

## STUDIES OF THE COCCOIDEA. 6. NEW GENERA AND NEW SPECIES OF ASPIDIOTINI.

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### SUMMARY.

New species of Aspidiotini with a constricted thorax and dorsal pygidial chitinization are *Mimeraspis cuspilobis*, *M. rotundus*, *Myrtophila curvata*, *M. adnatae*, *M. suticollis*, *Dichosoma convexa*, *Achorophora obliqua*, *A. divergens*, *Diaphoraspidis orbata*, *D. incisa*, *D. compacta*, *Aspidonymus woodwardi*, *Acontonidia triangularis*, *Duplaspidiotus magnus* and *Pseudotargionia inconspicua*. The first seven of the nine genera mentioned are also new.

### INTRODUCTION.

Among the scale insects described by previous authors are a few species such as *Neomorgania eucalypti* (Mask.) in the Aspidiotini having a deeply constricted thorax and a heavily chitinized body, particularly on the pygidium. The dorsal pygidial chitinization is typically reticulate but is sometimes stipple-like or with widely separated and irregularly branched sutures. Other species with these general characters have been described by the present author (Brimblecombe 1953, 1956), and 15 species dealt with in this paper also belong to the group. It appears therefore that species of this kind are numerous in Australia and represent a dominant part of the Aspidiotine fauna in this country.

### MIMERASPIS new genus.

*Genotype*—*Mimeraspis cuspilobis* n.sp.

*Characters*.—Adult female with a deep thoracic constriction, anterior portion dome-shaped, posterior portion semicircular. Pygidium with median lobes contiguous and united basally, with a median dorsal groove, other lobes if present small elongate points. Basal scleroses absent. Paraphyses in the first and second interlobal areas. Plates present in the first, second and third interlobal spaces, simple or variously branched. Dorsal ducts in series on abdominal segments and present on the metathorax. Perivulvar pores absent, anal opening small. Pygidium dorsally with a reticulate chitinization. Anterior spiracles with associated but dispersed pores.

*Notes*.—The genus *Mimeraspis* resembles *Neomorgania* and *Pseudotargionia* in having a thoracic constriction, prominent median lobes, a small anal opening close to the lobes, pores associated with the anterior spiracles and dorsal reticulated chitinization on the pygidium. The ducts, duct orifices and dispersed parastigmatic pores differ from those of *Neomorgania*. The contiguous median lobes distinguish the genus from *Pseudotargionia*.

### *Mimeraspis cuspilobis* n.sp.

(Figs. 1 and 2.)

*Localities and host*.—Queensland: Type and paratype from Boonah on *Callistemon viminalis* (Soland. ex Gaertn.) G. Don ex Loud., July 1954; other paratypes from Forest Hill on *Callistemon viminalis*, Jan. 1953.



Fig. 1.

*Mimeraspis cuspilobis*. Outline of body (160X).

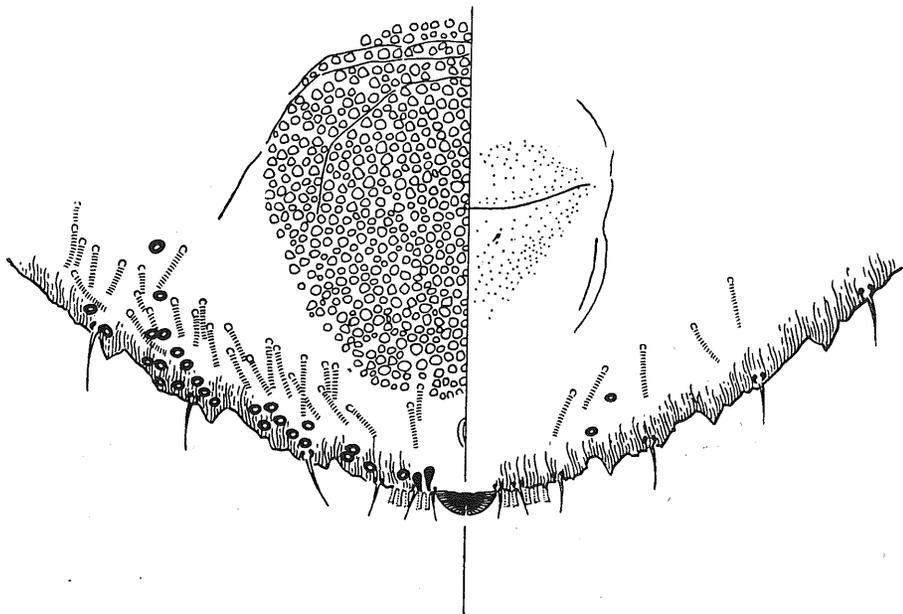


Fig. 2.

*Mimeraspis cuspilobis*. Enlargement of pygidium (300X).

*Habit.*—Insects sparse on foliage. Scale circular, 0.8 mm. diam., dark fawn in colour, margin paler, the dark orange first pellicle surrounded by a greyish band.

*Recognition characters.*—Adult female with a deep thoracic constriction, anterior portion dome-shaped, with a lateral short stout spine and lateral margins posteriorly convergent, posterior portion wider, semicircular, with segmental marginal points. Length of slide specimen 0.6 mm., width 0.5 mm. Pygidium not differentiated, apex broadly rounded. Median pair of lobes only, contiguous, as wide as long, united basally, a division apparent dorsally, subtriangular but the outer margin curved, median portion more strongly chitinized. Basal scleroses absent. Paraphyses as a pair of chitinized thickenings in the first and second interlobal areas. Plates shorter than the lobes, slender, simple or slightly branched, two in the first interlobal space, three in the second, one in the third. Spines longer than the lobes. Dorsal ducts submarginal, slender, length mostly twice the distance from the bases of the lobes to the anal opening; orifices marginal and submarginal on abdominal segments and metathorax, mostly in segmental series. Perivulvar pores absent. Anal opening small, one to one-and-a-half times the lobe's length from the bases of the lobes. Abdominal margin with chitinized triangular points on segments 3, 4 and 5. Median pygidial area with a fine reticulated chitinization, body elsewhere may have a fingerprint chitinization or a dense uniform chitinization. Anterior spiracles with five to seven associated but widely dispersed pores.

*Notes.*—All specimens do not possess the thoracic lateral spine. On the more chitinized specimens the pores on the metathorax are not obvious. The pygidial margin may have a densely chitinized rim. A slight thickening near the base of each lobe, actually between the lobe and the associated spine, may give the appearance of three paraphyses in the first interlobal area. Sometimes the median lobes are so close as to appear united except for a medium dorsal groove. The paraphyses in the second interlobal area may be indistinct when the body margin is heavily chitinized. Ventral chitinization on the pygidium may be like a stippling. Posterior spiracle may have one associated pore.

Type Reg. No. T.5608 and paratypes Nos. T.5609 and T.5610 in the Queensland Museum.

***Mimeraspis rotundis* n.sp.**

(Figs. 3 and 4.)

*Type locality and host.*—South Australia: Mann Range, on *Melaleuca dissitiflora* F. Muell., Aug. 1954 (J. B. Cleland per S. T. Blake).

*Habit.*—Insects thinly scattered on leaves. Scale convex, circular, 1.0 mm. diameter, light fawn in colour; the apical suffusion is often rubbed off, revealing the orange brown to dark brown pellicles.

*Recognition characters.*—Adult female subcircular, with a deep thoracic constriction; anterior portion dome-shaped, about twice as wide as long, lateral margins almost straight and strongly convergent posteriorly; posterior portion wider, semicircular. Length of slide specimen 0.6 mm., width 0.5 mm. Pygidium comparatively large; apex broadly rounded. Three pairs of lobes. Median lobes slightly longer than wide, contiguous, inner margins almost straight, outer margins convergently curved, yoked and densified basally. Second pair of lobes elongate points, one third the length of the median lobes, separated from the median lobes by half of a median lobe's width. Third pair of lobes similar to the second, and separated by the width of a median lobe. Basal scleroses absent. Paraphyses

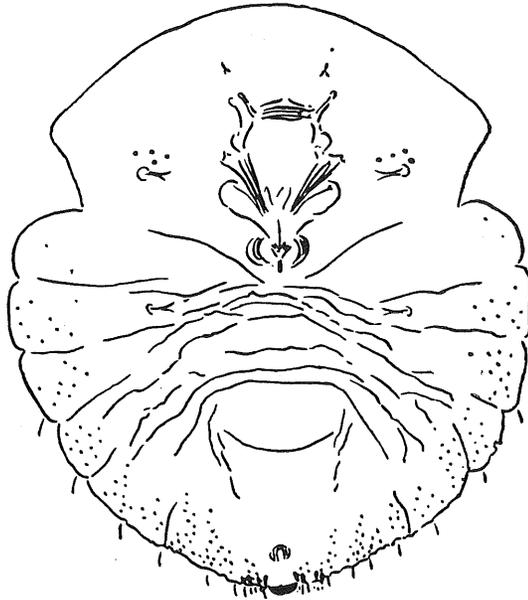


Fig. 3.

*Mimeraspis rotundus*. Outline of body (150X).

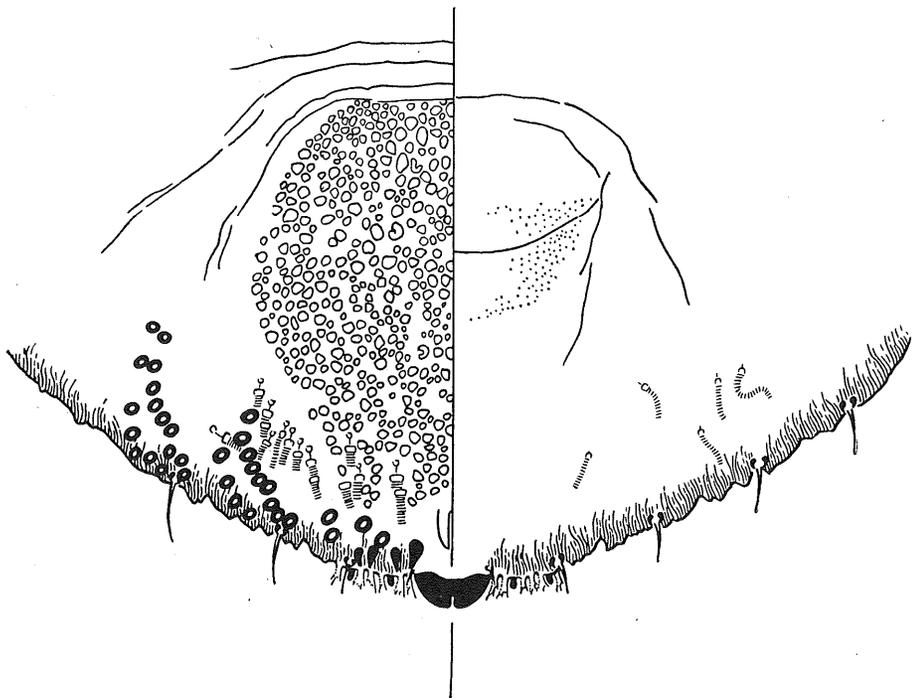


Fig. 4.

*Mimeraspis rotundus*. Enlargement of pygidium (290X).

as an uneven pair in the first and second interlobal areas, all anteriorly enlarged, the innermost in the first interlobal area shorter than the median lobes, the outer paraphysis of the first interlobal area and the inner of the second subequal to half the length of the innermost paraphysis. Plates shorter than the median lobes, two in the first interlobal space, three in the second and one in the third, with various apices from simple to three or four branched. Spines adjacent to the median lobes shorter than the lobes, other abdominal spines longer. Dorsal ducts short, orifices with chitinized rims, in segmental series with shorter intervening series, two in the first interlobal area, three or more in the second and 10 or more in the third, slightly more in number in anterior series, with a series on the metathorax. Perivulvar pores absent. Anal opening small in a narrow inverted V, slightly more than the length of the median lobes from the bases of these lobes. Vulva large, curved. Dorsal chitinization as a fine reticulation and ventrally like a stippling. Anterior spiracles with three or four dispersed associated pores. Posterior spiracle without associated pores.

*Notes.*—A marginal concavity may be present posteriorly to the lateral extremities of the anterior body portion. Sometimes only two pores are associated with the anterior spiracles. Some duct orifices are marginal and the numbers in the series may vary from those given above, since there are usually more duct heads evident than recorded orifices. The median lobes sometimes are so close as to appear united. The body of mature specimens may be completely heavily chitinized. This species differs from *M. cuspidobis* in having three pairs of lobes, the parastigmatic pores are fewer in number and are not so widely dispersed.

Other material examined is from Western Australia, Mt. Magnet, on *Eucalyptus* sp., possibly *E. spathulata* Hook., Jan. 1916 (Clarke).

Type Reg. No. T. 5611 and paratypes Nos. T. 5612 to T. 5614 in the Queensland Museum.

### **Myrtophila** new genus.

*Genotype.*—*Myrtophila curvata* n.sp.

*Characters.*—Adult female with a deep thoracic constriction, anterior portion dome-shaped, posterior portion semicircular. Pygidium with three pairs of lobes, second and third pairs may be reduced to small points. Basal scleroses absent. Paraphyses as short yoked thickenings in the first and second interlobal areas. Plates present in the median, first and second interlobal spaces, slender in the median space and simple or branched in the first and second spaces. Dorsal duct heads large in the median area, progressively smaller in the first, second and other duct furrows. Perivulvar pores absent. Anal opening small. Pygidium with a dorsal reticulate chitinization. Anterior spiracles with associated pores.

*Notes.*—The genus *Myrtophila* is related to *Pseudotargionia*, *Neomorgania* and *Mimeraspis*. The independent median lobes and intervening plates are characters separating it from *Neomorgania* and *Mimeraspis*, while the large dorsal ducts in the median area and the short uniform paraphyses distinguish it from *Pseudotargionia*.

***Myrtophila curvata* n.sp.**

(Figs. 5 and 6.)

*Localities and hosts.*—Queensland: Type and paratype from Tugun on *Leptospermum stellatum* Cav., Jan. 1950; other paratypes from Eprapah, near Cleveland, on *Leptospermum flavescens* Sm., Sept. 1954.

*Habit.*—Insects single and sparse, mostly in leaf axils. Scale circular, 0.75 mm. diameter; brown to dark brown, margin fawn; first pellicle dark brown.

*Recognition characters.*—Adult female with a deep thoracic constriction; anterior portion dome-shaped with a short stout lateral spine, lateral margins posteriorly convergent; posterior portion wider, semicircular. Length of slide specimen 0.6 mm., width 0.55 mm. Pygidium not differentiated, apex very broadly rounded. Three pairs of lobes, median normal, second and third pairs tooth-like with further chitinized marginal serrations. Median pair of lobes wider than long, slightly convergent, separated, apex broadly curved but with four indentations. Second pair of lobes nearly as wide as the median, wider than long, triangular, apex acute, separated from the median by half to three-quarters of the latter's width. Third pair of lobes similar to the second, but smaller, separated from the second by half its own width. Basal scleroses absent. Paraphyses as short paired chitinous thickenings in the first and second interlobal areas, shorter than the median lobes. Two plates in each of the median first and second interlobal spaces, as long as the lobes, slender in the median space, broad and fimbriate in the first and second interlobal spaces. Spines near lobes as long as the median lobes, others longer and hair-like. Dorsal ducts of different sizes, wider medianly where orifices are marginal, length in this area reaching almost to the anal opening; one or two wide ducts in the median interlobal area, two in the first duct furrow, four in the second furrow, with the size progressively smaller internally and anteriorly,

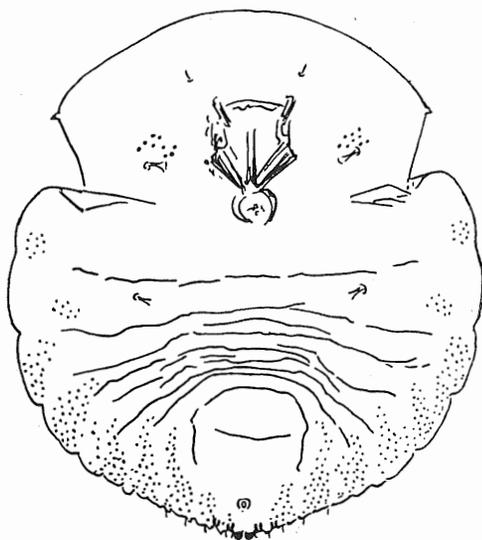


Fig. 5.

*Myrtophila curvata*. Outline of body (100X).

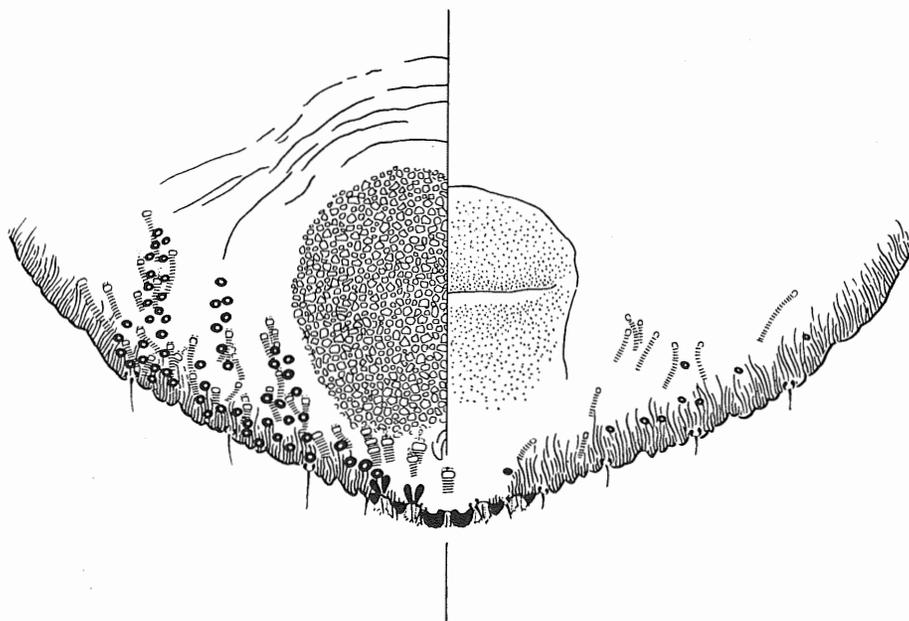


Fig. 6.

*Myrtophila curvata*. Enlargement of pygidium (240X).

about 12 ducts in the third furrow, and more in anterior abdominal segments. Anal opening small in an inverted V, three times the median lobe's length from the bases of the lobes. Perivulvar pores absent. A central dorsal chitinous reticulation on the pygidium, body surface elsewhere with a light finger-print chitinization. Anterior spiracles with seven to nine associated pores.

*Notes.*—Plates in the median interlobal space are not always discernible. The second and third lobes may appear to be chitinous serrations widely different in shape from the median lobes. In the related species *M. adnatae* n.sp. there are no obvious second and third lobes yet normal lobes in these positions occur in *M. suticollis* n.sp. The yoked paraphyses may appear to be chitinated portions of a thickened marginal rim. About nine apparently small duct orifices, represented by clear spots in the chitinated derm, occur sub-marginally on the metathorax and mesothorax. Duct orifices generally may have chitinated rims and some appear to be on an angle to the median line. The median lobes may be much wider than those of the second pair. Sometimes the lateral thoracic spur is absent. With heavy chitinization the median lobes tend to lose the indentations and the apices, especially of the second and third pairs, become rounded. Two wide ducts may be present in the median interlobal area. Body of old specimens may become broader, and as much as twice as wide as long. Posterior marginal thickenings may be present ventrally on pre-pygidial segments.

Type Reg. No. T. 5615 and paratypes Nos. T. 5616 to T. 5618 in the Queensland Museum.

***Myrtophila adnatae* n.sp.**

(Figs. 7 and 8.)

*Locality and host.*—Queensland: Yelarbon on *Melaleuca adnata* Turez, Oct. 1954.

*Habit.*—Insects mostly single on the basal half of the upper surface of the rather small leaves. Scale circular, 0.8 mm. in diameter, white to light fawn in colour, pellicles almost black.

*Recognition characters.*—Adult female with a deep thoracic constriction; anterior portion dome-shaped, lateral margins posteriorly convergent; posterior portion wider, semi-circular. Length of slide specimen 0.6 mm., width 0.5 mm. Pygidium not differentiated, comparatively large, apex very broadly rounded. Median lobes slightly longer than wide, inner margin slightly concave, outer margin broadly curved to a subapical indentation, apex rounded, separated by one-half to two-thirds of a lobe's width. Second and third pairs of lobes apparently absent, intervening interlobal spaces wide. Basal scleroses absent. Paraphyses in the first and second interlobal areas as pairs of short chitinous thickenings. Plates present in the median first and second interlobal spaces; two in the median, slender apex truncate, as long as the lobes, two in the first space, longer than the lobes and fimbriate, two in the second space similar to those in the first. Spines adjacent to the median lobes as long as the lobes, other spines longer. Dorsal ducts short, of different sizes; a broad duct in the median interlobal area, reaching to the anal opening, two in the first interlobal area and one wide and one small in the second; ducts smaller away from the margin and anteriorly; orifices mostly close to the margin, a few submarginally on the metathorax and mesothorax. Perivulvar pores absent. Anal opening in an inverted V, twice a lobe's length from the bases of the lobes. Vulva wide. Lateral thoracic spur absent. Pygidium with a dorsal reticulate chitinization. Scalloped or palisade chitinization ventrally on pre-pygidial abdominal segments. Anterior spiracles with three associated pores.

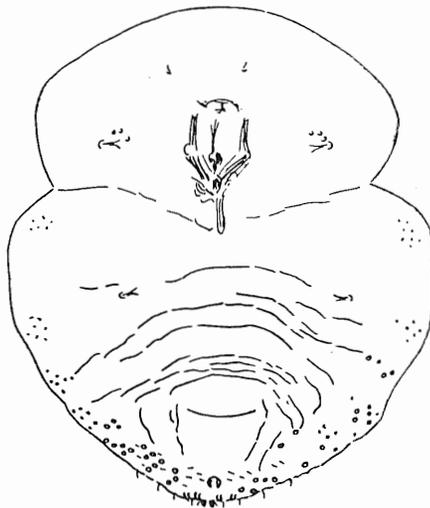


Fig. 7.

*Myrtophila adnatae*. Outline of body (85X).

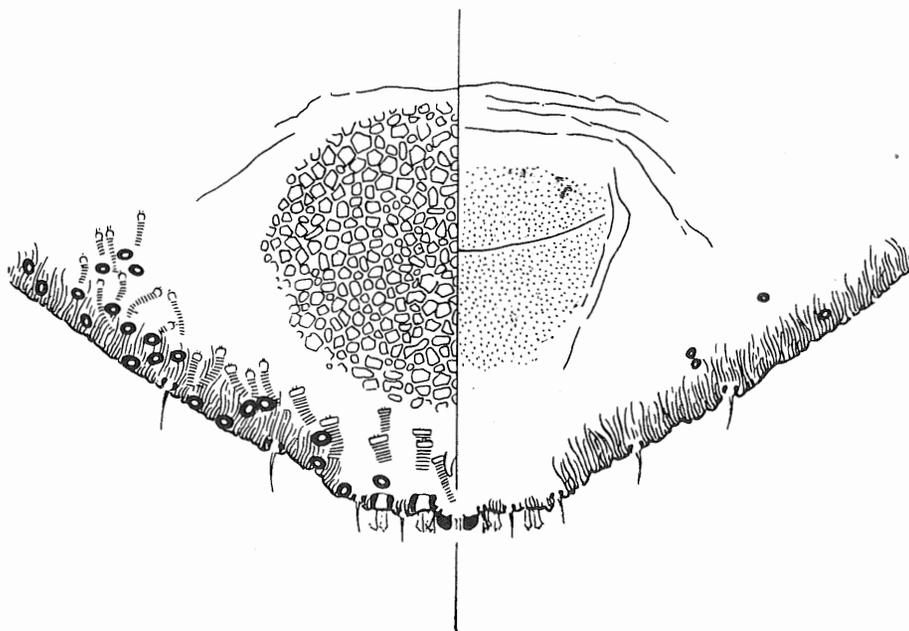


Fig. 8.

*Myrtophila adnatae*. Enlargement of pygidium (340X).

*Notes*.—Sometimes there are indications of chitinous points in the positions of the second and third pairs of lobes but so small as to be disregarded as lobes. The distance between the median lobes varies from one-quarter to two-thirds of a lobe's width, the subapical area may not be indented and the apex blunt or but slightly rounded. The lobes may be slightly convergent. Plates in the median interlobal space may be indistinct.

The narrower median lobes, apparent absence of the second and third pairs of lobes, and the presence of ventral palisade chitization are characters separating this species from *M. curvata* and *M. suticollis*; *M. curvata* has a lateral thoracic spur. *M. suticollis* has the spines near the median lobes much longer than the lobes and three pairs of definite lobes.

Type Reg. No. T. 5619 and paratypes Nos. T. 5620 to T. 5622 in the Queensland Museum.

***Myrtophila suticollis* n.sp.**

(Figs. 9 and 10.)

*Locality and host*.—Queensland: Amberley on *Melaleuca irbyana* R. T. Baker, July 1954.

*Habit*.—Insects single and sparse on the minute host leaves. Scale of female circular, 1.2 mm. diameter; dark fawn in colour, pellicles paler.

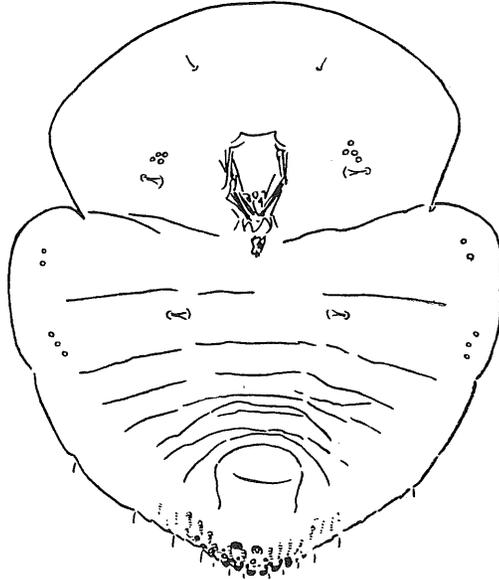


Fig. 9.

*Myrtophila suticollis*. Outline of body (95X).

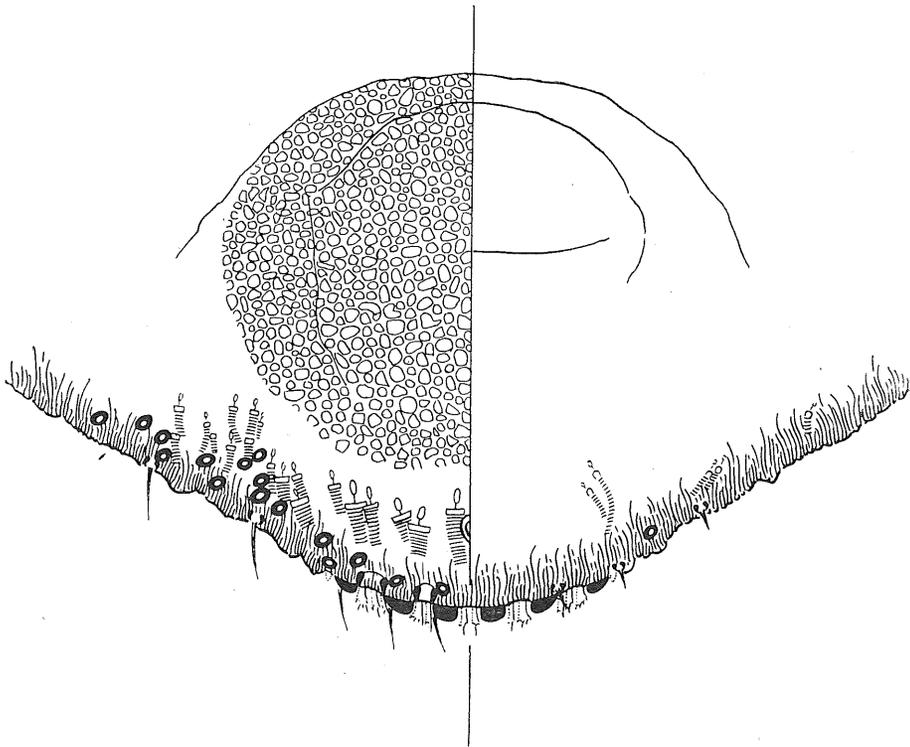


Fig. 10.

*Myrtophila suticollis*. Enlargement of pygidium (340X).

*Recognition characters.*—Adult female with a deep thoracic constriction; anterior portion dome-shaped, lateral margins posteriorly convergent; posterior portion wider, semi-circular. Length of slide specimens 0.8 mm., width 0.7 mm. Pygidium not differentiated, very broad, apex broadly rounded. Three pairs of lobes. Median lobes wider than long, entire, inner and outer margins slightly curved, almost parallel, apex broadly curved, separated by a lobe's width. Second pair of lobes slightly smaller than the median, wider than long, inner margins almost straight, outer and apical margins broadly curved, separated from the median by slightly more than the median's width. Third pair of lobes similar to but smaller than the second, separated by more than twice the latter's width. Pygidial margin with a small chitinized triangular lobe-like tooth just beyond the third lobe with other small points anteriorly. Basal scleroses absent. Paraphyses small, as a pair of short stout thickenings in each of the first and second interlobal areas. Plates in the median, first and second interlobal spaces branched, longer than the lobes, two in the median and first spaces, three in the second space and an incipient plate beyond the third lobe, the outer plate in each of the first and second spaces broader and fimbriate. Spines two to three times as long as the lobes. Dorsal ducts short, extending to the anal opening in the median area, of different sizes, a large one in the median area, two large ones in the first duct furrow, one or two large and one small in the second furrow, a large, a medium and several small ducts in the third furrow, other ducts in segmental series, small and few in number. Perivulvar pores absent. Anal opening small, three times the median lobe's length from the bases of the lobes. Vulva wide. Dorsal surface of pygidium with a broad area of reticulate chitinization, remainder of body with a finger-print chitinization. Anterior spiracles with four to six associated pores. Thoracic spur absent.

*Notes.*—The definite second and third pairs of lobes, the smaller number of dorsal ducts and the absence of thickening or palisade chitinization on pre-pygidial segments are characters separating this species from *M. curvata* and *M. adnatae*.

Type Reg. No. T. 5623 and paratypes Nos. T. 5624 to T. 5625 in the Queensland Museum.

#### **Dichosoma** new genus.

*Genotype.*—*Dichosoma convexa* n.sp.

*Characters.*—Adult female with a thoracic constriction, anterior portion dome-shaped, posterior portion semicircular. Pygidium with median lobes only, these united. Basal scleroses absent. Paraphyses small in the first interlobal area and sometimes evident in the second interlobal area. Plates prominent, mostly branched. Spines long. Duct orifices mostly marginal. Perivulvar pores absent. Dorsal pygidial area with a fine reticulate to stipple-like chitinization. Parastigmatic pores absent.

*Notes.*—The genus *Dichosoma* resembles *Neomorgania* and *Mimeraspis* in having united median lobes. It differs from both of these genera, however, in having long spines and a greater number of plates which are prominent, and in the absence of parastigmatic pores.

#### **Dichosoma convexa** n.sp.

(Figs. 11 and 12.)

*Locality and host.*—Queensland, Mt. Isa, on *Eucalyptus microtheca* F. Muell., May, 1946.

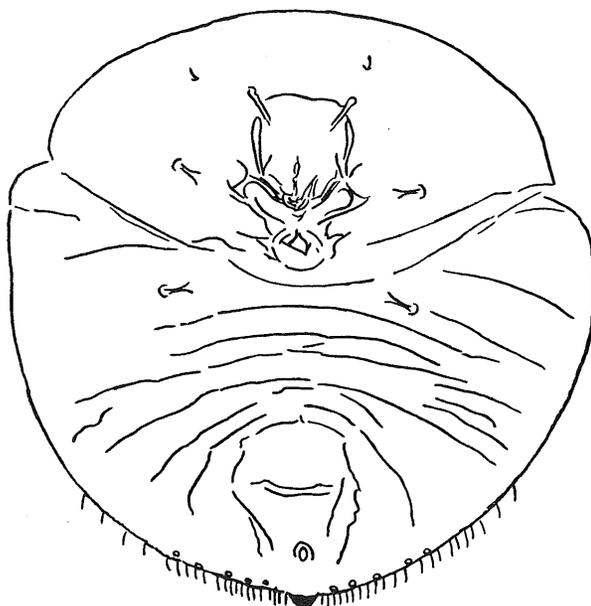


Fig. 11.

*Dichosoma convexa*. Outline of body (180X).

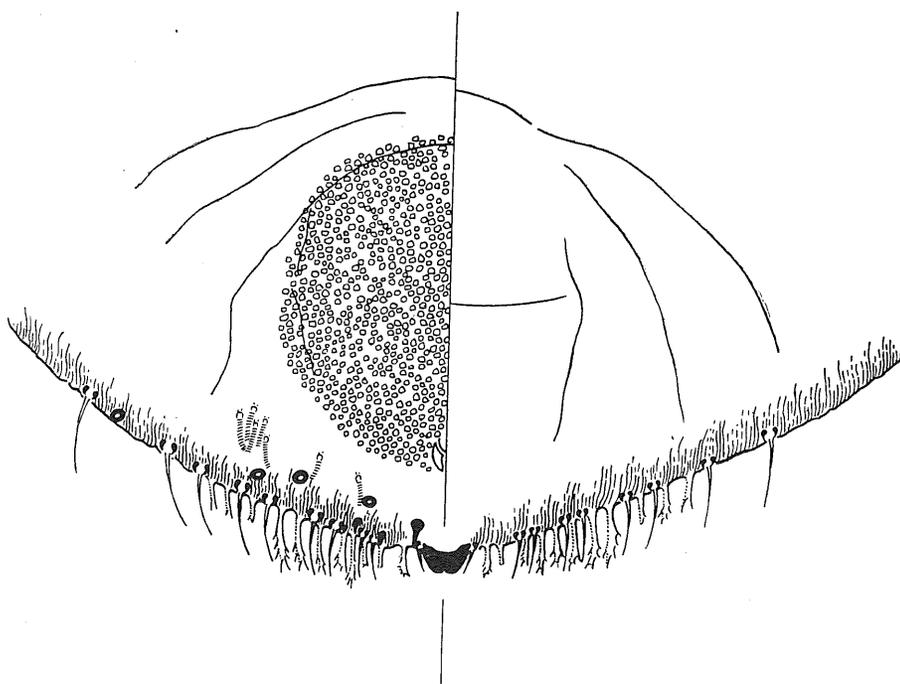


Fig. 12.

*Dichosoma convexa*. Enlargement of pygidium (380X).

*Habit.*—Insects numerous on leaves. Scales convex, circular, 0.5 mm. diameter, fawn in colour and centrally surmounted by dark greenish black pellicles.

*Recognition characters.*—Adult female subcircular, with a thoracic constriction; anterior portion dome-shaped, twice as wide as long; posterior portion wider, semicircular. Length of slide specimen 0.45 mm., width 0.4 mm. Pygidium wide, apex broadly rounded. Median pair of lobes only, united, combined width one-and-one-half times the length, outer margins almost straight and strongly convergent, apex truncated with a slight median concavity associated with a short subapical median line. Basal scleroses absent. Paraphyses as uneven pairs in the first and second interlobal areas, the inner paraphysis in the first interlobal area as long as the lobes, and enlarged towards the apex; inner paraphysis in the second interlobal area similar to that of the first but smaller; outer paraphysis in each interlobal area small and indistinct. Eleven plates alternating with the spines (dorsal and ventral) 2, 1, 2, 1, 2, 1, 2, mostly longer than the lobes, of a similar general erect and branched pattern except that the second or first and second near the lobes and the ninth may be simple. Spines adjacent to the lobes as long as the lobes, other spines progressively longer and becoming hair-like, then shorter on the anterior abdominal segments. Ducts slender, of moderate length, orifices marginal and submarginal. Perivulvar pores absent. Anal opening small, twice the lobe's length distant from the bases of the lobes, in an inverted U. Parastigmatic pores absent. Pygidial dorsal surface with a finely reticulate chitinization. Posterior margin of pre-pygidial abdominal segments with a fine palisade chitinization.

*Notes.*—The lobes may sometimes have the apices slightly rounded with the median indentation more noticeable. The paraphyses in the second interlobal area are mostly indistinct. The pairs of abdominal segmental spines are separated and alternate with the plates as mentioned above. The chitinized pygidium may be ventrally concave, which makes good slide mounting difficult. The body generally may be chitinized but not necessarily in an obvious finger-print pattern. Submarginally duct orifices may be indistinct, possibly due to heavy chitinization, but there are six or more ducts in each of the second and third duct furrows.

Type Reg. No. T. 5626 and paratypes Nos. T. 5627 to T. 5629 in the Queensland Museum.

#### **Achorophora** new genus.

*Genotype.*—*Achorophora obliqua* n.sp.

*Characters.*—Adult female with a deep thoracic constriction, anterior portion dome-shaped, posterior portion subtriangular. Pygidium with three pairs of lobes not uniformly shaped, pygidial margin serrate anterior to the third lobes. Basal scleroses absent. Paraphyses in the first and second interlobal areas. Plates in at least the first interlobal space. Dorsal ducts long, slender, orifices oblique. Perivulvar pores absent. Pores associated with anterior spiracles. Body at maturity heavily chitinized.

*Notes.*—*Achorophora* resembles several other genera such as *Pseudaonidia* in having a constricted thorax, a chitinized body and parastigmatic pores. The dorsal pygidial chitinization has branched sutures resembling those of *Neoleonardia*. The oblique duct orifices are different from all other Australian genera in the *Pseudaonidia* group.

**Achorophora obliqua** n.sp.

(Figs. 13 and 14.)

*Locality and host.*—Queensland: Drillham, on *Casuarina luehmannii*  
R. T. Baker, Apr. 1953 (J. Mann).

*Habit.*—Insects on branchlets, single or several adjacent to each other with the anterior end close to or partly under the whorl of leaflets. Scale oval with pellicles dark orange.

*Recognition characters.*—Adult female with a thoracic constriction; anterior portion dome-shaped, length two-thirds the width, lateral margins posteriorly slightly convergent; posterior portion wider, subtriangular, longer than wide, apex slightly acute. Length of slide mounted specimen 0.7 mm., width 0.5 mm. Pygidium comparatively large, not differentiated, apex rounded; three pairs of definite lobes and chitinized serrations anteriorly. Median lobes longer than wide, inner margins slightly convergent, outer margins curved; the rounded top of apex narrowly separating subapical indentations. Second pair of lobes slightly longer than wide, inner margin almost straight, outer margin broadly curved, apex rounded with indefinite indentations, separated from the median by the width of the median. Third pair of lobes as wide or wider than long, inner margin almost straight, outer margin with apex forming a broadly curved latero-apical margin with three indentations, separated from the second lobes by slightly less than the width of the median. Basal scleroses absent. Paraphyses slender, as an uneven pair in the first and second interlobal areas, the inner in each area as long as the median lobes. Plates as long as the lobes, bifid, two in the first, one in the second interlobal space. Spines adjacent to the lobes as long as the lobes, others shorter. Dorsal ducts long in the median area, longer than the distance from the lobes to the anal opening, two in the median area, five or six in the first duct furrow, six in the second, others becoming shorter and smaller anteriorly; orifices oblique to the median line, mostly marginal and submarginal. Perivulvar pores absent. Anal opening small in an inverted U, with an anal groove, five times the length of the median lobes distant from the bases of the lobes. Vulva large, twice as far from the lobes as the anal opening. Dorsal pygidial chitinization not a pronounced reticulation, elsewhere body with a finger-print chitinization. Anterior spiracles with two associated pores.

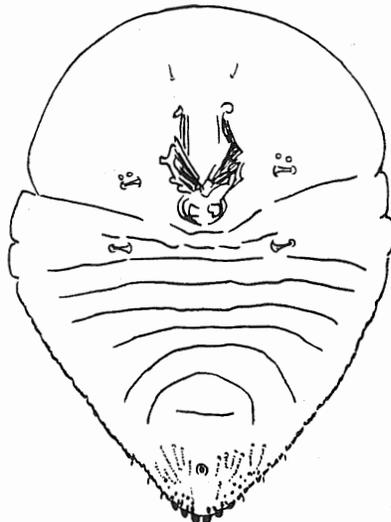


Fig. 13.

*Achorophora obliqua*. Outline of body (100X).



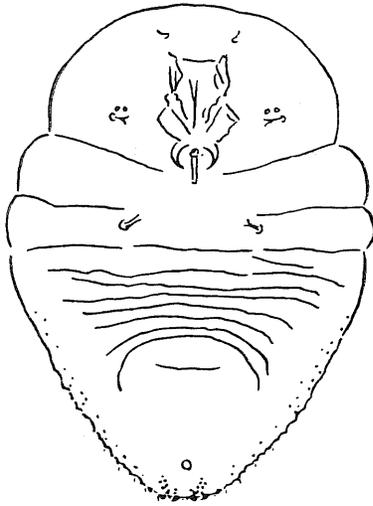


Fig. 15.

*Achorophora divergens*. Outline of body (50X).

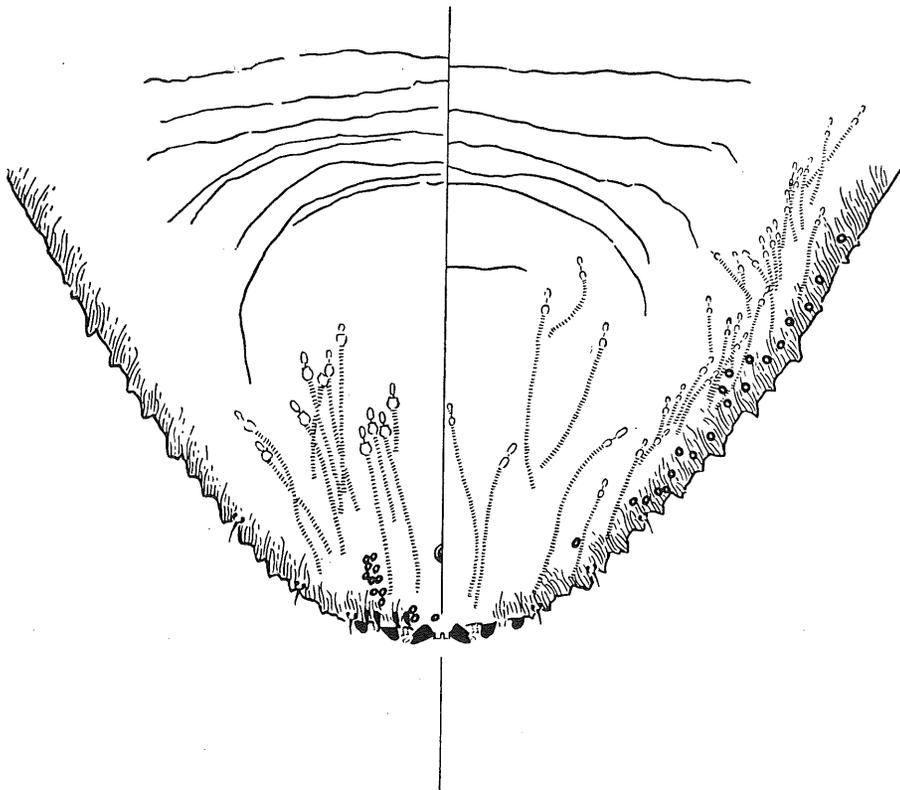


Fig. 16.

*Achorophora divergens*. Enlargement of pygidium (255X).

*Recognition characters.*—Adult female broadly oval, with a thoracic constriction; anterior portion dome-shaped, lateral margins slightly convergent posteriorly; posterior portion wider, as wide or wider than long. Length of slide mounted specimen 1.5 mm., width 1.1 mm. Pygidium comparatively large, not differentiated, apex broadly rounded; three pairs of lobes and chitinized serrations anteriorly. Median lobes of unusual shape, widely divergent. Second pair of lobes longer than wide, convergent, separated from the apparent outer margin of the median lobes by the second lobe's width. Third pair of lobes as wide as long, apex broadly rounded, separated from the second by the third lobe's width. Basal scleroses absent. Paraphyses as a pair in the first and second interlobal areas, longer than the second lobes. Spines short. Plates apparently in the first interlobal space but shape obscure. Dorsal ducts slender, long, in the first furrow two-and-a-half times the distance between the lobes and anal opening, longer in the second furrow; orifices oblique, one or two in the median interlobal area, about five in the first furrow, eight to 15 in the second furrow. Perivulvar pores absent. Anal opening small, in an inverted U, four to six times the length of the second lobes from the bases of the median lobes. Anterior spiracles with two associated pores. Body heavily chitinized.

*Notes.*—Fig. 15 shows the unusual nature of the median lobes. The two short broad truncated median structures may be plates but appear to be chitinized. It is also difficult to determine whether the paraphyses are not chitinized extensions of the lateral margins of the lobes. The third pair of lobes resembles adjacent chitinized marginal serrations, but are regarded as lobes because of the definite appearance as such in the second-stage females and in conformity with the other species, *A. obliqua*. The numbers of duct orifices vary, determined mainly on the number of duct heads, which mostly are goblet-shaped, with a long flagellum. Pores associated with the anterior spiracles may vary up to four. Ventral ducts resemble the dorsal ducts but are smaller and become progressively smaller anteriorly; orifices marginal or submarginal.

The widely divergent median lobes distinguish this species from *A. obliqua*.

Type Reg. No. T. 5634 and paratypes Nos. T. 5635 to T. 5637 in the Queensland Museum.

### **Diaphoraspis** new genus.

*Genotype.*—*Diaphoraspis orbata* n.sp.

*Characters.*—Adult female with a deep thoracic constriction, anterior portion dome-shaped, posterior portion semicircular to broadly shield-shaped. Pygidium with three pairs of lobes, not uniformly shaped. Median lobes almost contiguous or divergently separated. Basal scleroses absent. Paraphyses in the first and second interlobal areas. Plates absent. Dorsal ducts slender, often with a flagellum apparent beyond the duct head, orifices small. Perivulvar pores absent. Dorsal pygidial chitinization like a stippling and with widely separated and branched sutures on mature specimens. Anterior spiracles with associated pores.

*Notes.*—*Diaphoraspis* resembles *Achorophora* in having a constricted thorax, parastigmatic pores and sutures in the dorsal pygidial chitinization, but the lobes are quite different and the duct orifices are not oblique.

**Diaphoraspis orbata** n.sp.

(Figs. 17 and 18.)

*Localities and hosts.*—Queensland: type and paratype from Moggill on *Casuarina cunninghamiana* Miq., July 1953; other paratypes from Drillham on *Casuarina luehmannii* R. T. Baker, Apr. 1953 (J. Mann).

*Habit.*—Insects single on twigs mostly in axils of the branchlets. Scales subcircular, 1.2 mm. diameter, or slightly oval; dark to blackish brown, pellicles brown.

*Recognition characters.*—Adult female with a deep constriction between the mesothorax and metathorax and a smaller constriction between the metathorax and the abdomen; anterior portion dome-shaped, lateral margins posteriorly divergent; posterior portion wider, broadly shield-shaped. Length of slide specimen 0.8 mm., width 0.7 mm. Pygidium large, apex rounded. Three pairs of lobes. Median lobes longer than wide, narrowed basally, inner and outer margins concave, apex broadly rounded, with one or two indefinite small apical indentations, separated by one-third of a lobe's width. Second pair of lobes convergent, longer than wide, narrowed basally, apex rounded with indefinite indentations, distally contiguous with the median lobes. Third pair of lobes as wide as long, with a small dome-shaped apex between apical indentations, separated from the second lobes by half of the width of the latter. Basal scleroses absent. Paraphyses as elongate pairs in the first and second interlobal areas, the inner paraphysis in each interlobal area slightly longer than the median lobes. Plates absent. Spines adjacent to the median lobes shorter than the lobes, other spines subequal in length to the median lobes. Ducts slender with heads longer than wide, and somewhat cylindrical, in the median area long and very slender extending to three-quarters of the distance between the lobes and vulva with a flagellum four or more times the length of the heads, becoming progressively shorter in anterior duct furrows; orifices in segmental series, those within the paraphyses and on the chitinized marginal rim indiscernible, otherwise six to eight discernible in the second furrow, 10 in the third, 15 in the fourth and less in the fifth. Perivulvar pores absent. Anal opening

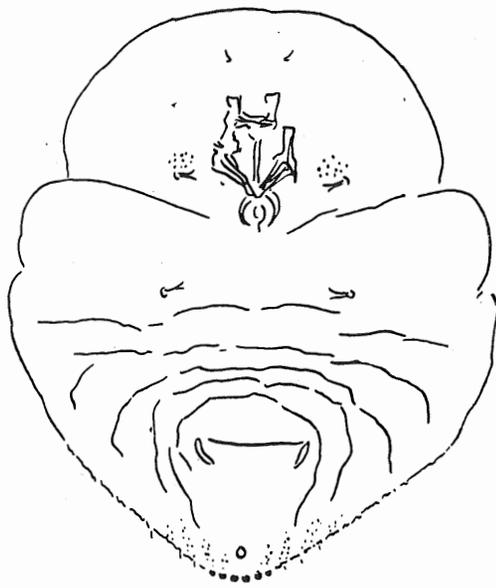


Fig. 17.

*Diaphoraspis orbata*. Outline of body (95X).

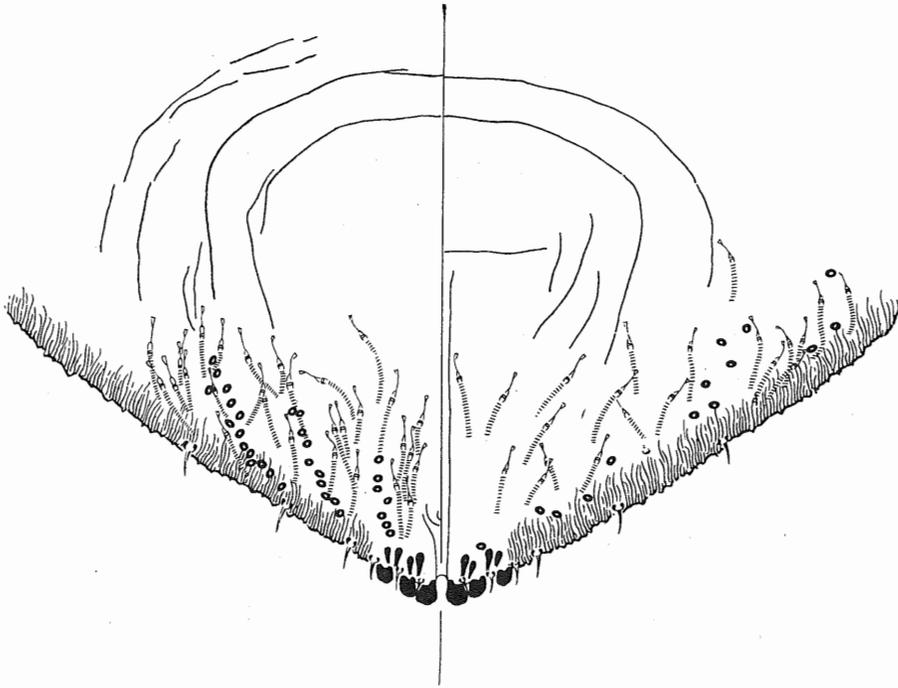


Fig. 18.

*Diaphoraspis orbata*. Enlargement of pygidium (210X).

small, in an inverted V, twice the length of the median lobes distant from the bases of the lobes, with an anal groove extending between the bases of the median lobes. Vulva wide. Margin anterior to the third lobes finely serrate. Anterior spiracles with eight to 11 associated pores.

*Notes.*—In some specimens the lateral margins of the anterior portion of the body may be almost parallel. The heavy chitinization may make the median lobes appear to be basally yoked, but an anal groove is still evident. This area is heavily chitinized, as is most of the pygidial margin. The pores associated with the anterior spiracles may be as few as four. A narrow median groove extends ventrally from near the vulva to between the median lobes. Duct orifices in the second and third furrows extend anteriorly near segmental folds for one-third to one-half of the distance from the margin to where these folds arch in the pre-pygidial region. Ventral duct orifices submarginally on the pygidium are numerous. Pygidial chitinization is like a stippling on both the dorsal and the ventral surfaces.

Type Reg. No. T. 5638 and paratypes Nos. T. 5639 to T. 5641 in the Queensland Museum.

***Diaphoraspis incisa* n.sp.**

(Figs. 19 and 20.)

*Locality and host.*—Queensland: Moggill, on *Casuarina cunninghamiana* Miq., July 1953.

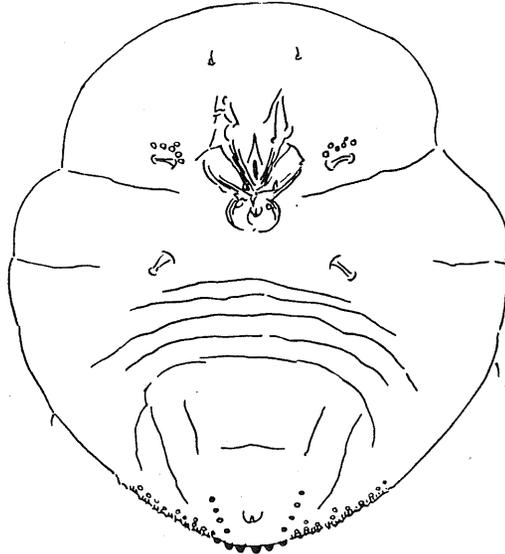


Fig. 19.

*Diaphoraspis incisa*. Outline of body (70X).

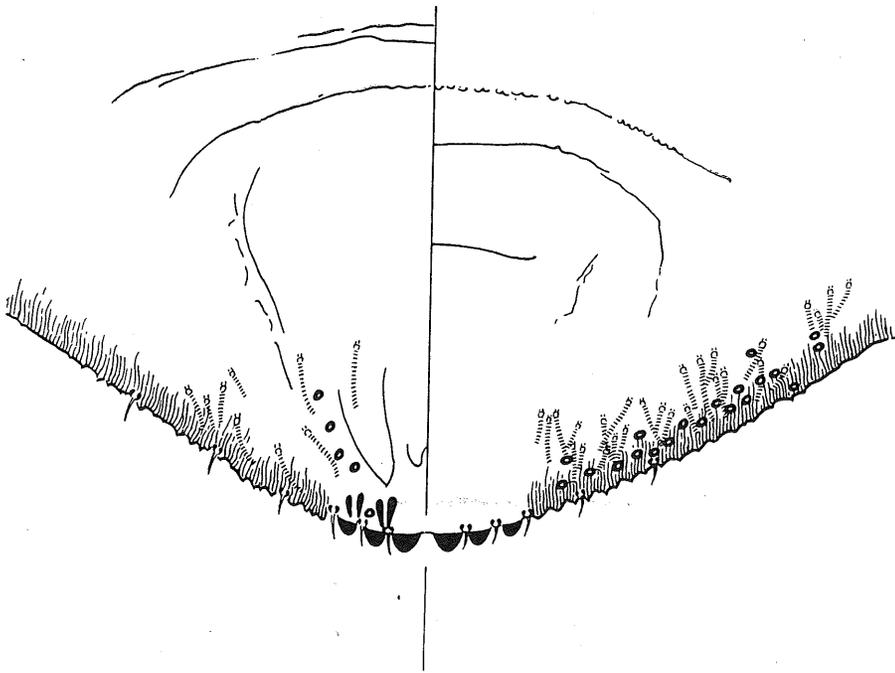


Fig. 20.

*Diaphoraspis incisa*. Enlargement of pygidium (255X).

*Habit.*—Insects single on twigs mostly in axils of branchlets or leaflet whorls. Scale subcircular, 1.5 mm. diameter, convex, hard, black with a brown loose suffusion; pellicles near the centre, reddish black.

*Recognition characters.*—Adult female subcircular, with a deep thoracic constriction, anterior portion dome-shaped; posterior portion wider, semicircular. Length of slide mounted specimen 1.0 mm., width 0.9 mm. Pygidium comparatively large, not differentiated, apex broadly rounded; three pairs of lobes and margin serrate anteriorly. Median lobes yoked basally, as wide as long, inner margins widely divergent; inner and outer margins similar, convergent to the broadly rounded apex; separated basally by half a lobe's width. Second and third pairs of lobes similar but smaller, second separated from the median by one-quarter of the latter's width and third from the second by half its own width. Basal scleroses absent. Paraphyses as uneven pairs in the first and second interlobal areas, the inner paraphysis in each area as long or slightly longer than the median lobes. Plates absent. Spines as long as the lobes. Dorsal ducts sparse. Perivulvar pores absent. Anal opening small in an inverted V, twice the length of the median lobes distant from the bases of the lobes. Anterior spiracles with six or seven associated pores.

*Notes.*—Dorsal pygidial chitinization essentially plain but ventrally is like a fine stippling, elsewhere there is the typical fingerprint chitinization, which may be dense. The constriction between the metathorax and first abdominal segment is not such a conspicuous feature as in *A. orbata* and *A. compacta*. In some instances there are indications of small subapical indentations on the lobes. Median lobes appear to be chitinously yoked basally. The dorsal ducts are inconspicuous; the only obvious orifices are four or five in the second duct furrow. There are, however, numerous ducts with orifices marginal and submarginal on the ventral surface.

This species may be separated from the other two in the genus by the stouter, shorter and widely separated median lobes, the second lobes are not convergent to each other and the median and second lobes are not contiguous. The dorsal ducts are sparse.

Type Reg. No. T. 5642 and paratypes Nos. T. 5643 to T. 5645 in the Queensland Museum.

***Diaphoraspis compacta* n.sp.**

(Figs. 21 and 22.)

*Locality and host.*—Queensland: Forest Hill, on *Casuarina cunninghamiana* Miq., Jan. 1953.

*Habit.*—Insects scattered on twigs or in axils of leaflet whorls. Scales broadly oval to subcircular, 1.5 mm. long, fawn to grey; pellicles towards the anterior end, orange to dark yellow.

*Recognition characters.*—Adult female broadly oval, with a deep thoracic constriction between the mesothorax and metathorax and a secondary constriction between the metathorax and the first abdominal segment. Anterior body portion dome-shaped, lateral margins concave and posteriorly convergent, a stout spur on the lateral angle. Metathorax wider than the anterior portion, lateral margins convex but divergent. Posterior portion widest, almost semicircular. Length of slide mounted specimen 1.0 mm., width 0.75 mm. Pygidium broad, not differentiated; three pairs of lobes and lobe-like chitinous points anteriorly. Median

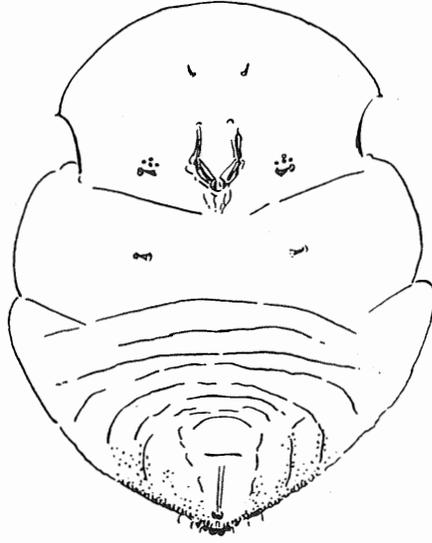


Fig. 21.

*Diaphoraspis compacta*. Outline of body (70X).

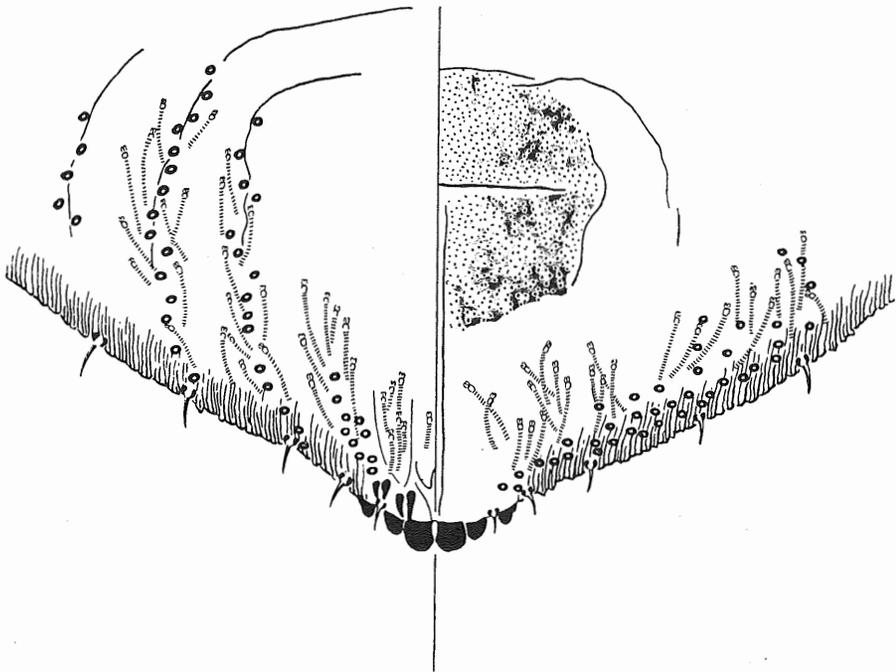


Fig. 22.

*Diaphoraspis compacta*. Enlargement of pygidium (255X).

lobes as wide as long, widest across the middle, inner margins almost straight, slightly convergent, outer margins slightly curved and divergent, apex very broadly rounded with indications of small indentations, separated basally although appearing yoked, but almost contiguous subapically. Second pair of lobes convergent, as wide as long, outer margins broadly curved, almost contiguous with the median lobes. Third pair of lobes wider than long, apex broadly rounded, separated from the second by the third lobe's width. Basal scleroses absent. Paraphyses as pairs in the first and second interlobal areas, the inner in each area almost as long or as the median lobes. Plates absent. Spines adjacent to the median and second lobes shorter than the lobes, other spines subequal in length to the median lobes. Dorsal ducts slender, in the median region four times the length of the median lobes, orifices small, two in the median interlobal area, about six in the first duct furrow, about 10 in the second furrow, 15 in each of the third and fourth furrows, and some in the fifth; in the third, fourth and fifth furrows duct orifices extending to the region where the segmental fold arches anteriorly on the pygidium. Perivulvar pores absent. Anal opening small, one-and-a-half times the length of the median lobes distant from the bases of the lobes, with an anal groove between the bases of the lobes. Anterior spiracles with four or five associated pores.

*Notes.*—The pygidial chitinization both dorsally and ventrally may be like stippling. A narrow ventral groove extends from near the vulva to between the median lobes. Ventral ducts with marginal and submarginal orifices are numerous. Median lobes may be longer than wide and may appear to be chitinously yoked basally. The pores associated with the anterior spiracles may vary up to seven. Chitinization obscures the dorsal duct orifices and the number of ducts may be more evident by duct heads. Some specimens, perhaps not so mature as the type, have the anterior portion less upraised and in some instances comparable to that of *D. orbata*. Body chitinization is dense.

The presence of lateral thoracic spurs, the greater number of ducts and their extension anteriorly are features separating this species from *D. orbata* and *D. incisa*.

Type Reg. No. T. 5646 and paratypes Nos. T. 5647 to T. 5649 in the Queensland Museum.

### ***Aspidonymus* new genus.**

*Genotype.*—*Aspidonymus woodwardi* n.sp.

*Characters.*—Adult female with a deep thoracic constriction, anterior portion dome-shaped, posterior portion deltoid. Pygidium with three pairs of lobes of similar shape. Basal scleroses absent. Paraphyses as small yoked pairs in the median, first and second interlobal areas. Plates in the median, first and second interlobal spaces. Dorsal ducts long and slender. Perivulvar pores absent. Anterior spiracles with associated pores. Dorsal pygidial chitinization finely reticulated. Body of mature females heavily chitinized.

*Notes.*—The genus *Aspidonymus* resembles *Pseudaonidia* in having the constricted thorax and similarly shaped pygidial lobes. The lobes and the plates, however, are much more slender, and the body is smaller and more slender in shape. The ducts also are more slender and the pygidial chitinization much finer.

***Aspidonymus woodwardi* n.sp.**

(Figs. 23 and 24.)

*Locality and host.*—Queensland: Beenleigh on *Dissilaria baloghioides* F. Muell. ex Baill., May 1956.

*Habit.*—Insects sparse on the undersurface of leaves. Scale circular, 1.5 mm. diameter, pale to light brown; pellicles light yellow to orange.

*Recognition characters.*—Adult female broadly pyriform with a deep thoracic constriction; anterior portion dome-shaped, lateral margins posteriorly convergent; posterior portion wider, broadly deltoid. Length of slide specimen 0.8 mm., width 0.6 mm. Pygidium large, triangular, apex broadly rounded. Three pairs of lobes. Median lobes two to two-and-a-half times longer than wide, widest at the middle, with an indentation on both the inner and outer margins just beyond the middle, apex rounded, separated by one-and-a-half times a lobe's width. Second pair of lobes two to two-and-a-half times as long as wide, similar in shape to the median lobes but without the indentation on the inner margin, separated from the median lobes by one-and-a-half times the latter's width. Third pair of lobes similar in shape and size to the second, separated by two-and-a-half times the width of the second. A large lobe-like chitinous tooth, wider than long, in the position of the fourth lobe, with two or three indentations on the outer margin. Basal scleroses absent. Paraphyses as small yoked pairs in the median, first and second interlobal areas. Median interlobal space indented beyond the body margin. Plates in the median, first, second and third interlobal spaces. Two plates in the median space, two in the first space and three in the second space, of similar shape and size, as long as the lobes, bifid with short arms; the first two plates in the third space broader and fimbriate on the outer margin, the third plate in this space bifid with long arms. Spines adjacent to lobes shorter than the lobes. Dorsal ducts long, slender, extending to the anal opening in the median area; orifices small, one in the median area, two in the first interlobal area, others not distinctly in furrows, but five or more in the second furrow, 10 or more in the third, others on anterior abdominal segments with the ducts becoming shorter. Perivulvar pores absent. Anal opening oval,

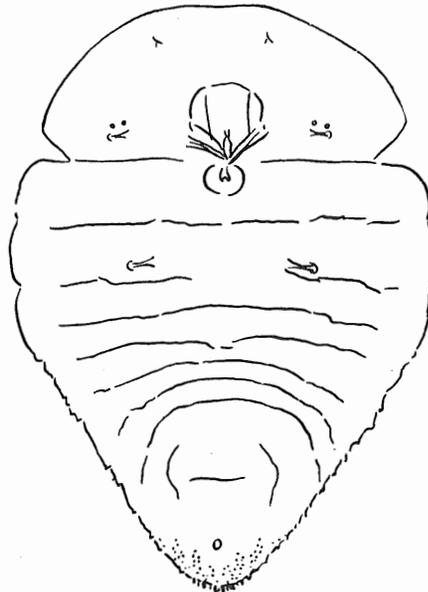


Fig. 23.

*Aspidonymus woodwardi*. Outline of body (95X).



**Acontonidia triangularis** n.sp.

(Figs. 25 and 26.)

*Type locality and host.*—Queensland: Beenleigh, on *Dissilaria baloghioides* F. Muell. ex Baill., May, 1956.

*Habit.*—Insects single and sparse, embedded under cork tissue on twigs.

*Recognition characters.*—Adult female broadly pyriform, with a deep thoracic constriction; anterior portion dome-shaped, lateral margins posteriorly sharply convergent; posterior portion of the same width, almost equilateral, lateral margins slightly curved. Length of slide specimens 0.8 mm., width 0.7 mm. Pygidium comparatively large, apex broadly rounded. Three pairs of lobes. Median lobes as wide as long, inner and outer margins similar, convergently curved to large subapical indentations, apex dome-shaped, separated by one-third of a lobe's width. Second pair of lobes much smaller, outer margin longer than the inner, with a subapical indentation; the inner margin slightly curved, with a small subapical indentation, separated from the median by one-quarter of the median lobe's width. Third pair of lobes much smaller than the second, margins curved to a triangular point, separated from the second by twice the latter's width. Basal scleroses absent. Paraphyses in the median first and second interlobal areas; in the median area as long as or slightly longer than the median lobes and divergent; in the first area as an uneven pair, the outer longer; similar but smaller in the second area. A pair of faint slender simple plates in the median, first and second interlobal spaces, as long as the lobes. Spines adjacent to the median lobes shorter than the lobes, other species longer. Dorsal ducts few, long and slender, orifices small, two or three in the first furrow, four or five in the second. Perivulvar pores absent. Anal opening small, four times the length of the median lobes from the bases of the lobes, apparently with an internal anal tube, and

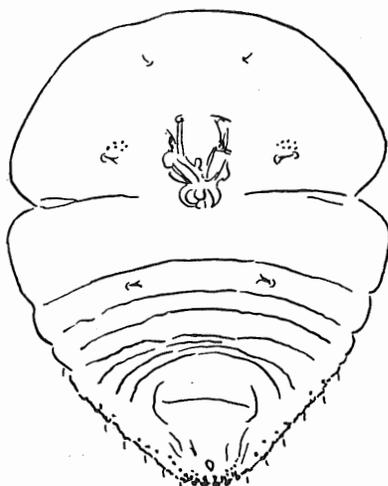


Fig. 25.

*Acontonidia triangularis*. Outline of body (80X).

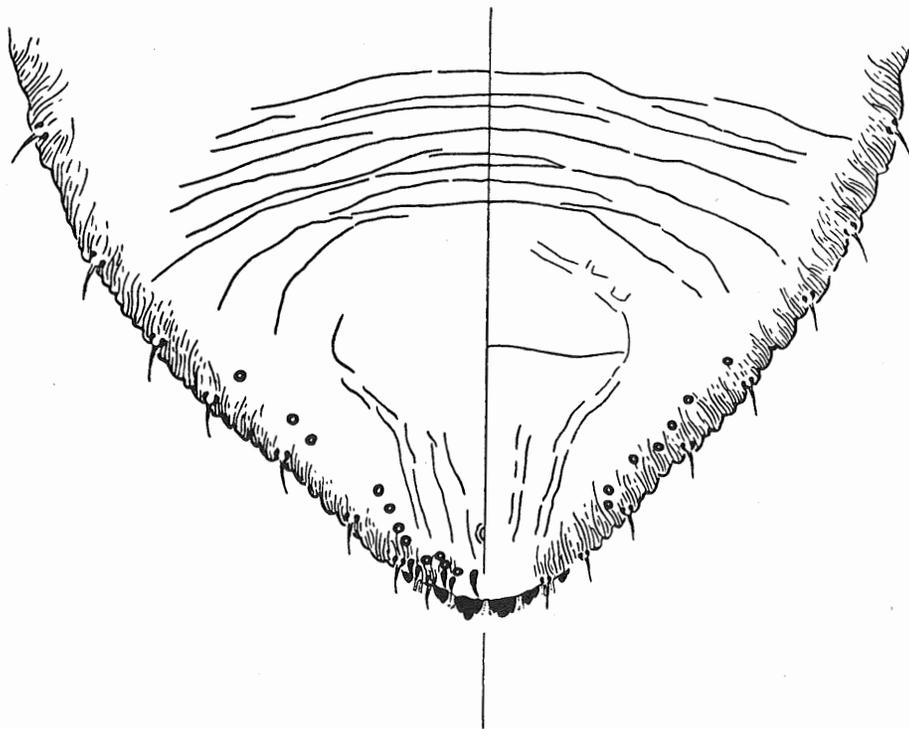


Fig. 26.

*Acontonidia triangularis*. Enlargement of pygidium (255X).

with an anal groove between the median paraphyses. Vulva very wide. Abdominal margin beyond the third pair of lobes crenulate, almost serrate. Median pygidial area with chitinized reticulation, body elsewhere with a finger-print chitinization. Anterior spiracles with six or seven associated pores.

*Notes.*—The scale is brittle and breaks into small pieces as the insect is extracted and the shape and colour are difficult to determine. Paraphyses in the median interlobal area may be enlarged anteriorly. Slight thickenings on the outer and inner basal areas of the median lobes may give the impression of a third paraphyses in the first interlobal area and a small second pair in the median area. Sometimes the third lobes are only small triangular points.

Type Reg. No. T. 5654 and paratypes Nos. T. 5655 to T. 5657 in the Queensland Museum.

**Duplaspidotus magnus** n.sp.

(Figs. 27 and 28.)

*Type locality and host.*—Queensland: Tugun on *Melichrus urceolatus* R.Br., Jan. 1950.

*Habit.*—Insects mostly single near ground level on trunk of host, almost embedded in cork tissue. Scale circular to slightly oval, 2.3 mm. diameter, dark brown to brownish grey; first pellicle light brown.

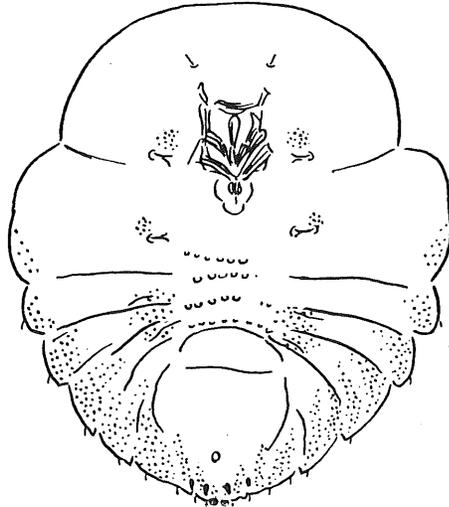


Fig. 27.

*Duplaspidiotus magnus*. Outline of body (55X).

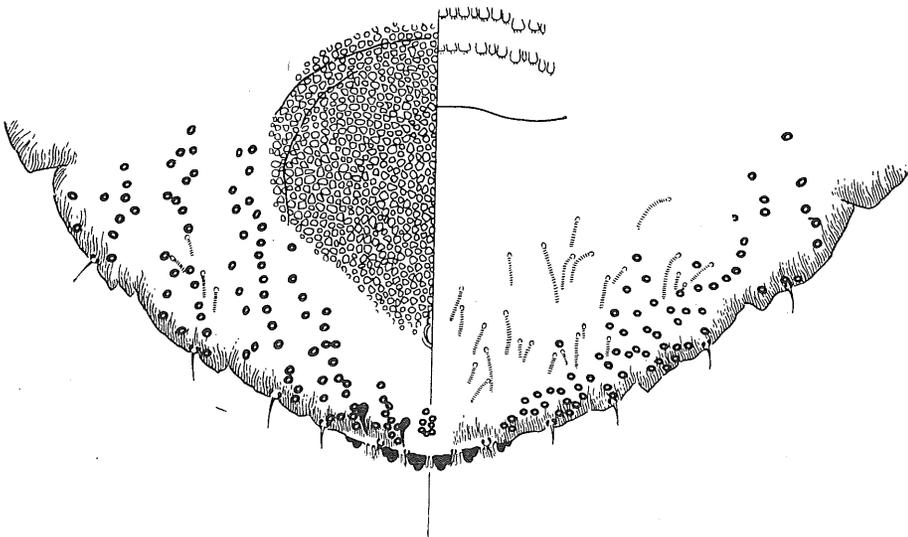


Fig. 28.

*Duplaspidiotus magnus*. Enlargement of pygidium (160X).

*Recognition characters.*—Body of adult female broadly oval with a thoracic constriction, and abdominal segmental demarcations. Length of slide specimen 1.4 mm., width 1.05 mm.; anterior portion dome-shaped, posterior portion wider, somewhat semicircular. Pygidium broadly rounded, not demarcated. Three pairs of lobes. Median lobes as wide as long, separated by a third of a lobe's width, inner margin straight or slightly curved, with a small basal constriction and a subapical indentation; outer margin longer than the inner, broadly curved, with a large subapical indentation; apex rounded. Second pair of lobes similar to the median but half the size and without the inner subapical indentation, separated from the median lobes by one-third to one-half of the latter's width. Third pair of lobes similar to the second but smaller and more triangular, separated from the first by one-and-a-third times the latter's width. Basal scleroses absent. Paraphyses in the first and second interlobal areas, single, as long as or slightly longer than the median lobes, apically clubbed. Plates shorter than the lobes, simple, two in the median interlobal space, two in the first interlobal space, and three in the second. Spines adjacent to the median lobes as long as the lobes, other spines longer. Ducts numerous, slender, heads small, length in the median region half the distance from the lobes to the anal opening; orifices in segmental series, in double rows on most abdominal segments, seven in the median interlobal area, 12 to 15 in the first duct furrow, 20 to 24 in the second, more numerous in other furrows but only eight submarginally on the metathorax; submedian series of ducts dorsally on anterior abdominal segments. Perivulvar pores absent. Anal opening small, oval, five times the length of the long axis from the bases of the median lobes. Thirty to 35 anterior parastigmatic pores; nine to 12 posterior parastigmatic pores. Median pygidial area with heavy tessellated chitinization. Abdominal segments 1 to 6 with ventral median bands of palisade chitinization.

*Notes.*—In some specimens the plates are little more than short conical derm projections, and in old specimens the lobes have only slight indentations. The species may be distinguished from other species in the genus in having ventral bands of palisade chitinization on the abdominal segments.

Type Reg. No. T. 5658 and paratypes Nos. T. 5659 to T. 5661 in the Queensland Museum.

***Pseudotargionia inconspicua* n.sp.**

(Figs. 29 and 30.)

*Locality and host.*—Queensland; Rocklea on *Melaleuca leucadendra* (L.) L., Sept. 1914 (H. Tryon).

*Habit.*—Insects scattered on twigs; scale beneath a thin layer of cork tissue, round, 1.6 mm. diameter, undersurface whitish; pellicles brown.

*Recognition characters.*—Adult female broadly oval, with a deep thoracic constriction; anterior portion dome-shaped with lateral margins strongly convergent posteriorly; posterior portion slightly wider, semicircular. Length of slide mounted specimen 1.0 mm., width 0.85 mm. Pygidium wide, apex broadly rounded. One pair of lobes yoked basally, slightly wider than long, inner margins divergent with a subapical indentation, outer margins curved with a large subapical indentation, apex broadly rounded; basally separated by one-third of a lobe's width. Basal scleroses absent. Paraphyses in the first and second interlobal areas, on the inner side only, anteriorly enlarged, longer than the lobes, shorter in the second than in the first interlobal area. Spines adjacent to the lobes shorter than the lobes, other spines longer. A pair of simple truncated plates in the first and second interlobal spaces, shorter than the lobes. Dorsal ducts short and slender; orifices small with chitinized rims, a few in the first furrow, 14 in the second and about 25 in the third, with about 15 as an intervening row. Perivulvar pores absent. Anal opening small, in an inverted V, one-and-a-half

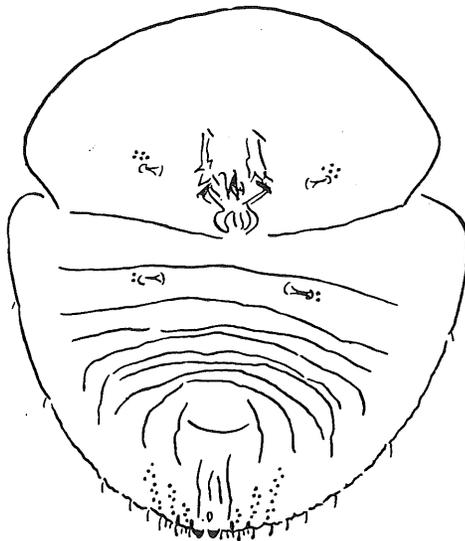


Fig. 29.

*Pseudotargionia inconspicua*. Outline of body (80X).

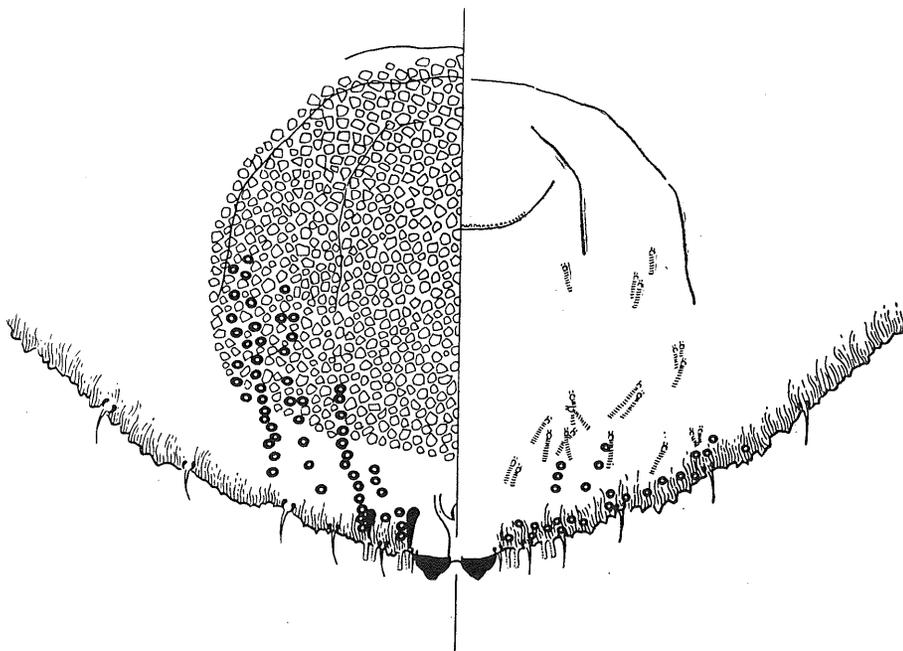


Fig. 30.

*Pseudotargionia inconspicua*. Enlargement of pygidium (210X).

to two times the lobe's length from the bases of the lobes. Anal groove present. Vulva wide, posteriorly curved. Pygidium dorsally with a large area of reticulate chitinization, elsewhere heavily chitinized. Pygidial margin crenulate, tending to be serrate. Anterior spiracles with four or five associated pores, posterior spiracles with two pores.

*Notes.*—In older specimens the pygidium has a heavily chitinized marginal rim. Heavy chitinization obscures the duct orifices and paraphyses, and on the dorsal surface the reticulate thickening may be very broad. Ducts in the second furrow may number as many as 20 with a similar number in an intervening row between the second and third furrows. Many ventral ducts are present with orifices on or near the chitinous marginal rim. Pores associated with the anterior spiracles may vary from four to six and those with the posterior spiracles from two to three. Sometimes the inner plate in the first or second interlobal space may be pointed and the lobes broader than long with the inner margins more strongly divergent.

This species resembles *P. cordata* in shape and appearance but differs in possessing plates, in the absence of dorsal ducts beyond the third furrow, and about half the number of pores associated with the anterior spiracles.

Type Reg. No. T. 5662 and paratypes Nos. T. 5663 to T. 5665 in the Queensland Museum.

#### ACKNOWLEDGEMENTS.

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