

STUDIES OF THE COCCOIDEA. 4. NEW SPECIES OF ASPIDIOTINI.

By A. R. BRIMBLECOMBE, M.Sc., Senior Entomologist, Division of Plant Industry.

SUMMARY.

New species described in the Aspidiotini are *Pseudotargionia cordata*, *P. marginata*, *P. crenulata*, *Duplaspidiotus spinosus*, *D. carpellus*, *Pseudaconidia dimidiata*, *P. dentata* and *Rhizaspidiotus cassiniae*.

Pseudotargionia cordata n.sp.

(Figs. 1 and 2.)

Locality and host.—Queensland; Carbrook, on *Melaleuca nodosa* Sm., May 1954.

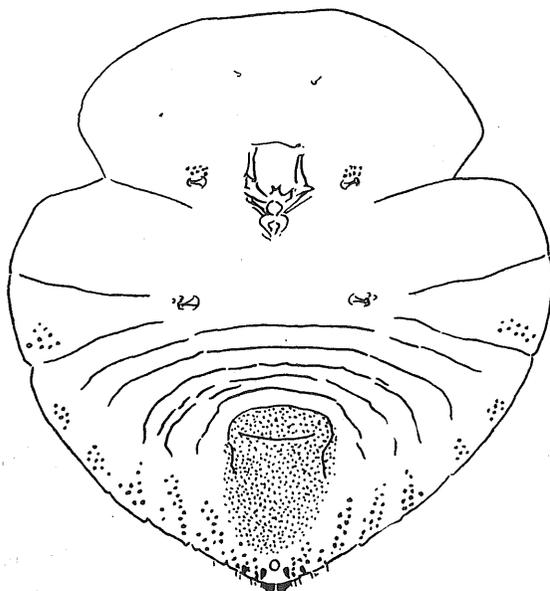


Fig. 1.

Pseudotargionia cordata. Outline of body. (x 70).

Habit.—Insects single and sparse, under the cork tissue in surface depressions of twigs. Scale and overlying cork tissue thin; under-surface of scale whitish.

Recognition characters.—Adult female with a deep thoracic constriction, anterior portion dome-shaped, posterior portion wider, cordate. Length of slide specimen 1.0 mm., width 0.9 mm. Pygidium not differentiated, apex broadly rounded. Median pair of lobes only, united basally but with a dorsal anal groove, length and width subequal, widest basally, apex broadly rounded, inner margins almost parallel with a subapical indentation, outer margins

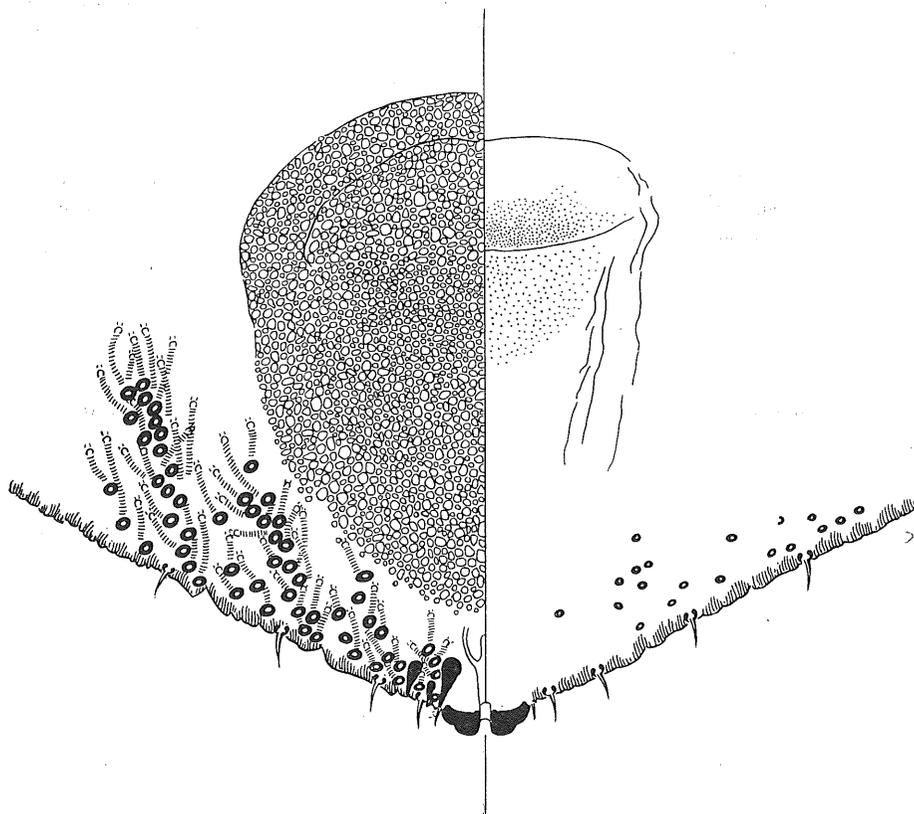


Fig. 2.

Pseudotargionia cordata. Enlargement of pygidium. (x 210).

convergent to each other, slightly irregular. Basal scleroses absent. Paraphyses in the first and second interlobal areas unevenly paired or apparently on the median side only in the first interlobal area, longer than median lobes and apically enlarged, smaller in the second interlobal area. Plates absent. Spines adjacent to the lobes shorter than the lobes, other spines longer. Dorsal ducts short and slender; orifices small with chitinized rims, in segmental series, four in the first duct furrow, seven in the second, 16 in the third and 20 in the fourth, a fifth series present and other anterior ducts submarginal on abdominal segments. Perivulvar pores absent. Anal opening small, slightly more than a lobe's length from the bases of the lobes. Margin of abdominal segments finely crenulate. Pygidium dorsally with a large median

area of finely reticulated chitinization, remainder of body with a fine finger-print chitinization. Anterior spiracles with 8-11 associated pores, posterior spiracles with 2 pores. Prothorax laterally with a cone-like protuberance.

Notes.—The heavy chitinization at maturity obscures the duct orifices. Thoracic protuberances may not be evident on old specimens. The species has features similar to *P. marginata* but has many more dorsal pygidial ducts and these are in segmental series.

Type slide Reg. No. T.5517 and paratypes Reg. Nos. T.5518 to T.5520 in the Queensland Museum.

***Pseudotargionia marginata* n.sp.**

(Figs. 3 and 4.)

Locality and host.—Queensland; Ayr, on *Melaleuca viridiflora* Soland. ex. Gaertn., Feb. 1953 (W. A. Smith). Paratypes from the same and from Bowen on *Melaleuca viridiflora*, Apr. 1955 (G. W. Saunders).

Habit.—Insects single and sparse, on twigs, beneath cork tissue, under-surface of scale greyish white.

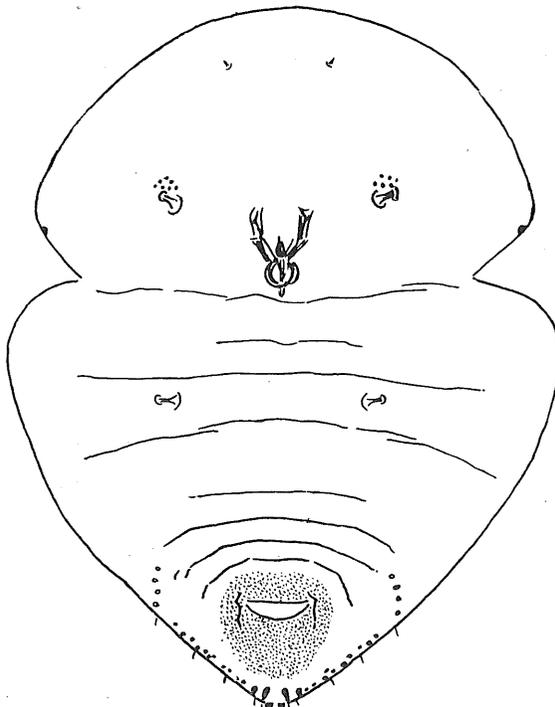


Fig. 3.

Pseudotargionia marginata. Outline of body. (x 70).

Recognition characters.—Adult female with a deep thoracic constriction, anterior portion dome-shaped, posterior portion wider, triangular. Length of slide specimen 1.3 mm., width 1.0 mm. Pygidium not differentiated, apex broadly rounded. Median pair of lobes only, as wide as long, united basally but with a dorsal anal groove, inner margins slightly curved, outer margins broadly curved, apices rounded with a subapical lateral indentation and a small indentation near the base. Basal scleroses absent. Paraphyses in the first interlobal area as long as the lobes; small

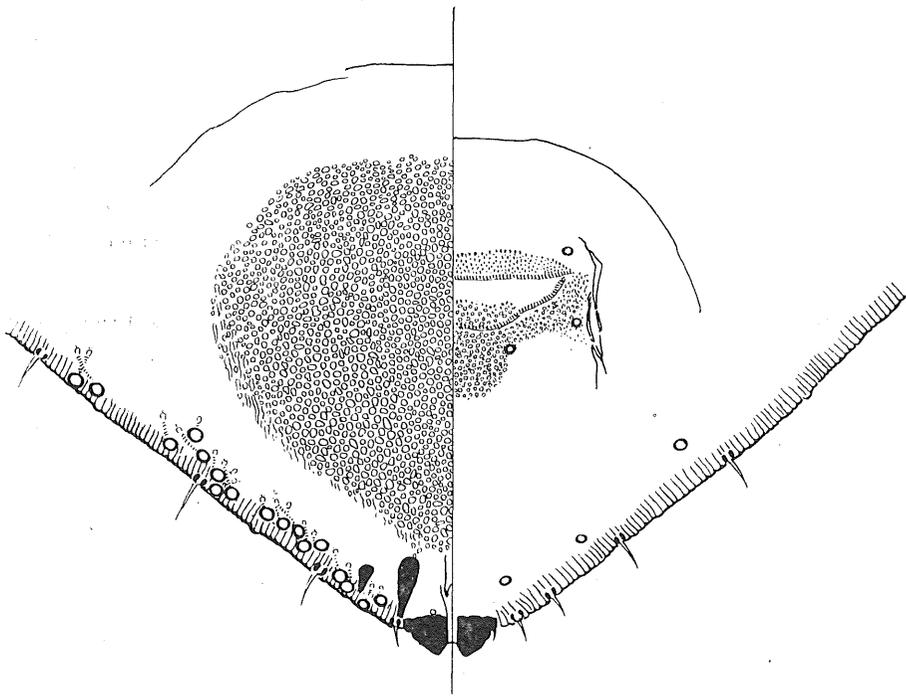


Fig. 4.

Pseudotargionia marginata. Enlargement of pygidium. (x 260).

in the second interlobal area. Spines at the bases of the median lobes half the lobe's length, other spines longer. Plates absent. Dorsal ducts submarginal, segmental series not evident, short, slender; orifices marginal. Perivulvar pores absent. Anal openings small in an inverted V, a lobe's length or less from the bases of the lobes. Pygidial margin crenulate. Median dorsal pygidial surface with finely reticulate chitinization. Body otherwise with a finger-print chitinization. Anterior spiracles with 5-11 associated pores.

Notes.—Lobes sometimes are triangular. Paraphyses in the first interlobal area may be club-like. The body at maturity is heavily chitinized, with dorsal pygidial margin slightly overlying the ventral, obscuring the

paraphyses in the second interlobal area and the duct orifices. A minute protuberance or a corresponding small differentiated area is evident posterior to the prothoracic extremities.

Young adult females are subcircular, the anterior dome-shaped portion being comparatively small, but enlarging with growth.

The species resembles *P. cordata* but differs from it in that the posterior portion of the body is distinctly triangular and the dorsal pygidial ducts are marginal and less in number.

Type slide Reg. No. T.5509 and paratype Reg. Nos. T.5510 to T.5512 in the Queensland Museum.

***Pseudotargionia crenulata* n.sp.**

(Figs. 5 and 6.)

Locality and host.—Queensland; Ormiston, on *Melaleuca leucadendra* (L.) L. (*sens. lat.*), Sept. 1950. Paratypes from the same and from Tugun on *M. leucadendra*, May 1953.

Habit.—Insects single and sparse on twigs under thin layer of cork tissue or in bark depressions. Under-surface of scale whitish. First pellicle yellow.

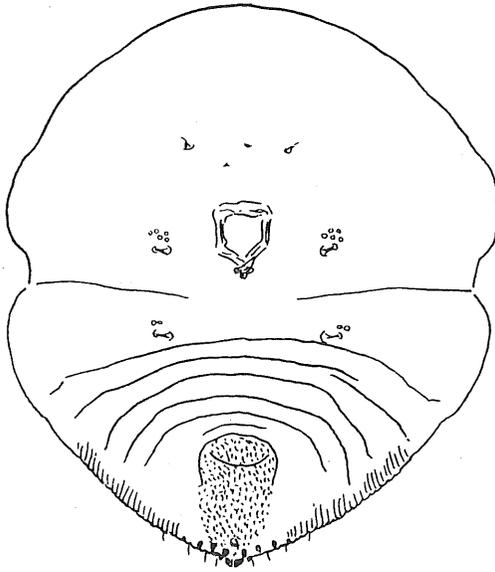


Fig. 5.

Pseudotargionia crenulata. Outline of body. (x 70).

Recognition characters.—Adult female with a thoracic constriction, anterior portion dome-shaped, posterior portion wider, semicircular. Length of slide specimen 0.9 mm., width 0.75 mm. Pygidium not differentiated, apex

obtuse, broadly rounded. Median lobes convergent, longer than wide, united basally with a dorsal anal groove, inner margins sub-parallel or slightly concave, outer margins broadly curved to a subapical indentation, apices rounded. Second pair of lobes small, tooth-like, triangular. Paraphyses as uneven pairs in the first and second interlobal areas, larger on the inner side, subequal in length to the median lobes. Plates absent. Spines adjacent to the median lobes short and inconspicuous, other spines longer than the median lobes. Dorsal ducts short, slender; orifices small, in segmental series but numbers obscured by heavy chitization. Perivulvar pores absent. Anal opening small, in an inverted V, a lobe's length from the bases of the lobes.

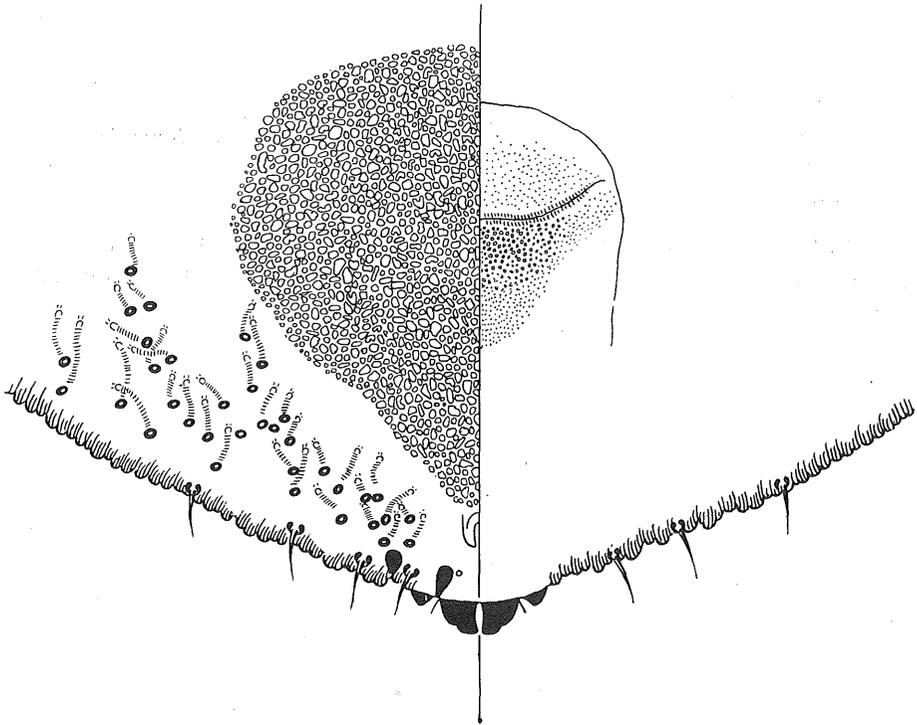


Fig. 6.

Pseudotargionia crenulata. Enlargement of pygidium. (x 230).

Body margin crenulate to the thoracic constriction. Median dorsal pygidial area with irregular reticulate chitization. Body elsewhere with heavy finger-print chitization. Anterior spiracles with 5 or 6 associated pores, posterior spiracles with 2 or 3 pores.

Notes.—Young adult females are subcircular and the anterior portion comparatively small. In older specimens the anterior and posterior portions are almost equal in size.

The species differs from *P. cordata* and *P. marginata* in that it has a pronounced marginal crenulation of the body extending anteriorly to the thoracic constriction and the median lobes are more uniform in width, apically convergent, with the inner margins tending to be concave.

Type slide Reg. No. T.5505 and paratype Reg. Nos. T.5506 to T.5508 in the Queensland Museum.

Duplaspidotus spinosus n.sp.

(Figs. 7 and 8.)

Locality and host.—Queensland; Chinchilla, on *Geijera parviflora* Lindl., Apr. 1953 (J. Mann).

Habit.—Insects single and sparse on twigs. Scale of female 1.5 mm. diameter, mostly greyish white, slightly darkening near centre. Second pellicle black with a thin pale greyish suffusion. First pellicle yellowish brown. Old specimens grey over most of the scale surface.

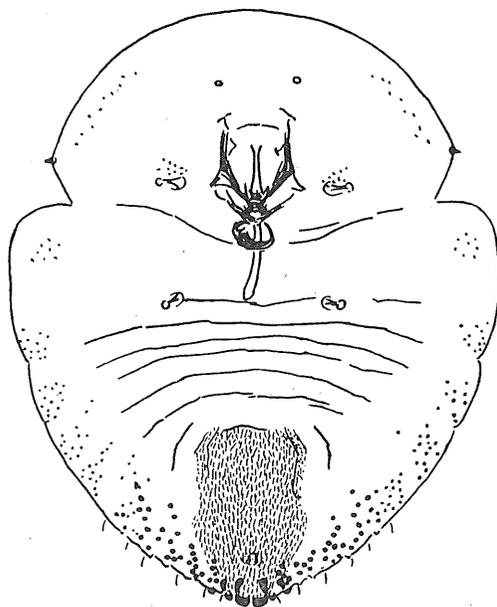


Fig. 7.

Duplaspidotus spinosus. Outline of body. (x 70).

Recognition characters.—Adult female with a deep thoracic constriction, anterior portion dome-shaped with a stout lateral spine, posterior portion wider, triangular. Length of slide specimen 1.2 mm., width 1.0 mm. Pygidium not differentiated, apex broadly rounded. Three pairs of lobes. Median lobes wider than long, united basally, barely separated apically, apex broadly curved from the lateral margin. Second pair of lobes of similar shape but much

smaller, separated from the median lobes by a third to half of the second lobe's width. Third pair of lobes small, broad, chitinous and dome-shaped or truncated, separated from the second lobes by the width of the median lobes. Large chitinous triangular lobe-like points on each of the fifth, fourth and third abdominal segments, with a few intervening tooth-like projections. Basal scleroses absent. Paraphyses on the inner side of the first, second, and third interlobal areas; the first and second subequal in length to the median lobes, apparently clubbed; the third shorter. Plates slender, apices bifid, as long as or slightly longer than the second lobes, two in each of the first and second interlobal spaces. Spines small adjacent to the median lobes, other spines longer than the lobes. Dorsal ducts small, medianly slightly exceeding the distance to the anal opening; orifices small, three in the first duct furrow,

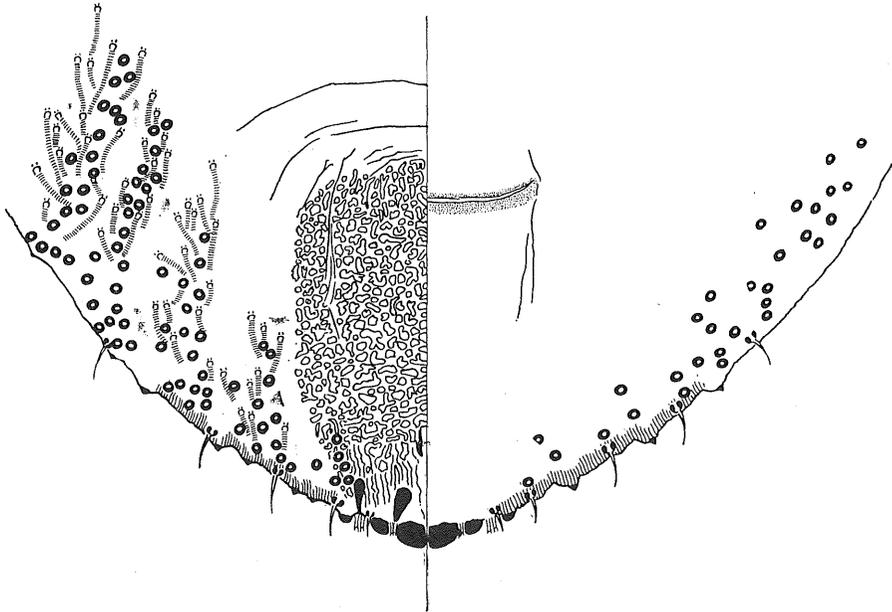


Fig. 8.

Duplaspidiotus spinosus. Enlargement of pygidium. (x 210).

about eight in the second, others in segmental series but dispersed, present on all body segments to the thoracic constriction and some evident in a submarginal row anterior to the constriction. Anal opening small, two to three times the median lobe's length from the bases of the median lobes. Median pygidial area with reticulate chitinization, remainder of body with a heavy finger-print chitinization. Anterior spiracles with 5 to 7 associated pores.

Notes.—The plates in some specimens appear to be simple. The tooth-like projections on the pygidial and abdominal margins may appear like lobes, and the heavy body chitinization obscures the duct orifices.

The species differs from *D. carptellus* in having a stout lateral spine on each side of the prothorax, and pores associated with the anterior spiracles.

Type slide Reg. No. T.5524 and paratypes Reg. Nos. T.5525 to T.5526 in the Queensland Museum.

***Duplaspidiotus carptellus* n.sp.**

(Figs. 9 and 10.)

Locality and host.—Victoria; Mallee, on *Acacia* sp., 1918 (J. E. Dixon).

Habit.—Insects sparse on leaves. Scales circular, outer part white, gradually darkening to fawn towards the centre. Second pellicle black but with a whitish suffusion. First pellicle pale yellow-brown.

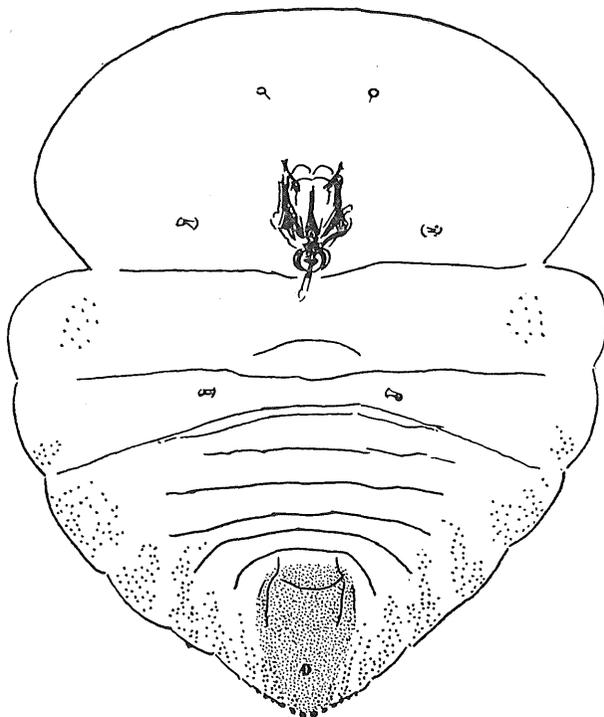


Fig. 9.

Duplaspidiotus carptellus. Outline of body. (x 70).

Recognition characters.—Adult female with a deep thoracic constriction, anterior portion sub-oval to dome-shaped, posterior portion wider, triangular. Length of slide specimen 1.2 mm., width 1.1 mm. Pygidium not differentiated, apex broadly rounded. Three pairs of lobes. Median lobes wider than long, ventrally united basally, separated by a line's width apically, narrower basally, outer apical surfaces broadly curved to rounded apices. Second lobes similar in shape but much smaller, half the width of the median lobes and separated from these by twice a median lobe's width. Third lobes slightly

narrower and shorter than second, apex broadly rounded with irregular small indentations, separated from the second by its own width. Margin beyond the third lobe with irregular tooth-like chitinous projections, with other anterior smaller serrations. Basal scleroses absent. Paraphyses as slight chitinous thickenings on the inner side of the first, second, and third interlobal areas, a small thickening noticeable in the fourth area. Plates absent in the median interlobal space, two in the first interlobal space, slender, simple, as long as the lobes, two similar plates in the second interlobal space. Dorsal ducts in



Fig. 10.

Duplaspidiotus carpellus. Enlargement of pygidium. (x 210).

segmental series, medianly extending slightly beyond the anal opening, five or six in the first duct furrow, 14 to 17 in the second, about 20 in the third, scattered and numerous submarginally on other abdominal segments with a small submarginal cluster on the metathorax. Perivulvar pores absent. Anal opening small, four to five times the median lobe's length from the bases of the lobes. Median dorsal pygidial area with reticulate chitinization, body otherwise with heavy finger-print chitinization. Spiracular pores and lateral thoracic spines absent.

Notes.—Chitinization on young mature females only as a pear-shaped area medianly on the pygidium. The tooth-like projections beyond the third lobe are heavily chitinised and resemble lobes.

Type slide in the C.S.I.R.O. collection, Canberra. Paratype slide Reg. No. T.5528 in the Queensland Museum.

***Pseudaonidia dimidiata* n.sp.**

(Figs. 11 and 12.)

Locality and host.—Queensland; Gayndah, on *Acacia harpophylla* F. Muell., ex. Benth., Aug. 1951.

Habit.—Insects single and sparse on leaves. Scales circular, up to 2.5 mm. diameter, white, second pellicle dark with a grey suffusion. First pellicle olive green.

Recognition characters.—Adult female with a deep thoracic constriction, anterior portion dome-shaped, posterior portion wider, sub-triangular. Length of slide specimen 1.2 mm., width 0.9 mm. Pygidium not differentiated, apex broadly rounded. Four pairs of lobes. Median lobes as wide as long, separated

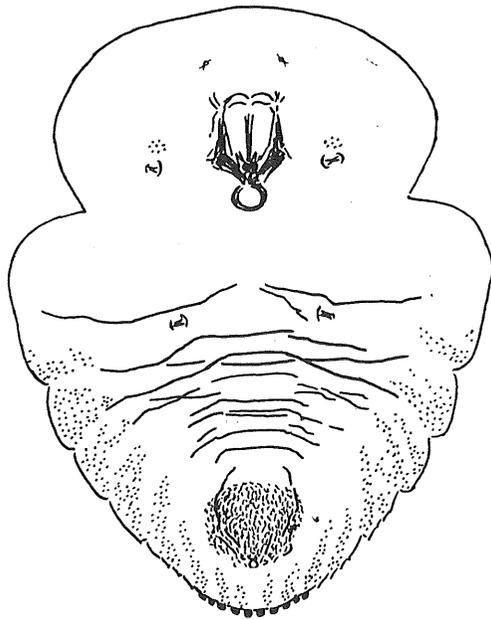


Fig. 11.

Pseudaonidia dimidiata. Outline of body. (x 70).

by half a lobe's width, narrowed basally, a subapical indentation on each margin, apex broadly rounded. Second pair of lobes of similar shape but slightly smaller, with the outer apical margin slightly more curved, separated from the median lobes by half the width of the latter. Third lobes similar to the second but outer apical margin slightly more curved, separated from the second by the median lobe's width. Fourth lobes similar to the third but of half their width, separated from the third by twice the width of the third but with an intervening chitinized derm projection of similar size to the fourth lobe. All lobes with longitudinal striations. Pygidial margin anterior to the fourth lobes irregularly toothed, the larger projections indicating

segments. Basal scleroses absent. Paraphyses as small chitinous thickenings subequal to the length of the lobes, as a pair in the median interlobal area, and single on the inner side of the first, second, and third interlobal areas. Plates slender, bifid, as long as the lobes, two in the median and first interlobal spaces, three in the second and one on each side of the derm projection in the third. Spines adjacent to lobes shorter than the lobes. Dorsal ducts slender, medianly half as long as the distance between the lobes and anal

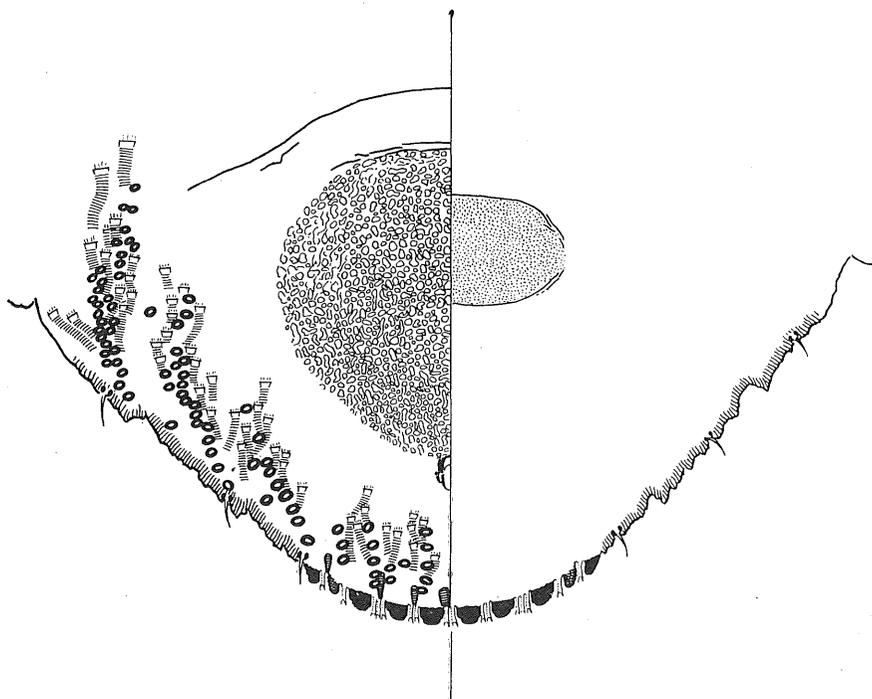


Fig. 12.

Pseudaonidia dimidiata. Enlargement of pygidium. (x 230).

opening; orifices in segmental series, six in the first duct furrow, nine in the second, four in an intervening row, about 18 in the third, with rows on each of the other abdominal segments. Perivulvar pores absent. Anal opening small, five times the median lobe's length from the bases of the lobes. Median pygidial area with irregular reticulate chitinization, the remainder of the body surface with a heavy finger-print chitinization. Anterior spiracles with 11 or 12 associated pores.

Notes.—The large process between the third and fourth lobes has a duct orifice and therefore is derm although resembling a lobe. The four normally shaped lobes, the lobe-like derm projection and the number of spiracular pores are characters separating the species from *P. dentata*.

Type slide Reg. No. T. 5521 and paratypes Reg. Nos. T. 5522 and 5523 in the Queensland Museum.

***Pseudaonidia dentata* n.sp.**

(Figs. 13 and 14.)

Locality and host.—Queensland; Drillham, on *Acacia harpophylla* F. Muell. ex. Benth., Apr. 1953 (J. Mann).

Habit.—Insect on twig, scale circular, general colour brownish grey.

Recognition characters.—Adult female with a deep thoracic constriction, anterior portion oval, posterior portion wider, triangular. Length of slide specimen 1.3 mm., width 1.05 mm. Pygidium not differentiated, apex rounded. Three pairs of normal lobes. Median pair of lobes as wide as long with a subapical indentation on each margin, apex broadly rounded. Second pair of lobes slightly smaller than the median, width and length

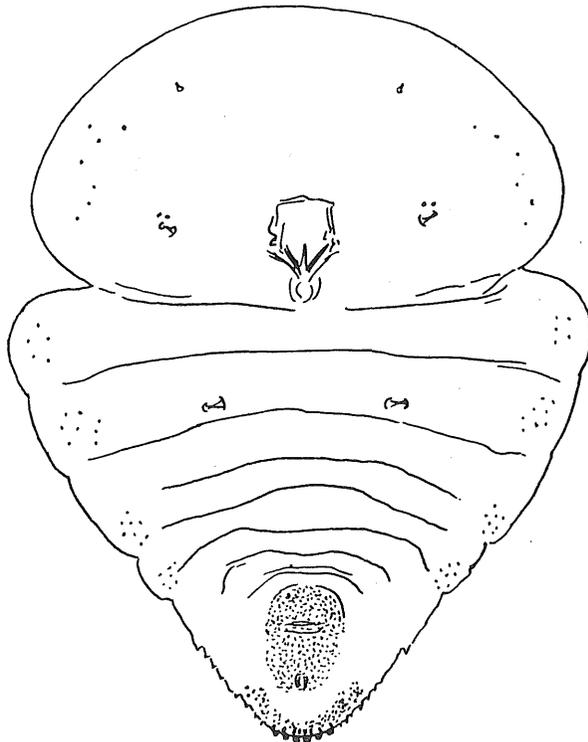


Fig. 13.

Pseudaonidia dentata. Outline of body. (x 70).

subequal, with only the outer subapical indentation, separated from the median by less than its own width. Third pair of lobes similar to the second but slightly smaller, with the outer apical margin slightly more curved, separated from the second by the width of the median lobes. All lobes with longitudinal striations. Pygidial margin beyond the third lobe irregularly toothed, a

large tooth marking each segment with intervening slightly smaller teeth. Basal scleroses absent. Paraphyses small chitinous thickenings, as a pair approximately the length of the lobes in the median area, and singly on the inner side of the first, second, and third interlobal areas. Plates slender, as long as the lobes, two in each of the median and first interlobal spaces, mostly bifid, three in the second space, similar to those in the first, three in the third space, middle one on a small dermal projection apparently bifid. Spines associated with the lobes shorter than the lobes, others longer. Dorsal

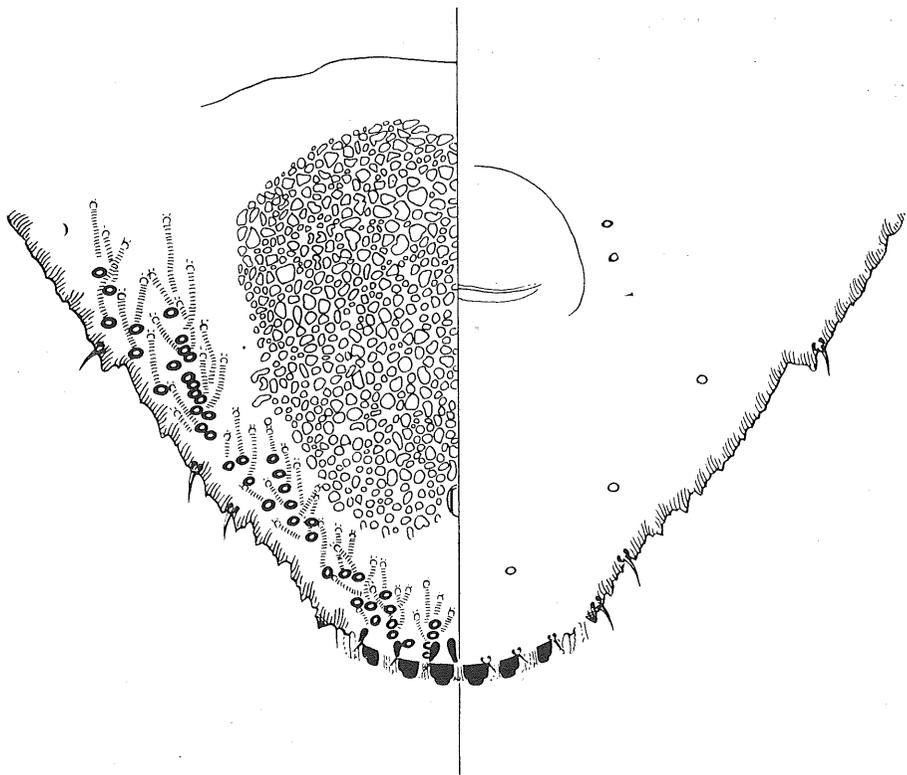


Fig. 14.

Pseudaonidia dentata. Enlargement of pygidium. (x 240).

ducts slender, four orifices in the first duct furrow, seven in the second, others in segmental series with a few intervening. Perivulvar pores absent. Anal opening small, five to six times the median lobe's length from the bases of the lobes. The median dorsal pygidial area with a chitinous reticulation, remainder of body with a heavy finger-print chitinization. Anterior spiracles with two or three associated pores.

Notes.—Only three pairs of uniformly shaped lobes are present; the fourth is represented by a tooth-like structure which resembles other marginal tooth-like structures. The derm process in the third interlobal area is surmounted by a plate.

The number of marginal tooth-like structures is greater in this species than in *P. dimidiata*. The dorsal ducts are less numerous and only two pores are associated with the anterior spiracles.

Type slide Reg. No. T.5527 in the Queensland Museum.

***Rhizaspidotus cassinia* n.sp.**

(Figs. 15 and 16.)

Locality and host.—Queensland; Inglewood, on *Cassinia laevis* R.Br., Feb. 1954. Paratypes from the same and from Gore on *Cassinia* sp. ("Rosemary"), Aug. 1935.

Habit.—Insects under pieces of loose bark on twigs. Colour of scales dirty grey but this may have been due to extensive sooty mould from other insects.

Recognition characters.—Adult female subcircular to broadly pyriform; length of slide specimen 0.9 mm., width 0.8 mm. Pygidium broadly rounded. Median pair of lobes only, as broad as long, separated by less than a quarter of

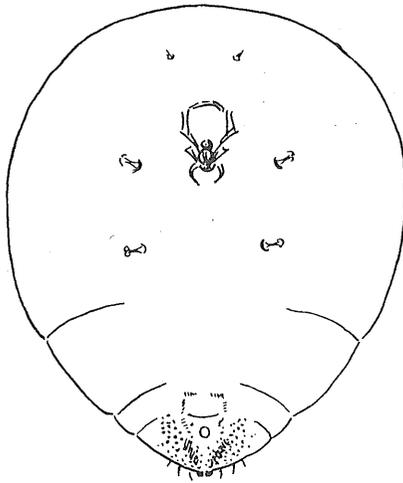


Fig. 15.

Rhizaspidotus cassinia. Outline of body. (x 70).

a lobe's width, widest apically, inner margins concave, outer margins almost parallel to each other, apices broadly truncated and margins slightly concave, inner latero-apical angle slightly acute but rounded. Basal scleroses as long as but narrower than the lobes. Paraphyses absent. Two slender pointed plates in the median interlobal space, shorter than the lobes. Two broad plates in the first interlobal space, shorter than the lobes. Plates in the second interlobal space absent. Spines twice as long as the lobes. Dorsal ducts short, in segmental series with apparently intersegmental series; 12 in the first duct furrow, about 20 in the second, and more numerous in the third, other

series anteriorly. Anal opening large, five times its length from the bases of the lobes. Paravulvar folds long, slender, and curved. A pair of dorsal prevulvar scars present. Pygidial margin crenulate.

Notes.—Differentiation of the duct orifices into furrow series and inter-furrow series is difficult, particularly in the more anterior series. The inter-furrow series between the first and second furrows may extend slightly anterior to the anal opening. The ducts are about twice as long as the anal opening and the orifices are comparatively large. The paravulvar folds may

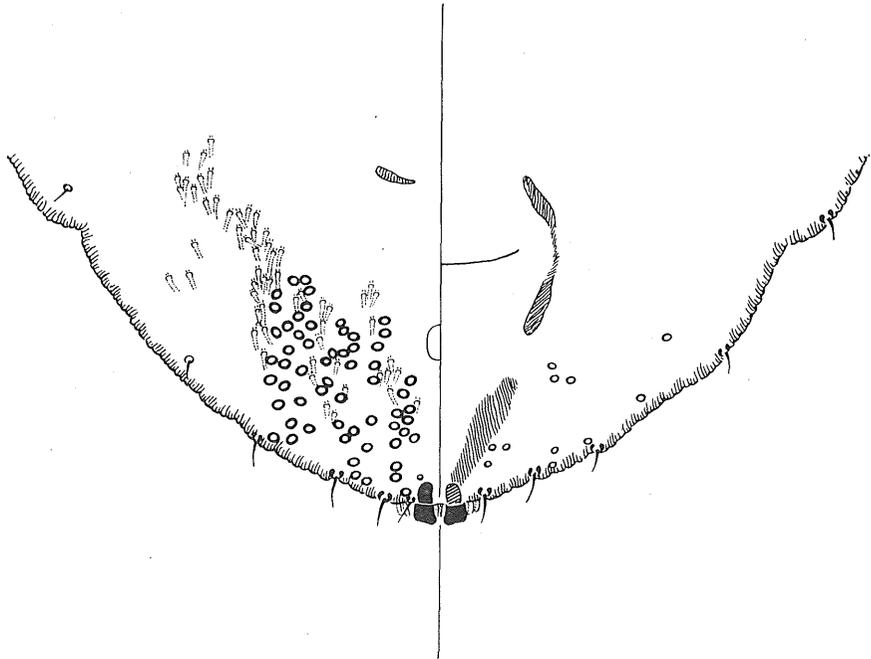


Fig. 16.

Rhizaspidiotus cassiniae. Enlargement of pygidium. (x 230).

be halved. Sometimes two pairs of prevulvar scars are present. The plates in the first interlobal space do not appear to be branched, possibly because of the mounting. A small domed marginal cephalic prominence is evident in some instances. The absence of plates in the second interlobal space, the numerous duct orifices and the large spines separate this species from *R. chenopodii* (Marlatt).

Type slide Reg. No. T.5513 and paratypes Reg. Nos. T.5514 to T.5516 in the Queensland Museum.

ACKNOWLEDGEMENTS.

Thanks are due to Dr. A. J. Nicholson, Chief, Division of Entomology, C.S.I.R.O., for material of *Duplaspidiotus carptellus*.

Mr. W. W. Manley, Departmental Illustrator, made the drawings for all the figures.