

The Aleyrodidae (Hemiptera-Homoptera) of New Caledonia

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A PREVIOUS PAPER (Proc. R. Ent. Soc. Lond. (B) 25, pts. 7-8, pp. 129-141, 1956) included descriptions of one species of *Dialeurodicus* Ckll. and six species of *Orchamoplatus* Russell. This paper completes the study of a collection of Aleyrodidae from New Caledonia. The material was collected largely by myself during three years' residence in New Caledonia, and as collection was concentrated specifically on this family it is believed that the fauna described here is representative and probably includes a majority of the species.

The following table compares the size and endemism of the New Caledonian Aleyrodid fauna with those of adjoining areas, in so far as these are known.

The fauna of the New Guinea-Solomons-New Hebrides chain, from which direction an

ities between the faunas of New Caledonia and New Zealand. The faunas of New Zealand and the South Pacific are smaller, but while the majority of the New Zealand species are undoubtedly endemic the South Pacific species are predominantly introduced forms occurring on introduced economic crop plants or weeds or on native food plants whose movements about the area have been considerable.

The majority of the species from these four areas belong to the subfamily *Aleyrodinae*. The subfamily *Udamoselinae* is poorly represented, there being one species of *Aleyrodicus* Douglas in Australia and another in Fiji, one species of *Dialeurodicus* in New Caledonia, and one species of the endemic genus *Synaleurodicus* Solomon in Australia. The subfamily *Uraleyrodinae* is not represented.

AREA	NUMBER OF GENERA			NUMBER OF SPECIES		
	Endemic	Nonendemic	Total	Endemic*	Nonendemic	Total
New Caledonia.....	3	7	10	25	—	25
Australia.....	1	12	13	19	3	22
New Zealand.....	1	3	4	9	1	10
South Pacific.....	—	7	7	5	4	9

* In each area the number of species presumed to be endemic includes two which are possibly nonendemic.

important element of the New Caledonian fauna was probably derived and with which it could be expected to show strong affinities, is unfortunately completely unknown.

The Australian fauna has been little studied and is undoubtedly much larger than the above figures suggest. Those of New Zealand and the South Pacific are reasonably well known. The New Caledonian fauna has affinities with the Australian fauna (for example, in the presence of endemic species of *Aleyrocanthus*, *Bemisia*, *Dialeurodes*, and *Tetraurodes*), but there is a relatively stronger element of endemic genera in New Caledonia. There are no obvious affin-

KEY TO THE GENERA OF THE ALEYRODIDAE OF NEW CALEDONIA (based on pupal cases)

1. Thoracic tracheal pores, clefts, and combs absent2
 Thoracic tracheal pores, or clefts, or combs present6
2. Large elongate brown species, vasiform orifice large, operculum short transverse; lingula long, more than half exposed, occupying whole orifice.....
*Dialeurodicus* Cockerell
 Not as above.....3
3. Submarginal line distinct, complete.....
*Tetraurodes* Q. & B.
 Not as above.....4

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- 4. Vasiform orifice triangular; operculum occupies only half orifice; lingula long, pointed, exposed; distinct caudal furrow.....
.....*Bemisia* Q. & B.
Not as above.....5
- 5. Marginal teeth well developed, submarginal series of papilla-like pores absent, but simple pale small spots or pores may be present.....*Aleurocanthus* Q. & B.
Marginal teeth absent or ill-defined, submarginal linear series of papilla-like pores present, broken by 9 processes on each side.....*Leucopogonella* n.g.
- 6. Abdomen with only 7 visible segments, top-shaped pit-making species.....
.....*Gomenella* n.g.
Not as above.....7
- 7. Vasiform orifice long, triangular; operculum occupies half orifice; lingula long, pointed, exposed.....*Parabemisia* Takahashi
Not as above.....8
- 8. Thoracic tracheal comb absent.....
.....*Dialeurodes* Cockerell
Thoracic tracheal comb present.....9
- 9. Thoracic tracheal comb with 2 teeth, abdominal tracheal comb absent, margin sinuate; submargin with 10 prominent setae on each side; without submarginal papillae.....*Dotbioia* n.g.
Thoracic tracheal comb with 2—many teeth, abdominal comb present, margin not sinuate, submargin without prominent setae, specialized submarginal papillae present.....*Orchamoplatus* Russell

SUBFAMILY UDAMOSELINAE Enderlein

GENUS *Dialeurodicus* Cockerell

Dialeurodicus elongatus Dumbleton. Proc. R. Ent. Soc. Lond. (B), pts. 7–8, pp. 129–131, 1956.

SUBFAMILY ALEYRODINAE Enderlein

GENUS *Aleurocanthus* Quaintance & Baker

KEY TO NEW CALEDONIAN SPECIES
(based on pupal cases)

- 1. Long spines absent.....2
- Long spines present.....3

- 2. Shape regular ovate or elliptical, without short spinous processes; lateral abdominal rays present.....*nudus* sp. n.
Shape somewhat pointed anteriorly, shallowly emarginate posteriorly, short spinous processes present, lateral abdominal rays absent.....*brevispinosus* sp. n.
- 3. Long spines on thorax only, shape somewhat pointed anteriorly, marginal teeth rounded, lateral abdominal rays present.....*spinithorax* sp. n.
Many long spines on both thorax and abdomen, shape broadly rounded anteriorly, bluntly pointed posteriorly, marginal teeth pointed, lateral abdominal rays absent.....*multispinosus* sp. n.

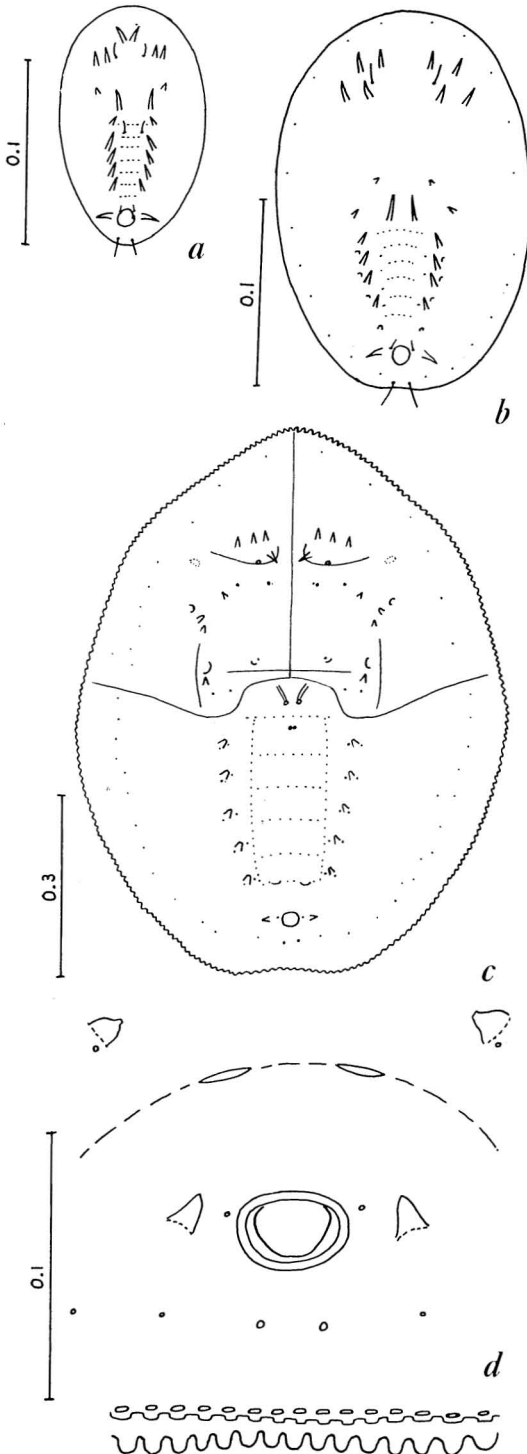
Aleurocanthus brevispinosus sp. n.

Fig. 1a–d

LARVA: Second instar (Fig. 1a): Length 0.39 mm., width 0.24 mm. Colour pale. One pair spines anterior to and 2 pairs laterad of cephalic hairlike setae. One pair short and 1 pair long spines posteriorly on thorax. One pair hairlike setae on 1st abdominal segment, those on 8th minute, caudal setae longer, 6 pairs of spines on abdomen. Margin obscurely toothed.

Third instar (Fig. 1b): Length 0.60 mm., width 0.41 mm. Sometimes pigmented brown medially. Two pairs of spines anterior to cephalic setae and 2 pairs caudad. One pair short spines on thorax. First abdominal segment with 1 pair paramedian processes, 8th abdominal and caudal setae hairlike, 6 pairs spines on abdomen. Marginal teeth similar to those of pupal case.

PUPAL CASE (Figs. 1c, d): Length 0.97 mm., width 0.74 mm. Colour black, eye spots paler. Slightly pointed anteriorly, sides a little concave from one-quarter to one-half length, broadest at mid-length, caudal margin more broadly rounded than anterior but with slight concavity. Not constricted across thoracic tracheal folds. A white wax fringe of columnar elements as wide as teeth and up to half as long as body width. Margin prominently toothed; teeth longer than wide, rounded apically. Submargin not defined by submarginal line, an inner row of teeth present. A continuous row of minute pale spots or



pores, 1 mesad of each outer tooth. A row of minute pores in the position of the submarginal line. Thoracic and abdominal tracheal folds, pores, clefts, and combs absent. Cephalic area posteriorly with 2 paramedian lobes mesad of the eye spots, each bearing 4 short spines. Pores and spines on thorax as in figure. Abdomen, first segment with paramedian processes, a pair of nearly contiguous pores on second segment, a median abdominal ridge laterad of which are 5 pairs of short blunt spinous processes, 1 pair more acute laterad of orifice. Eighth abdominal seta bases laterad of orifice about mid-length. Caudal seta bases slightly closer together than width of orifice and in same line as submarginal line of pores. Vasiform orifice (Fig. 1d) sub-circular, slightly transverse. Operculum sub-cordate, filling orifice. Lingula not visible.

HOLOTYPE: Pupal case on slide mount. Deposited in Institut Français d'Océanie, Noumea, New Caledonia.

PARATYPES: In author's collection.

TYPE LOCALITY: New Caledonia, ?Dothio, coll. F. Cohic.

FOOD PLANT: Undetermined.

OTHER MATERIAL: From undetermined hosts, Carenage 17/12/54 and Montagne des Sources 8/4/55, coll. L.J.D., also in association with *A. spinithorax* at Dothio.

This species shows some affinities with *Aleurotrachelus* because the outer boundary of the clear pores mesad of the marginal teeth is raised and simulates an inner row of teeth. In this the species resembles *A. dissimilis* Q. & B. and *A. serratus* Q. & B.

Aleurocanthus multispinosus sp. n.

Fig. 2a-e

LARVA. Second instar (Fig. 2a): Length 0.34 mm., width 0.2 mm. Colour pale. Cephalic region with 1 pair of paramedian hairlike setae and anterior to these 2 pairs of longer stout spines. Posteriorly on the thorax is 1 pair of short conical spines and a pair of very long

FIG. 1. *Aleurocanthus brevispinosus* sp. n. a, Second instar larva; b, third instar larva; c, pupal case; d, pupal case, vasiform orifice and caudal margin. (Scale in mm.)

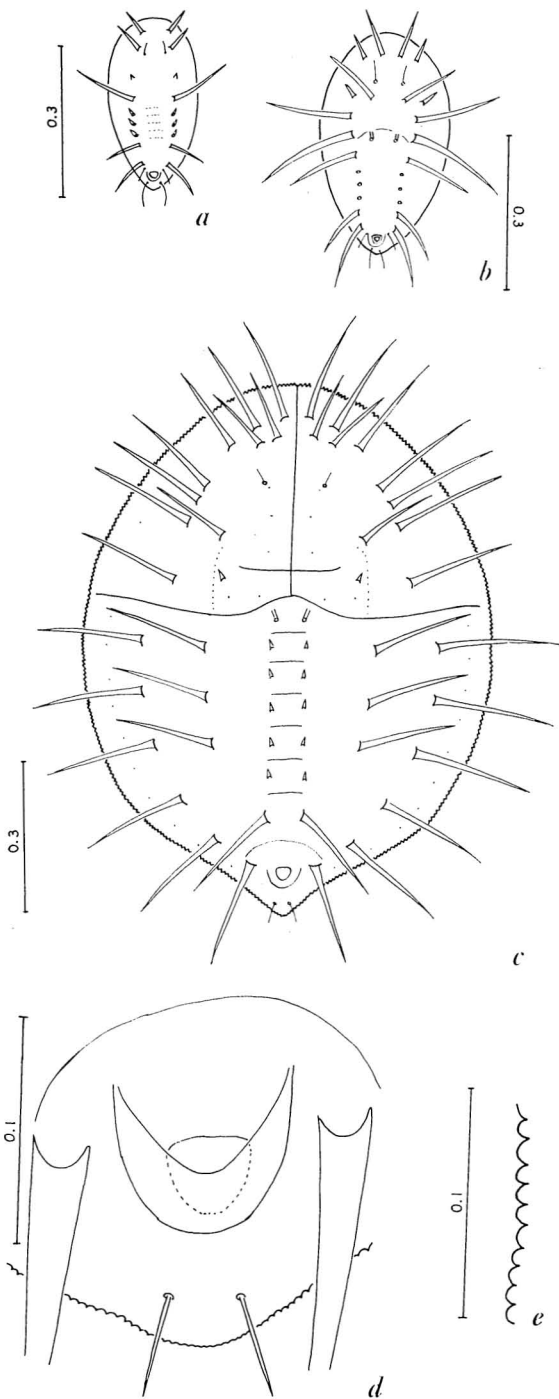


FIG. 2. *Aleurocanthus multispinosus* sp. n. *a*, Second instar larva; *b*, third instar larva; *c*, pupal case; *d*, pupal case, vasiform orifice and caudal margin; *e*, pupal case, margin. (Scale in mm.)

spines. Abdomen with 3 pairs of short conical spines and 2 pairs of long spines. Eighth abdominal setae and caudal setae long, hairlike.

Third instar (Fig. 2*b*): Length 0.54 mm., width 0.31 mm. Colour pale. Cephalic area with 2 pairs of long spines anterior to cephalic setae, lateral pair shorter. Thorax with 2 pairs long spines anteriorly, lateral pair shorter; 2 pairs of long spines posteriorly. Abdomen: 1 pair of paramedian processes on 1st segment, followed by 1 pair of long spines, 3 pairs of pores, 2 pairs of long spines. Eighth abdominal and caudal setae hairlike.

PUPAL CASE (Figs. 2*c-e*): Length 1.0 mm., width 0.71 mm. Colour black. Shape elliptical, wider behind mid-length, posterolateral margins slightly concave and caudal region bluntly conical. No constriction across thoracic tracheal folds and no caudal invagination. Margin (Fig. 2*d*) regularly toothed, teeth not broad and rounded but acute and pointed with the slope of the sides concave. Submargin not defined by submarginal line, finely ridged near margin. Thoracic and abdominal tracheal folds, clefts, pores, and combs absent. Cephalic area with 5 pairs of long, black, somewhat frayed spines anterior to 1 pair of short finer paramedian cephalic setae. Eye spots not evident. Thoracic area with 5 pairs of long spines and 1 short thornlike spine midway between median line and margin metathorax. Abdomen with ill-defined median ridge, segmentation ill-defined, rhachis absent. Segment 1 with a pair of paramedian processes. Segments 2-6 each with 1 pair of short thornlike paramedian spines. Segment 7 with long spines. Eighth segment with 1 pair of long stout spines, setae absent. Caudal setae short, hairlike, with bases about same width as vasiform orifice but nearer the margin than to the orifice. Five pairs of long lateral spines in same line as 8th abdominal spines and 3 pairs of long discal setae midway between paramedian and lateral spines. Vasiform orifice (Fig. 2*e*) raised, not clearly discernible, hemispherical. Operculum filling orifice. Lingula not discernible.

HOLOTYPE: Pupal case on slide mount. Deposited in Institut Français d'Océanie, Noumea, New Caledonia.

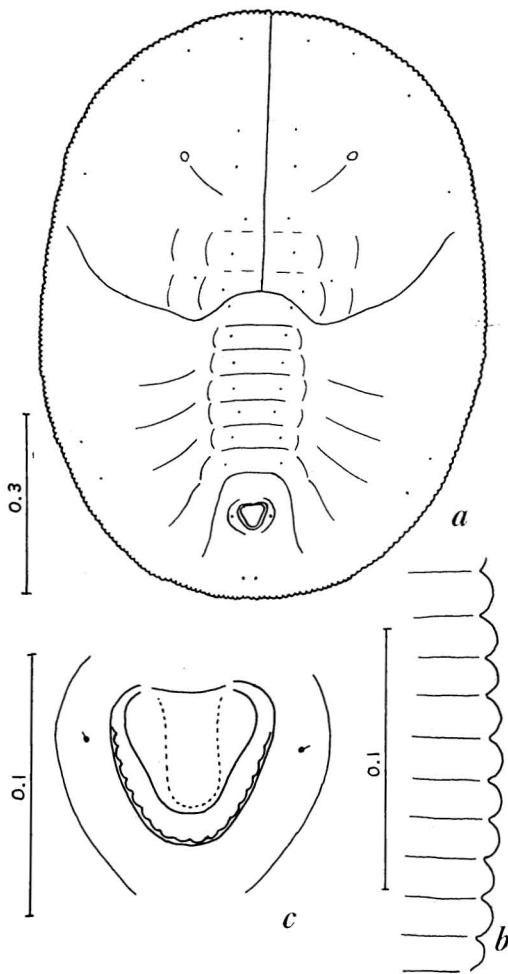


FIG. 3. *Aleurocanthus nudus* sp. n. a, Pupal case; b, pupal case, margin; c, pupal case, vasiform orifice. (Scale in mm.)

PARATYPES: In author's collection.

TYPE LOCALITY: New Caledonia, Montagne des Sources, 3,000 ft., coll. L.J.D.

FOOD PLANT: *Hibbertia* sp.

Similar to *A. calophylli* Kotinsky from Fiji but differing in the form of the marginal teeth.

Aleurocanthus nudus sp. n.

Fig. 3a-c

PUPAL CASE (Fig. 3a-c): Length 1.0 mm., width 0.72 mm. (holotype) but reaching 1.4 mm. long. Colour black. Shape broadly elliptical, rounded anteriorly and posteriorly. Rather flat

but with median ridge and 2 thoracic lateral ridges. Wax fringe white about one-third body width. There is a submarginal line of wax, an inverted U-shaped wax line more or less contouring the adult head and thorax, and 5 or 6 transverse lines on the abdomen. Inside the marginal line of wax there are narrow radial striae of wax and the disc is powdered with wax. Margin (Fig. 3b) strongly toothed, teeth rounded, 7 teeth in 0.1 mm. Submargin not defined from dorsal disc, radially striate, striae same width as teeth; with a number of minute simple pores, 3 cephalic, 2 thoracic, 2 mid-length on abdomen. Thoracic and abdominal tracheal folds, pores, combs, and clefts absent. Eye spots present, subtriangular. Cephalic and thoracic areas without setae, pores as in figure. Abdomen, segment 1 with 1 pair paramedian pores, segments 2-6 limited laterally and with paramedian pores. Between segments 3 and 6, 4 lateral rays on each side. Seta bases on 8th abdominal segment on orifice rim about mid-length of orifice. Caudal seta bases close together, nearer margin than orifice.

Vasiform orifice (Fig. 3c) subcordate, 0.06 mm. wide, 0.065 mm. long, internally toothed. Operculum subcordate, filling orifice 0.05 mm. long. Lingula parallel-sided, apex rounded.

HOLOTYPE: Pupal case on slide mount. Deposited in Institut Français d'Océanie, Noumea, New Caledonia.

PARATYPES: In author's collection.

TYPE LOCALITY: New Caledonia, Tinip, coll. L.J.D., 4/11/54.

FOOD PLANT: *Leucopogon* sp. On upper surface of leaf.

This species comes nearest the genus *Aleurocanthus* and is similar to *dissimilis* Q. & B. in the absence of long spines and to *T-signatus* Mask., *serratus* Q. & B., and *spinosus* Kuwana in the presence of lateral rays on the abdomen.

Aleurocanthus spinithorax sp. n.

Fig. 4a-d

LARVA. Second instar (Fig. 4a): Length 0.4 mm., width 0.27 mm. Colour pale laterally, brown medially. Margin with short broad truncate teeth. Cephalic area with 2 pairs of short conical spines anterior to cephalic hairlike setae

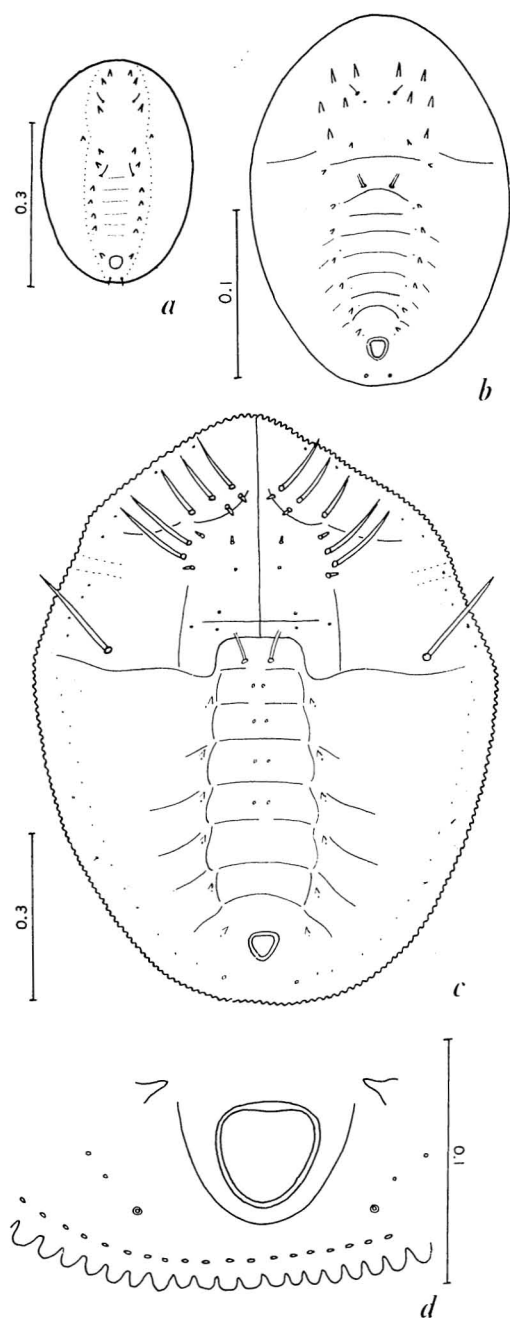


FIG. 4. *Aleurocanthus spinithorax* sp. n. *a*, Second instar larva; *b*, third instar larva; *c*, pupal case; *d*, pupal case, vasiform orifice and caudal margin. (Scale in mm.)

and 1 pair posterior. Thoracic area with 3 pairs of short conical spines. Abdomen: First segment with 1 pair hairlike setae, following segments with 4 pairs of short conical spines, 8th abdominal setae small or absent, 1 pair of short conical setae laterad of orifice, caudal setae hairlike.

Third instar (Fig. 4*b*): Length 0.68 mm., width 0.52 mm. Colour brown. Marginal teeth as in pupal case with pore mesad of each. Cephalic area with 2 pairs of short conical spines anterior to and 2 pairs posterior to cephalic hairlike setae. Thoracic area with 3 pairs of short conical setae. Abdomen: First segment with 1 pair of paramedian processes followed by 6 pairs of short conical spines. Eighth abdominal setae not discernible, caudal setae hairlike.

PUPAL CASE (Fig. 4*c, d*): Length 1.1 mm., width 0.82 mm. Colour dark brown to black. Shape elliptical but slightly pointed anteriorly, angulated opposite end of transverse moulting suture and again at 2 points midway to anterior median line. Very slightly emarginate caudally. Not constricted across thoracic folds. Margin toothed, 9 teeth in 0.1 mm., teeth longer than wide, apex rounded. Thoracic tracheal folds indicated; pores, clefts, and combs absent. Abdominal tracheal folds, pores, clefts, and combs absent. Submargin with a continuous row of minute simple circular pores one behind each marginal tooth, not defined mesally by submarginal line, without setae but with 4 minute pores on each side of thorax and 2 on each side of abdomen mesad of the line of pores behind the teeth. Cephalic area delimited by line subparallel to margin commencing anterior to thoracic fold and meeting at median suture. On each side a group of 3 long spines and 2 short spines. Thoracic area with the median part limited by lateral lines midway between median line and margin. Near the anterior end of these lines, on each side, a group of 2 long and 2 short spines. In the posterior lateral angle of the meta-thorax, and nearer the margin than the median line, is a single long spine. Abdomen broadly ridged in the median area with the segments limited laterally and with 3 rays extending half-way to margin from intersegmental sutures 4-5,

5-6, and 6-7. Segment 1 subrectangular with 2 paramedian processes close together. Segments 2-5 each with 2 paramedian nearly contiguous pores. Laterad of the boundary of the median ridge are 4 short spines opposite sutures 2-3, 3-4, 4-5, and 5-6, a similar one at mid-length on 7, and 1 laterad of orifice on 8. The 8th abdominal seta is not discernible. Caudal seta bases as wide apart as spines on 8th segment. Vasiform orifice subcordate (Fig. 4*d*). Operculum fills orifice. Lingula not discernible.

HOLOTYPE: Pupal case on slide mount. Deposited in Institut Français d'Océanie, Noumea, New Caledonia.

PARATYPES: In author's collection.

TYPE LOCALITY: New Caledonia, Dothio, coll. F. Cohic.

FOOD PLANT: An undetermined climbing plant.

This species is very similar in facies to *A. brevispinosus* and shows affinities with *Aleurotrachelus* Q. & B. The moulted skins of 2 larval instars are usually adhering to the dorsum of the pupal case.

GENUS *Bemisia* Quaintance & Baker

Bemisia cordylinidis sp. n.

Fig. 5*a-c*

LARVA. Third instar (Fig. 5*a*): Length 0.7 mm., width 0.42 mm. Resembles pupal case but anal furrow less developed and caudal setae long and stout.

PUPAL CASE (Fig. 5*b, c*): Length 1.15 mm., width 0.80 mm. Colour transparent or white. Shape elliptical, flat. No constriction across thoracic pores, little or no caudal invagination. Margin finely crenulate. Submargin not separated from dorsal disc. Anterior and posterior marginal setae present. Area between submargin and tubercles with dense hemispherical pustules in radial arrangement, each row tending to consist of tubercles 2 deep. Cephalic area with 2 pairs of minute paramedian setae. Thoracic area with tracheal folds, pores, combs, and clefts absent; 3 pairs of tuberculate warts nearly midway between median line and margin. Abdomen, first segment with 1 pair of minute, widely spaced setae. Segments 1-5 with a median tuberculate wart, less developed on segments 1, 4, and 5. A

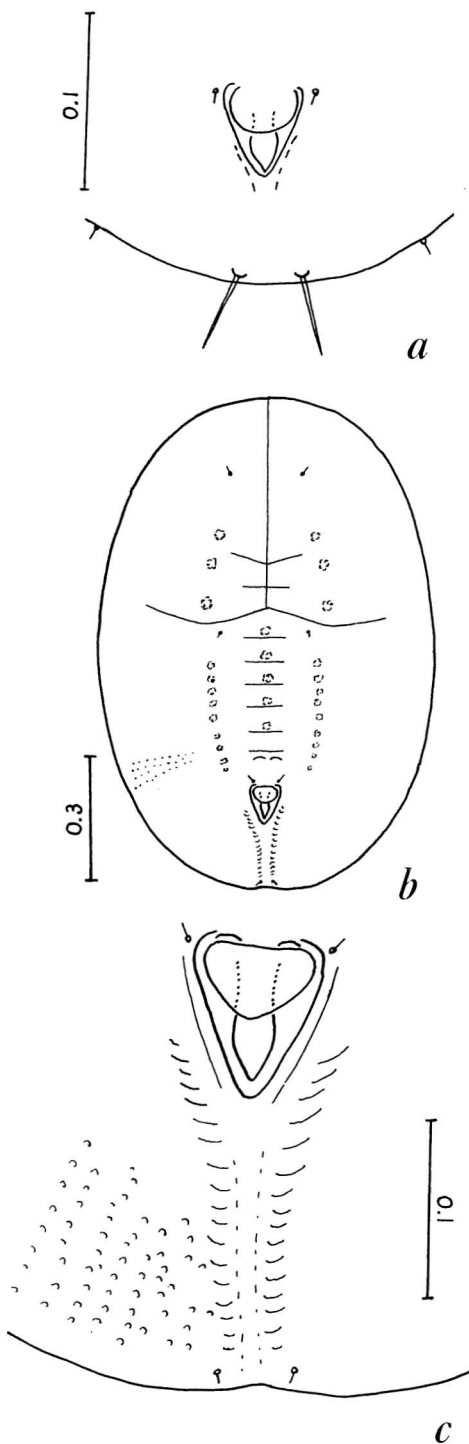


FIG. 5. *Bemisia cordylinidis* sp. n. *a*, Third instar larva, vasiform orifice and caudal margin; *b*, pupal case; *c*, pupal case, vasiform orifice and caudal margin. (Scale in mm.)

row of 7 or 8 tubercles on each side, the posterior members tending to become continuous with the ridges bounding the anal furrow. These abdominal tubercles and those on the thorax outline the adult body. Seventh segment narrower than 6 and 8. Eighth segment with a pair of minute setae level with anterior margin of vasiform orifice, bases as wide apart as orifice width. Vasiform orifice (Fig. 5c) subtriangular, long, acutely pointed, with 2 or 3 oblique ridges on each side of apical half. Operculum semicircular, not more than half the length of orifice. Lingula long, exposed, spatulate, pointed. Ridges of anal furrow contouring the orifice where the tubercles are somewhat pectinated, smooth tubercles between orifice and cauda. Caudal setae minute, on ends of furrow ridges near margin.

HOLOTYPE: Pupal case on slide mount. Deposited in Institut Français d'Océanie, Noumea, New Caledonia.

PARATYPES: In author's collection.

TYPE LOCALITY: New Caledonia, Montagne des Sources, coll. L.J.D.

FOOD PLANT: *Cordyline* sp.

The tuberculation suggests *Asterobemisia* Trehan but the thoracic and abdominal tracheal folds and combs are absent. The species resembles *Bemisia shimanoensis* Kuwana but lacks setae on the abdomen.

GENUS *Dialeurodes* Cockerell

KEY TO NEW CALEDONIAN SPECIES
(based on pupal cases)

1. With 5 large simple pores on each side.....
.....*dotbioensis* sp. n.
- No large pores.....2
2. Pale species, adult body outlined by tuberculate line; transverse moulting suture not continued anteriorly; anterior and posterior marginal, 8th abdominal and caudal setae present.....*psychotriae* sp. n.
3. Black species; transverse suture continued anteriorly and meeting in median line and enclosing eye spots, lateral abdominal line passing from transverse suture to level with orifice; without setae.....
.....*dumbeaensis* sp. n.

Dialeurodes dotbioensis sp. n.

Fig. 6a, b

PUPAL CASE (Fig. 6a, b): Length 1.0 mm., width 0.73 mm. Colour transparent or white. Shape elliptical, widest at mid-length, with slight concavities in the thoracic and abdominal tracheal pore areas. Wax secretion in the form of pale blue filaments. Margin somewhat irregularly toothed, anterior and posterior marginal setae present. Submargin not defined from dorsal disc, with 12 short spearhead-like marginal setae on each side, 5 anterior to thoracic fold and 7 posterior to it. Cephalic area with 1 pair of paramedian cephalic setae and anterior to these and nearer to the margin 1 pair of very large simple

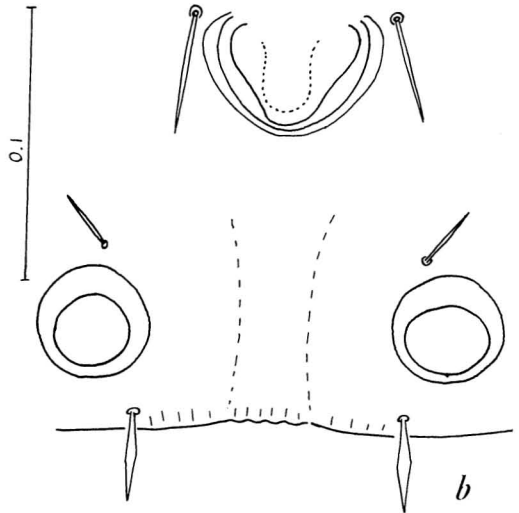
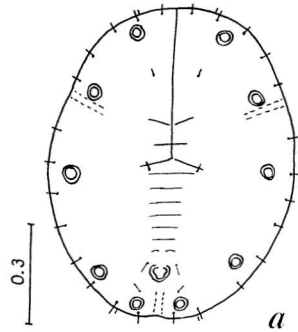


FIG. 6. *Dialeurodes dotbioensis* sp. n. a, Pupal case; b, pupal case, vasiform orifice and caudal margin. (Scale in mm.)

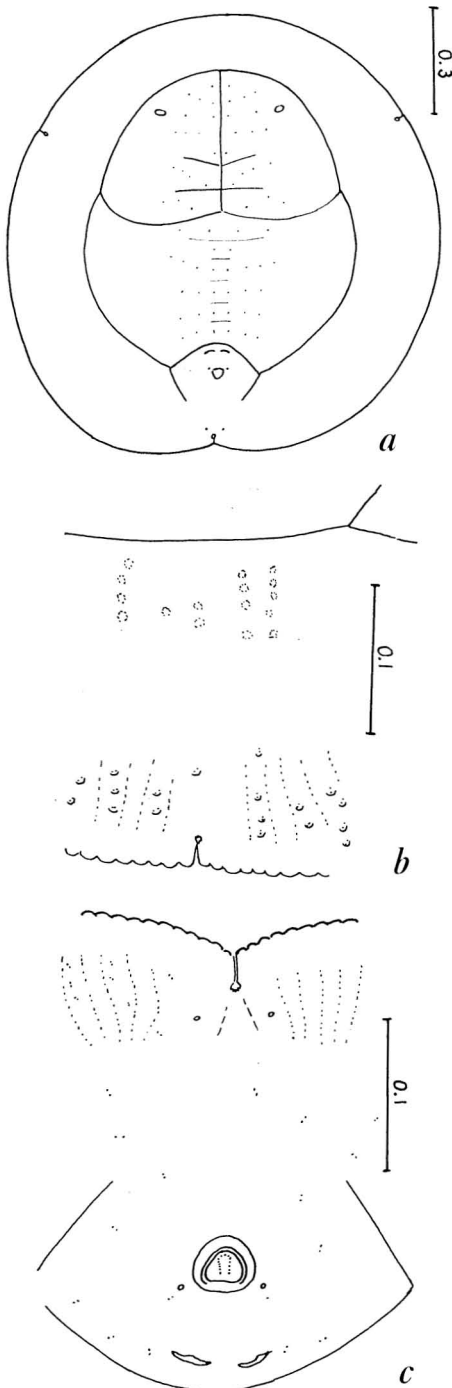


FIG. 7. *Dialeurodes dumbeaensis* sp. n. *a*, Pupal case; *b*, pupal case, thoracic tracheal pore; *c*, pupal case, vasiform orifice and caudal margin. (Scale in mm.)

pores with thick walls of external diameter 0.045 mm. Thoracic area with 1 pair of similar pores immediately anterior to thoracic folds which are not sculptured and end in a comb of about 5 minute teeth. Abdomen with three pairs of large simple pores near margin, one opposite the transverse moulting suture, one slightly anterior to the orifice, and one caudad of the orifice. Abdominal tracheal fold and comb not evident. First abdominal segment with one pair of short setae. Eighth abdominal setae present longer than orifice, bases level with anterior margin of orifice. One short seta cephalad of each large caudal pore. Caudal setae caudad of these pores. Vasiform orifice (Fig. 6*b*) subcordate, 0.06 mm. wide, 0.045 mm. long, no teeth on margin. Operculum nearly filling orifice, 0.04 mm. wide, 0.035 mm. long. Lingula included, constricted near base, 0.02 mm. long, 0.015 mm. wide, subtruncate apically.

HOLOTYPE: Pupal case on slide mount. Deposited in Institut Français d'Océanie, Noumea, New Caledonia.

PARATYPES: In author's collection.

TYPE LOCALITY: New Caledonia, Dothio River Bridge, coll. F. Cohic, 17/6/53.

FOOD PLANT: Undetermined.

This species is closely related to *D. decempunctata* Q. & B. but differs in that the thoracic fold is not between the first and second pores, in the spearhead shape of the marginal setae and in having only one seta anterior to each caudal pore. It differs from *D. viburni* Takahashi in having only one seta anterior to each caudal pore and in the form of the marginal setae. It belongs to the subgenus *Dialeuropora* Q. & B.

Dialeurodes dumbeaensis sp. n.

Fig. 7*a-c*

PUPAL CASE (Fig. 7*a-c*): Length 1.25 mm., width 1.2 mm. Colour black. Shape subcircular, faintly constricted across thoracic folds but invaginated caudally at abdominal tracheal pore. The marginal fringe, of white wax rods half as wide as body, may split in stellate fashion into 10 rays. Margin with rounded teeth, 10 teeth in 0.1 mm., anterior and posterior marginal setae present. The submarginal line is higher in elevation than the margin and the dorsal

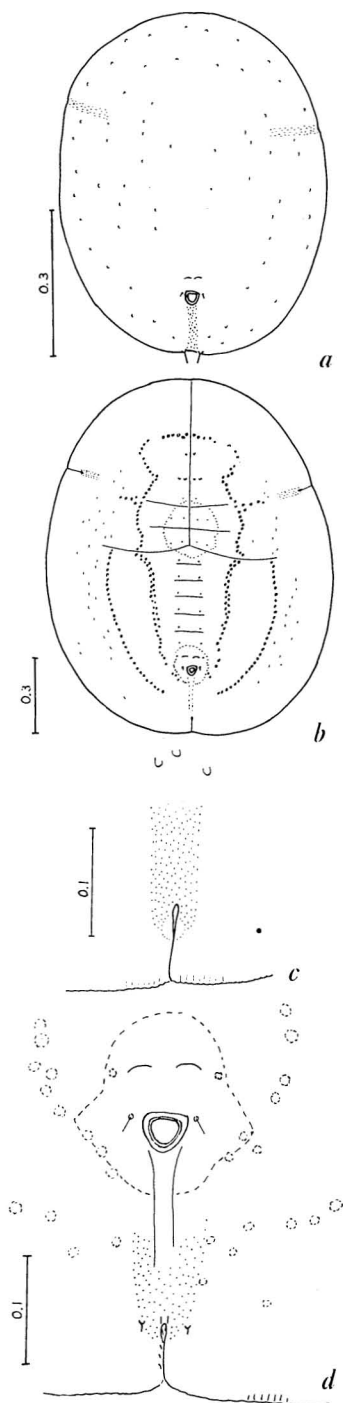


FIG. 8. *Dialeurodes psychotriae* sp. n. *a*, Third instar larva; *b*, pupal case; *c*, pupal case, thoracic tracheal pore; *d*, pupal case, vasiform orifice and caudal margin. (Scale in mm.)

disc and the transverse and median moulting sutures are also elevated. Submargin radially striate 0.25 mm. wide, on outer half with radial rows of 4–5 minute circular poriferous papillae mesad of alternate teeth, intervening areas darker, inner half with radial rows of less well-defined subcircular nonporiferous papillae. Submarginal line on cephalothorax continuous with transverse moulting suture. Cephalic area with eye spots oval, long axis 0.03 mm. long, oblique, enclosed by submarginal line, without setae or evident pores. Thoracic area, without setae or evident pores. Tracheal folds not visible dorsally, cleft present but closed, pore (Fig. 7*b*) minute, subcircular, minutely toothed, inset from margin. Cephalothorax with scattered irregular minute pores. Abdomen. Submarginal line of abdomen ending level with orifice, the two halves joined by a semicircular raised line anterior to orifice, from the junction on each side a short raised line runs mesocaudally so that the orifice is enclosed except caudally. Abdomen, segments 1–6 subequal in length, without setae but with transverse row of minute pores, seventh segment half as long. Vasiform orifice (Fig. 7*c*) semicircular, 0.03 mm. long, 0.035 mm. wide. Operculum semicircular, 0.02 mm. long, 0.03 mm. wide, filling orifice. Lingula not visible. Eighth abdominal setae represented by pores, level with anterior margin of orifice and distant from it.

HOLOTYPE: Pupal case on slide mount. Deposited in Institut Français d'Océanie, Noumea, New Caledonia.

PARATYPES: In author's collection.

TYPE LOCALITY: New Caledonia, Dumbea, coll. L.J.D., 9/6/52.

FOOD PLANT: *Homalium* sp.?

This species would run to *Dialeurodes* subgenus *Gigaleyrodes* Q. & B. in Quaintance & Baker's key, and is reminiscent of *D.(G.) cerifera* Q. & B.

Dialeurodes psychotriae sp. n.

Fig. 8*a–d*

LARVA. Second instar: Length 0.30 mm., width 0.28 mm. Elliptical. Colourless. Similar to 3rd instar but tubercles absent and marginal teeth more distinct.

Third instar (Fig. 8a): Length 0.75 mm., width 0.56 mm. Elliptical. Colourless. Without tuberculate pattern but with scattered irregular small tubercles. Caudal setae situated on margin, strong. Tracheal pores with few teeth on margin, no clefts. Tracheal folds present, dotted. Margin as in pupal case.

PUPAL CASE (Fig. 8b-d): Length 1.44 mm., width 1.15 mm. Colourless except for a circular pigmented middorsal area on meso- and metathorax and anterior half of first abdominal segment, and another more elongate area on 7th and 8th abdominal segments including the orifice and extending caudad of it. Shape elliptical, flat, widest at mid-length. Margin slightly crenulated nearly entire with numerous marginal ridges and grooves extending a short distance mesally, anterior and posterior marginal setae present. Submargin not defined from dorsum. Body of adult outlined by a row of tubercles, single on cephalothorax but tending to be double on abdomen and ending caudad of orifice. Between this and the margin on the abdomen is a second row of slightly smaller tubercles in single series. Thoracic tracheal folds present, marked by dots, extending from pore to line of tubercles where they are dilated. Pore (Fig. 8c) simple, without teeth, distant 0.05 mm. from margin, cleft present. Abdomen with scattered small circular pores especially between margin and outer row of tubercles. Setae not evident on segment 1. Posterior half of 6th abdominal segment between paramedian pores is finely spinulose. Eighth abdominal setae 0.03 mm. long level with anterior margin of orifice, distant from orifice. Caudal setae 0.01 mm. long, one on each side of tracheal pore at mid-length. Vasiform orifice (Fig. 8d) subcordate, not toothed internally on lateral or posterior margins, 0.04 mm. long, 0.04 mm. wide. Operculum filling orifice, 0.03 mm. long, 0.03 mm. wide. Lingula not exposed, parallel sided, apex rounded, as long as operculum. Abdominal tracheal fold present, marked by dots. Pore simple, distant from margin by closed cleft.

HOLOTYPE: Pupal case on slide mount. De-

posited in Institut Français d'Océanie, Noumea, New Caledonia.

PARATYPES: In author's collection.

TYPE LOCALITY: New Caledonia, Plum, coll. L.J.D.

FOOD PLANT: *Psychotria deplanchei*.

This species would run to the subgenus *Gigaleyrodes* in Quaintance & Baker's key although the tracheal pore differs. A similar tuberculation of the dorsal disc occurs in *Dialeurodes* (*Dialeuronomada*) *dissimilis* Q. & B. in which however the orifice is toothed.

GENUS *Dotbioia* nov.

PUPAL CASE: Apparent margin not toothed, margin reflexed with small conical teeth. Thoracic and abdominal tracheal folds not evident. Thoracic tracheal pore represented by two projecting processes. Margin in the position of the abdominal tracheal pore with four or five ill-defined teeth. Apparent body margin sinuate, i.e., concave between the submarginal setae of which there are five on each side of the cephalothorax and four on the abdomen in addition to the caudal setae.

TYPE SPECIES: *D. bidentatus* sp. n.

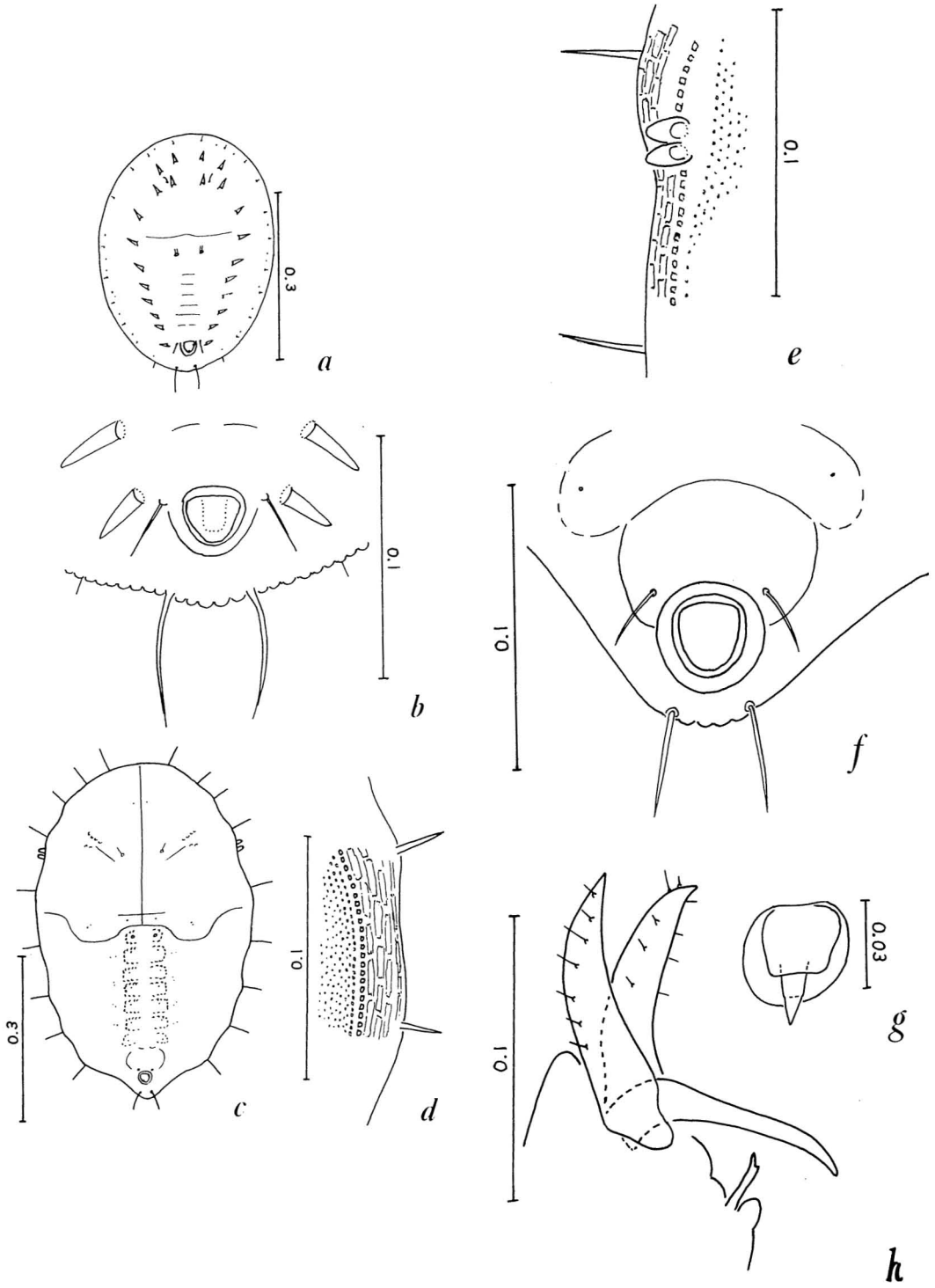
Dotbioia bidentatus sp. n.

Fig. 9a-b

LARVA. Third instar (Figs. 9a, b): Length 0.45 mm., width 0.31 mm. Shape elliptical. Colour pale. Margin toothed. Submargin with 10 fine short setae on each side. Cephalic area with one pair of fine setae and four pairs of spines. One pair of posterolateral thoracic spines. Abdomen, one pair of paramedian processes on first segment, seven pairs of spines laterad, eighth abdominal setae hairlike, level with orifice, caudal setae long.

PUPAL CASE (Fig. 9c-f): Length 0.75 mm., width 0.56 mm. Colour black. Wax pattern of narrow linear raised elements; a median line along suture on anterior half of cephalothorax, a short transverse line on first abdominal segment, and a longer oblique line in posterolateral angle of thorax. Apparent margin not toothed,

FIG. 9. *Dotbioia bidentatus* sp. n. a, Third instar larva; b, third instar larva, vasiform orifice and caudal margin; c, pupal case; d, pupal case, margin; e, pupal case, thoracic tracheal pore; f, pupal case, vasiform orifice and caudal margin; g, female, vasiform orifice and lingula; h, male, claspers and aedeagus. (Scale in mm.)



sinuate, with 7 rounded prominences on each side. True margin may be visible between prominences near cauda and there show small conical teeth. Margin (Fig. 9*d*) reflexed ventrally, marked by a line of small conical teeth mesad of which is a clear membranous line separating the venter which is densely covered by small circular pigmented tubercles. Apparent margin with 9 submarginal setae 0.05 mm. long, 4 anterior to thoracic pore, 1 on thorax caudad of pore, and 4 on the abdomen in addition to the caudal seta on each side. Submargin in bleached specimens with elongated pigmented rectangular thickenings internally. Cephalic area with a pair of cephalic setae and anterolaterad of these about 4 small tubercles in the position of the eye spots. Thoracic tracheal folds not evident, pores (Fig. 9*e*) represented by 2 projecting rounded processes 0.01 mm. long. Abdomen with median abdominal ridge. Segments clearly defined laterally by raised tuberculate line, the lateral margins of the seventh segment produced caudad. Eighth abdominal setae as long as orifice, distant from it, and level with its anterior margin. Vasiform orifice (Fig. 9*f*) subcircular, 0.04 mm. long, internally ribbed. Operculum filling orifice. Lingula not visible. Abdominal tracheal fold not evident, no pore or comb, caudal margin with 4 or 5 indistinct teeth between caudal setae.

ADULT: (Fig. 9*g-h*): Pale yellow. Wings immaculate. Forewings with R_s and Cu present. Hind wings with single vein. Antennae with third segment longer than 4-7 combined, 4 and 7 subequal and shorter than 5 and 6, which are subequal. About 18-19 setae in comb on hind tibia. Lingula (Fig. 9*g*) with sides subparallel, apex conical and reduced in thickness. Male with claspers slender, pointed; aedeagus (Fig. 9*h*) tapering slightly falcate apically.

HOLOTYPE: Pupal case on slide mount. Deposited in Institut Français d'Océanie, Noumea, New Caledonia.

PARATYPES: In author's collection.

TYPE LOCALITY: New Caledonia, Douthio River, coll. L.J.D., 9/5/53.

FOOD PLANT: Undetermined.

GENUS *Gomenella* nov.

PUPAL CASE: Circular. Submargin defined by submarginal line. Submarginal setae present or

absent. Dorsum densely covered with simple pores which may be large and contiguous. Thoracic tracheal pores flasklike, folds absent. Abdominal tracheal fold and pore present or absent. Anal furrow present. Vasiform orifice subcircular, operculum filling it. Lingula finger-like. Only 7 visible abdominal segments. Top-shaped, pit-making species.

TYPE SPECIES: *G. multipora* sp. n.

One of the species described below resembles *Aleurochiton* Tullgren in the presence of dense dorsal pores but differs as above and also in the absence of a vertical wax palisade. The other species conforms to *Dialeurodes* (s.g. *Gigaleyrodes*) except for the reflexed margins which suggest *Tetralicia* Harrison but it is otherwise unlike that genus. In assigning these 2 species to a new genus, stress is placed on the apparent presence of only 7 visible abdominal segments and the top-shaped form correlated with the pit-making habit in spite of the differences noted in the following key.

KEY TO THE NEW CALEDONIAN SPECIES (based on pupal cases)

Submargin reflexed, without setae; dorsum without dense large contiguous pores; abdominal tracheal pore present....*reflexa* sp. n.
Not as above.....*multipora* sp. n.

Gomenella multipora sp. n.

Fig. 10*a-f*

LARVA. First instar (Fig. 10*a*): Length 0.13 mm., width 0.10 mm. Submarginal setae as in other stages but with very long caudal setae functional legs and long antennae, without large pores on dorsum, vasiform orifice more elongate.

Second instar (Fig. 10*b*): Distinguished from other stages by sparse regularly arranged dorsal pores on thorax and a line of four subdorsal pores on each side of abdomen.

Third instar (Fig. 10*c*): More numerous pores on the thorax, 3 rows of 3 pores on each side of abdomen not extending across median line as in pupal case. Two pores on each side of orifice.

PUPAL CASE (Fig. 10*d-f*): Length 0.5 mm., width 0.5 mm. Pupa yellow. Pupal case colour-

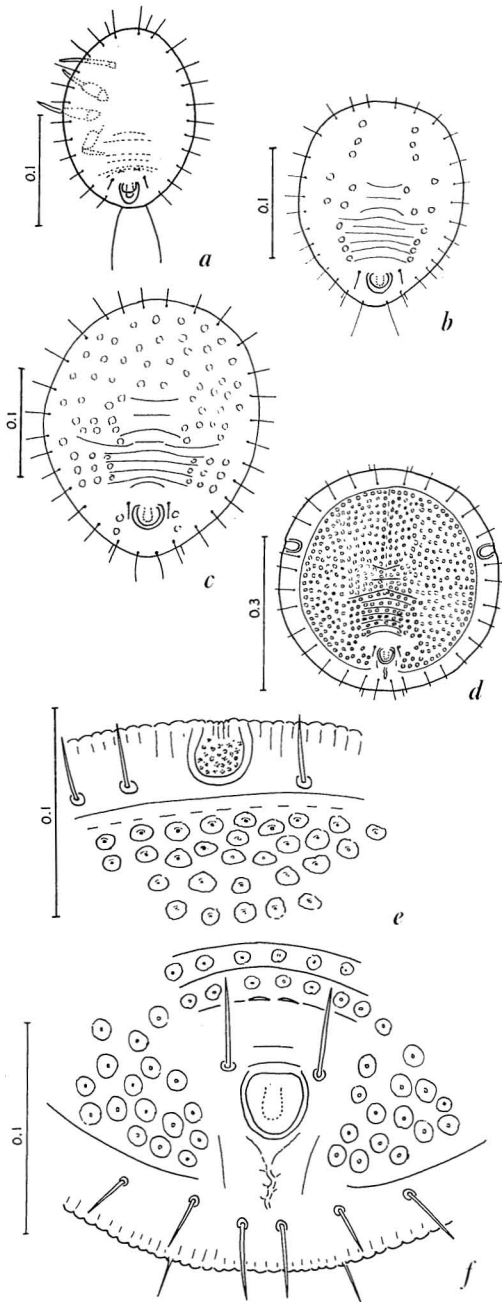


FIG. 10. *Gomenella multipora* sp. n. a, First instar larva; b, second instar larva; c, third instar larva; d, pupal case; e, pupal case, thoracic tracheal pore; f, pupal case, vasiform orifice and caudal margin. (Scale in mm.)

less. Shape circular, flat dorsally but convex ventrally, i.e., top-shaped where it fits into a pit on the leaf. Bearing a thick dorsal plate of wax which covers the body except for the submargin, orifice, and caudal area. Margin crenulate, anterior and posterior marginal setae present. Submarginal groove present, contouring the margin except caudally. Fourteen submarginal setae on each side, 5 anterior to thoracic tracheal pore and 9 posterior. Thoracic tracheal fold absent. Thoracic pore (Fig. 10e) flask-shaped, reaching mesally nearly to submarginal groove; walls thick-sided with numerous thickenings, 4 or 5 small teeth on lip of pore which is slightly concave. Cephalic, thoracic, and abdominal areas of dorsal disc covered with dense circular simple pores. Lateral arms of transverse moulting suture straight meeting in very obtuse angle medially. Abdominal area densely covered with circular simple pores 0.01 mm. diameter. Segments each with a single transverse row of pores. Only 7 segments apparent. Eighth abdominal setae longer than orifice, bases distant from rim, and level with anterior margin of orifice. Vasiform orifice (Fig. 10f) subcircular, 0.04 mm. long, 0.037 mm. wide. Operculum filling orifice. Lingula subparallel-sided, apex rounded. Anal furrow present between posterior end of vasiform orifice and caudal setae, the ridges contouring the posterior part of the orifice. Caudal setae subequal in length to submarginal setae, bases nearer to margin than to orifice and narrower than orifice. Abdominal tracheal fold and pore absent.

HOLOTYPE: Pupal case on slide mount. Deposited in Institut Français d'Océanie, Noumea, New Caledonia.

PARATYPES: In author's collection.

TYPE LOCALITY: New Caledonia, Tinip, coll. L.J.D., 4/11/54.

FOOD PLANT: Undetermined.

Occurring in pits on the tomentose under-surface of the leaf.

Gomenella reflexa sp. n.

Fig. 11a-g

LARVA. ? Instar (Fig. 11a-c): Length 0.26 mm., width 0.21 mm. Colour pale except diamond-shaped area surrounding orifice and 8th

segment. Subcircular dorsal surface, body top-shaped. Margin barely crenulated, submarginal pores broad. Thoracic tracheal fold visible on ventral surface as asperities. Thoracic tracheal combs (Fig. 11*b*) present as small marginal teeth with 2 or 3 obscure teeth mesally. Thoracic and abdominal segmentation indistinct. Legs tapering, then widened distally. Vasiform orifice (Fig. 11*c*) subcordate with a small cell apically. Eighth abdominal setae short, fine, level with anterior margin of orifice. Operculum subcordate, filling orifice. Lingula included, parallel-sided, apex rounded. Caudal setae short, fine, bases not as far apart as bases of 8th abdominal setae.

These larvae occurred in pits on the upper surface of the leaves of *Grevillea gillivrayi* on Mont Dore (coll. L.J.D.). The disc of the dorsum is covered with a shieldlike raised white wax plate, except for the orifice and the caudal area (Fig. 11*d*). They are considered to be those of *reflexa* because of the brown pigmentation and the pit-making habit on the upper surface of the leaf.

PUPAL CASE (Fig. 11*e-g*): Length 0.60 mm., width 0.58 mm. Colour dark brown. Shape circular, flat dorsally but convex ventrally where it fits into a pit on the leaf. Apparent margin straight. Margin reflexed ventrally, distant about 0.1 mm. from apparent margin except posteriorly where it arises from near the anterior end of the abdominal tracheal pore, crenulated or with 11-12 short rounded teeth in 0.1 mm. A submarginal line between the apparent margin and the margin, nearer to the latter. Area between margin and apparent margin radially striate. Setae absent, sutures and segmentation as in Figure 11*e*. Minute scattered simple pores on body. Thoracic tracheal folds (Fig. 11*f*) present, beset with minute dots. Thoracic pore flask-shaped, invaginated, and with thick sides, the inner walls covered with short transverse projections, outer margin toothed. Abdomen, first abdominal segment short, 7th apparently

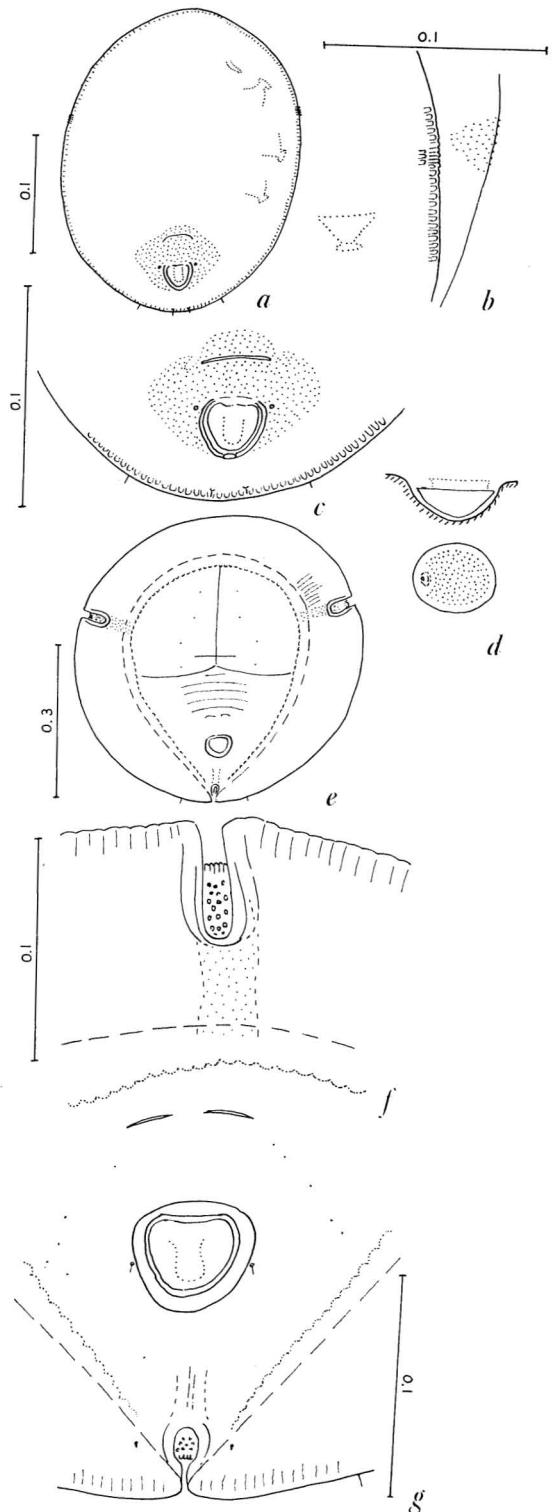


FIG. 11. *Gomenella reflexa* sp. n. *a*, Third instar larva; *b*, third instar larva, thoracic tracheal pore; *c*, third instar larva, vasiform orifice and caudal margin; *d*, third instar larva, wax plate and pit; *e*, pupal case; *f*, pupal case, thoracic tracheal pore; *g*, pupal case, vasiform orifice and caudal margin. (Scale in mm.)

absent. Abdominal tracheal fold present, without dots, abdominal tracheal pore similar to thoracic pore. Vasiform orifice (Fig. 11g) cordate, 0.05 mm. long, 0.05 mm. wide. Eighth abdominal setae minute, at half the length of orifice. Operculum 0.04 mm. long, 0.04 mm. wide, subcordate, completely filling orifice. Lingula 0.025 mm. long, 0.012 wide, finger-like, slightly constricted before base, apex rounded, completely included.

HOLOTYPE: Pupal case on slide mount. Deposited in Institut Français d'Océanie, Noumea, New Caledonia.

PARATYPES: In author's collection.

TYPE LOCALITY: New Caledonia, Riviere des Pirogues, coll. L.J.D., 31/7/54.

FOOD PLANT: *Maxwellia* sp.

The species is unusual in that it occupies pits on the dorsal surface of the leaves; the ventral surface of the leaves bears dense brown tomentum.

GENUS *Leucopogonella* nov.

PUPAL CASE: Margin entire or teeth only faintly indicated. A submarginal linear row of pores or papillae, giving the effect of an inner row of teeth. Submargin not separated from dorsal disc except in pale species. The row of pores is broken by 9 processes on each side, producing either 2 minute teeth on the margin or a marginal concavity between these points. Thoracic tracheal folds, pores, and combs absent. Without rhachis. Without contiguous pores on first abdominal segment. Vasiform orifice small subcordate. Eighth abdominal setae slightly anterior to orifice. Caudal setae close together, bases not as wide apart as width of orifice.

TYPE SPECIES: *L. sinuata* sp. n.

This genus perhaps comes nearest *Aleurotrachelus* but differs in the absence of an inner row of marginal teeth and in the absence of the nearly contiguous paramedian processes on the 1st abdominal segment.

KEY TO THE NEW CALEDONIAN SPECIES
(based on pupal cases)

- | | |
|----------------------|-----------------------|
| 1. Pale species..... | <i>pallida</i> sp. n. |
| Black species | 2 |
-
- | | |
|---|--------------------------|
| 2. Without abdominal tracheal comb, margin not sinuate..... | <i>apectenata</i> sp. n. |
| Abdominal tracheal comb present, margin sinuate | 3 |
| 3. Wide abdominal ridge, no dark-bordered pores laterad on dorsal disc, caudal setae near margin..... | <i>sinuata</i> sp. n. |
| Narrow abdominal ridge, 2 dark-bordered pores laterad on abdomen and on thorax, caudal setae nearer apex of orifice than to margin..... | <i>simila</i> sp. n. |

***Leucopogonella apectenata* sp. n.**

Fig. 12a-d

PUPAL CASE (Fig. 12a-d): Length 0.68 mm., width 0.41 mm. Colour black. Shape elliptical, not constricted across thoracic folds or invaginated caudally. Pupal case sunk in raised vitreous wax over which lie 8 ribbons of white

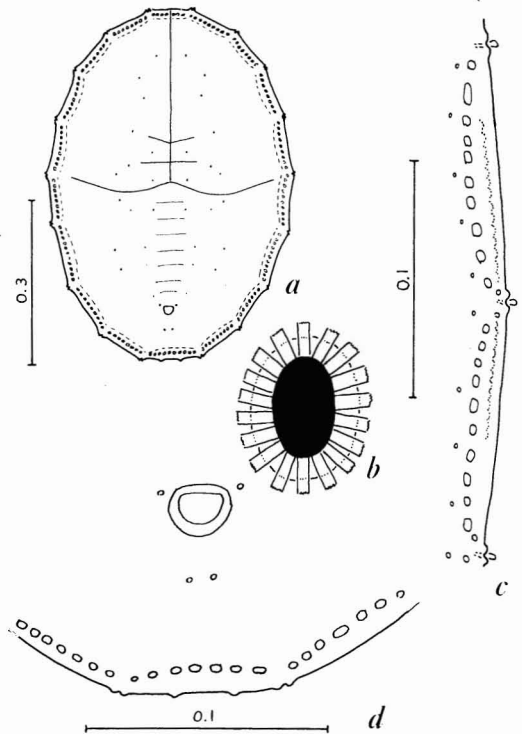


FIG. 12. *Leucopogonella apectenata* sp. n. a, Pupal case; b, wax fringe; c, pupal case, margin; d, pupal case, vasiform orifice and caudal margin. (Scale in mm.)

wax (Fig. 12*b*) on each side and single anterior and posterior median ribbons. Margin (Fig. 12*c*) reflexed, obscurely toothed. Apparent margin smooth except for 9 minute paired teeth on each side more or less equidistant, the margin between them straight or nearly so; 4 on the cephalothorax, 5 on the abdomen with the anterior one opposite the end of the transverse moulting suture. Caudal margin with 2 prominences. Submargin not separated from dorsal disc and pigmented to margin. On the submargin is a continuous linear series of contiguous subquadrate pores, about 10 between each pair of marginal processes. The pores tend to be longer than wide. A minute pore mesad of alternate large pores. The line of pores between the processes is slightly concave. The processes are flanked on each side by a smaller pore. Cephalic area with pores as in figure. Meso- and metathorax each with 2 pairs of double pores, one larger and one smaller. Thoracic tracheal folds, pores, and combs absent. Lateral arms of transverse moulting suture nearly straight, meeting in very obtuse median angle. Abdomen, pores on first abdominal segment wide apart in same line as 2 pores on each side at mid-length, paramedian pores on second segment, 8th segment seta bases separated from orifice and level with its anterior margin. Vasi-form orifice (Fig. 12*d*) semicircular or broadly cordate, wider than long. Operculum fills orifice. Lingula short included, parallel-sided apex rounded. Distance between caudal seta bases about half width of orifice, bases nearer apex of orifice than to margin. Abdominal tracheal folds, pore, and comb absent.

HOLOTYPE: Pupal case on slide mount. Deposited in Institut Français d'Océanie, Noumea, New Caledonia.

PARATYPES: In author's collection.

TYPE LOCALITY: New Caledonia, Tontouta River, coll. L.J.D., 27/4/53.

FOOD PLANT: *Leucopogon* sp.

Leucopogonella pallida sp. n.

Fig. 13*a-c*

PUPAL CASE (Fig. 13*a-c*): Length 0.78 mm., width 0.42 mm. Colour white or colourless. Shape elongate-ovate with an anterior median

prominence (Fig. 13*b*), without indentations in thoracic pore area. Margin crenate, scarcely toothed. Submargin defined by submarginal line. On the submargin a linear series of contiguous pores broader than long except in cephalic area, broken by 9 processes or openings, 5 on the cephalothorax and 4 on the abdomen. Pores as in figure. Most prominent are 2 submarginal pores on posterior half of thorax. Thoracic tracheal fold, pore, and comb absent. Thorax with a median ridge obscurely tuberculate and diminishing in width anteriorly. Abdomen with slight median ridge faintly outlined by minute tubercles. First segment without evident setae or pores. Segment 7 longer than 6. Eighth abdominal segment setae minute, slightly anterior

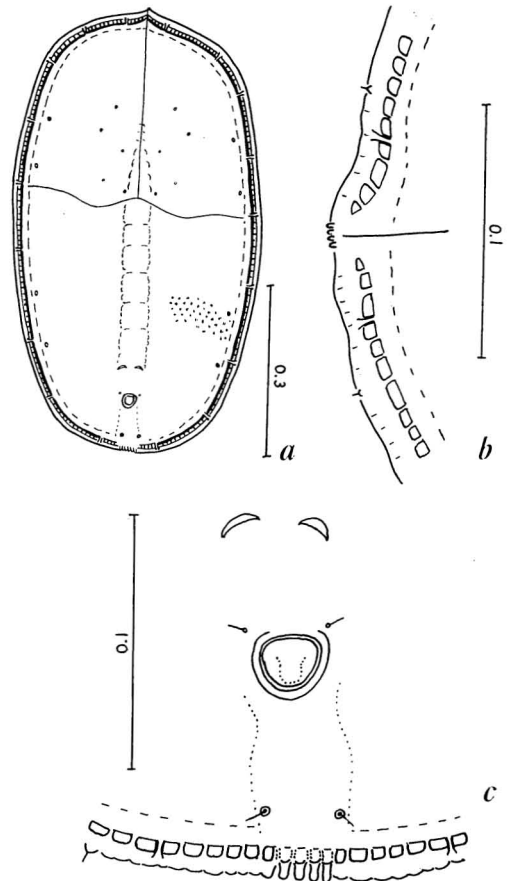


FIG. 13. *Leucopogonella pallida* sp. n. *a*, Pupal case; *b*, pupal case, anterior margin; *c*, pupal case, vasi-form orifice and caudal margin. (Scale in mm.)

to orifice, and distant from it. Vasiform orifice (Fig. 13c) subcordate, not notched posteriorly but contoured posteriorly by a semicircular line. Operculum subcordate, filling orifice. Lingula short, rounded apically. Caudal setae minute, bases as wide apart as those of the 8th abdominal setae. Two lateral discal pores on each side opposite segments 5 and 7. Dorsal disc, especially between abdominal ridge and submargin, beset with subcircular pustules. Abdominal tracheal fold faintly indicated, finely stippled from orifice half way to margin. Abdominal tracheal comb present with 4 to 6 teeth which are longer than wide.

HOLOTYPE: Pupal case on slide mount. Deposited in Institut Français d'Océanie, Noumea, New Caledonia.

PARATYPES: In author's collection.

TYPE LOCALITY: New Caledonia, Plum, coll. L.J.D.

FOOD PLANT: *Leucopogon* sp.

This species shows some affinities with *Aleuroparadoxus* Q. & B. and *Pentaleyrodes* Takahashi.

Leucopogonella simila sp. n.

Fig. 14a-c

PUPAL CASE (Fig. 14a-c): Length 0.89 mm., width 0.57 mm. Colour dark but paler than *sinuata*. Shape elliptical, margin less sinuate than *sinuata*. Margin (Fig. 14b) with 9 processes on each side less prominent than in *sinuata*. Between the processes on the submargin are 14 or 15 pores in a linear series. Pores tending to be longer than wide. Disc pores as in figure. Laterad on or near the submargin is a row of minute paired pores. Mesad of these on the abdomen at mid-length is a pair of larger dark-bordered pores and a similar pore laterad on the mesothorax. The abdominal ridge is narrow. Bases of the 8th abdominal setae slightly anterior to orifice and wider apart than the orifice width. Vasiform orifice (Fig. 14c) subcordate, similar to that of *sinuata*. The bases of the caudal setae are slightly nearer to the apex of the orifice than the margin and about the same distance apart as the orifice width. Abdominal tracheal fold absent, comb of 8 to 9 teeth whose rounded apices are level with margin.

HOLOTYPE: Pupal case on slide mount. Deposited in Institut Français d'Océanie, Noumea, New Caledonia.

PARATYPES: In author's collection.

TYPE LOCALITY: New Caledonia, Plum, coll. L.J.D.

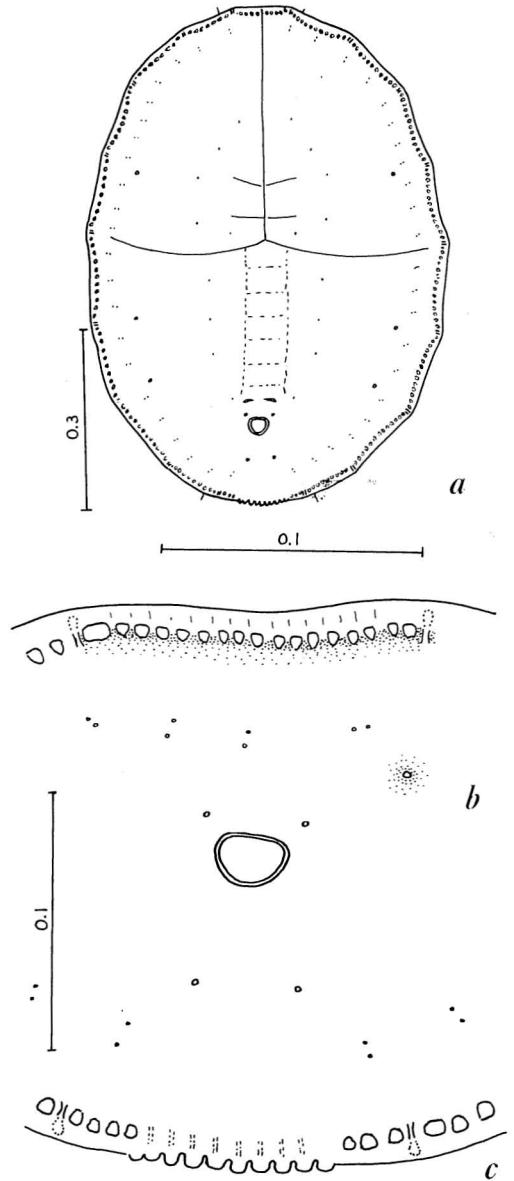


FIG. 14. *Leucopogonella simila* sp. n. a, Pupal case; b, pupal case, margin; c, pupal case, vasiform orifice and caudal margin. (Scale in mm.)

FOOD PLANT: *Leucopogon* sp.

This species occurred on the same food plant with *L. sinuata*.

Leucopogonella sinuata sp. n.

Fig. 15a, b

PUPAL CASE (Fig. 15a, b): Length 1.0 mm. Width 0.66 mm. Colour black. Shape elliptical. Margin entire or faintly crenulate, sinuate. Submargin distinctly paler than disc but not separated by submarginal line. Margin with 9 processes on each side, concave between these processes. Submargin with continuous linear series of pores. These are pale subcircular or sub-elliptical areas partly separated by blunt conical black processes of the dorsal disc. About 12–13 pores between processes. A somewhat irregular row of minute pores mesad of the larger linear series. Thoracic area without tracheal folds, pores, or combs. Segments bounded laterally about midway between median line and margin. Abdomen with segments laterally bounded. Eighth abdominal segment with setae bases wider apart than orifice and distant from and slightly anterior to it. Vasiform orifice (Fig. 15b) transverse, subcordate. Operculum filling orifice. Lingula. Abdominal tracheal fold absent, tracheal comb present with about 10 teeth, each longer than wide, rounded apically, and somewhat fluted. Caudal seta bases nearer to margin than to apex of orifice, as wide apart as width of orifice.

HOLOTYPE: Pupal case on slide mount. Deposited in Institut Français d'Océanie, Noumea, New Caledonia.

PARATYPES: In author's collection.

TYPE LOCALITY: New Caledonia, Plum, coll. L.J.D.

FOOD PLANT: *Leucopogon* sp.

Occurred with *simila* at Plum on the same food plant, and also at Yate, Montagne des Sources, and Mt. Mou.

GENUS *Orchamoplatus* Russell

(Proc. Hawaiian Ent. Soc. 16 (3): 389–410. New name for *Orchamus* Q. & B. preoccupied in Orthoptera.) The following species of this genus were described and keyed in a previous paper (Proc. R. Ent. Soc. Lond. (B)

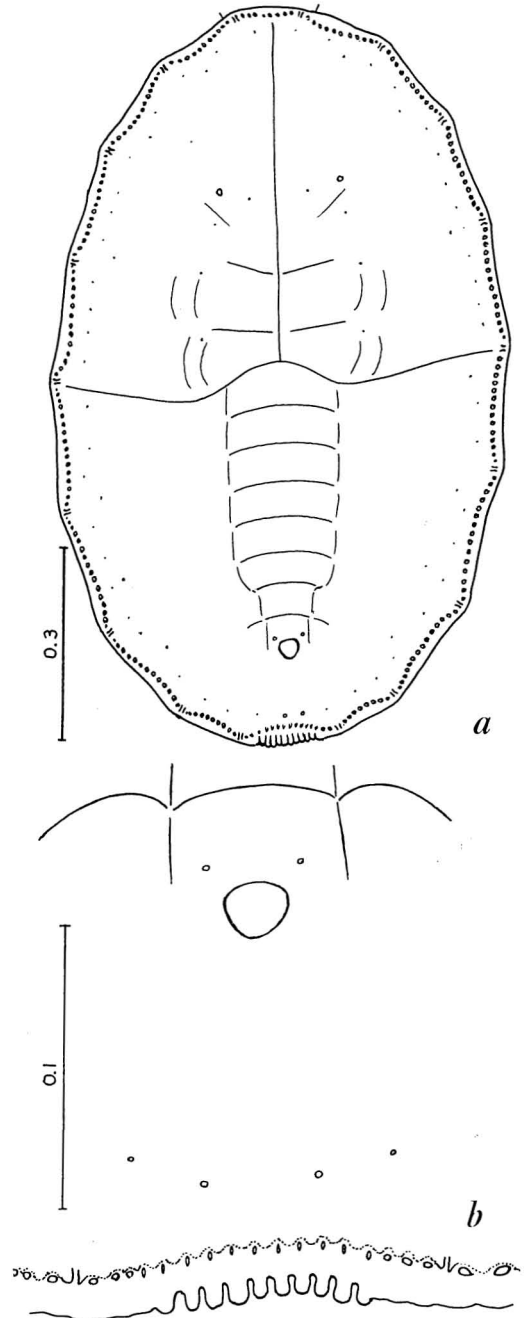


FIG. 15. *Leucopogonella sinuata* sp. n. a, Pupal case; b, pupal case, vasiform orifice and caudal margin. (Scale in mm.)

25, pts. 7–8, pp. 131–141, 1956): *caledonicus* Dumbleton, *dentatus* Dumbleton, *incognitus* Dumbleton, *montanus* Dumbleton, *plumensis* Dumbleton, and *porosus* Dumbleton. Russell described another species, *O. noumeae*, from citrus in New Caledonia and keyed the existing species of the genus, which include *O. calophylli* Russell from Tonga.

Orchamoplatus perdentatus sp. n.

Fig. 16a–c

PUPAL CASE (Fig. 16a–c): Length 0.95 mm., width 0.79 mm. Colour black. Widest slightly behind mid-length, flat subcircular, deeply constricted across thoracic combs. Margin with teeth prominent, rounded, as long as wide. Submarginal line distant from margin, meeting and continuous with transverse moulting suture on each side and together completely enclosing the cephalothoracic area. Submargin with a single row of papillae, about 18 anterior to the thoracic tracheal comb and 37 posterior to it on each side. Eye spots triangular, distant from submarginal line. Thoracic tracheal fold not indicated, comb (Fig. 16b) with about 6 teeth which are more rounded apically than in *dentatus*. First abdominal segment with a pair of setae and the usual paramedian pores on segments 2 to 5. Segment 6 with 1 pair of specialised papillae identical with those on the submargin. Eighth abdominal seta on tubercles about mid-length on rim of orifice. Vasiform orifice (Fig. 16c) subcircular, 0.07 mm. long, slightly transverse. Operculum filling orifice. Lingula not visible. Caudal setae 0.05 mm. long. Abdominal tracheal fold faintly indicated, comb with 6 or 7 teeth, separated, rounded apically.

HOLOTYPE: Pupal case on slide mount. Deposited in Institut Français d'Océanie, Noumea, New Caledonia.

TYPE LOCALITY: New Caledonia, coll. F. Cohic.

FOOD PLANT: Undetermined.

The unique specimen is distinct. *O. citri* Takahashi, the only other species with papillae laterad on the abdomen and is pale in colour. The species is separable from *O. dentatus* Dumbleton by the following characters: more cir-

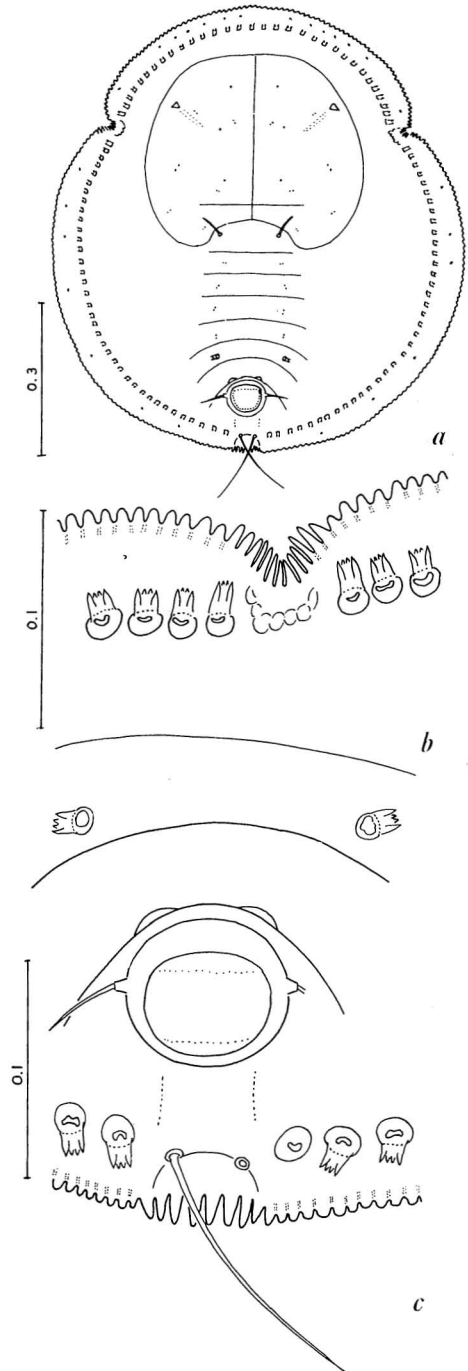
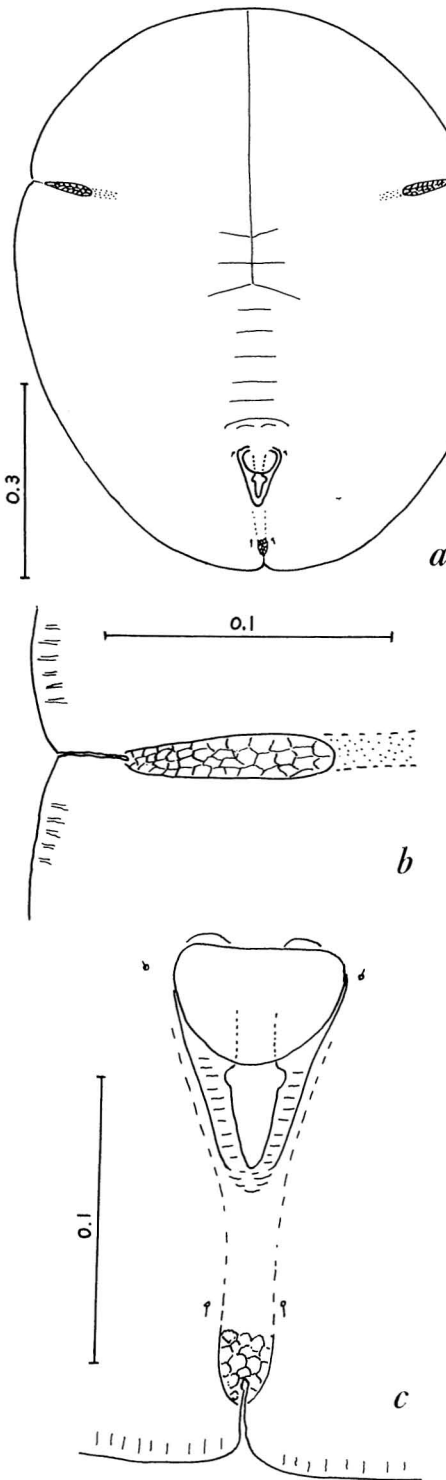


FIG. 16. *Orchamoplatus perdentatus* sp. n. a, Pupal case; b, pupal case, thoracic tracheal pore and comb; c, pupal case, vasiform orifice and caudal margin. (Scale in mm.)



cular shape, more broadly rounded anteriorly, more numerous submarginal papillae especially on abdomen, cephalothoracic area completely enclosed by submarginal line and transverse moulting suture, 2 papillae on the 6th abdominal segment, eye spots distant from submarginal line, suture between 7th and 8th abdominal segments and pockets very close to anterior margin of vasiform orifice. In this latter character the species resembles *plumensis* Dumbleton.

GENUS *Parabemisia* Takahashi

Parabemisia reticulata sp. n.

Fig. 17a-c

PUPAL CASE (Fig. 17a-c): Length 1.0 mm., width 0.78 mm. Colour transparent or white. Shape elliptical or subcircular, flat, constricted between thoracic clefts, caudal cleft invaginated. Margin with teeth absent but with short narrow ridges immediately mesad of the margin. Anterior and posterior marginal setae present. Submargin not defined. Segmentation as in figure. Thoracic tracheal combs absent, clefts present. Pore (Fig. 17b) inset from margin, opens into tracheal fold which is hexagonally reticulate for half its length. The reticulated area is somewhat variable, sometimes longer and expanded mesally. Abdomen without setae on 1st segment, 7th segment shorter than 6th and 8th. Eighth abdominal setae minute, close to anterior lateral margin of orifice. Vasiform orifice (Fig. 17c) longer than wide, subtriangular but rounded apically, floor with 8-9 subparallel transverse ridges. Operculum sub-semicircular, wider than long, less than half as long as orifice, more than half length exposed with lateral knob at base of exposed part on each side. Caudal setae small, midway between apex of orifice and margin. Abdominal tracheal cleft and pore similar to thoracic, fold reticulate for only a short distance cephalad.

HOLOTYPE: Pupal case on slide mount. Deposited in Institut Français d'Océanie, Noumea, New Caledonia.

FIG. 17. *Parabemisia reticulata* sp. n. a, Pupal case; b, pupal case, thoracic tracheal pore; c, pupal case, vasiform orifice and caudal margin. (Scale in mm.)

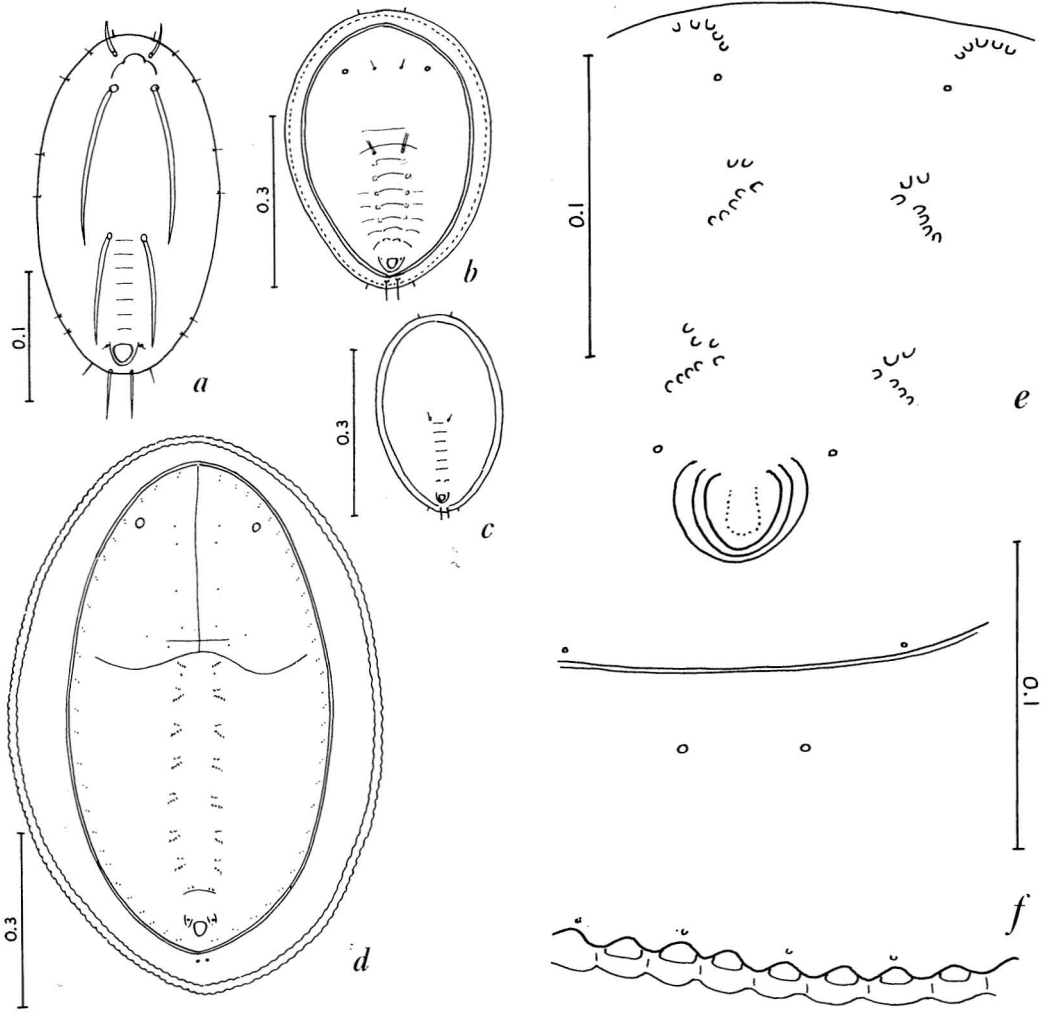


FIG. 18. *Tetraleurodes submarginata* sp. n. *a*, First instar larva; *b*, third instar larva; *c*, second instar larva; *d*, pupal case; *e*, pupal case, abdominal sculpturing; *f*, pupal case, vasiform orifice and caudal margin. (Scale in mm.)

PARATYPES: In author's collection.

TYPE LOCALITY: New Caledonia, Montagne des Sources, coll. L.J.D., 17/12/54.

FOOD PLANT: Undetermined.

The facies of this species is that of *Bemisia* but the lateral knobs on the lingula suggest *Parabemisia* and it is placed in that genus, though in the absence of marginal setae and tracheal combs and the presence of tracheal clefts like those of *Dialeurodes* it is not typical.

GENUS *Tetraleurodes* Cockerell

Tetraleurodes submarginata sp. n.

Fig. 18a-f

LARVA. First instar (Fig. 18a): Length 0.24 mm., width 0.13 mm. Colour pale. Shape elongate-elliptical. Submargin with 6 short setae on each side. Cephalic area with a raised median prominence and 2 short spines anterior to it; cephalic spines long, reaching to first abdominal

segment. Spines on first abdominal segment long, reaching to orifice. Caudal spines as long as anterior cephalic spines.

Second instar (Fig. 18*c*): Length 0.39 mm., width 0.21 mm. Colour pale. Shape elongate-elliptical, slightly tapering posteriorly. Margin crenulate. Inner row of teeth faint or absent. Submarginal line present. Caudal setae and first abdominal setae present.

Third instar (Fig. 18*b*): Length 0.70 mm., width 0.52 mm. Colour light brown, submargin darker. Shape elongate-elliptical, distinctly tapering posteriorly. Margin with 2 rows of teeth. Transverse moulting suture not evident. Processes on first abdominal segment thick and long. No sculpturing evident on abdominal segments.

PUPAL CASE (Fig. 18*d-f*): Length 1.1 mm., width 0.72 mm. Colour black. Shape elliptical, convex. Margin toothed with 2 rows of teeth. Outer row longer than wide, rounded apically, dark brown or black. Submargin wide, sharply defined by groove which contours the margin completely. On submargin mesad of inner teeth are small circular dots behind alternate teeth. Anterior and posterior marginal setae present, short. Submargin in cephalothoracic region with 4 larger pores on each side abdomen with 2 such pores on each side posteriorly at mid-length. Cephalic region with subcircular eye spots and

1 pair short paramedian setae. Pores on cephalothorax as in figure, many paired, especially laterad. Thoracic tracheal folds, pores, and combs absent. Abdomen, first segment with 1 pair of short paramedian setae and with toothed sculpturing (Fig. 18*e*) anterior to base of each seta. Segments 2-7 with similar sculpturing and with paramedian pores. Paired pores laterad on disc and adjoining submarginal line. Eighth segment with seta bases distant from and anterior to orifice. Vasiform orifice (Fig. 18*f*) subcordate, not toothed, slightly raised. Operculum subcordate, filling orifice. Lingula not discernible. Caudal setae on submargin, long, projecting beyond margin, bases as wide as orifice. Abdominal tracheal fold, pore, comb, and anal furrow absent.

HOLOTYPE: Pupal case on slide mount. Deposited in Institut Français d'Océanie, Noumea, New Caledonia.

PARATYPES: In author's collection.

TYPE LOCALITY: New Caledonia, Dothio, coll. F. Cohic.

FOOD PLANT: Undetermined (? *Eugenia*).

This species would run to *Hempelia* Sampson & Drews in Sampson's key but is unlike that genus. In facies it is a *Tetraeurodes* with 2 rows of marginal teeth, or an *Aleurotrachelus* with a submarginal groove.