Suborder TUBULIFERA

Family PHLAEOORTHRIIDAE

TALITHA gen. nov.

Body elongate, flattened dorso-ventrally, sculpturing weak and inconspicuous; head about 1.3—1.6 as long as wide, 1.3—1.6 as long as pronotum and about 1.8—2.0 as long as tube, cheeks almost parallel; eyes not bulging, forming a continuous line with cheeks, about 0.3 as long as head, not markedly prolonged dorsally or ventrally, but produced into a short more or less blunt point on outer posterior angle on dorsal side; head width at eyes about 1.0—1.2 of width on basal collar; antennae eight segmented, areola of segment ii situated about at middle of total length of segment or basad of the middle, segment iii asymmetrical and with a prominent ridge or ledge at base, segment viii broad at base, not pedicellate, sense-cones short, iii without cones or with one cone, iv with two cones; mouth-cone short, broadly rounded, as measured from dorsal aspect only about 0.2—0.5 as long as head length, palpi short, maxillary bridge well developed; pronotum about 0.6—0.8 as long as head and 0.5—0.6 as long as width of prothorax including coxae; epimeral sclerites large, extending to about middle of length of pronotum or slightly further cephalad; of the major prothoracic setae only ep. and pm. well developed, all the others minute; fore and hind femora slightly enlarged, middle and hind tibiae without thick apical spurs, but with fine subapical setae on outer side, fore tarsi usually with a more or less forward-directed tooth at apex on inner side; sternite viii in female distinctly longer than its tergite, in male not produced caudad; sternite viii of males usually with prominent glandular area, pseudovirgae as illustrated (figs. 3, 9, 12); on tergite ix of males S.2 shorter and more spine-like than in females; tube about 1.5—2.0 times as long as its width at base and about 0.5—0.6 as long as the head, its apical setae less than twice as long as tube.

Typus generis: Talitha fusca spec. nov.

The six important characters of this new genus are: 1) the position of the areola on segment ii of the antenna; in this the new genus agrees with Plectrothrips Hood 1908, but differs from it in characters 2), 3) and 4);
The new genus resembles *Karnyothrips* Watson 1924 (= *Watsoniella* Karny 1923) in the shape of the fore-tarsal tooth, which is present in two of the new species described below, (See Hood: Pan-Pacific Ent. vol. 3, No. 4, p. 178, 1927 fig. 1b), and in the glandular area which is usually present on sternite viii of the abdomen in the male, but differs from most of the species of *Karnyothrips* known to me in the position of the areola on antennal ii, shape of antennal iii at base, and minute setae am., aa., ml. and cx. of prothorax. *Karnyothrips doliticornis* Bianchi 1946 also has a ridge at base of antennal segment iii, but the areola on segment ii is placed further cephalad and it has well developed prothoracic setae aa., ml. and cx.

Many years ago my colleague Professor Dr. H. Priesner kindly examined some specimens of *T. cincta* spec. nov. and expressed the view that a new genus should be erected for this species.

This new genus is named in memory of my mother.

**Key to the known species of Talitha gen. nov.**

1. Body bicolorous: pterothorax, abdominal segments i-iii or i-iv and parts of appendages yellow, head, prothorax and rest of abdomen brown; fore tarsal tooth absent or minute; antennal iii without sense-cones; no glandular area on sternite viii of male. *cincta* spec. nov.

   — Body uniformly brown, appendages largely brown; fore tarsal tooth present; antennal iii with one sense-cone on outer side; glandular area well developed on sternite viii of male . . . . . . . . . . . 2

2. Middle and hind tibiae yellow in distal 0.2–0.4 of length; dorsal interval between eyes about 57–76 μ; width of maxillary bridge about 59–68 μ; postero-angular setae on tergites iv-vi of abdomen well developed, 30–80 μ long; glandular area of sternite viii in male smaller, about 11–25 μ long on mid-ventral line (figs. 5, 6).

   — Middle and hind tibiae almost wholly brown; dorsal interval between eyes about 47–51 μ; width of maxillary bridge about 42–55 μ; postero-angular setae on tergites iv-vi very short, 13 μ or less; glandular area of sternite viii in male larger, about 47–68 μ long on mid-ventral line (fig. 7) . . . . . . . . . . . *glandifera* spec. nov.

*Talitha fusca* spec. nov. (Figs. 1–6).

*Female* (? apterous). Length (distended) 1.8–2.1 mm. *Colour* brown, with parts of legs and antennae yellow; *head* uniformly light brown to brown,
except for a transverse paler band ventrally at extreme base which is only about one-thirteenth as long as head length; eyes so deep red as to appear black; crescents of rudimentary ocelli not developed; antennae: i brown, yellowish on a very short, not sharply demarcated area at extreme base dorsally; ii light brown in about basal half, its distal half also light brown, especially on inner side, but becoming paler towards apex and on outer side, the boundary between dark and pale parts imperceptible, the outer distal angle pale yellowish brown; iii yellow; iv pale, yellowish brown, about like pale parts of ii; v and vi light brown, the former usually somewhat paler than vi, especially at base, but darker than iv; vii and viii brown; mouth-cone largely yellow, with the more heavily sclerotized parts brown, palpi grey; thorax and abdomen more or less uniformly light brown to brown, except that apical half of abdomen is somewhat darker, and median plate of tergite i is distinctly paler, greyish yellow in anterior half, very pale yellowish brown in posterior half; posterior broad border of metanotum yellowish brown; legs brown, with the following parts yellow: fore and middle trochanters, all tarsi, except their brown cups, and apical 0.2—0.4 of all tibiae; on the tibiae the brown and yellow areas merge into one another imperceptibly, so that it is scarcely possible to make exact measurements, and the figures "0.2—0.4 of length of tibiae" must therefore be taken as rough approximations; major setae of body and appendages transparent to very feintly grey.

Internal pigmentation orange to bright red, present in scattered blotches in thorax and abdomen, rarely in head and legs; not in all specimens, possibly because it may be destroyed by the weak alcohol into which most of the specimens were collected; malpighian tubules deep purple.

Scupturing weak and inconspicuous; integument minutely granulate; head weakly roughened dorsally at base of antennae about as far caudad as anterior one-fourth of eye length, and similarly roughened on sides at extreme base, rest of dorsal and whole of ventral aspect smooth; cheeks almost smooth but with about four shallow notches about half-way between eyes and base; on lateral aspect there are about six irregular, dark lines situated half-way between eye and base and just caudad of this point; antennae with weak Anastomosing lines; pronotum smooth; prosternal plates, especially the large median pair, with transverse subreticulate lines; mesonotum with three or four transverse Anastomosing lines in anterior third, sometimes also with feint lines over posterior two-thirds, mesosternum smooth, anterior plate of meso-epimeron (conspicuous subtriangular sclerite adjacent to and cephalad of the large mesothoracic spiracle) with about six prominent dorso-ventral lines: metanotum smooth but its large postero-lateral border with fine wrinkles, posterior elongate meta-epimeral and episternal sclerites distinctly lined, lateral parts of meta-sternum weakly roughened and subreticulate, its ventral plate smooth; legs with more or less weak transverse lines on coxae, femora and tibiae, usually most distinct on middle and hind femora and hind coxae; abdomen: median plate of tergite i reticulate: tergite ii with a few weak reticulations near anterior margin, its antecostal line sometimes completely absent, usually represented
by two or three fragments, rarely almost complete, but these fragments seem to be reticulations that have become dark and may therefore not be parts of a true antecostal line; tergites iii-viii and sternites ii-viii with well developed antecostal lines, otherwise practically smooth except that sternite viii is weakly transversely subreticulate, especially on its caudal prolongation; segment ix weakly reticulate above and below, feebly asperate laterally; tube with about eight scalloped transverse paler lines in about basal third or fourth; tergites and sternites iii-viii usually with more or less distinct transverse irregular darker lines on anterior margin or a little caudad thereof, cephalad of the antecostal lines, these marginal lines usually distinctly divided into about fifteen scallops which sometimes take on the appearance of a row of subcircular bead-like structures joined by thin lines.

**Head** 1.3—1.5 as long as its greatest width, which is across the middle of the cheeks, 1.4 as long as the pronotum, and 1.8—2.0 as long as the tube; cheeks subparallel, scarcely rounded, slightly constricted at base; head cylindrical but somewhat flattened dorso-ventrally; measured on a female mounted laterally, the head is 42 μ high at base of antennae and 99 μ high at extreme base, the dorsal and ventral margins diverging evenly to base; eyes moderately large, occupying about 0.3 of head length, not bulging, their outer margins forming continuous lines with the cheeks, facets circular, well separated dorsally and on posterior part in lateral aspect, contiguous on antero-lateral portion, somewhat unequal in size and shape; the outer posterior angle of the eye on dorsal aspect drawn out into a blunt process; eyes with four or five minute setae between the facets; none of the facets retain a yellow colour after NaOH-treatment.

**Ocelli:** all the specimens of both sexes before me are apterous, although the structure of the mesonotum suggests that they might also be regarded as possibly dealated (see discussion below under mesonotum) and in that case one would expect them to have ocelli; but only certain structures which I take to be rudimentary ocelli are present; out of 39 females 19 have rudimentary ocelli: 9 have one each, 6 have two and 4 have three ocelli. The corresponding figures for the males are: 23 males out of 47 have ocelli: 12 have one each, 7 have two and 4 have three ocelli. These structures are small and indistinct, only about 2 to 4 μ in diameter, varying in shape; the posterior ocelli are situated about 4 μ from the eyes and about 17 μ from base of antennae, whereas the anterior ocellus is situated close to a transverse line across bases of antennae.

**Head setae** on dorsal aspect as illustrated (fig. 1); postoculares thin, pointed, short, situated far apart, close to margins of cheeks; other dorsal head setae minute, only about 4 to 6 μ long; ventrally, measured on a paratype female: a very thin pair at antennal bases 21 μ long and 34 μ apart, a similar pair at inner hind angles of eyes about 13 μ long, and a caudal pair about 40 μ from mouth-cone 25 μ long, their interval 42 μ, in addition about 8 other pairs of scattered minute setae.
Mouth-cone short, broadly rounded at apex, extending only about as far caudad as anterior third of length of prosternum; palpi small; maxillary stylets in retracted position extending to level of postoculars, widely separated, joined by a prominent maxillary bridge, varying in width (as measured between the two maxillary sheaths) in 8 ♀♀ from 59 to 68 μ.

Antennae as illustrated (fig. 2), rather heavy and prominent, about 1.6—1.7 times as long as the head, structure of base of third and eighth segments and position of areola on ii as described above for the genus; sense-cones rather weak and inconspicuous, the typical formula, found on the majority of 37 antennae of 20 ♀♂ studied: iii, 0—1; iv, 1—1; v, 1—1; vi, 0(+1)—0(+1); vii, 1 d.; the cones on iii and vi are often hidden behind setae, slender, and difficult to see, and the one on vii is also often difficult to see in dorsal aspect; on vi the cones are sometimes about as large as the one on iii and could therefore be regarded as cones, rather than as rudimentary cones, and there is a certain amount of variation: on two antennae there are two small cones on outer side and one antenna lacks a cone on inner side; on the holotype the cones on iv are 11—13 μ long by 2 μ wide.

Pronotum 0.7 as long as the head and 0.6 as long as the width of prothorax including coxae; epimeral sclerites large and conspicuous, extending cephalad of middle of pronotum, their combined length on holotype 81—85 μ, their greatest width 30 μ, as measured in dorsal aspect; of the major setae only ep. (expanded) and pm. (pointed) well developed, the latter much more slender than the former, all the others minute, pointed, at most about 6—9 μ long; median dorsal apodeme visible in about median half of length of pronotum; anterior margin of pronotum not thickened.

Mesonotum bears two pairs of pores near anterior margin of sclerotized plate; the setae at lateral extremities and the three pairs on hind margin minute. All the specimens of both sexes are apterous; the lateral extremities of the mesonotum are not entire as in typical apterous forms, but also not as strongly modified for the attachment of wings as in macropterous forms. In typical dealated specimens ocelli and sigmoid wing-retaining setae are usually present, but in the series of T. fusca spec. nov. before me only about 50 % of both sexes have rudimentary ocelli, and only one specimen (the holotype) has one poorly developed sigmoid on tergite iv of the abdomen. I therefore conclude that the apterous condition in this series of specimens shows modifications towards the development of wings and ocelli, but that these modifications are of an intermediate type; for these reasons I have placed the question mark before the word "apterous" at the beginning of the discussion of this species.

Mesosternum bears 4 fine setae on anterior margin about 17 μ long, or less, a pair about 34 μ long in latero-median angles, and a pair about 51 μ long on hind margin, their interval about 55 μ. Metanotum bears only one pair of fine setae about 17 μ long, about 60 μ apart and 40 μ from anterior
margin. *Metaesternum* of one paratype mounted ventrally: L. 127 µ, W. between middle coxae 127 µ, between hind coxae 76 µ, sutures extending caudad from middle coxae 59—64 µ; pair of setae at tips of sutures and a pair between these about 21—25 µ, interval of median pair 55 µ.

*Legs* short, fore and hind femora moderately enlarged; fore tarsus with a small tooth near apex on inner side, usually more forward-directed than those shown on the figure (fig. 1); these tarsal teeth are similar to those of *Karnyothrips* Watson 1924, as illustrated by Hood (Pan-Pacific Ent. iii: 178, fig. 1 b, 1927).

*Abdomen*: median plate of tergite i subrectangular to dome-shaped, its shape somewhat variable; there is a small triangular plate on each side of it on hind margin; measurements of holotype in µ: median plate of tergite i, L. 64, W. at base 116, tergites ii-vii, L. 99—113; tergite viii, L. 106, its sternite L. 148, tergite ix, L. 71. Sternites do not project cephalad beyond margins of their tergites; only sternite viii produced caudad.

*Tube* as illustrated (fig. 4), its sides converging evenly from base to apex; tube 0.5—0.6 as long as head, and 1.7—1.8 as long as its own width at base. *Setae* measured in µ on holotype: i with one pair in posterior angles, blunt, 23 long; sigmoid absent, except one incompletely developed seta 42 long on iv; large seta (S.2) near posterior angles on ii-vi about 40—42 long, knobbed to slightly expanded, on vii it is 68 long; S.3 (at posterior angle) on iii and iv about 30 long, on v: 51, on vi: 80, on vii: 114, pointed in every case; viii has two at each hind angle, inner knobbed 53, outer expanded 80 µ long. Sternites ii-viii bear one row of thin accessories on disc, about 9—11 µ long, 4 setae on ii and viii and about 10 on iii-vii, and three pairs on hind margin, of which the inner is much longer than outer two pairs, the inner about 30 µ long on iii, 47 on vi, 85 on vii and 51 µ long on viii.

*Pores on tergites*: median plate of i bears two pores 85 µ apart (measured on holotype) on hind margin; on disc of each of ii-viii there is one pair of pores 35—49 µ apart, standing between and close to two minute setae; on ix two pores with an interval of 70 µ and three setae between them.

*Size*: in order to record the range of sizes in the series before me, one of the smallest and one of the largest individuals were selected for measuring; this was done by taking head length as the criterion for size, all the specimens being tested for this dimension. The holotype and allotype were chosen from those individuals which agreed as nearly as possible with the mean head lengths of the respective series.

*Measurements* of *holotype* (♀ No. X 312—1) in µ, followed in parentheses by the ranges of this plus two paratype ♀♀, one of the smallest, and one of the largest, Nos. X. 312—3 and —4, all three NaOH-treated and

* For explanations of the abbreviations used and the meaning of the figures in parentheses, see this Journal, vol. 17, 1954, page 145.
all (?) apterous: Length (distended) 2040(1800—2130); head L. 207(182—219), W. across eyes 136(131—144), least W. near base 116(114—127), greatest W. across cheeks 142(136—148), W. on basal collar 120(114—127); eyes: dorsal L. 66(59—68), ventral L. 51(47—), dorsal W. 32(30—34), interval 72(—76), ventral W. 25 and 30(—34), interval 76(72—); postoculars 38(19—), their interval 123(114—), distance from eye 17(13—); mouth-cone L. from posterior dorsal margin of head 78(64—), palpi, L/W. maxillary segment ii: 21(17—)/4(4), its terminal setae 19(17—); pronotum L. 148(134—155), W. of prothorax including coxae 254(215—), setae ep. 40 and 42(34—), pm. 25 (17—32); mesothorax W. 215(193—219), sclerotized plate of mesonotum L. 51(45—56), W. 148(144—165); legs L/W. ff. 176(148—)/66(55—), ft. 106 (92—)/40(38—42), fta. 49(40—56)/34(27—), its tooth 9(6—)/4(4); hf. 176(155—183)/68(55—), ht. 148(127—)/38(34—42), thin seta at inner apical angle 13(11—), outer setae near apex 47(51—55), hta. 56(—64)/25 (23—30); abdomen L. 1380(1215—1447), W. 282(240—285), tube (segment x only) L. 101(—106), W. at base 61(55—), least W. at apex 34(30—); setae tergite ix, all pointed, S.1: 140(130—141), S.2: 157(137—165), S.3: 114(99—); tube setae, pointed, 162(155—176).

Antennae: total L. 347(317—)

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<td>iv . . . . . 47(42—), 30(27—);</td>
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Segment ii of antenna: total L. in μ, followed in parentheses by distance of areola from apex in μ of the three females measured: 55(32), 53(30), 55(32).

Male (?) apterous. Length (distended) 1.4—1.6 mm. Colour and structure identical with those of the female, with the exception of the differences indicated below. There are no strikingly oedemerous males in the series before me; although some males have the fore femora slightly different from those of the holotype, the widest fore-femur found is only 64 μ wide, and the narrowest 42 μ.

The sense-cones on segment vi of the antennae are slightly more variable: out of 31 antennae carefully examined on 17 Σ Σ, 6 have two small cones on the outer side; on one Σ segment v has two cones on inner side.

Sternite viii bears a prominent transverse glandular area, as illustrated (figs. 5—6); figure 5 represents the normal shape of this glandular area, while figure 6 shows one type of irregular area; in a few other cases there are short points or branches in the median area. Sternite viii is not subreticulate, nor is it produced caudally.

On tergite ix the seta S.2 is distinctly shorter and somewhat thicker, more spine-like, than in the female. The other abdominal setae are very similar to those of the female except that the outer postero-angular of segment vii is
Talitha fusca gen. et spec. nov.
Fig. 1 — ♀, holotype, No. X. 312-1, head and prothorax.
2 — ♂, paratype, No. X. 312-5, right antenna.
3 — ♂, paratype, No. X. 312-8, pseudovirga.
4 — ♀, holotype, No. X. 312-1, tip of abdomen.
5 — ♂, paratype, No. X. 312-7, sternite viii.
6 — ♂, paratype, No. X. 519-9, sternite viii.

Talitha glandifera spec. nov.
Fig. 7 — ♂, paratype, No. X. 519-7, sternite viii.
Figs. 1-2, 4-7: Mrs M. J. Meyer del. (Projection apparatus).
Fig. 3: R. zur Strassen del. (Zeiss drawing attachment).
only about 80 $\mu$ long on the allotype $\sigma$, while the outer expanded seta on viii measures 47 $\mu$ as against 80 on the holotype $\Omega$.

_Pseudovirga_ as illustrated (fig. 3); this organ was measured on 28 $\sigma$ $\sigma$, mounted separately in all cases, and the width across the "shoulders" near apex was found to vary from 14 to 17 $\mu$; nine $\sigma$ $\sigma$ gave 15 $\mu$, and sixteen measured 16 $\mu$; only two gave 14 $\mu$ and one gave 17 $\mu$. The shape and structure are fairly constant in the series before me, resembling rather closely the one organ drawn. The pseudovirga does not seem to be heavily sclerotized.

The ratio tube L./W. at base for the three males measured is 1.9—2.0, as against 1.7—1.8 for the three females.

**Measurements of allotype** ($\sigma$ No. X. 312—2, NaOH-treated) in $\mu$, followed in parentheses by the ranges of this plus two paratype $\sigma$ $\sigma$, one of the smallest No. X. 312-6, NaOH-treated, and one of the largest, No. X. 519-8, all three (?) apterous: Length (distended) 1545(1380—1630); head L. 178 (157—191), W. across eyes 119 (116—127), least W. near base 99(—106), greatest W. across cheeks 119(114—127), W. on basal collar 101(—106); eyes, dorsal L. 57(51—59), ventral L. 51(51), dorsal W. 30 and 32(25—), interval 57(—64), ventral W. 25(—27), interval 68(64—); postoculars 27(25—30), their interval 101(97—110), distance from eye 13(13); mouth-cone, L. from posterior dorsal margin of head 56(45—), palpi, L./W. maxillary segment i: 4(4)/6(6), ii: 19(17—)/4(4), terminal setae 13(11—17), labial 9(6—)/4(4), terminal setae 11(9—); pronotum L. 123(114—127), W. prothorax including coxae 205(197—), setae: ep. 32(30—34), pm. 21(—27); mesothorax W. 176(169—179), sclerotized plate of mesonotum L. 42(35—), W. 137(120—138), discal setae of metanotum 13(13), their interval 55(47—), their distance from anterior margin 36(—38); legs, L./W. ff. 148(127—)/51(—55), ft. 78(51—92)/38(30—), tfa. 42(—45)/27(25—), its tooth 4(4)/4(3—), hf. 148 (127—)/51(49—), ht. 127(106—)/34(30—), thin seta at inner apical angle 13(11—), outer apical setae 25 and 40(—42), hta. 51(49—55)/23(—25); abdomen L. 985(862—1077), W. 197(190—), tube (segment x only) L. 95(85—), W. at base 47(42—51), least W. at apex 25(—30); setae on tergite ix, all pointed, S.1: 116(106—), S.2: 34(32—), S.3: 141(127—162); tube setae, pointed 155(134—162).

**Antennae**: total L. 299(289—)

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<td>viii (dorsally)</td>
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Segment ii of antenna: total L. in $\mu$ followed in parentheses by distance of areola from apex, in $\mu$, of the three males measured: 47(23), 44(23), 49(25).
Material studied: 39 ♀ ♂ and 47 ♀ ♂ mounted on slides in Canada balsam, collected by the writer as follows: CAPE PROVINCE: Coldstream, about 50 miles east of Knysna, 17th February 1954, 2 ♂ ♂ (No. X. 262) on an undetermined plant; 20 ♀ ♀ and 22 ♂ ♂ (No. X. 312) on Elegia fistulosa Kunth (male); Fish Hoek on the Cape Peninsula, east of Clovelly Country Club, March 1955, 19 ♀ ♀ and 23 ♂ ♂ (No. X. 519) on Pentameris macrantha Schrad.

Talitha glandifera spec. nov. (Figs. 7—10).

Female (apterous). Length (distended) 1.7—2.0 mm. Colour brown, with parts of appendages paler; head uniformly brown above and below, except for a paler, yellowish-brown transverse band ventrally at base which is only about one-ninth as long as head; eyes so deep red as to appear black; antennae: i, vii and viii brown, about as dark as head, ii light brown in about basal one-third to one-half, and also largely light brown on inner side of distal half, rest becoming imperceptibly paler towards apex, yellowish grey, especially on outer side, iii yellow, iv darker than ii, yellowish brown to pale brown, but paler than v, which is pale brown, somewhat paler at base, vi pale brown, darker than v but paler than vii; mouth-cone yellowish brown to brown on heavily sclerotized parts, palpi grey; thorax and abdomen uniformly brown except tergite i which is grey, paler in anterior half, and tube which is slightly darker than rest of abdomen; legs brown, with the following parts paler: all tarsi yellowish grey, fore tibiae yellowish grey in about apical one-fifth, sometimes much paler, with only about basal one-third brown, and the rest largely yellow, but pale and dark parts merging imperceptibly in all cases, middle and hind tibia almost wholly brown, only one-tenth to one-seventh at apex somewhat paler, grey; major setae of body and appendages transparent to slightly grey; internal pigmentation has apparently been removed by alcohol, present in some of the females in head, thorax and abdomen in the form of scattered blotches yellow to bright red in colour; malpighian tubules deep purple.

Sculpturing resembles that described above for Talitha fusca spec. nov. so closely that a further detailed description is not necessary; one interesting exception must be noted: in all the specimens of T. glandifera spec. nov. before me there is a distinct antecostal line on tergite ii, but it lacks the six or seven small pores usually present in Tubulifera and also on the antecostal lines of tergites iii—viii of glandifera and fusca; there is one pore at each end of the antecostal line on tergite ii of glandifera.

Head 1.4—1.6 as long as its greatest width, which is across middle of cheeks, 1.4—1.5 as long as pronotum and 1.9—2.0 as long as the tube; cheeks almost parallel, very slightly rounded, feebly constricted at base; the head is cylindrical but somewhat flattened above; in side view the upper and lower surfaces diverge caudad more or less evenly, height measured on one female mounted laterally 47 μ at base of antenna and 97 μ at mouthcone; eyes
occupying about 0.3 of head length, their dorsal length about 6—12 μ greater than ventral length, not bulging, their outline forming a continuous line with cheeks, their outer dorsal posterior angles drawn out to a blunt point, facets circular, distinctly separated on dorsal aspect, less so ventrally, and contiguous in cephalo-lateral area, more or less unequal in size and shape; yellow colour not retained by any of the facets after treatment with NaOH; ocelli absent.

**Head setae:** postoculars pointed, thin, situated far apart and about 11—15 μ from the eyes, other dorsal head setae minute, as illustrated (fig. 8); ventrally the pair close to antennae 15—21 μ long, and about 30 μ apart, those at inner hind angles of eyes about 13 μ long, the caudal pair 13—17 μ long, about 42 μ apart and about 50 μ from base of mouth-cone, all the ventral setae very fine, pointed.

**Mouth-cone** short, broadly rounded, palpi small; maxillary styles in fully retracted position extending to level of postoculars, thence running caudad parallel for most of length, joined by a prominent maxillary bridge, ranging in width, as measured from one maxillary sheath to the other on 15 ♀ ♂, from 42—55 μ.

**Antennae** as illustrated (fig. 10), with the generic characters typically developed, about 1.7—1.9 as long as head; sense-cones short, thin, difficult to see especially on iii, vi and vii, the formula as found on 12 antennae of 6 ♀ ♂ : iii, 0—1; iv, 1—1; v, 1—1; vi, 0(+1)—0(+1); vii, 1 d.; on vi the inner cone is sometimes as large as that on iii, therefore it could be called a cone rather than a rudimentary cone.

**Pronotum** 0.7 as long as head and 0.5 as long as width of prothorax including coxae; epimeral sclerites large, as measured in dorsal aspect on holotype the two together on each side 68 μ long, the posterior sclerite 30 μ wide; major setae: ep. expanded, well developed, pm. pointed, thinner, all the others minute, scarcely exceeding 6 μ in length; anterior margin not thickened, median dorsal apodeme weak, visible in about median third of length of pronotum only.

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**EXPLANATIONS OF FIGURES**

*Talitha glandifera* spec. nov.

Fig. 8 — ♀, holotype, No. X. 519-1, head and prothorax.
9 — ♂, allotype, No. X. 519-2, pseudovirga.
10 — ♀, paratype, No. X. 519-5, right antenna.

*Talitha cincta* spec. nov.

Fig. 11 — ♀, paratype, No. X. 142-1, head and prothorax.
12 — ♂, paratype, No. X. 288-2, pseudovirga.
13 — ♂, paratype, No. X. 288-3, right antenna.

Figs. 8, 10, 11 & 13: Mrs. M. J. Meyer del. (Projection apparatus).
Figs. 9 & 12: R. zur Strassen del. (Zeiss drawing attachment).
Mesonotum entire, typical of true apterous forms, two pairs of pores near anterior margin of sclerotized plate; one pair of setae at lateral extremities and three pairs on hind margin minute. Setae on mesosternum as in T. fusca spec. nov. described above. Metanotum slightly shorter than in T. fusca: measured on holotype, in μ, followed in parentheses by measurements of holotype of T. fusca: total length 134(162), total width 176(176), length of anterior, more heavily sclerotized plate 85(106), length of wrinkled border 49(56); anterior plate bears one pair of fine pointed setae 17—21 μ long, their interval 47 μ in holotype, distance from anterior margin 42 μ long or less, cephalad of the first-mentioned pair and further apart, and a third pair of very minute setae on anterior margin, and still further apart; these two pairs of accessory metanotal setae are not present in T. fusca.

Mestasternum of a paratype mounted with ventral side uppermost: total L. 127 μ, W. between middle coxae 127μ, sutures extending caudad from middle coxae 64 and 52 μ, setae at tips of sutures 38 μ, a pair on a line with and between these 17 μ long, their interval 59 μ. Legs short, fore and hind femora scarcely enlarged, fore tarsus with a more or less forward-directed tooth at apex on inner side as shown on figure 8.

Abdomen: median plate of tergite i similar to that of T. fusca; measurements of holotype in μ: median plate of tergite i: L. 66, W. at base 106, tergites ii-viii: L. 85—92, L. sternite viii: 134, tergite ix: L. 59; sternites do not project cephalad beyond anterior margins of their tergites, only sternite viii produced caudad, about 42 μ longer than its tergite. Tube very similar to that of T. fusca described above.

Abdominal setae: tergite i with one pair at hind angles, about 34 μ long; on ii-vi no sigmoids present, only one moderately large blunt seta near hind angle on each side 34—42 μ long, posterior angulars minute, at most about 13 μ long on vi; tergite vii has two at each hind angle, inner blunt or pointed 59—64 μ long, outer pointed 97—101 μ; on viii two setae, inner pointed 42—44 μ, outer blunt or expanded 55—59 μ long; setae on sternites similar to those of T. fusca.

Pores on tergites: on median plate of i there are two pores near hind angles and posterior margin with a minute seta on each side outside the plate; ii has two pores on disc with two setae on each side laterad of and close to them; iii-viii each with two pores situated between two setae; on ix two pores with two setae between them; tube with two pores near apex and about six setae basad of them on dorsal aspect.

Measurements of holotype (apterous ♀, No. X. 519—1, NaOH-treated, of intermediate size,) in μ, followed in parentheses by the ranges of this plus two paratype females, both apterous, one of the smallest No. X. 519—3, and one of the largest, No. X. 519—4, NaOH-treated; head length used as the criterion for size, as explained under T. fusca above: Length (distended)
1890(1740—1950); head L. 179(169—193), W. across eyes 119(114—), least W. at base 113(—119), greatest W. across cheeks 123(123), W. on basal collar 113(—119); eyes: dorsal L. 57(51—59), ventral L. 51(47—), dorsal W. 34 and 38(30—), interval 47(—51), ventral W. 30 and 32(27—34), interval 57(55—); head setae: postocul.ars 44(30—), their interval 101(101), distance from eyes 11(—15); mouth-cone L. from posterior dorsal margin of head 85(74—), maxillary palpi segment ii: L. 23(17—), W. 4(4), terminal setae 19(19); pronotum L. 127(116—), W. prothorax including coxae 233(219—236), setae: ep. 44(38—), pm. 38(—40); mesothorax W. 205(190—); legs: L./W. ft. 162(148—51(49—), ft. 99(92—106)/38(38), fta. 56(44—)/30 (25—), its tooth 6(4—9)/24(—9), hf. 169(148—176)/55(51—), ht. 155 (127—)/36(34—), its inner apical thin seta 25(21—), its outer sub-apical setae 32 and 34(—42), hta. 67(59—71)/25(25); abdomen L. 1308(1200—1339), W. 261(254—264), tube (segment x only) L. 93(85—), W. at base 55(53—), least W. at apex 30(30); setae on tergite ix all pointed, S. 1: 123 (114—), S. 2 119(110—120), S. 3: 101(76—); terminal tube setae, pointed, 148(134—).

Antennae: total L. 327(317—).

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Segment ii of antenna: total L. in μ, followed in parentheses by distance of areola from apex, in μ, of the three females measured: 51(25), 47(23), 51(25).

**Male** (apterous). Length (distended) 1.3—1.5 mm. Smaller than female, but identical with it in colour and structure, with the exceptions noted below. There are no oedymerous forms in the series before me. Two males have very small and indistinct rudimentary anterior ocelli, but none of them have sigmoid setae on the abdomen.

The maxillary bridge measured from one maxillary sheath to the other on 10♂♂ varied in width from 47 to 59 μ. On tergite ix the second large seta is short and more or less spine-like.

The glandular area on sternite viii (fig. 7) is large, occupying nearly the whole surface; on 4♂♂ its median length varies from 47 to 68 μ, the sternites measuring 76 tot 93 μ. Pseudovirga as illustrated (fig. 9); its apical width measured on 5♂♂ varies from 17 to 19 μ.

**Measurements of allotype** (apterous ♂, No. X. 519—2, of intermediate size) in μ, followed in parentheses by the ranges of this plus two apterous paratype males, both NaOH-treated, numbers X. 106—1 and X. 519—6, respectively one of the smallest and one of the largest, size determined as in case of the females: Length (distended) 1440(1320—1530); head L. 151(138—174), W. across eyes 108(103—110), least W. at base 106(101—108), greatest W.
across cheeks 110(103—114), W. on basal collar 108(103—110); eyes: dorsal L. ?(47—55), ventral L. ?(42—44), dorsal W. 27 and 30(—32), interval 51(47—), ventral W. 23 and 25(—30), interval 55(51—); head setae: postoculars, pointed, 42(30—), their interval 93(91—95), distance from eyes ?(9—13); mouth·cone L. from posterior dorsal margin of head 78(72—); pronotum L. 113(97—), W. of prothorax including coxae 212(190—215), setae: ep. 38(34—40), pm. 34(34); mesothorax W. 176(169—190), mesonotum L. sclerotized plate 42(38—49), total W. 155(148—162); legs: L.fW. 141(120—151), ft. 92(78—)/36(34—), fta. 51(47—56)/25(25), its tooth 6(6)/4(3—), hf. 148(120—155)/51(47—), ht. 127(106—130)/30(—34), its inner apical thin seta 21(17—), its outer sub-apical setae 30 and 42(—47), hta. 64(56—)/25(21—); abdomen L. 969(846—1000), W. 222(197—233), tube (segment x only) 85(76—), W. at base 51(44—55), least W. at apex 27(25—); setae on tergite ix all pointed, S.1: 112(—119), S.2: 34(34), S.3: 130(127—133), terminal tube setae, 130(120—).

Antennae: total L. 299(268—).

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Segment ii of antenna: total L. in μ, followed in parentheses by distance of areola from apex, in μ, of the three males measured: 42(21), 40(19), 47(25).

Material studied: 17 ♀♀ and 10 ♂♂ mounted on slides in Canada balsam, all apterous, collected by the writer: CAPE PROVINCE: Graafwater near Clanwilliam, 30-xi·1943, one ♂ (No. B. 196) on Chondropetalum tectorum Pillans, 3-xii·1943, one ♂ (No. B. 191) on Conicasia sp.; Fish Hoek on the Cape Peninsula, 31·iii·1953, 3 ♂♀ (No. X. 106) and March 1955, 17 ♀♀ and 5 ♂♂ (No. X. 519) on Pentameris macrantha Schrad.

Talitha cincta spec. nov. (Figs. 11-13).

Female (apterous). Length (distended) 1.5—2.0 mm. Colour: strikingly bicolorous; head brown, with a brownish yellow transverse band ventrally at base about one-thirteenth as long as head length; eyes so deep red as to appear black; antennae: i light brown to brown, briefly yellow at extreme base above and below, and with a transparent border at apex, ii brownish yellow on pedicel, rest yellow, sometimes feintly tinged with grey, sometimes whole segment yellow, iii yellow, lateral edges and basal ridge feintly grey, iv yellow to pale brownish yellow, v darker than iv, brownish yellow to yellowish brown, pedicel darkest, vi—viii brown, darker than head; mouth·cone mainly brownish yellow, with more strongly sclerotized parts and outer margin of labium brown, palpi yellowish brown; pronotum and all lateral and ventral sclerites of prothorax yellowish brown to pale brown, paler than head; pterothorax
largely yellow, with a light grey tinge on fore margin of mesothorax; abdomen: segments i-iii yellow, iv pale brown or brown, v-x brown becoming slightly darker caudad, tip of abdomen as dark as head or somewhat darker; legs: fore legs darker than the other two pairs; fore coxae pale brown like pronotum, all trochanters yellow, fore femora yellowish brown to pale brown, somewhat darker on outer margin, paler than fore coxae, fore tibiae yellowish brown, paler than fore femora, especially towards apex where they are sometimes yellow, all tarsi yellow, very feintly tinged with grey, their cups brown; middle and hind coxae, femora and tibiae mainly yellow, but tinged more or less with pale brown, especially on outer sides of femora and in basal half of tibiae; major setae of body and appendages transparent to feintly grey except postoculars which are dark.

Internal pigmentation: the usual red internal pigmentation practically absent from the specimens before me, both those collected into 70% alcohol, and those collected in recent years into 10% alcohol plus 0.1% Triton emulsifier; in a few specimens there are two or three small blotches of red in the head but these may be fragments of the internal parts of the eyes. The malpighian tubules are conspicuous, deep purple in colour.

Sculpturing very similar to that described for T. fusca above, but generally even weaker and less conspicuous; in lateral aspect head shows more dorsoventral lines, there being about 10—12 spread over whole lateral aspect from eyes to base.

Head 1.4 as long as its greatest width which is across the cheeks, 1.4—1.5 as long as pronotum, and 2.0 as long as the tube; cheeks practically parallel or very gently rounded and slightly constricted near base; head cylindrical but somewhat flattened dorso-ventrally; in side view the dorsal margin is practically straight, but the ventral margin diverges ventrad, height at antennal base 38, at mouth-cone 89 µ on a female mounted laterally; eyes large, not bulging, their outer margins forming continuous lines with the cheeks, occupying 0.3 of head length, their dorsal length about 8—17 µ longer than ventral length, posterior outer angle on dorsal aspect produced into a blunt point, ommatidia circular, well separated on dorsal aspect, almost contiguous ventrally, distinctly so on lateral margin especially in front, the ommatidia unequal in size, none of them retaining a yellow colour after treatment with NaOH; a few minute setae on each eye.

Ocelli: small, sometimes indistinct, rudimentary ocelli are present on 9 of 9; seven of these have one of the posterior ocelli, and two have both posterior ocelli; none of the females have three ocelli; the specimens with ocelli were specially examined for sigmoid setae and modifications of the thorax for the development of wings, but they are all typically apterous forms, like all the other females before me.

Head setae on dorsal aspect as illustrated (fig. 11); postoculars small, pointed, about 19—25 µ in length, situated about 11—17 µ form eyes, near
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edges of cheeks, their interval 99—110 μ, other setae minute; all ventral head setae minute, finely pointed, 9—21 μ long, or less. **Mouth-cone** short, broadly rounded, extending only about 59—64 μ caudad from posterior dorsal margin of head; maxillary palpi: segment i, L/W. in μ 2—4/4—6, segment ii: 13—17/4, terminal setae 13—17 μ; labial palpi minute; maxillary stylets in retracted position extending to level of postoculurs, running caudad parallel for greater part of their length in head, joined by a well-developed maxillary bridge about 51—53 μ wide as measured from one maxillary sheath to the other.

**Antennae** as illustrated (Fig. 13), heavy and prominent, 1.5—1.6 as long as the head, generic characters typically developed; sense-cones small, inconspicuous, the formula as found on most of 30 antennae on 16 ♀♂:

- iii, 0—0;
- iv, 1—1;
- v, 1—1;
- vi, 0(+1)—0(+1);
- vii, 1 d.;

the cones on vi and vii are difficult to see, sometimes the inner cone on vi is large enough to be called a cone, rather than a rudimentary cone. The position of the areola on segment ii was measured on 17 antennae of 16 ♀♂, and the ratio: "distance of areola from apex over total length of segment" was found to be 0.5 in 9 cases and 0.6 in 8 cases.

**Pronotum** 0.7 as long as the head and 0.6 as long as the width of prothorax including coxae; epimeral sclerites large, extending cephalad beyond middle of pronotum, measured on holotype from dorsal aspect their combined length 66 μ, width of posterior sclerite 30 μ: setae: ep. expanded, 30—36 μ long, pm. thinner, pointed or blunt, 19—21 μ long, all the others very small and thin, only about 4—6 μ long; anterior margin not thickened, dorsal median apodeme weak, visible in about median third of length of pronotum.

**Mesonotum** entire, with two pairs of pores on anterior margin of sclerotized plate, the setae at lateral extremities very short, usually only about 4—6 μ, rarely up to 13 μ long, the three pairs on hind margin minute. **Mesosternum:** setae on anterior margin only 4—6 μ long, pair in latero-median angles about 25 μ long, those on hind margin 34—38 μ long and about 47 μ apart. **Metanotum** usually bears one pair of setae 9—11 μ long, about 51—55 μ from anterior margin, and about 51—55 μ apart, and a smaller pair further apart on anterior margin; rarely an additional seta, or two, are found between the two pairs. **Metasternum** measured on a paratype mounted ventrally: length 131 μ, width between hind coxae 72 μ, sutures extending caudad from middle coxae 64—68 μ long, setae at ends of sutures 25 μ long, a pair between and on a transverse line with these 13 μ long and 59 μ apart.

**Legs** short and rather stout, fore and hind femora somewhat enlarged; fore tarsi usually without teeth, but on 17 of the 59 ♀♂ before me minute teeth about 2 μ long are present.

**Abdomen:** median plate of tergite i more or less dome shaped, usually without small triangular sclerites adjacent to its base on hind margin, but in 5 of the females before me one such small sclerite is present; measurements
of one large female in μ: tergite i median plate L. 72, W. at base 106, tergite ii: L. 106, iii, iv and vii: L. 113, v and vi: L. 120, viii: L. 99, sternite viii: L. 134, tergite ix: L. 64. Pores on tergites and their associated small setae similar to those of T. fusca described above. Tube 0.5 as long as head, and 1.6—1.7 as long as its own width at base, its shape very similar to that of T. fusca (fig. 4).

Abdominal setae: measured in μ on holotype: tergite i with one pair, pointed, at hind angles, 14 long; sigmoids absent; large seta (S.2) near hind angles on ii—vi knobbed, 34—38 long; S.3 at posterior angle on iv—vi usually pointed, 17—47 long; vii has two near posterior angle, the inner knobbed 47 long, the outer pointed and curved 93 long; on viii the inner blunt 32, the outer expanded, 57 long; on sternites the number and arrangement of setae similar to those of T. Jusca, the inner pair on holotype on vi: 42 long, on vii: 85 and on viii: 85 long.

Measurements of holotype (apterous ♂ No. B. 478—1, NaOH-treated, of intermediate size) in μ, followed in parentheses by the ranges of this plus two paratype females, both apterous, one of the smallest, No. X. 142—1, NaOH-treated, and one of the largest, No. X. 115—1; head length used as the criterion for size, and types selected, as explained above for T. fusca: Length (distended) 1620(1455—2040); head L. 178(157—191), W. across eyes 119(112—123), least W. at base 114(99—), greatest W. across cheeks 125(116—134), W. at base 114(99—); eyes: dorsal L. 55(49—64), ventral L. 47(38—), dorsal W. 25 and 30(25—30), interval 64(57—), ventral W. 25 and 27(23—30), interval 68(61—); pronotum L. 120(109—141), W. of prothorax including coxae 212(183—233); mesothorax W. 200(148—), sclerotized plate of mesonotum L. 40(55—), W. 141(123—162); legs, L/W. ff. 120(113—151)/55(47—), ft. 85(74—92)/34(32—38), fta. 42(38—51)/27(25—), hf. 141(113—162)/55(49—59), ht. 113(99—134)/34(30—34), thin seta at inner apical angle 13(11—), outer setae near apex 38(30—42), hta. 55(47—56)/25(21—); abdomen L. 1123(1000—1400), W. 247(205—264), tube (segment x only) L. 85(72—92), W. at base 49(42—56), least W. at apex 27(25—28); setae tergite ix, all pointed, S.1: 114(101—), S.2: 123(119—), S.3: 64(51—); tube setae, pointed, 134(130—151).


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Male (apterous). Length (distended) 1.3—1.5 mm. Smaller than the female, but nearly identical with it in colour and structure, with the exceptions indicated below. The male has segments i—iv of the abdomen yellow, instead of only i—iii. There are no oedemerous forms in the series of males before me.
Rudimentary ocelli are present on 20 males: 11 have one of the posterior ocelli, 7 have two posteriors, and 2 males have three ocelli. Minute fore tarsal teeth were found on only six out of the 56 males. On 9 males small additional triangles are present adjacent to the median plate of tergite i of the abdomen, on its hind margin. There is no glandular area on sternite viii of the abdomen. *Pseudovirga*: the genitalia of 27 males, mounted under separate cover glasses, are satisfactory for measuring the subapical width of the pseudovirga, across the "shoulders"; the width varies from 11 to 14 μ, three males gave 11 μ, thirteen measured 12 μ and eleven are 14 μ wide (fig. 12). On tergite ix the seta S.2 is much shorter, and more spinelike, than in the female.

*Measurements of allotype* (apterous ♂, No. X. 288—1, NaOH-treated, of intermediate size) in μ, followed in parentheses by the ranges of this plus two paratype ♂♂, both apterous, one of the smallest No. X. 122—1, NaOH-treated, and one of the largest, No. X. 288—2; size determined and types selected as in case of females: Length (distended) 1320(1260—1530); head L. 148(144—172), W. across eyes 105(—116), least W. at base 89(—97), greatest W. across cheeks 109(106—116), W. at base 89(—95); eyes: dorsal L. 51(47—), ventral L. 40(38—), dorsal W. 25(23—), interval 55(—64), ventral W. 23(21—25), interval 59(—64); head setae: postocul.ors 21(21) pointed, their interval 93(—99), distance from eye 11(9—13); mouth-cone: L. from posterior dorsal margin of head 55(49—59), W. maxillary bridge 55(51—59); palp. L./W. maxillary segment i: 2(2)/4(—6), segment ii: 13(—17)/4(4), terminal setae 7(9—15); *pronotum* L. 109(99—120), W. prothorax including coxae 179(162—190), setae: ep. expanded 21(—27), pm. pointed 13(—15); mesothorax W. 148(137—162), sclerotized plate of mesonotum L. 44(34—49), W. 116(109—127); legs: L./W. ff. 109(106—127)/44(42—47), ft. 71(—81)/30(34), fta. 38(30—42)/25(23—), hf. 120(113—134)/42(40—47), ht. 102(99—120)/27(25—32), its inner apical thin seta 9(9), its outer apical setae 30(—42), hta. 47(—51)/21(21); *abdomen* L. 815(785—985), W. 176(158—200), tube (segment x only) L. 76(—85), W. at base 38(—47), least W. at apex 25(23—); setae on tergite ix all pointed, S.1: 106(97—), S.2: 32(25—35), S.3: 114(—123); terminal tube setae, pointed, 138(116—155).

*Antennae*: total L. 264(257—282).

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<td>viii (dorsally) 17(19), 11(9—).</td>
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*Material studied*: 59 ♀ ♂ and 56 ♂ ♀ mounted on slides in Canada balsam, collected by the writer as follows; CAPE PROVINCE: Hermanus, 25-xii-1922, 1 ♂; and 20-i-1923, 2 ♀ ♂; 1 ♂ in sweepnet; Gordons Bay, 8-i-1938, 4 ♀ ♂ on *Elegia parviflora* Kunth.; Fish Hoek on the Cape Peninsula,
February 1941, 2 ♀ ♂, 6 ♂ ♂, March 1953, 8 ♀ ♂, 9 ♂ ♂ (No's X. 122 and X. 136) on *Willdenovia striata* Thunb., 8-xii-1943, 6 ♀ ♂, 3 ♂ ♂ (No. B. 215) on an undetermined plant (Restionaceae), March 1955, 1 ♀ (No. X. 1028), on *Pentameris macrantha* Schrad.; Smitswinkel Bay on the Cape Peninsula, March 1953, 4 ♀ ♂, 2 ♂ ♂ (No. X. 115) on *Elegia parviflora* Kunth; on Table Mountain, 8-iii-1953, 2 ♀ ♂ (No. X. 141) on *Cannamois* sp., 3 ♀ ♂, 2 ♂ ♂ (No. X. 142) on *Restio sieberi* Kunth, and 1 ♀ (No. X. 145) on *Elegia grandis* Kunth; Somerset West, 26-xi-1949, 4 ♀ ♂, 2 ♂ ♂ (No. B. 478) on *Cannamois virgata* Steud.; Graafwater near Clanwilliam, December 1943, 12 ♀ ♂, 10 ♂ ♂ (Nos. B. 194, B. 195 and B. 218), on undetermined plants (Restionaceae), 30-xi-1943, 1 ♀ (No. B. 196) on *Chondropetalum tectorum* Pillans; Hopefield, 2-iii-1953, 1 ♀ (No. X. 133) on *Willdenovia striata* Thunb.; Longridge, near Plettenberg Bay, 13-ii-1954, 8 ♀ ♂, 20 ♂ ♂ (No. X. 288), on *Restio triticeus* Rottb.