tender my thanks to Mr. C. B. Morris, F.R.M.S., of Oamaru, for the great assistance he has given me in my work; to Mr. R. W. Raithby, for the loan of some of the late Mr. Maskell's slides in his collection, and also for collecting; to Professor T. D. A. Cockerell, of Boulder, Colorado, and Dr. L. O. Howard, United States Entomologist, for literature on the subject; also to Professor R. Newstead, F.R.S., of Liverpool, England, and Mr. C. French, Victorian Entomologist, for much useful information.

### Fam. COCCIDAE.

#### Subfam. DIASPINAE.

#### Gen. FIORINIA.

1. **Fiorinia Morrisii sp. nov.** Fig. 1.

Puparium of adult female consisting entirely of the second exuvia; elongate-ovate; generally straight, sometimes slightly curved; convex; colour light brown. Secretion white, felted; larval exuvia white.

Puparium of male felted, white, not carinated.

Adult female white, elongated, widest at cephalic extremity, convex. Rudimentary antennae with 4 strong hairs. Rostrum medium size, mentum almost circular, rostral setae short. Anterior spiracles, set very close to-

rostrum, with group of 12–14 parastigmatic glands. Pygidium, broader than long, is very square across the lower extremity; 5 groups of circumgenital glands, the three upper groups forming a complete arch over the anal orifice; anterior group 20–24 glands; anterior laterals 25–30; posterior laterals 25–30; margin with 3 pairs of highly chitinized subequal

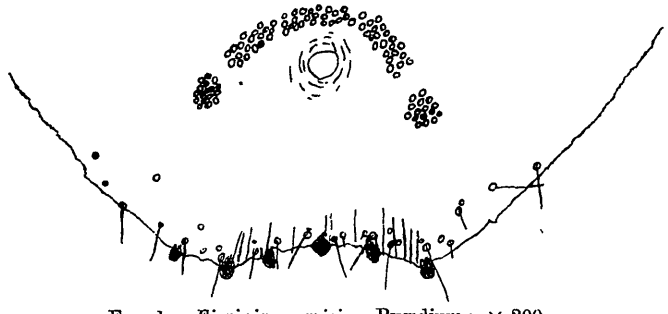

FIG. 1.—*Fiorinia morrisii.* Pygidium; × 200.

lobes, set equidistance apart; between each pair of lobes there are 2 long and 2 short spine-like hairs, with 3 more beyond the outer lobes Several short spiny hairs scattered over the pygidium. Length, 1·30 mm.

Adult male unknown.

*Hab.*—On *Nothopanax* sp. and *Griselinia littoralis*, Oamaru.

Genus POLIASPIS.

2. **Poliaspis argentosis** sp. nov. Fig. 2.

Puparium of adult female elongate-ovate, convex. Secretion white, and closely felted; exuviae light yellow.

Puparium of male unknown.

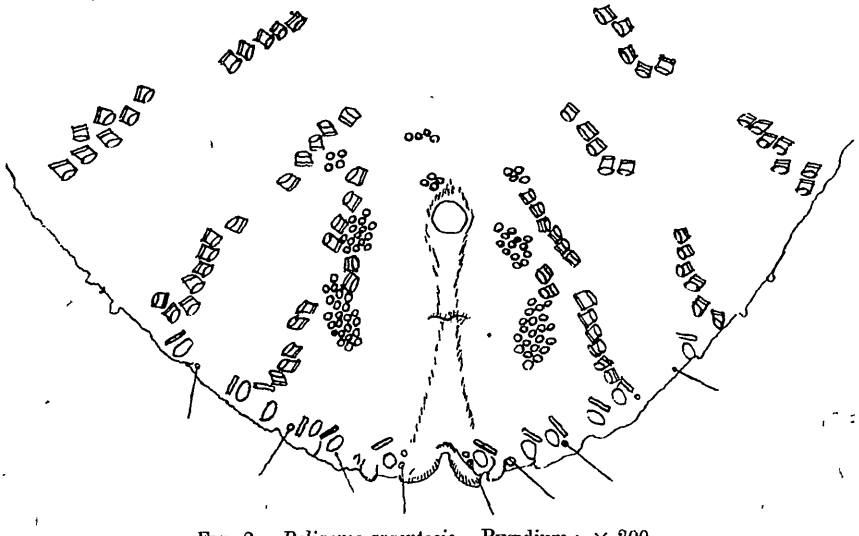

FIG. 2.—*Poliaspis argentosis.* Pygidium; × 200.

Adult female elongated, yellow, convex above, flat beneath. Rudimentary antennae with 2 long curved hairs at apex. Rostrum long, mentum

short and broad. Anterior spiracles with group of 6–10 parastigmatic glands; posterior spiracles with group of 4–6 glands. Last five free abdominal segments with short tubular spinnerets at side. Pygidium large and well defined, with 8 groups of circumgenital glands, the three anterior groups each consisting of 2–5 glands; subanterior group 2–4; anterior laterals 14–20; posterior laterals 21–25. Dorsal tubular spinnerets, in 8 distinct series, are short and cylindrical, and contain 4–6 spinnerets in each series; on the preceding segment there are 4 more series. The median lobes are narrow and widely divergent, with serrated edge; second pair long and narrow, and finely serrate; marginal spinnerets 6 on each side of median lobes, the four middle ones being in pairs. Plates, 4 on each side of median lobes, are simple and spine-like; the first three being situated between the median lobes and the first series of dorsal spinnerets, and one beyond. Spines 4, very short, one at the base of each plate. Anal orifice immediately below subanterior group of glands; vaginal opening centrally between posterior groups. Length, 1·22 mm.

Adult male unknown.

*Hab.*—On *Coprosma* sp., Crushington, near Reefton; found by Mr. R. W. Raithby.

This species is closely allied to *P. cycadis*, but differs in the shape and texture of the puparium, and also in the spinnerets on the pygidium.

## Genus PINNASPIS Cockerell.

3. **Pinnaspis nitidus** sp. nov. Fig. 3.

Puparium of female elongate-ovate, convex, brown; exuviae terminal.

Adult female elongated, distinctly segmented, white. Rudimentary antennae bearing 4 fine hairs. Rostrum long and narrow, mentum short

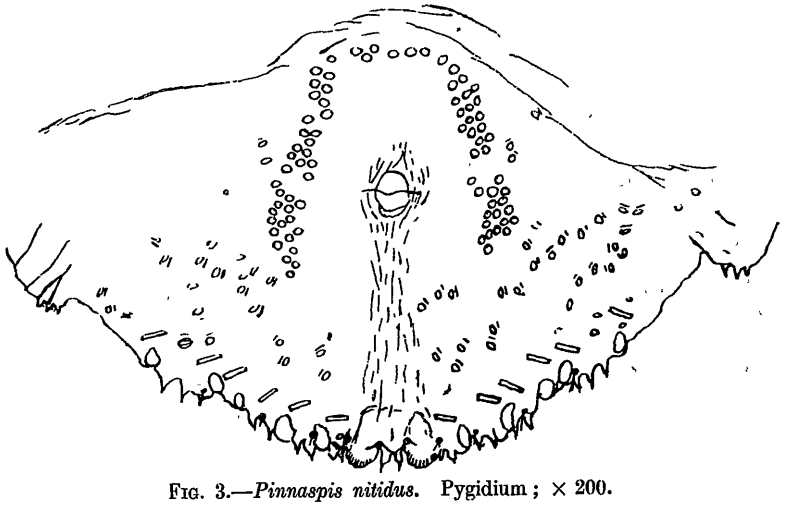

FIG. 3.—*Pinnaspis nitidus.* Pygidium; × 200.

and broad, rostral setae long. Anterior spiracles with group of from 4 to 6 parastigmatic glands. Last six free abdominal segments with numerous short tubular spinnerets at side. Pygidium medium size, with 3 pairs of lobes; median pair broad, widely separated, and with crenulated extremity; second and outer pair small and narrow. Between the lobes are 2 plates, which are short, thick, pointed processes, with 2 more beyond the outer

lobes. Spines, 4 on each side of, and 2 between, the median lobes. Marginal tubular spinnerets 6. Five groups of circumgenital glands, forming an almost complete arch; the number of orifices seem to vary a great deal, and the formula given here are for two specimens, that on *Pittosporum*—anterior group 6 orifices; anterior laterals 24, 19; posterior laterals 13, 13: and that on *Astelia*—anterior group 13; anterior laterals 24, 19; posterior laterals 14, 15. A few small oval spinnerets are scattered over the pygidium. Anal orifice and vaginal opening opposite, and situated centrally between the grouped glands. Last three free abdominal segments with group of 3 spiny hairs; cephalic extremity smooth and hairless. Length, 1·55 mm.

*Hab.*—On bark of *Pittosporum* sp. and on *Astelia*, at present only from Oamaru.

This species is very like *Lepidosaphes*, but, owing to the large second exuvia, must be placed in the genus *Pinnaspis*. I found on *Astelia* what is evidently the supposed male puparium, which agrees with Signoret's description; but, as the insect enclosed was not in the pupa stage, it was impossible to be sure of its true character.

NOTE.—The genus *Pinnaspis* has not hitherto been recorded as occurring in New Zealand.

Subfam. COCCINAE.

Genus LECANIUM.

4. Lecanium armatus sp. nov. Figs. 4, 4*a*, 4*b*.

Adult female ovate, dark-red, convex, with a distinct carina; margin with a row of strong spines; 2 irregular rows of slightly smaller spines along dorsum. Antennae of 7 joints, tapering towards apex, 4th joint longest; formula 4 (3, 2), 7, 6 (5, 1); all joints hairy, last joint with 2 very

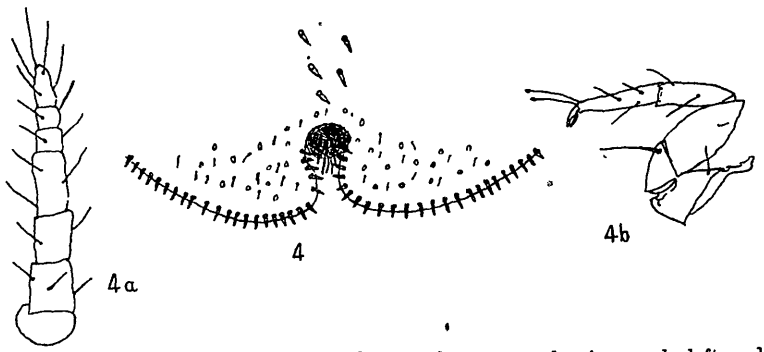


FIG. 4.—*Lecanium armatus.* Last abdominal segment, showing anal cleft and lobes with marginal and dorsal spines; × 120. 4*a*. Antennae of adult female; × 200. 4*b*. Leg of adult female; × 200.

long hairs and 8 short ones. Rostrum short, rostral setae short. Spiracles very thick, and barrel-shaped; anterior spiracles with several spinnerets immediately above, which, with others, form a band which slopes upwards towards the margin; posterior spiracles with a scattered group of the same immediately below. Legs small; coxa short and broad; trochanter large, and appears fused to the femur, which is short and broad; tibia narrow, dilated towards the tibio-tarsal joint; tarsus tapering towards claw, and slightly longer than tibia. Upper digitules long fine knobbed hairs; lower digitules broad. The coxa on the posterior pair of legs is abnormally

enlarged; all joints with several hairs. Anal cleft very broad, widening towards the lobes, which are highly chitinized, and shaped like two half-circles, between which is the anal ring, with 8 hairs; on the lower half of each lobe is 1 strong spine and several short hairs. Dermis covered with numerous short fine hairs and tubular spines. Length, 3·14 mm.

Adult male unknown.

*Hab.*—On *Muehlenbeckia australis*, Oamaru.

### Subfam. DACTYLOPINAE.

### Gen. PSEUDOCOCCUS.

5. **Pseudococcus oamaruensis** sp. nov. Figs. 5, 5*a*, 5*b*.

Adult female active, elongated, distinct segmented, convex above, flat beneath; colour brick-red; covered with a thin yellow meal. Antennae 8 joints, last joint longest; formula 8, 2 (3, 5), 1 (6, 7), 4; all joints with numerous long hairs. Mentum rather large, with hairs at tip; rostral setae medium length. Legs large and strong; coxa broad and short; trochanter narrow; femora long and thick; tibia long and slender, and about same thickness at both extremities; tarsus slender and about half length of tibia, narrowing towards the claw, which is long and thin; upper digitules long fine hairs, lower digitules slightly longer than claw, and club-shaped. Spiracles short and thick. Anal ring large, with 6 long hairs. Anal lobes

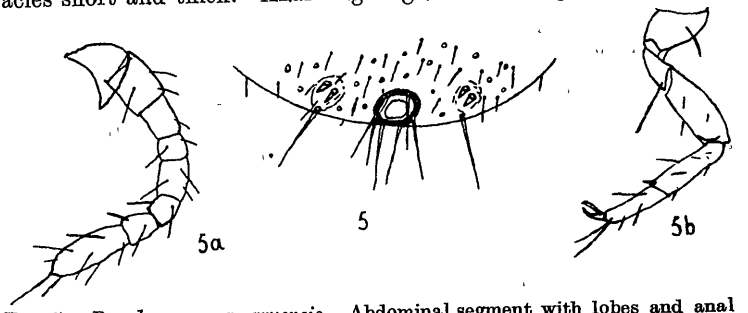


FIG. 5.—*Pseudococcus oamaruensis*. Abdominal segment with lobes and anal ring, dermis marked with spinnerets and hairs; × 120. 5*a*. Antennae of adult female; × 200. 5*b*. Leg of adult female; × 200.

inconspicuous, with 2 strong spines, several short fine hairs and 1 very long one. Dermis covered with numerous short fine hairs and spinnerets. The spinnerets are of two kinds—large simple, and the small multilocular. On the last few segments the small spinnerets appear as short tubes. Length, 1·6 mm.

Adult male unknown.

*Hab.*—Subterranean, on roots of *Aquilegia*, 3 in. to 6 in. beneath the surface.

6. **Pseudococcus cockayneii** sp. nov. Figs. 6, 6*a*, 6*b*, 6*c*.

Adult female active, very elongated; colour pink; covered with a large quantity of white mealy secretion. Antennae of 8 joints, last joints longest; formula 8, 1, 2 (3, 7), (4, 5, 6); all joints hairy. Mentum very short and broad, with a few short hairs at tip; rostral setae short. Legs slender; tibia nearly twice as long as tarsus; digitules all fine hairs. Spiracles medium size, constricted in the middle; numerous large round spinnerets are grouped around spiracles. Anal ring very large, with 6 long hairs. Anal

lobes rather more conspicuous than usual, with 2 short thick spines and several long hairs, one hair being twice the length of the rest. On each segment are bands of long fine hairs, and spinnerets of two sizes, the large spinnerets being most numerous, small spinnerets being mostly on the

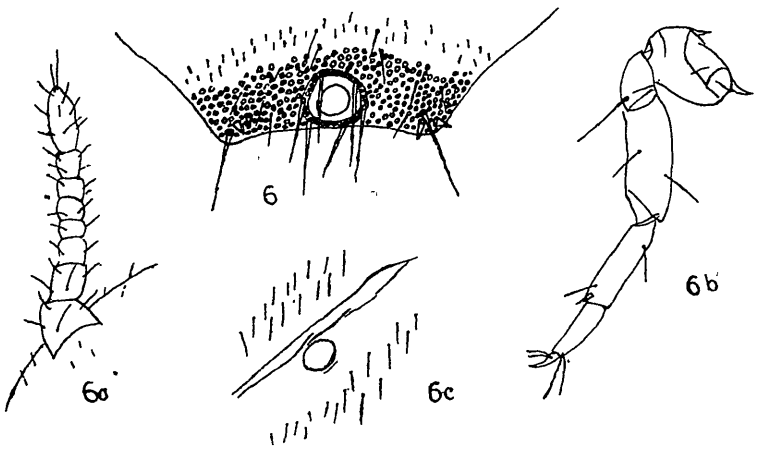


FIG. 6.—*Pseudococcus cockayneii.* Abdominal segment, showing lobes, anal ring with hairs, spines, and spinnerets; × 120. 6*a*. Antennae of adult female; × 200. 6*b*. Leg of adult female; × 200. 6*c*. Large circular markings on dermis; × 200.

ventral surface. Down the centre of the ventral surface, situated on the articulations between the segments, and starting on the third articulation from the posterior end, are 6 large circular markings, the first and last being smallest, the third and fourth the largest. Length, 2·93 mm.

Adult male unknown.

*Hab.*—On *Aciphylla*, around Oamaru.

7. Pseudococcus sexaspinus sp. nov. Figs. 7, 7*a*, 7*b*.

Adult female elongated, segmented, pale pink, enclosed in a test of white cottony secretion. Antennae of 8 joints, last joint longest; formula 8, 1, 2

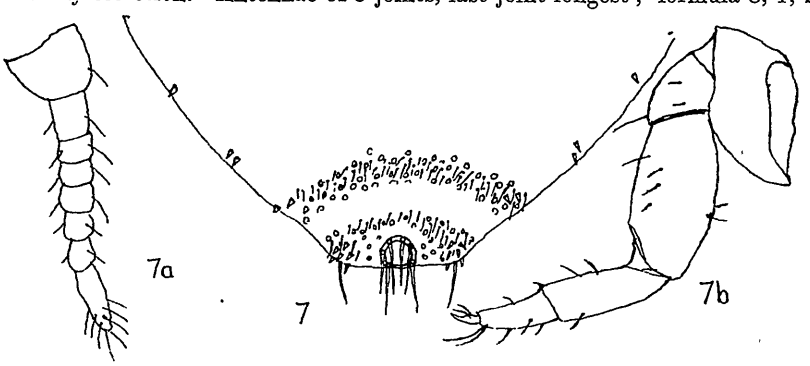


FIG. 7.—*Pseudococcus sexaspinus.* Abdominal segment with lobes; × 120. 7*a*. Antennae of adult female; × 200. 7*b*. Leg of adult female; × 200.

(3, 4, 5, 6, 7); all joints with several hairs. Eyes rather prominent. Rostrum normal; mentum long, timorous. Legs strong and thick; tarsus

shorter than tibia; all joints hairy; digitules all fine hairs. Anal lobes inconspicuous, with 6 short conical spines and several hairs, one hair being very thick and long; the two next preceding segments with 2 spines each, in pairs near edge of body, and the next segment with 1 spine; all segments marked out with bands of rather long hairs; cephalic extremity with numerous hairs between antennae; anal orifice with 6 long stout hairs. Dermis covered with numerous spinnerets. Length, about 3 mm.

Adult male unknown.

*Hab.*—Subterranean, on roots of sedge, at present only from Crushington, near Reefton; found by Mr. R. W. Raithby.

## Genus RIPERSIA.

8. Ripersia occultum sp. nov. Figs. 8, 8*a*, 8*b*.

Adult female active, elongate-ovate; colour dark purple; covered with a thick coating of yellow meal. Antennae medium length, of 6 joints, last joint longest; formula 6, 3, 1, 2, 5, 4; all joints hairy; articulations of antennae very pronounced. Rostrum short; mentum large and long, with hairs at tip; rostral setae short. Legs normal; tibia with 2 short spines at apex; digitules all fine hairs. Spiracles short and broad. Anal

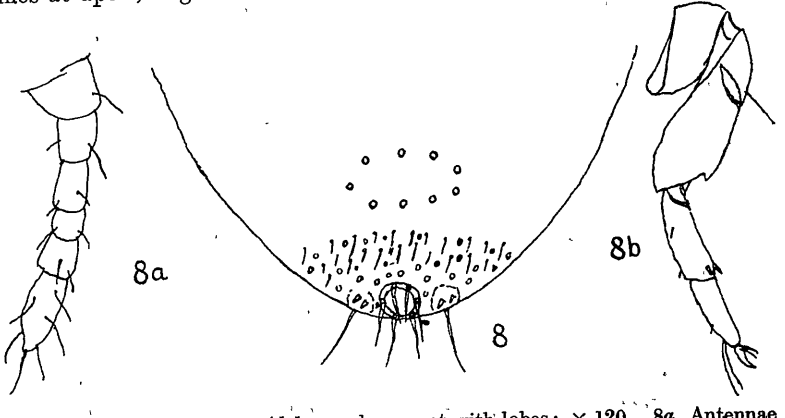


FIG. 8.—*Ripersia occultum.* Abdominal segment with lobes; × 120. 8*a*. Antennae of adult female; × 200. 8*b*. Leg of adult female; × 200.

ring with 6 long stout hairs; anal lobes inconspicuous, with 2 short thick spines and several hairs, one of which is very thick and long. Dermis covered with long fine hairs, which are especially noticeable between the antennae. There are also numerous small circular spinnerets scattered over the body. On the abdominal portion, just above the anal ring, there are 9 large circular spinnerets arranged in the form of a circle. Length, 1·59 mm.

Adult male unknown.

*Hab.*—Subterranean, on roots of grass, 3 in. to 9 in. beneath the surface, Oamaru.

9. Ripersia globatus sp. nov. Figs. 9, 9*a*, 9*b*.

Adult female pink, globular, segmentation very indistinct, covered with a test of white cottony secretion. Antennae short, of 6 joints, last joint

longest; formula 6, 3 (2, 1), (4, 5); all joints except first with several hairs Mentum fairly long and pointed, with a few hairs at tip. Spiracles widely dilated at both extremities. Legs, like the antennae, very short; coxa short and broad; trochanter very large, with a single long fine hair; femora thick, with a few hairs on under-surface; tibia short and thick, with 2 short

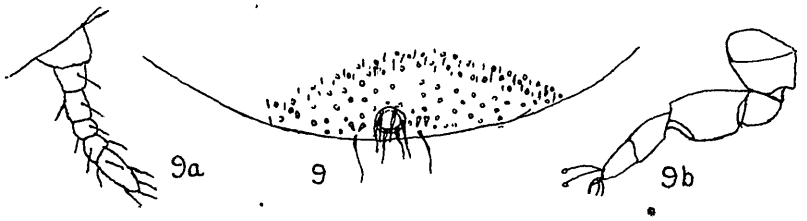


FIG. 9.—*Ripersia globatus.* Abdominal segment with lobes; × 120. 9*a*. Antennae of adult female; × 200. 9*b*. Leg of adult female; × 200.

spines near tibio-tarsal joint; tarsus slightly shorter than tibia, and more slender; upper digitules fine knobbed hairs, lower digitules fine hairs slightly longer than claw. The coxa on the posterior pair of legs is abnormally enlarged. Anal ring with 6 hairs, anal lobes imperceptible, represented merely by 2 short conical spines and a single long fine hair. Dermis covered with short fine hairs, interspersed with small round spinnerets. Length, 2·07 mm.

Adult male unknown.

*Hab.*—Subterranean, on grass-roots, moss, also in ants' nests; Oamaru.

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## ART. XIX.—*New* Coccidae.

By G. BRITTIN.

[*Read before the Philosophical Institute of Canterbury, 2nd December, 1914.*]

THE following paper contains the descriptions of one new genus and three new species of the New Zealand *Coccidae.*

The new genus *Scutare* will make a most interesting addition to the list of the New Zealand *Coccidae,* and has been placed temporarily in the subfamily *Conchaspinae,* to which it evidently belongs; and if it should ultimately be permanently placed in that subfamily a material alteration will have to be made in the diagnosis of the *Conchaspinae.* The species *fimbriata* varies in several important points from all the species belonging to the genus *Conchaspis* Cockerell. There is one genus of the *Conchaspinae* of which I am at present unable to get any information, that is the monotypic genus *Fagisuga** Lindinger. It may happen that my species belongs to that genus, but until I have received word from England and America I will leave it as at present placed.

* "Catalogue of *Coccidae,*" vol. ii, U.S. Dept. Agric., 1909, p. 35.