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PHILIPPINE FIG WASPS

1. RECORDS AND DESCRIPTIONS OF OTITSELLINI (HYMENOPTERA CHALCIDOIDEA, TORYMIDAE)

by

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With 34 text-figures and one table

In 1964, by awarding to me that year's proceeds of the "Pieter Langerhuizen Fonds", the Hollandsche Maatschappij der Wetenschappen enabled me to study figs and fig wasps in the Philippines. While several Philippine fig wasps are already known from the papers by Ashmead (1904, 1905), Brown (1906), Baker (1913), Williams (1921, 1928), Grandi (1927, 1930), Baltazar (1966), Wiebes (1963, 1966a, b, 1967a, b, and 1974) and Hill (1969), the collection made in 1964 and 1965 still contains much new material. In this and forthcoming reports I shall include data on the collection made by F. X. Williams, received in loan from the Hawaiian Sugar Planters' Association, Honolulu (abbreviated HSPA), and on several lots of material sent for identification by: the American Museum of Natural History, New York (AMNH), the Bernice P. Bishop Museum, Honolulu (BMH), the California Academy of Sciences, San Francisco (CAS), the Rijksmuseum van Natuurlijke Historie, Leiden (RMNH), the United States National Museum, Washington (USNM), and the Universitetets Zoologiske Museum, Copenhagen (ZMC; material from the Noona Dan Expedition, see Petersen, 1966).

A short report on my trip to the Philippines was published in the Dutch language (Wiebes, 1965). All collecting localities are indicated on the map of fig. 1 of the present paper. Of the many colleagues who helped me in one way or another, I here only mention four, viz., Dra. Clare R. Baltazar, at the time of my visit Entomologist of the Bureau of Plant Industry, Manila; Dr. F. B. Calora, Head of the Department of Entomology, University of the Philippines' College of Agriculture (UPCA); Prof. E. J. H.

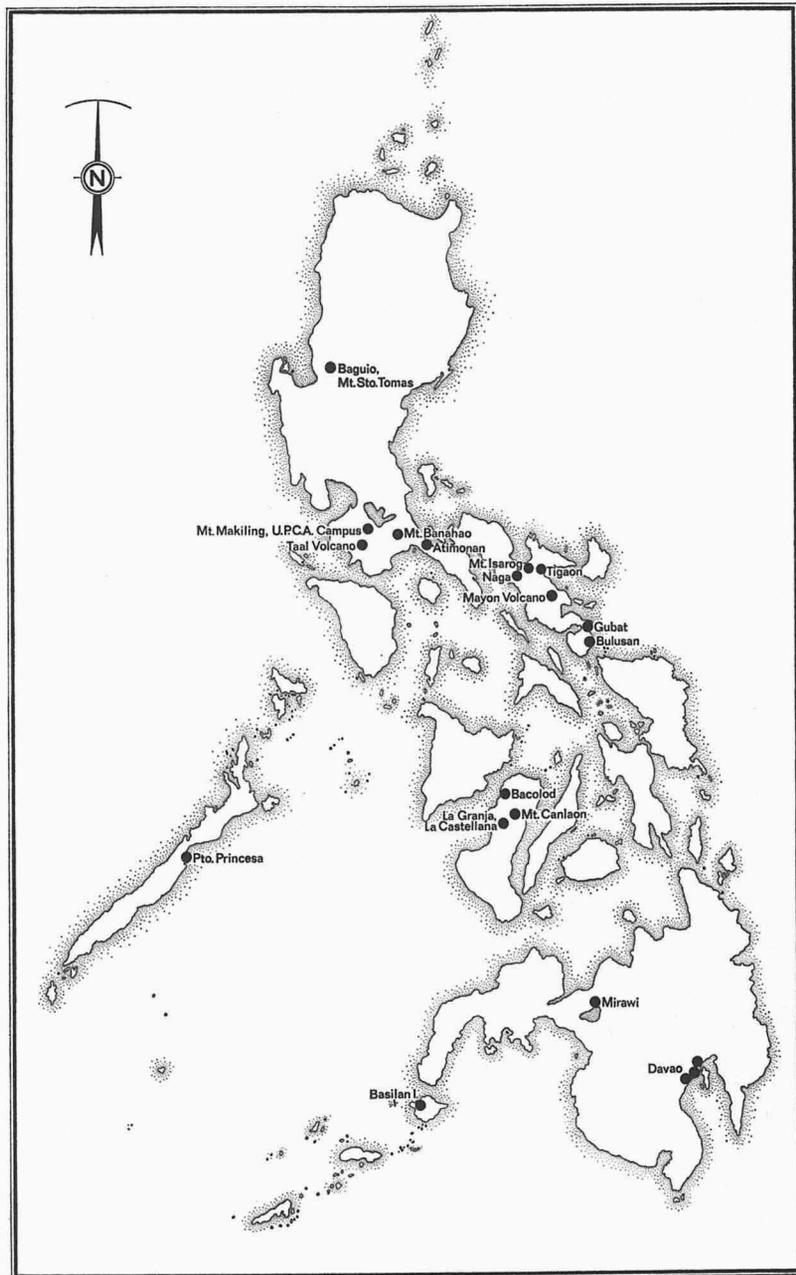


Fig. 1. Map of the Philippines, with location of collecting sites (Wiebes 1964-1965).

Corner, University of Cambridge; and Prof. J. V. Pancho, Botanist of the UPCA, who accompanied me on all trips, and who did the actual collecting of the specimens of *Ficus* from which I managed to rear the wasps. Prof. Corner identified the figs.

Where appropriate in the present series on Philippine wasps, some extralimital samples will be treated as well. In the first paper, this refers to the instance of the genus *Grasseiana*, which also bibliographically, is treated in more detail than the other genera.

OTITESSELLINI

Since the publication of the world catalogue of the Otitesellini (Wiebes, 1967c: 435-441), some additions were recorded, viz.,

Grasseiana Abdurahiman & Joseph (1967: 13-14) for *G. callosa* Abdurahiman & Joseph;

Walkerella temeraria Westwood, ♀, Joseph & Abdurahiman (1969: 44-45);

Philosycus Wiebes (1969: 439) for *P. collaris* Wiebes and *Sycobiella monstrosa* Grandi;

Otitesella royi Wiebes (1971: 378).

The host records of the Otitesellini are tabulated on page 161, which shows a clear parallel of the botanical and entomological classifications. The two species-groups of *Otitesella*, which may deserve of higher taxonomic rank, are found associated with figs of sections *Urostigma* and *Galoglychia*, respectively. *Walkerella* and *Micranisa* go with section *Conosycea*, as do *Eujacobsonia* (series *Validae* only), *Lipothymus* (subsection *Dictyoneuron* and one species in *F. forstenii* of subsection *Conosycea*) and, probably, *Micrognathophora*. *Philosycus*, as earlier explained (Wiebes, 1969: 444), inhabits the same group of hosts as the *Otitesella africana*-group. *Grasseiana* appears to be restricted to *Oreosycea*. The hosts of *Grandiana* are wide apart taxonomically, which may have resulted from the composite nature of the sample studied from *Ficus stupenda* (Wiebes, 1966c). The only species of *Guadalia*, finally, was found with a species of *Sycocarpus*.

A record of much interest is that of the one African species *Otitesella serrata* from *Urostigma*, which fits in its taxonomic group, while the accompanying Agaonid (*Elisabethiella socotrensis* Mayr of the subfamily Agaoninae, among a number of Blastophaginae) does not.

Some samples of the present collection are very small, or consist of a few specimens of one sex only. They do not allow of specific identification and are omitted from this report.

Otitesella Westwood

The division of this genus into two species-groups was noted by Grandi (1922: 21), and again by Wiebes (1969: 443). The species described below from *Ficus caulocarpa*, belongs in the group of *O. digitata* Westwood, with which it will be compared. Due to insufficient descriptive data on the other species, a key cannot be provided.

Otitesella clarae spec. nov.

(figs. 2-8, 10, 11)

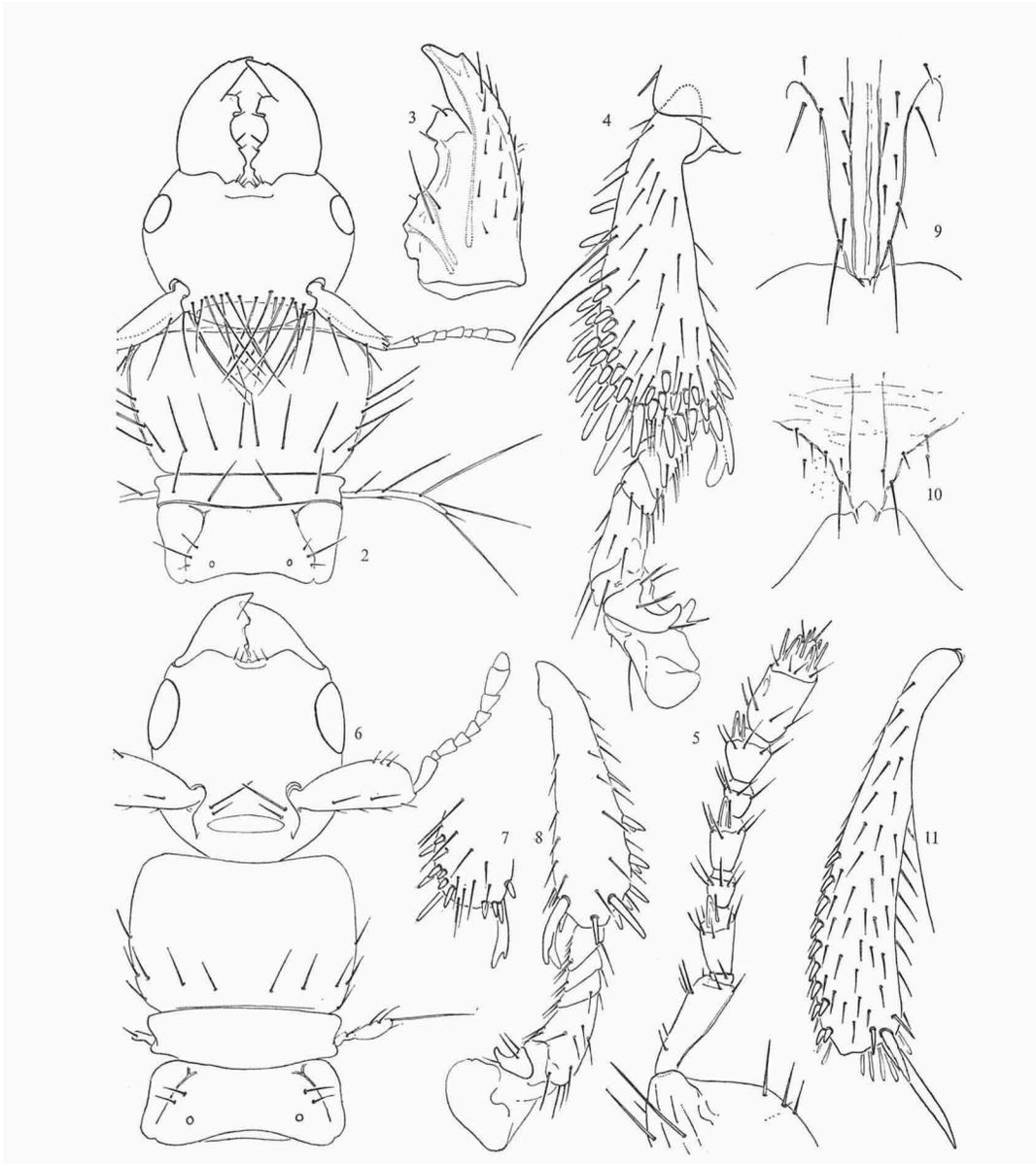
Material. — 12 ♀ 4 ♂, Philippines, Mindanao, Lanao del Sur, Mirawi, 20.xi.1964, leg. J. T. Wiebes, ex *Ficus caulocarpa* Miq. (J. V. Pancho no. 4198, det. E. J. H. Corner) (RMNH 1450, holotype ♂ and paratypes ♀ ♂ slide-mounted). The holotype is a male of the *religiosa*-form.

Description. — Female. Head shorter than wide across the compound eyes (4 : 5), the longitudinal diameter of the eye approximately twice as long as the cheek; three ocelli in a wide triangle. Distance between the antennal toruli half as long as the distance between the torulus and the inner orbit. Antennal scape three times as long as wide, slightly over twice as long as the pedicel; two anelli; the funicular segments and the club with a regular row of about ten long sensilla, and basal setae. The proximal segments have an incomplete row of sensilla; some distal segments have patches of smaller setae on the outer ventral surface. Mandible tridentate, with three glands; the segments of the maxillary and labial palpi approximately in ratio 2 : 5 : 4 : 8, and 4 : 4, respectively.

Thorax. Pronotum short, but distinctly visible from above. Parapsidal furrows complete. Fore wing (2 : 1), 1.0 mm long; the submarginal, marginal, stigmal, and postmarginal veins approximately in ratio 10 : 4 : 2 : 3; the membrane with microtrichiae and scattered longer setae; the fringe short. Hind wing (4 : 1), 0.7 mm long. Legs of the type usual for *Otitesella*, with two dorso-apical spines on the fore tibia and one ventral spur; the fore tarsi in ratio 8 : 5 : 4 : 3 : 7. Hind tibia (fig. 11) with eleven spines along the distal half of the dorsal edge of the tibia; the tarsal segments in ratio 12 : 5 : 4 : 3 : 5.

Gaster. Hypopygium (fig. 10): the spine short and wide compared with that of *Otitesella digitata* (fig. 9). Pygostyle with four setae; the valves of the ovipositor scarcely projecting.

Length (head, thorax and gaster), 1.3 mm. Colour brownish, the head and the dorsum of the thorax more metallic, the distal segments of the legs lighter.



Figs. 2-8, 10, 11. *Otitesella clarae* spec. nov. 2-5, male *religiosa*-form; 6-8, male *digitata*-form; 10, 11, female. 2, head and thorax (smaller setae omitted); 3, mandible, ventral aspect; 4, fore tibia and tarsus, antiaxial aspect; 5, apex of antennal scape, and flagellum, dorsal aspect; 6, head and thorax (smaller setae omitted); 7, apex of fore tibia, antiaxial aspect; 8, fore tibia and tarsus, axial aspect; 10, hypopygium; 11, hind tibia, antiaxial aspect. Fig. 9. *Otitesella digitata* Westwood, female (RMNH 1123, ex *Ficus religiosa*, India), hypopygium. Figs. 2, $\times 65$; 3, 6, $\times 105$; 4, 5, 7-11, $\times 210$.

Male (*religiosa*-form). — Head (fig. 2) approximately $1\frac{1}{2}$ times as wide as long; the longitudinal diameter of the eye about as long as the cheek, i.e. much smaller than in the *religiosa*-form of *Otitesella digitata* (Wiebes, 1967c, fig. 63). The toruli of the antennae situated in the posterior-most part of the head, on either side of the oblong depression, which has an anterior border of about fifteen long setae. The whole head-capsule covered with short setae. Antenna (fig. 5) with the scape moderately expanded, $2\frac{1}{2}$ times as long as wide, three times as long as the pedicel; one ring-segment; five funicular segments, the longer of which have a triangular sensillum; the club consisting of two free segments. Mandible (fig. 3) large, with three glands; the labium and maxillae very small and scarcely visible: the labial palpi reduced to small lobes, the maxillary palpi larger, two- or indistinctly three-segmented (4 : 1 : 2).

Thorax (fig. 2). Pronotum much wider than long (5 : 3), with long lateral and basal setae; the mesonotum short, with four setae; the metanotum incompletely fused with the propodeum, their combined length one-third of the width, twice as long as the length of the mesonotum. Wing remnant long, with several long setae. The legs differing little from those of *O. digitata* (*religiosa*-form): fore leg, fig. 4; the mid tibia with only three dorso-apical, conical spines, as against a dorsal row of spines in *O. digitata*; in all legs, the tarsal ratio approximately 2 : 1 : 1 : 4.

Gaster. Claspers of the genitalia with three claws.

Length (head with mandibles, and thorax), 1.0 mm. Colour uniform yellowish brown.

Male (*digitata*-form). — One specimen only: much as in the description of *O. digitata* by Grandi (1922: 18-21), but differing in some details. The toruli of the antennae are more lateral in position, and there are two long and two shorter setae in between. Long setae are also found on the prothorax (fig. 6), next to many small setae as in Grandi's fig. i. The fore tibia (figs. 7, 8) has less spines in the axial apex, and they are not situated in a row as in Grandi's fig. ii, 5; the fourth segment of the tarsus is scarcely inflated. The claspers of the genitalia bear three claws.

Length (head and thorax), 0.7 mm. Colour yellowish, the inflated (fourth) tarsal segments darker.

Eujacobsonia Grandi

One species was previously recorded from the Philippines, viz., *E. mirabilis* Grandi (Wiebes, 1967b).

Lipothymus Grandi

A new species is added to the three already known, while some attention is given to variation in *L. grandii*. *L. sumatranus* Grandi (1921) and *L. sundaicus* Wiebes (1967a) were described from Java and Sumatra, and Sarawak, respectively, and are not recorded from the Philippines.

Key to species

1. Females 2
- Males 6
2. Hind leg with about fifteen to more than forty conical spines on the ventral half of the tibia 3
- Hind leg with the ventral apex produced into a large triangular tooth, next to the apical spur *panchoi*
3. Head wider than long, or about as wide as long. If the hind tibia bears more than twenty ventral conical spines, the dorsal margin has about ten 4
- Head much longer than wide. Hind tibia with more than forty cones, and only two dorsals *grandii*, aberrant ♀
4. Head distinctly wider than long. Hind tibia with about thirty conical spines and about ten dorsals; the metatarsus with five ventral cones *sumatranus*
- Head about as wide as long. Hind tibia with about twenty ventral conical spines or less, and two or three (apico-)dorsals 5
5. Longitudinal diameter of the compound eye twice as long as the cheek. Antenna with three anuliform segments. Mandible with the two teeth in one plane *sundaicus*
- Longitudinal diameter of the compound eye not much longer than the cheek. Antenna with two anuliform segments. Mandible tridentate, the ventral tooth not in the same plane with the others *grandii*
6. Compound eye large, the longitudinal diameter about twice as long as the cheek. Antenna with one anellus, the club consisting of two segments. Mandible with one gland 7
- Compound eye small, the longitudinal diameter about half as long as the cheek. Antenna with two anelli, the club (indistinctly) consisting of three segments. Mandible with three glands *panchoi*
7. Apex of the mandible bidentate or indistinctly tridentate. Armature of the fore tibia consisting of few, relatively large spines *sumatranus*
- Apex of the mandible more distinctly tridentate. Armature of the fore tibia consisting of very small spines, and also the other tibiae with relatively small spines *grandii*

Lipothymus panchoi spec. nov.

(figs. 12-21)

Material. — 54 ♀ 40 ♂, Philippines, Luzon, Quezon Nat. Pk. Atimonan, 350 m alt., 23.xii.1964, leg. J. T. Wiebes, ex *Ficus forstenii* Miq. var. *pacifica* (Elmer) Corner (J. V. Pancho no. 4224, det. E. J. H. Corner) (RMNH 777, holotype ♀ and paratypes ♀ ♂ slide-mounted).

Description. — Female. Head (fig. 15) longer than wide (11 : 9), the clypeal part of the face particularly long. Longitudinal diameter of the compound eye longer than the cheek (9 : 7); the three ocelli rather close together. Distinct sulci running from the antennal toruli to the lateral ocelli. Antenna

(fig. 13): the scape approximately six times as long as its maximum width, almost four times as long as the pedicel; three anuliform segments; the five funicular segments and the three segments of the club with one row of long sensilla each: about four on either facies. Mandible (fig. 14) large and flat,



Figs. 12-21. *Lipothymus panchoi* spec. nov. 12-16, female; 17-21, male. 12, fore tibia and tarsus, axial aspect; 13, detail of antenna, axial aspect; 14, mandible, ventral aspect; 15, head, outline; 16, apex of hind tibia, and metatarsus, antiaxial aspect; 17, apex of fore tibia, and tarsus, axial aspect; 18, apex of hind tibia, and tarsus, antiaxial aspect; 19, antenna, dorsal aspect; 20, genitalia, ventral aspect; 21, mandible, ventral aspect. Figs. 12-14, 16-20, $\times 210$; 15, $\times 65$; 21, $\times 105$.

with two teeth (judging from the presence of two glands) but the distal tooth bicuspidate. Maxillary palpus consisting of four segments (4 : 5 : 3 : 11), labial palpus of two (6 : 7).

Thorax rather flat, glabrous; the pronotal bulge not particularly prominent. Fore wing (2 : 1), 1.3 mm long; the submarginal, marginal, stigmal, and postmarginal veins approximately in ratio 18 : 10 : 4 : 7; the membrane with very sparse microtrichiae, and with three longer setae in the costal cell. Hind wing (4 : 1), 1 mm long. Fore leg (fig. 12): the combined lengths of the coxa and the trochanter about as long as the femur; the coxa with an angular laminar ridge; the femur with the dorsal edge angular; the length of the tibia two-thirds of that of the femur, the apical armature consisting of the dorsal teeth, one ventral spur accompanied by some stout setae, and an axial shovel-shaped spine on the tip of the tibia; the tarsus pentamerous, the segments in ratio 2 : 1 : 1 : 1 : 4. Mid leg slender; the coxa as long as the trochanter; the tibia as long as trochanter and femur combined; the tibia with one long spur; the tarsus pentamerous (10 : 3 : 2 : 2 : 4). Hind leg with the coxa almost as large as the femur, and also the tibia of about the same length; the tibia (fig. 16) with the antiaxial ventral apex produced into a large and robust tooth, axially with a long spur and many shovel-shaped setae; the tarsus bearing a distinct plantar fringe and many spines, the segments in ratio 13 : 8 : 4 : 4 : 8.

Gaster. The spiracle small, subcircular in outline; the pygostyles small, with four setae. The hypopygium short, coreaceous, with many setae on both sides of the mid-line.

Length (head, thorax, and gaster), 2.0 mm. Colour shiny black; the antennae, the fore and mid legs from the trochantères onwards, and the hind tibiae and tarsi, yellowish.

Male. — Much like *L. grandii*. Head little wider than long, the longitudinal diameter of the eye short, slightly over half as long as the cheek. Antenna (fig. 19) consisting of twelve segments, the third and fourth of which are anuliform; the scape expanded, approximately three times as long as the pedicel; the funicular segments with antiaxial sensilla in the apical corner, and setae of medium length; the club consisting of three, indistinctly separate segments. Trophi: the mandible (fig. 21) with three glands (versus one in *L. grandii*).

Thorax. Differs from that of *L. grandii* in the armature of the tibiae (fig. 17, 18), in that the spines are larger and more numerous.

Gaster. Claspers of the genitalia (fig. 20) with four claws.

Length (head and thorax), 1.4-1.9 mm. Colour rather uniform yellowish brown.

Lipothymus grandii Wiebes

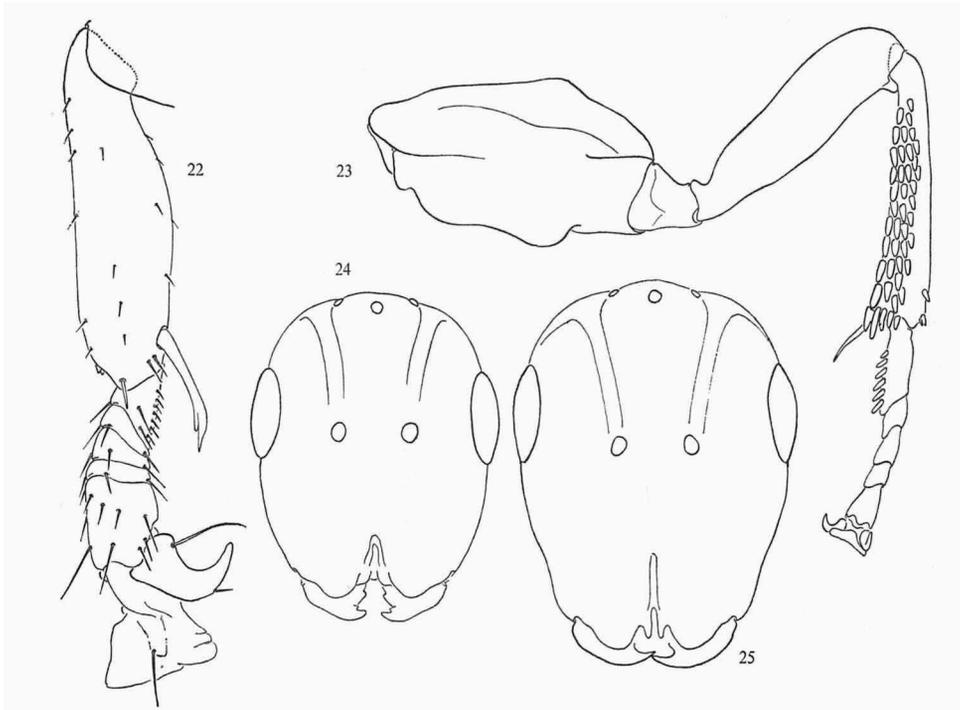
(figs. 22-25)

Material. — 360 ♀ 125 ♂, Philippines, Mindanao, Zamboanga, 14-16.x.192..., leg. F. X. Williams, ex *Ficus* spec. (no. 6, "balete") (HSPA, ♀ and ♂ slide-mounted; RMNH 2360, 25 ♀ 25 ♂).

One ♀ head, 3 ♂, Philippines, Luzon, Laguna, Mt. Makiling, 180 m alt., 15.i.1965, leg. J. T. Wiebes, ex *Ficus sumatrana* Miq. (J. V. Pancho no. 4264, det. E. J. H. Corner) (RMNH 1640, the ♀ fragment slide-mounted).

Most female specimens from the sample collected at Zamboanga (indicated below as I), can at once be distinguished from the species previously described in *Lipothymus*. They were at first tentatively classified as a separate species. Four specimens (II) out of 360, however, are distinct in several characters from the rest of the lot, and more closely resemble *L. grandii*. I cannot distinguish between the accompanying males and those of *L. grandii*.

On renewed inspection, nine (III) out of 125 females of the type-lot of *L. grandii* (IV) appear to resemble the females from Zamboanga.



Figs. 22-25. *Lipothymus grandii* Wiebes, aberrant females. 22, fore tibia and tarsus, axial aspect; 23, hind leg, anti-axial aspect; 24, head, outline (sample II); 25, head, outline (sample I). Figs. 22, $\times 105$, 23-25, $\times 65$.

The sample from Mt. Makiling (V), lastly, contains one female head capsule with the epistomal edge as in I.

Some of the differential characters are here numerated: (1) the length of the head relative to the width across the compound eyes is more than 1.25 in I, but shorter in all others (except for one female of II, also with the ratio 1.25); (2) the longitudinal diameter of the eye relative to the length of the cheek is about 1.7 in I, less than 1.3 in all others; (3) the number of ventral spines on the hind tibia is ca. 40 in I, but ca. 20 in all others; (4) the epistomal edge has a cleft prominence (fig. 25) in I, III and V, but a bilobed process in II and IV (see fig. 24, and Wiebes, 1967c, fig. 15). None of the characters is correlated with the total length.

Loath to name the form that may be nothing more than a morph of *L. grandii*, I describe one of the aberrant specimens under this species.

Description. — Aberrant female. Head (fig. 25) longer than wide (14 : 11); the clypeal prominence deeply cleft. Longitudinal diameter of the compound eye more than half as long as the cheek (4 : 7); three ocelli close together, the laterals with sulci running to the antennal toruli. Antennal scape approximately seven times as long as its maximum width, about three times as long as the pedicel; three anuliform segments; the flagellar segments with long sensilla in one row of about six per facies. Mandible bidentate; one gland. Maxillary palpus with four segments (8 : 9 : 6 : 13), labial palpus with two (3 : 2).

Thorax. The pronotal bulge prominent. Fore wing (5 : 2), 1.4 mm long; the submarginal, marginal, stigmal, and postmarginal veins approximately in ratio 18 : 8 : 4 : 7. Hind wing (5 : 1), 1 mm long. Fore leg (fig. 22): the tibia straight; the tarsal segments in ratio 10 : 2 : 2 : 1 : 14. Mid leg: the coxa large; the femur with a dorsal ridge; the tibia straight, as long as the tarsus, with a very long ventral spur; the tarsal segments in ratio 14 : 6 : 5 : 4 : 6. Hind leg (fig. 23): the coxa large, with lumps and longitudinal ridges; the femur slender; the tibia with more than forty cones in the ventral half, and one spur, while the dorsal edge bears two small cones; the metatarsus with six ventral conical spines; the tarsal segments have no plantar fringe, ratio: 14 : 4 : 5 : 3 : 6.

Length (head, thorax, and gaster), 2.1 mm. Colour shiny black, the antennae and legs brownish yellow.

Micranisa Walker

For the sake of completeness I make mention of the one species of *Micranisa* previously described from the Philippines, viz., *Micranisa luzonensis* (Wiebes, 1967a).

Walkerella Westwood

The following two species were collected in the Philippines.

Walkerella benjamini (Joseph)

Material. — 5♀ 2♂, Philippines, Luzon, Laguna, Mt. Makiling, 1-2.xii.1921, leg. F. X. Williams, ex *Ficus nuda* (HSPA).

1♀, Philippines, Luzon, Laguna, Mt. Makiling, 15.i.1965, leg. J. T. Wiebes, ex *Ficus benjamina* L. var. *bracteata* Corner (J. V. Pancho no. 4269, det. E. J. H. Corner) (RMNH 1432).

5♀ 5♂, Philippines, Palawan, along Irawan River, at boundary Penal Colony — Pto. Princessa, 9.i.1965, leg. J. T. Wiebes, ex *Ficus benjamina* L. var. *nuda* (Miq.) Barrett (J. V. Pancho no. 4262, det. E. J. H. Corner) (RMNH 1435, ♀ and ♂ slide-mounted).

Host. — Joseph's type-material from India was collected from the same species of *Ficus* (variety not noted).

Walkerella jacobsoni (Grandi)

Material. — 36♀, Philippines, Luzon, Laguna, Mt. Makiling, 2/2.5 km, 10.v.1921, leg. F. X. Williams, ex *Ficus calophylloides* (HSPA, 1♀ slide-mounted; RMNH 2361, 10♀).

Host. — Grandi (1922: 49) described this species from *Ficus garciniaefolia* Miq. This name, and also *Ficus calophylloides* Elmer, are synonyms of *Ficus subcordata* Bl. (Corner, 1965: 21).

Grasseiana Abdurahiman & Joseph

Grasseiana Abdurahiman & Joseph, 1967, *Oriental Insects*, 1: 13-14 (descr. ♀, ♂, type-species *G. callosa* Abdurahiman & Joseph).

This is the genus to be erected for *Sycobiella boschmai* Wiebes, alluded to by Wiebes (1967c: 437-438). There are now three species known, one of which is described new from the Philippines.

Key to species (females)

1. Antennal toruli well spaced. Pronotum without rugose areas. Fore tarsus pentamerous; hind tarsus slender *boschmai*
- Antennal toruli separated for not more than one-third of their shortest diameter. Pronotum with rugose areas. Fore tarsus bimerous; hind tarsus wide 2
2. Tibial comb of hind leg consisting of seven to ten spines next to the spur *callosa*
- Tibial comb of hind leg consisting of four spines next to the spur *calorai*

Grasseiana boschmai (Wiebes)

Sycobiella boschmai Wiebes, 1964, *Zool. Meded.*, 39: 19-23, figs. 1-5, 9-18, 20 (descr. ♀, ♂, New Caledonia, Mt. Kogi, 26.xii.1960, leg. H. S. McKee, ex *Ficus dzumacensis* Guillaum.); Wiebes, 1969, *Ann. Mus. Roy. Afr. centr.*, in 8°, *Zool.*, 175: 443 (*Grasseiana boschmai* nov. comb.).

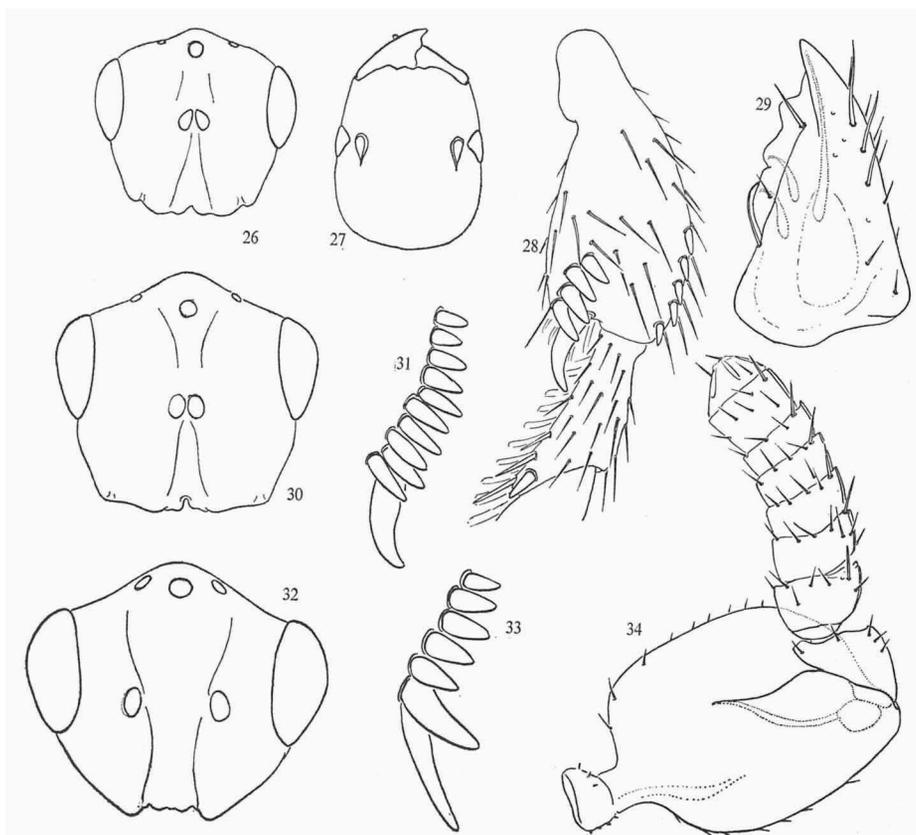
Material. — 3♀, New Caledonia, Ponérihouen, E. of Mt. Acupinié, leg. H. S. McKee (no. 25375), ex *Ficus otophoroides* Corner et Guillaum. (det. E. J. H. Corner) (RMNH 2351).

Host. — *Ficus otophoroides* is a species of *Oreosyce* of the series *Austrocaledonicae*, closely related to *Ficus dzumacensis*. Both figs were identified by Prof. Corner. I cannot distinguish between the *Grasseiana*-wasps.

***Grasseiana callosa* Abdurahiman & Joseph**

(figs. 27, 29-31, 34)

Grasseiana callosa Abdurahiman & Joseph, 1967, *Oriental Insects*, 1: 14-19, figs. 39-55 (descr. ♀, ♂, India, Calicut, Kottamparamba, 18.iii. and 8.iv.1966, leg. U. C. Abdurahiman, ex *Ficus callosa* Willd.); Wiebes, 1967c, *Tijdschr. Ent.*, 110: 437-438 ("spec.", Java, ex *Ficus callosa* Willd.).



Figs. 26-34. *Grasseiana* spp. 26, 28, *Grasseiana calorai* spec. nov. 26, female head; 28, female hind tibia and metatarsus. 27, 29-31, 34, *Grasseiana callosa* Abdurahiman & Joseph. 27, male head; 29, male mandible; 30, female head; 31, tibial comb of female hind leg; 34, male antenna. 32, 33, *Grasseiana boschmai* (Wiebes). 32, female head; 33, tibial comb of female hind leg. Figs. 26, 27, 30, 32, $\times 65$; 28, 29, 31, 33, 34, $\times 210$.

Material. — Series ♀, ♂, Philippines, Luzon, Laguna, Mt. Makiling, 17.iii.1922, leg. F. X. Williams, ex *Ficus malumuensis* (HSPA; RMNH 2355, 10♀ 10♂).

Remains of 3♀, Indonesia, Java, Bogor, Botanical Garden, 1.xi.1954, leg. J. van der Vecht, from fallen fruits of *Ficus callosa* Willd. (det. E. J. H. Corner) (RMNH 110).

1♀, Indonesia, Java, prov. Kediri, Gadoengan, leg. Koorders (no. 22711), taken from dried fig of *Ficus callosa* Willd. (Herb. Bogor. 146613, det. E. J. H. Corner) (RMNH 105).

Additional description. — Abdurahiman & Joseph made mention of a small form of male ("form 2"), and gave some measurements in the table of p. 17. In such a specimen of 0.9 mm length (head and thorax), from the sample RMNH 2355, the head (fig. 27) is distinctly longer than wide (7 : 6). Antennal scape (fig. 34) 1½ times as long as wide; the pedicel as wide as long; one anulus; the flagellar segments wider than long. Mandible (fig. 29) robust, not falcate as in the larger male.

Thorax without wing remnants. Legs similar to those of the larger form, but for the less complete tibial armature e.g., the fore tibia with two dorsal and two ventral antiaxial spines instead of each three; the mid tibia with three dorsals instead of four; the hind tibia with five to seven dorsals (the number may vary in both legs of one specimen), the ventral apex with four spines next to the spur, as in the larger form.

Gaster. Claspers of the genitalia with two claws.

Host. — *Ficus malumuensis* Warb. is a synonym of *Ficus callosa* Willd. (Corner, 1965: 29).

Grasseiana calorai spec. nov.

(figs. 26, 28)

Material. — 15♀, Philippines, Luzon, Laguna, Mt. Makiling, 22-24.xi.1921, leg. F. X. Williams, ex *Ficus nervosa* (HSPA, holotype, slide-mounted; RMNH 2354, 5♀ paratypes).

Description. — Female. Head (fig. 26) shorter than wide (7 : 8); the facial groove distinct. Longitudinal diameter of the compound eye longer than the cheek (6 : 5). Three ocelli on a distinct dorsal elevation. Antennal toruli close together. Antennal scape four times as long as the pedicel; third segment anuliform; funicular segments subequal, with few sensilla (one or two on the antiaxial facies, and three or four on the axial), the club consisting of three segments, with more complete rows of sensilla. Mandible tridentate; maxillary palpus consisting of four segments (3 : 1 : 2 : 3), labial palpus of two (2 : 5).

Thorax. Pronotum with dorsal rugose areas. Fore wing (2 : 1), 1.2 mm long; the submarginal, marginal, stigmal, and postmarginal veins approx-

imately in ratio 13 : 7 : 3 : 5, the membrane almost hyalinous, with few microtrichia. Hind wing (5 : 1), 0.8 mm long. Fore leg: the coxa little longer than the tibia, the femur much longer, with an angular dorsal margin; the tibial armature consisting of a ventral conical spine, a long spur, and two slender dorsal spines; tarsus bimerous (7 : 18), with a number of ventral spines. Hind coxa and femur subequal, the tibia smaller (fig. 28), with a ventral comb of four spines and one spur, dorsally with a series of five conical spines; tarsus wide, pentamerous, with ventral spines, the apical of which may be of conical shape, the segments in ratio 13 : 4 : 3 : 8.

Gaster. Ovipositor short. Spiracle of the eighth urotergite elliptical in outline; the small pygostyle with four long setae.

Length (head, thorax, and gaster), 1.5 mm. Colour brownish black, the legs yellowish.

Host. — It should be noted that according to Corner's check-list (1965: 31), *Ficus nervosa* does not occur in the Philippines. The plant may have been *Ficus magnoliifolia* Bl. (Corner, 1966, in litt.).

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Table 1. Host records of the Otitesellini

<i>Ficus</i> Linn.		Otitesellini
<i>Urostigma</i> (subgenus)		
<i>Urostigma</i> (section)	<i>F. religiosa</i> Linn. <i>F. salicifolia</i> Vahl <i>F. superba</i> Miq. <i>F. virens</i> Ait. <i>F. caulocarpa</i> Miq.	<i>Otitesella digitata</i> Westwood <i>Otitesella serrata</i> Mayr <i>Otitesella ako</i> Ishii <i>Otitesella minima</i> Joseph <i>Otitesella clarae</i> spec. nov. —
Leucogyne		
Conosycea		
Conosycea (subsection)	<i>F. arnottiana</i> Miq. <i>F. annulata</i> Bl. <i>F. depressa</i> Bl. <i>F. drupacea</i> Thunb. <i>F. benghalensis</i> Linn. <i>F. stupenda</i> Miq. <i>F. forstenii</i> Miq. <i>F. sundaica</i> Bl. <i>F. involucrata</i> Bl. <i>F. sumatrana</i> Miq. <i>F. cf. sumatrana</i> Miq. <i>F. subcordata</i> Bl. <i>F. benjamina</i> Linn. <i>F. microcarpa</i> Linn. f.	? <i>Walkerella incompleta</i> (Joseph) <i>Eujacobsonia mirabilis</i> Grandi <i>Eujacobsonia genalis</i> Wiebes <i>Eujacobsonia mirabilis</i> Grandi <i>Micranisa claviscapa</i> (Joseph) <i>Micranisa pteromaloides</i> (Walker) <i>Walkerella temeraria</i> Westwood <i>Grandiana corneliae</i> Wiebes <i>Lipothymus panchoi</i> spec. nov. <i>Micranisa corneri</i> (Wiebes) <i>Lipothymus sundaicus</i> Wiebes <i>Lipothymus sumatranus</i> Grandi <i>Micranisa luzonensis</i> (Wiebes) <i>Lipothymus grandii</i> Wiebes <i>Micrognathophora leptoptera</i> Grandi <i>Walkerella jacobsoni</i> (Grandi) <i>Walkerella benjamini</i> (Joseph) <i>Walkerella yashiroi</i> (Ishii) — —
Dictyoneuron		
Benjamina		
Stilpnophyllum		
Malvanthera		
Galoglychia	<i>F. brachypoda</i> Hutch. <i>F. ovata</i> Vahl <i>F. cf. eriobotryoides</i> <i>F. vogelii</i> Miq.	<i>Otitesella</i> spec. <i>Philosycus cf. monstruosus</i> (Grandi) <i>Philosycus monstruosus</i> (Grandi) <i>Otitesella royi</i> Wiebes <i>Otitesella africana</i> Grandi —
Americana		
Pharmacosycea		
Pharmacosycea		
Oreosycea	<i>F. callosa</i> Willd. <i>F. cf. magnoliifolia</i> Bl. <i>F. otophoroides</i> Corn. & Guill. <i>F. dzumacensis</i> Guillaum.	<i>Grasseiana callosa</i> Abd. & Joseph <i>Grasseiana calorai</i> spec. nov. <i>Grasseiana boschmai</i> (Wiebes) <i>Grasseiana boschmai</i> (Wiebes)
<i>Ficus</i>		
various sections		
Sycidium	<i>F. copiosa</i> Steund. <i>F. wassa</i> Rox.	<i>Grandiana</i> spec. <i>Grandiana wassae</i> Wiebes
Sycocarpus	<i>F. theophrastoides</i> Seem.	<i>Guadalia vissali</i> Wiebes —
Sycomor		