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INDO-MALAYAN AND PAPUAN FIG WASPS (HYMENOPTERA, CHALCIDOIDEA) 6. THE GENUS EUJACOBSONIA GRANDI (TORYMIDAE)

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With 23 text-figures

The genus *Eujacobsonia*, with its type species *E. mirabilis*, was described by Grandi (1923, 1924) from three female specimens caught at light in Sumatra. Many more examples from the same locality, Fort de Kock ("Bukittinggi", ca. 100 km north of Padang), were recorded by Grandi in 1928.

Eujacobsonia was classified by Grandi in the tribe Sycophagini (Agaoninae), which, as was recently suggested (Wiebes, 1961), should be regarded as a subfamily in the Torymidae. Joseph (1964) accommodated the genus in the nominate tribe Sycophagini, but in the same year (Wiebes, 1964) it was referred to the Otitesellini.

Recent material in the collections of the Rijksmuseum van Natuurlijke Historie, Leiden (RMNH) was reared by Prof. E. J. H. Corner from the receptacles of *Ficus depressa* Bl. in Selangor, Malaya, and *Ficus annulata* Bl. in North Borneo. Several light catches from Thailand, North Borneo, and the southern islands of the Philippines were sent to me for identification by the Bernice P. Bishop Museum, Honolulu (BMH), the Universitetets Zoologiske Museum, Copenhagen (material collected by the Noona Dan Expedition 1961-1962¹); ZMC), and by the United States National Museum, Washington (USNM). Thanks are due to Prof. Corner, and to Drs. C. M. Yoshimoto, B. Petersen, and B. D. Burks, for their kind help in making this material available for my study.

¹) See Petersen (1966) for information on localities.

Eujacobsonia Grandi

Eujacobsonia Grandi, 1923, Ann. Mus. Stor. nat. Genova **51**: 105 (descr. ♀; monobasic, type *E. mirabilis* Grandi); Grandi, 1924, Boll. Lab. Zool. Portici **18**: 23-24 (redescr. ♀); Grandi, 1963, Boll. Ist. Ent. Univ. Bologna **26**: 362 (latest edition of catalogue); Joseph, 1964, Proc. R. ent. Soc. Lond. (B) **33**: 65 (in tribe Sycophagini); Wiebes, 1964, Nova Guinea, Zool. **27**: 84, table 2 (in tribe Otitesellini).

But for the description of the hind tibia, which does not necessarily have the ensiform spines indented at tip, Grandi's definition of the genus applies as well to *E. mirabilis* as to the additional species described below.

One of the samples from *Ficus annulata* contains a number of males. As they are similar to other males of the Otitesellini, and judging from the presence of *Eujacobsonia* as the only female Otitesellini in the sample, they may well be the legitimate partners of the *Eujacobsonia*-females. For description and further remarks, see below under *Eujacobsonia* spec.

Eujacobsonia mirabilis Grandi (fig. 1, 3-5)

Eujacobsonia mirabilis Grandi, 1923, Ann. Mus. Stor. nat. Genova **51**: 106 (descr. ♀, Sumatra); Grandi, 1924, Boll. Lab. Zool. Portici **18**: 24-31, fig. x-xi (redescr. ♀); Grandi, 1928, Boll. Lab. Ent. Bologna **1**: 89 (♀, Sumatra).

Material. — 1 ♀, Loei, Dansai, KokSathon, PhuLomlo, Thailand, 27.xi.1954, REELbel; USNM.

3 ♀, Sungei Tingii, Selangor, Malaya, ex *Ficus depressa* Bl. (leg. et det. E. J. H. Corner), Sing. F. no. 34141; RMNH no. 375; ♀, slide no. 375a.

29 ♀, Poreng Village, British North Borneo, 1800' alt., ex *Ficus annulata* Bl. (leg. et det. E. J. H. Corner), 9.vi.1961; RMNH no. 785; ♀, slide no. 785a.

1 ♀, Bidi, Bau district, Sarawak, 90-240 m alt., at light, leg. T. C. Maa, 3.ix.1958; BMH.

3 ♀, Forest Camp, 19 km N. of Kalabakan, British North Borneo, leg. Y. Hirashima, 28.x.1962; 1 ♀, same locality and collector, Malaise trap, 7-10.xi.1962; 2 ♀, do., Malaise trap, 16.xi.1962; 1 ♀, do., 60 m alt., leg. K. J. Kucheria, 18.x.1962; BMH.

12 ♀, Quoin Hill, Tawau, British North Borneo, light trap, leg. H. Holtmann, 3-7.vii.1962; 2 ♀, same locality and collector, but 15-20.vii.1962; 4 ♀, do., 26-29.vii.1962; BMH.

4 ♀, Cocoa Res. Sta., Quoin Hill, Tawau, British North Borneo, light trap, leg. Y. Hirashima, 3.ix.1962; 1 ♀, same locality and collector, but 4.ix.1962; 2 ♀, do., 5.ix.1962; 4 ♀, do., 6.ix.1962; 1 ♀, do., Malaise trap, 13.ix.1962; 1 ♀, do., Malaise trap, 225 m alt., 23.ix.1962; 1 ♀, do., 24.ix.1962; 3 ♀, do., 25.ix.1962; 8 ♀, do., in primary forest, 3.x.1962; BMH.

8 ♀, Dalawan Bay, Balabac, Philippines, 5.x.1961, caught by Mercury light 19.30-04.00, Noona Dan Expedition 1961-1962; 20 ♀, same locality, but 8.x.1961, caught by Mercury light 19.00-23.30; 2 ♀, do., caught by Mercury light; 2 ♀, do., caught by light from Petromax; 3 ♀, 9.x.1961, caught by Mercury light 18.30-03.00; ZMC.

1 ♀, Pinigisan, Mantalingajan, Palawan, Philippines, 600 m alt., 7.ix.1961, caught by Mercury light 18.30-23.00, Noona Dan Expedition 1961-1962; ZMC.

2 ♀, Tarawakan, north of Batu Batu, Tawi Tawi, Philippines, 21.x.1961, caught by Mercury light 18.30-03.00, Noona Dan Expedition 1961-1962; 1 ♀, same locality, but 12.xi.1961, caught by Mercury light 18.00-23.30; 13 ♀, do., 13.xi.1961, caught by Mercury light; 24 ♀, do., 14.xi.1961; 5 ♀, do., 15.xi.1961; ZMC.

1 ♀, Lapid Lapid at Manalik Channel, Tawi Tawi, Philippines, 19.xi.1961, caught by Mercury light 19.00-02.00, Noona Dan Expedition 1961-1962; ZMC.

5 ♀, 11 km N.W. of Milbuk, Zamboanga del Sur, Mindanao, Philippines, 390 m alt., logging area in jungle, leg. H. Milliron, 5.viii.1958; BMH.

1 ♀, Milbuk, Zamboanga del Sur, Mindanao, Philippines, light trap, leg. M. Milliron, 9-10.viii.1958; 1 ♀, same locality and collector, but 10.viii.1958; BMH.

3 ♀, Mt. Isarog, Camarines Sur, Philippines, 750-800 m alt., light trap, leg. H. M. Torre Villas, 26.iv.1963; BMH.

The three females from *Ficus depressa* agree essentially with Grandi's description of *E. mirabilis*. The antiaxial spine of the fore tibia (as in fig. 4) is more robust than is apparent from Grandi's figure (1924, fig. xi, 2), and points laterad instead of distad.

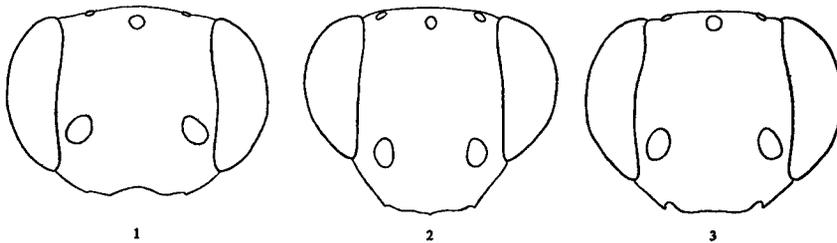


Fig. 1-3, female heads of *Eujacobsonia* (pubescence omitted). 1, *E. mirabilis* Grandi, female from Selangor (ex *Ficus depressa*); 2, *E. genalis* spec. nov., paratype; 3, *E. mirabilis*, female from North Borneo (ex *Ficus annulata*). Fig. 1-3, $\times 75$.

The females from *Ficus annulata* (sample RMNH no. 785) agree with those from *F. depressa* in most details, but differ in the shape of the head (fig. 3, cf. fig. 1). The eyes are slightly larger, and the cheeks are longer; the epistomal margin is almost straight, not incurved as in the other sample. For the time being, I prefer to consider the two forms to be conspecific. *Eujacobsonia mirabilis* then, is here recorded from two hosts, viz. *Ficus depressa* Bl. and *Ficus annulata* Bl. The latter harbours, next to *E. mirabilis*, also another species of the same genus, to be described below. It is remarkable that in the light catches from Quoin Hill too, *E. mirabilis* occurs together with *E. genalis* spec. nov.

***Eujacobsonia genalis* spec. nov. (fig. 2, 6-11)**

Material. — 100 ♀, Poreng Village, British North Borneo, 1800' alt., ex *Ficus annulata* Bl. (leg. et det. E. J. H. Corner), 9.vi.1961; RMNH no. 656; ♀ holotype, slide no. 656a, ♀ paratype, slide no. 656b.

6 ♀, S. Nipa, Trengganu, Malaya, ex *Ficus annulata* Bl. (leg. et det. E. J. H. Corner), Sing. F. no. 30552; RMNH no. 376 (badly preserved).

2 ♀, Quoin Hill, Tawau, British North Borneo, light trap, leg. H. Holtmann, 3-7.vii.1962; 1 ♀, same locality and collector, but 15-20.vii.1962; BMH.

1 ♀, Cocoa Res. Sta., Quoin Hill, Tawau, British North Borneo, light trap, leg.

Y. Hirashima, 21.viii.1962; 2 ♀, same locality and collector, but 4.ix.1962; 2 ♀, do., 6.ix.1962; 1 ♀, do., 17.ix.1962; 1 ♀, do., 25.ix.1962; 1 ♀, do., in primary forest, 3.x.1962; BMH.

Description. — Female. Head (fig. 2) one-quarter shorter than wide across the compound eyes, distinctly narrowing towards the stomal edge. Longitudinal diameter of the compound eye slightly over twice as long as the cheek. Three ocelli in a wide triangle. The epistomal margin sinuate, with a very small median lobe. Antennal toruli separated for about four

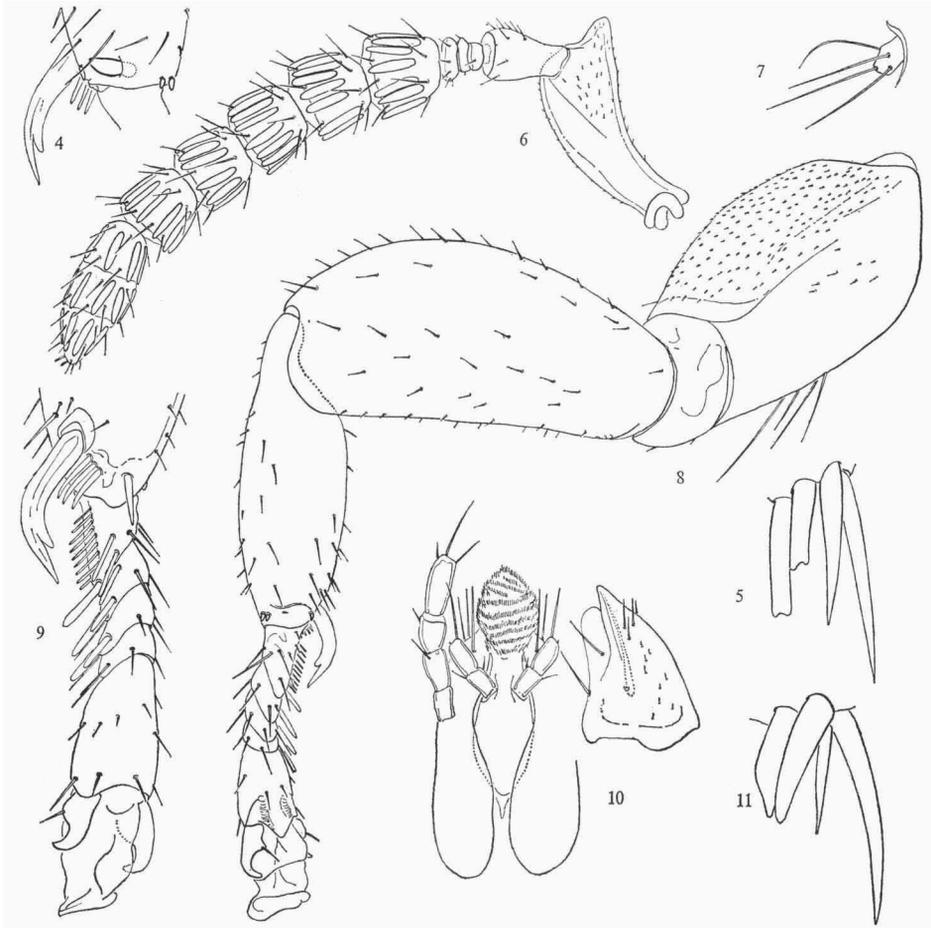


Fig. 4-5, *Eujacobsonia mirabilis* Grandi, female from North Borneo (ex *Ficus annulata*). 4, apex of fore tibia, anti-axial aspect; 5, apical spines of hind tibia, anti-axial aspect. Fig. 6-11, *Eujacobsonia genalis* spec. nov., holotype. 6, antenna, anti-axial aspect; 7, pygostyle, lateral aspect; 8, fore leg, anti-axial aspect; 9, apex of fore tibia, and tarsus, axial aspect; 10, mouth parts, ventral aspect (left maxilla partly omitted, only one mandible shown); 11, apical spines of hind tibia, anti-axial aspect.

Fig. 4, 5, 7, 9-11, $\times 250$; 6, 8, $\times 165$.

times their shortest diameter. Antenna (fig. 6) consisting of thirteen segments, the third to fifth anuliform, the eleventh to thirteenth forming a club. Scape approximately two-and-a-half times as long as wide, the dorsal apex produced; the pedicel more than one-third the length of the scape; the sixth to tenth segments subequal, with antiaxial sensilla and setae as in fig. 6, axially the sensilla are only found on the lateral parts of the segments as in *E. mirabilis* (Grandi, 1924, fig. x, 2). Mouth parts (fig. 10): the mandible with one sharp and one blunt tooth, and with one gland; the labial palpi two-segmented, the maxillary palpi consisting of four segments, the chaetotaxy of which is as in *E. mirabilis*.

Thorax. The pronotal rasp covers the whole of the dorsal surface, and in this respect differs from that of *E. mirabilis*. The remainder of the thorax is much like that of *E. mirabilis*, but for the long setae on the scutum and the scutellum, only the posterior-most pair of which are distinctly longer than the others. As in *E. mirabilis*, some of the ventral sclerites (propleurae, fore coxae, and mesosternum) are covered with spinules, comparable to those of the pronotum. On the anterior and posterior angles of the propleurae, and along the median suture, these spinules are longer and rather stout. Fore wing (5:2), 1.7 mm long; the submarginal, marginal, stigmal, and post-marginal veins approximately in ratio 22: 9: 3: 4; the membrane pubescent, the fringe moderately long. Hind wing (4: 1), 1.0 mm long; the membrane as in the fore wing, the fringe longer; three hamuli. Fore leg (fig. 8): the coxa (slightly distorted in the figure to show the ventral spinules) axially with some long setae; the femur with sparse, short setae; the tibia little shorter than the femur, with some setae along and close to the dorsal and ventral margins, subglabrous on the discs, the armature consisting of some small spines on the antiaxial apex, axially (fig. 9) with a long, bifid ventral spur accompanied by some long spines, and one similar spine in the dorsal angle; the tarsus pentamerous, the segments approximately in ratio 12: 6: 5: 4: 20, with setae and long, blunt spines. Mid leg slender, its tibia distinctly longer (16: 11) than the femur, with a ventral spur and several spines; the five tarsal segments approximately in ratio 10: 4: 3: 2: 5, all segments, including the fifth, with a pair of strong, blunt apical spines. Hind leg: the coxa, hirsute on the antiaxial disc and provided with some twelve long axial hairs, as long as the trochanter and femur combined; the femur with scattered setae; the tibia with short setae, longer setae along the ventral margin, and with several very long setae between the cone-shaped spines on the dorsal surface (no such cones are found on the axial disc, while several extend to this disc in *E. mirabilis*), the apical armature consisting of two ventral spurs, two stout antiaxial spines (fig. 11) probably homologous

with the ensiform spines in *E. mirabilis* (fig. 5), and a row of blunt spines along the axial margin; the tarsus pentamerous, the segments approximately in ratio 18: 8: 5: 4: 15.

Gaster as in *E. mirabilis*. Pygostyle (fig. 7) with four setae.

Length, ca. 2 mm. Colour bluish black; the head brownish; the antennae, and the legs from the trochanteres onwards, yellow-brown.

Remarks. — The female of *E. genalis* spec. nov. is much like that of *E. mirabilis*, but obvious differences are found in the shape of the head, in the extension of the pronotal rasp, in the apical armature of the fore tibia, and in the shape and configuration of the spines on the hind tibia.

***Eujacobsonia* spec. (fig. 12-23)**

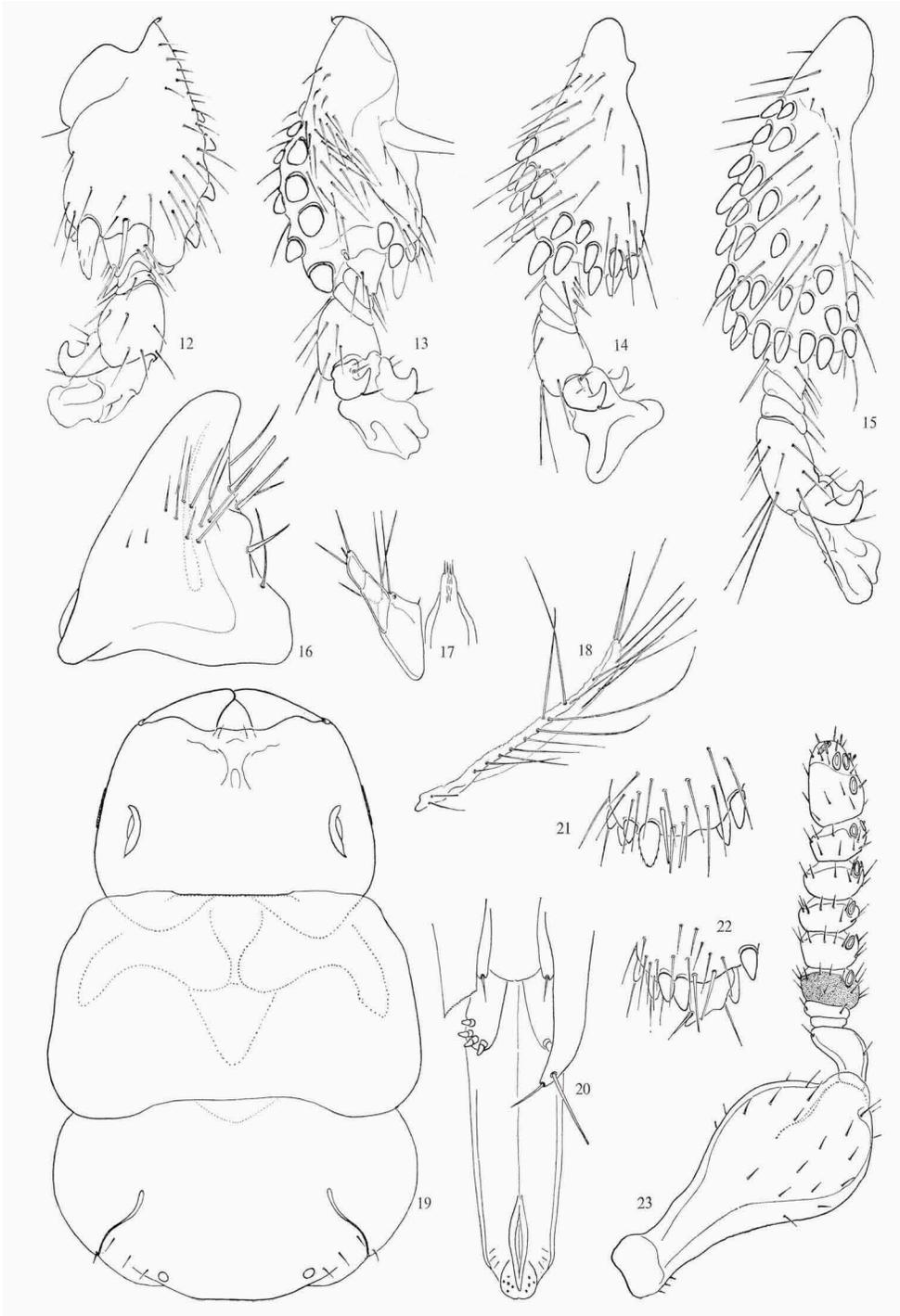
Material. — 45 ♂, Poreng Village, British North Borneo, 1800' alt., ex *Ficus annulata* Bl. (leg. et det. E. J. H. Corner), 9.vi.1961; RMNH no. 794; ♂, slides 794a-c.

Description. — Male. Head (fig. 19) one-and-a-half times to twice as long as wide, with scattered small setae. The epistomal margin almost straight, the hypostomal margin incurved. Eyes of moderate length, although rather narrow, situated laterally. Toruli of the antenna large, oblong, situated in the hinder part of the head, rather close to the lateral margins. Antenna (fig. 23) consisting of eleven segments, the third and fourth anuliform, the tenth and eleventh club-shaped. Scape distinctly petiolate, its length twice the maximum width; the length of the pedicel one-fifth of that of the scape; the fifth to ninth segments subequal, with a close pubescence of minute setae (indicated on the fifth segment, fig. 23), several long setae, a dorsal sensillum in the antiaxial angle of all segments, and a ventral sensillum in the antiaxial angle of the sixth, eighth and ninth segments; the tenth segment long, with one sensillum, the eleventh much smaller, with several sensilla and sensillar rods. Mandible (fig. 16) short and robust, its tooth obtuse; with several long setae on the ventral disc and along the axial margin. Labium and maxilla (fig. 17) small and in most specimens for the greater part concealed under the hypostomal margin; the maxilla with four long setae, its palpus two-segmented, the labium with ventral and apical setae, without palpi.

Thorax with sparse short setae. The pronotum slightly over half as long

Fig. 12-23, *Eujacobsonia* spec., male. 12, fore tibia and tarsus, axial aspect; 13, do., anti-axial aspect; 14, mid tibia and tarsus, anti-axial aspect; 15, hind tibia and tarsus, anti-axial aspect; 16, mandible, ventral aspect; 17, labium and maxilla, ventral aspect; 18, wing remnant; 19, head and thorax (pubescence omitted); 20, genitalia, ventral aspect; 21, apex of hind tibia, axial aspect; 22, apex of mid tibia, axial aspect; 23, antenna, dorsal aspect.

Fig. 12-15, 21-23, × 165; 16, 17, 20, × 250; 18, × 100; 19, × 65.



as wide, the lateral parts of the anterior margin hyaline. The posterior part of the dorsal carapace, representing the fused mesothorax, metathorax, and propodeum, about as long as the pronotum and only slightly narrower; the lateral parts of the posterior margin hyaline, the suture between metanotum and propodeum sinuate, the spiracular peritremata subcircular. Wing remnant (fig. 18), 0.4 mm long, with many long setae. The legs are of the usual robust Otiteselline type: the coxa is stout, the trochanter forms a stalk to the large femur, which is somewhat flattened and expanded dorsad. The tibia and the distal tarsal segment bear minute setae, as mentioned above for the funicular segments (cf. fig. 23). The fore tibia (fig. 12, 13) has many robust, cone-shaped spines, most of them directed antiaxial, a large spine in the axial, ventral angle, one slender spine more dorsal in position, and several long hairs, especially on the antiaxial disc; the tarsus consists of four segments, the second and third of which are distinctly smaller than the first, and the fourth is longer than the combined length of the others; the segments bear long setae. The mid tibia and tarsus (fig. 14, 22) are more slender than those of the fore leg, the spines of the tibia are less robust, and the tibial setae are longer. The hind tibia and tarsus (fig. 15, 21) are rather long, and the conical spines cover a greater part of the antiaxial disc of the tibia; some of the setae are long, as in the mid leg.

Gaster. The claspers of the genitalia (fig. 20) bear four claws; the penis is long, with subparallel margins.

Length (head and thorax), 1.2-1.3 mm. Colour yellow-brown.

Remarks. — These males look rather uniform and apparently all belong to one and the same species, presumably *Eujacobsonia mirabilis* Grandi or *Eujacobsonia genalis* spec. nov.

As was already mentioned in an earlier paper on the Otitesellini (Wiebes, 1967), the generic characters of the males are still problematic. The present species has some resemblance to *Micrognathophora* Grandi, but it is different in the shape of the head and the position of the antennal toruli, the shape of the mandible and the antennal scape, and above all, in the shape and texture of the tibiae of the legs.

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