Review of *Paratella* Melichar and *Taparella* Medler in New Guinea, with Descriptions of New Species (Homoptera:Flatidae)

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ABSTRACT

Paratella is restricted to *Ricania iodipennis* and *Paratella dipura* n. sp. *Paratella amata, doryca, intacta, invasa* and *minima* are transferred to *Taparella*. The species are redescribed and male genitalia are illustrated. New species of *Taparella* are *ambigua, bellata, delicata, extola, mendica,* and *outacta*. Keys are presented for identification of *Paratella* and *Taparella* and included species. New synonymy: *Paratella errudita* is a junior synonym of *Flata doryca*.

INTRODUCTION

This study is 1 of a series of articles reporting research on New Guinea Flatidae in the collection of the J. Linsley Gressitt Center for Research in Entomology, Bishop Museum. The major purpose of this paper is to review the status of species assigned to *Paratella* in the Metcalf Catalog (1957) and describe new species that have been found during my research.

Paratella was erected by Melichar (1902) with *Ricania iodipennis* Guérin-Méneville (1838) designated as type species. Melichar assigned 13 species to the genus. Metcalf's Catalog (1957) listed 20 species of *Paratella*, including all of the species treated by Melichar except *lutescens* (Walker), which had been moved to *Melicharia* by Distant (1906). Species of *Paratella* known only from Australia (i.e., *fumaria, fusconigra* and *modesta*) were assigned to *Dworena* by Medler (1986b). As none of the other named species of *Paratella* were congeneric with *iodipennis*, they were placed variously in *Dworena, Neomelicharia, Sabaethis, Sephena,* and *Taparella* by Medler (1986a, 1987, 1989, 1990).

Taparella was erected by Medler (1989), and this publication also presented a key for identification of 8 genera in New Guinea, recorded known host plants, and provided a checklist of 76 New Guinea species. At present there are 20 genera and 98 species of Flatidae known in New Guinea, including the 7 new species described below.

METHODS

Descriptions, measurements, and illustrations of species are based on male holotypes or lectotypes. If no male or female specimen was present among the original syntypes, then a representative plesiotype was selected. In such cases, a blue plesiotype label was attached and the depository cited to enable identification by future workers.

New Guinea is used as a general term and specifically includes Papua New Guinea, Irian Jaya and outlying islands.

The following museums are cited in this article: AM = Amsterdam Museum, Amsterdam,

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Netherlands; BMNH = The Natural History Museum, London, England; BPBM = Bernice P. Bishop Museum, Honolulu, Hawai'i, USA; HNHM = Hungarian Natural History Museum, Budapest, Hungary; IEAN = Instituto di Entomologica Agraria (Naples Museum), Portici, Italy; IRSN = Institut Royal des Sciences Naturelles de Belgique, Bruxelles, Belgium; MNHN = Museum National d'Histoire Naturelle, Paris, France; NCSU = North Carolina State University, Raleigh, North Carolina, USA; NRS = Naturhistoriska Riksmuseet, Stockholm, Sweden; PNGDPI = Department of Primary Industry, Konedobu, Papua New Guinea; RNHL = Nationaal Natuurhistorisch Museum, Leiden, Netherlands; SAM = South Australian Museum, Adelaide, Australia; SMTD = Staatliches Museum fur Tierkunde, Dresden, East Germany.

Precise measurements were required for distinguishing closely related taxa. The following length measurements were recorded: overall in side view along the midline from anterior margin of head to apical margin of tegmen, vertex (v) dorsal view along midline from transverse posterior carina to anterior margin, frons (f) medially from frontoclypeal suture to margin with vertex or to transverse posterior suture of head when anterior margin of vertex not distinguishable, pronotum (p), and mesonotum (m) along longitudinal midline, tegmen (t) from origin of basal stem to middle of apical margin (Fig. 1), postclaval sutural margin (pcl) from apex of clavus to intersection of apical margin along a chord projected from preclaval sutural margin through apex of clavus (Fig. 1). Width measurements included: vertex (v) transversely along the basal carina connecting lateral carinae at points dorsal to eyes, frons (f) at the maximal point, tegmen (t) between apex of clavus and costal margin (Fig. 1).

SYSTEMATICS

Key to Separate *Paratella* and *Taparella*

Frons narrow, with median longitudinal carina; overall color deep red-purple. Aedeagus without slender dorsal process arising from apex. Length less than 12 mm ..... **Paratella** Melichar

Frons broad, with median longitudinal carina joined dorsally to U-shaped carina; overall color never red-purple. Aedeagus with dorsal and ventral slender processes arising from apex. Length more than 12 mm ..... **Taparella** Medler

Genus ***Paratella*** Melichar

Paratella Melichar, 1902:117; Metcalf, 1957:373 [in part]. Type species: *Ricania iodipennis* Guérin-Méneville, 1838, by original designation.

Okenana Distant, 1912:600; Medler, 1990:173. Type species: *Okenana lycaena* Distant, 1912, by monotypy.

Diagnosis. The concept of the genus is based on study of a recognizable type specimen of *iodipennis* deposited in IEAN (Medler 1988) and plesiotypes named below. Head truncate anteriorly, less than ⅔ length of pronotum; vertex perceived as a slightly flattened area 3× wider than long, anterior margin poorly defined, lateral margins rounding to the frons, medially delimited by shallow remnant of U-shaped dorsal carina of frons; frons longer than wide, with shallow median carina continuing weakly on vertex and evanescent on pronotum. Postocular eminence of pronotum convex, raised shallowly; carinate lateral margin terminating half way between eye and posterior margin. Mesonotum weakly carinate posteriorly. Tegmen broadly convex apically; veins R, S, and M arising closely together from node of the basal stem; S forking apicad of M fork, Cu forking at about same distance from stem as M fork, Cu1 branch oblique, merging with M1, Cu2 branch medially not closely contiguous to claval suture; postclaval sutural margin shallowly convex; discal cell large. Metatibial spines 1:5. Length: 9–12 mm, females slightly larger and more robust than males, segment X (wax plate) circular, relatively small (Fig. 29).

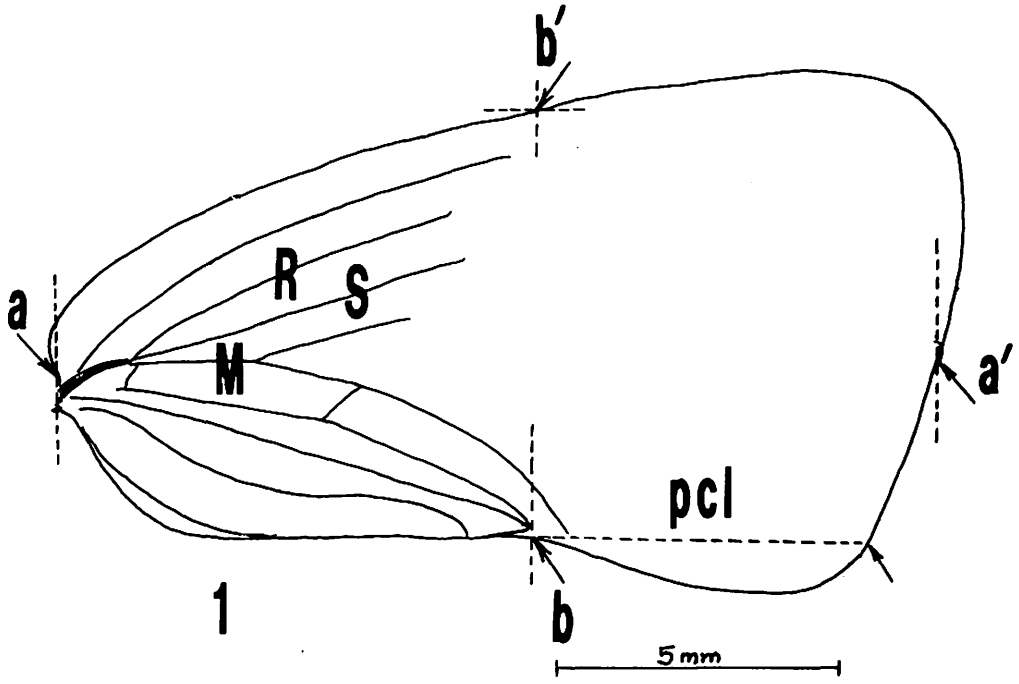


Fig. 1. Diagram of *Taparella amata* tegmen showing terminology of veins arising from basal stem and guide for measurements. R = radius, S = sector, M = media, a–a' = length, b–b' = width, pcl = postclaval sutural margin. Scale = 5.0 mm.

Paratella is closely related to *Sephena* in general size and appearance but differs in details of head morphology and tegmina width and venation. It is separated from *Taparella* by the different configuration of the frontal carinae, the reduced width of vertex, the different shape and venation of the tegmina, and its smaller size. Ventral and dorsal elongate processes arise from apex of the aedeagus in *Taparella*, but only a ventral process is present in *Paratella*.

Distribution. Irian Jaya.

Key to Species of *Paratella*

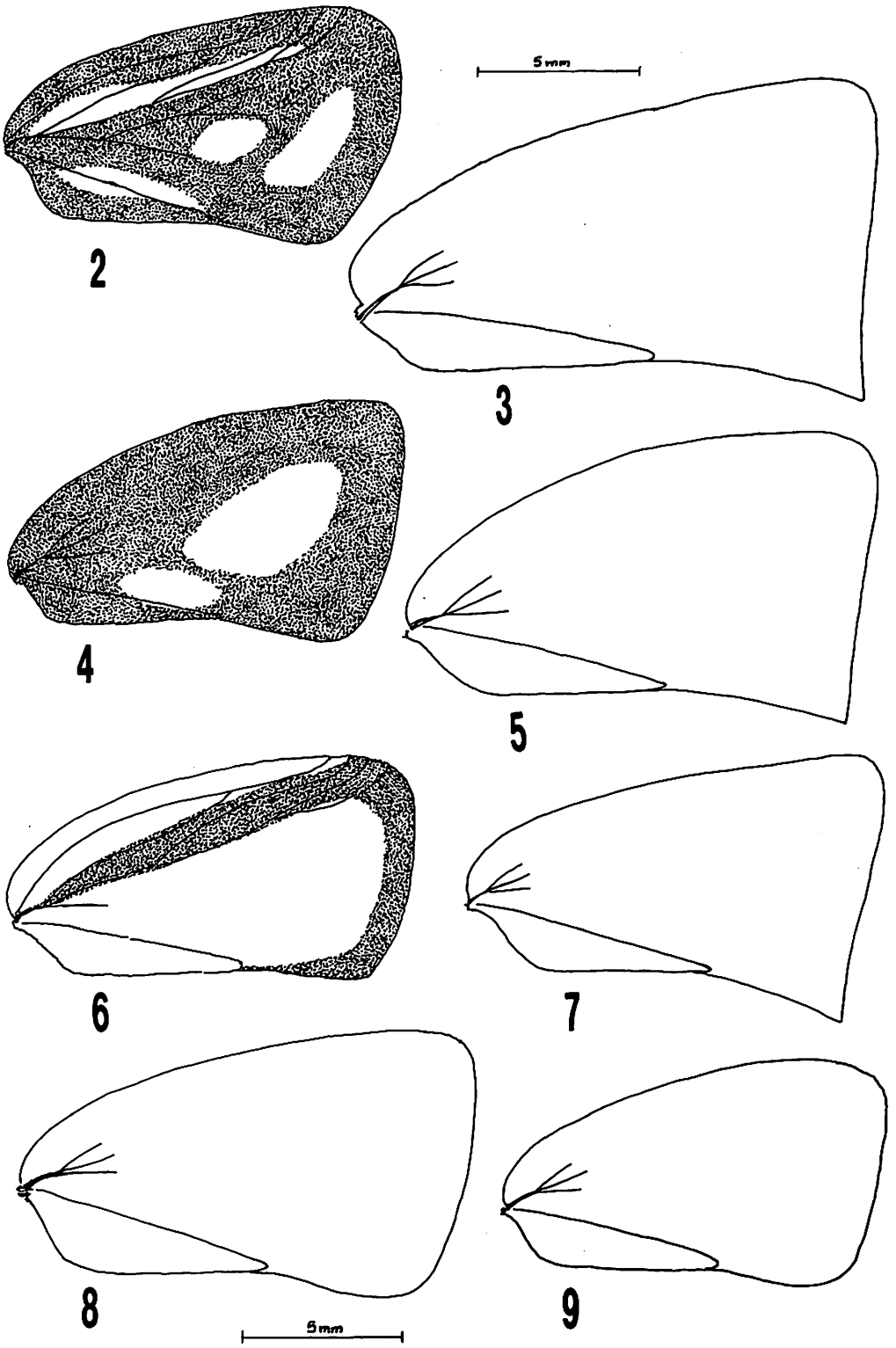
Length less than 10 mm. Hind leg spine formula 1:5:6. Dorsal margin of aedeagus with triangular projection (Fig. 28) . . . . . **iodipennis** Guérin-Méneville

Length more than 10.5 mm. Hind leg spine formula 1:5:7. Dorsal margin of aedeagus without well–developed triangular projection (Fig. 21) . . . . . **dipura** Medler, **n. sp.**

Paratella iodipennis (Guérin-Méneville) (Figs. 25–28)

Ricania iodipennis Guérin-Méneville, 1838:191; Medler, 1988:15.
Nephesa antica Walker, 1870:178; Medler, 1990:134.
Paratella iodipennis, Melichar, 1902:121.
Okenana lycaena Distant, 1912:601, pl. XLIX. Fig. 8; Medler, 1990:173.
Sephena walkeri Metcalf, 1957:371; replacement name for *Nephesa antica* Walker, 1870, preoccupied by *Nephesa antica* Signoret, 1860.

Description. Overall appearance purple; pronounced red-purple pigmentation medially on frons, vertex and pronotum, contrasting strongly against light green or stramineous head and thorax; abdomen reddish below, hind legs light red; tegmina deep unicolorous purple; hind



Figs. 2–9. Outline shapes of tegmina in *Taparella*: **2,** *mendica* holotype ♂; **3,** *outacta* allotype ♀; **4,** *bellata* allotype ♀; **5,** *intacta* plesiotype ♀; **6,** *invasa* plesiotype ♂; **7,** *extola* allotype ♀; **8,** *delicata* allotype ♀; **9,** *minima* allotype ♀. Scale = 5.0 mm.

wings uniform pale violet. Body and tegmina dusted with white wax. Plesiotype genitalia (Fig. 28) with diagnostic projection arising from dorsum of aedeagus.

Measurements (♂, ♀ plesiotypes). Length: overall 9.00, 10.00; v 0.25, 0.29; p 0.37, 0.42; m 1.66, 1.83; f 1.08, 1.16; t 7.14, 7.80; pcl 1.33, 1.66. Width: v 0.75, 0.83; f 1.00, 1.04; t 4.65, 5.31. Hind leg spine formula – 1:5:6, 1:5:6.

Type data. *Ricania iodipennis* holotype [fragmented], New Guinea, Dory (=Manokwari), Coquille Voyage (IEAN). Plesiotype ♂, New Guinea, Vogelkop, Manokwari, 75 m, 22.VI.1957 (D. Elmo Hardy) (Blue label, desig. J. T. Medler (1988) (BPBM). Plesiotype ♀, same labels as the male, here designated (BPBM).

Nephesa antica Walker lectotype ♀, New Guinea (BMNH). Junior synonym of *Ricania iodipennis* Guérin-Méneville (Medler 1990).

Utakwana lycaenae Distant lectotype ♂, New Guinea (BMNH). Junior synonym of *Ricania iodipennis* Guérin-Méneville (Medler 1990).

Specimens examined. Irian Jaya, 3♂, 2♀, Vogelkop, Kebar Val. W of Manokwari, 550 m, 4–31.II.1962 (S. & L. Quate); 3♂, 2♀, Vogelkop, Manokwari, 75 m, 18–25.VII.1957 (D. E. Hardy); 1♂, 3♀, Oransibari, S of Manokwari, sea level, 10.II.1963 (R. Straatman); 1♂, Oransbari, N of Geelvink Bay, 15.II.1963 (Straatman); 1♂, 1♀, NW of Geelvink Bay, 3 m, 12–15.II.1963, sweeping (Straatman) (all BPBM); 1♀, Manokwari, 2.II.1957 (G. Mees); 1♂, 1♀; Manokwari, 110 m, 2.IX, 23.XII.1960, on cacao (J. Schneurs) (all RNHL); 1♂, Hollandia, Humboldt Bay, sea level, II.1936, Brit. Mus. 1936–89; 1♂, New Guinea, 62/91 (all BMNH); 1♀, W Nova Guinea, 1969 (Higgins) Coll. Camille van Volxem, "det. *iodipennis*" (IRSN); 3♀, Nov. Guinea, 41, "*iodipennis* det. Melichar" (NRS).

Remarks. This species occurs in a range of color variants, including deep red-purple, partially faded purple, bleached grayish purple, and sordid ochraceous. The median stripe on the dorsum of the head and thorax may be reduced or lost, with the green color contiguous to the stripe faded or lost entirely. The holotype in IEAN was represented only by fragments of the purple hind wing and a leg having metatibial spines 1:5 (Medler 1988). I had no doubt that this wing fragment, together with the authentic collection label, was sufficient evidence to confirm the true identity of the type specimen.

In the course of research on a large collection of *Paratella* auctorum from New Guinea, I noticed a lack of specimens determined as *iodipennis*. Three females from New Guinea in NRS were found placed erroneously in the genus *Paraflata*. A female determined by Melichar as *iodipennis* in IRSN was congeneric with *Nephesa spargula* Walker, the type species of *Sephena*. Specimens in BMNH determined as *iodipennis* by Distant (1914) were an undescribed species of *Paratella*.

None of the other species assigned to *Paratella* by Melichar and Metcalf were congeneric with *iodipennis* Guérin-Méneville.

Paratella dipura Medler, **new species** (Fig. 21)

Description. Head and thorax stramineous orange, frons almost entirely purple-black, metafemora reddened; tegmina deep purple with scattered white waxy deposits more noticeable along costal and sutural margins. Species distinguished from *iodipennis* by its larger size and aedeagus without a dorsal projection (Fig. 21).

Measurements (holotype, allotype). Length: overall 10.50, 11.50; v 0.33, 0.33; p 0.42, 0.40; m 1.83, 1.99; f 1.16, 1.29; t 9.46, 9.79; pcl 1.99, 2.16. Width: v 0.83, 0.91; f 0.83, 0.83; t 6.14, 6.64. Hind leg spine formula – 1:5:7, 1:5:7.

Type data. Holotype ♂ and allotype ♀, New Guinea, Torecella Mts between Afua & Chinapelli, Akimbo Riv, Sea Fall, 1700 ft (518 m) (G. P. Moore) (BMNH 1939–479). Paratypes, 1♂, 1♀, same labels as the holotype (BPBM).

Remarks. The paratype ♀ is bleached, without pigmentation on the frons, and the purple color of tegmina is mostly lost. The tegmina are iodine brown except on the disc, which is cloudy grayish.

Genus ***Taparella*** Medler

Taparella Medler, 1989:29

Type species. *Nephesa amata* Walker, 1870, by original designation.

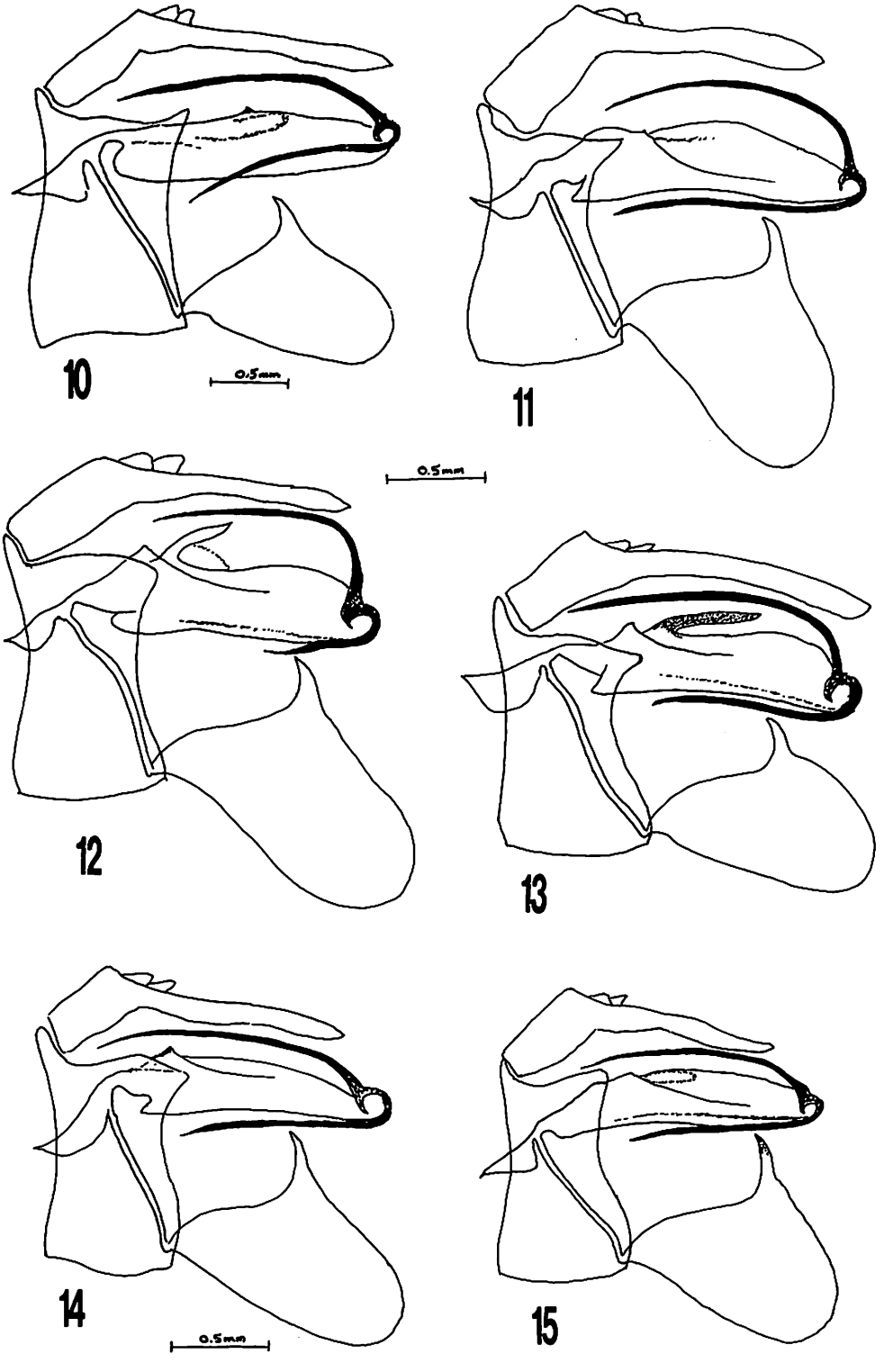
Diagnosis. Head truncate; vertex about 4 × wider than long, vertex posterior margin with strongly elevated thick carina, anterior margin delimited from frons in middle part by frontal U-shaped carina that is shallow and not well developed; frons slightly broader than long, strong median longitudinal carina connected to U carina dorsally, partially lost across vertex and pronotum; pronotum lateral carina downturned, almost reaching ridgelike postocular eminence; mesonotum with 3 longitudinal carinae, laterals converging slightly at rear. Veins R, S, and M of tegmen arising together from basal stem, R unbranched, S forked about halfway between M fork and discal cell cross vein, Cu forked, branch Cu1 oblique, joining vein M2, Cu cell present, vein Cu not extending closely alongside claval suture. Apical margin of tegmen oblique, costal and sutural angles of nearly similar configuration, obtuse. Metatibial spines 1:6.

This genus was erected by Medler (1989) to contain certain species of *Paratella* listed in the Metcalf Catalog (1957) that were not congeneric with *iodipennis*.

Distribution. New Guinea.

Key to Species of *Taparella*

1. Tegmen with sutural angle 90° or slightly less, apical margin truncate, costal angle narrowly convex (Figs. 3, 5, 7) 2
   Tegmen with sutural angle shallowly convex, slightly more than 90°, apical margin shallowly convex (Figs. 2, 4, 6, 8, 9) 4
2. Tegmina tinged with pink or orange, if faded white, then apical margin narrowly pink orange. Length 15 mm or longer 3
   Tegmen chalky white, margin unicolorous. Length 13–14 mm . . . . . ***extola*** Medler, **n. sp.**
3. Ventral process of aedeagus extending nearly to pygofer (Fig. 19) . . . (usually Papua New Guinea) . . . . . ***outacta*** Medler, **n. sp.**
   Ventral process of aedeagus extending less than half distance to pygofer (Fig. 16) . . . (usually Irian Jaya) . . . . . ***intacta*** (Walker)
4. Tegmina with varying patterns of black or dark fuscous 9
   Tegmina devoid of black or fuscous markings 5
5. Head and thorax red-orange, tegmina translucent white or pale green when not obscured by white waxy deposits . . . . . ***delicata*** Medler, **n. sp.**
   Head, thorax and tegmina otherwise 6
6. Tegmina red, pink, or orange, sometimes discal area white . . . . . ***amata*** (Walker)
   Tegmina smoky pink, stramineous or opaque white 7
7. Head, thorax, and base of tegmina ochraceous, tegmina mostly white, sometimes apex tinged with pink. Length 15 mm or longer . . . . . ***doryca*** (Boisduval)
   Tegmina uniformly stramineous, concolorous with head and thorax. Length 15 mm or less 8
8. Length 12.5–13.5 mm . . . (SE Papua New Guinea) . . . . . ***minima*** Medler
   Length 13.5–15 mm . . . (Irian Jaya) . . . . . ***ambigua*** Medler, **n. sp.**
9. Tegmen with costal margin white, bordered by black band along R and S veins . . . . . ***invasa*** (Walker)
   Costal margin of tegmen black to varying extent 9
10. Background color of tegmen smoky pink, oblique crossband from claval tip to costal angle present or absent . . . . . ***mendica*** Medler, **n. sp.**
    Background color of tegmen red, pink, or white 10



Figs. 10–15. Lateral view of ♂ genitalia in *Taparella*: **10,** *minima* holotype; **11,** *ambigua* holotype; **12,** *delicata* holotype; **13,** *bellata* holotype; **14,** *mendica* holotype; **15,** *invasa* lectotype. Scale = 0.5 mm.

11. Discal area of tegmen white, oblique crossband from claval tip to base of tegmen present or absent ..... ***bellata*** Medler, **n. sp.**
Discal area of tegmen white, pink or red, without cross band. Length 15 mm or more ..... ***amata*** (Walker)

Taparella amata (Walker) (Figs. 1, 20, 22–24)

Nephesa amata Walker, 1870:175; Medler, 1990:133.
Paratella discoidalis Melichar, 1902:120; Metcalf, 1957:375; Medler, 1986a:112 (synonymy).
Paratella miniata Melichar, 1902:120; Metcalf, 1957:377; Medler, 1986a:112 (synonymy).
Paratella amata, Metcalf, 1957:374.
Taparella amata, Medler, 1989:29.

Description. Specimens with extremely wide range of color variation. Ground color of tegmina unicolorous dark or light red, orange, pale pink or white, margins often outlined in black or fuscous. White discal area of variable size may result from loss of pink, red or orange color in tegmen. In darkly red specimens, black also invades frons, and frontal aspect sometimes entirely black.

Study of male genitalia of variants showed that all belonged to the same species. There was some variability in length of ventral process of aedeagus, with shorter lengths thickened, but differences considered not significant. Crenulated dorsal ridge of aedeagus (Fig. 20) was reliable character state for determination of species.

Measurements. (♂, ♀ plesiotypes). Length: overall 15.00, 17.00; v 0.33, 0.37; 0.66, 0.71; m 2.66, 3.15; f 1.74, 1.83; t 12.95, 14.94; pcl 3.82, 4.32. Width: v 1.44, 1.58; f 1.78, 1.87; t 7.47, 8.47. Hind leg spine formula – 1:6:6, 1:6:6.

Specimens examined. Lectotype ♀, *Nephesa amata* Walker, Waigeo (BMNH); lectotype ♀, *Paratella discoidalis* Melichar, Borneo, (DSMT); lectotype ♀, *Paratella miniata* Melichar, Borneo, (DSMT); plesiotypes ♂, ♀, *Taparella amata*, Medler (1989), Irian Jaya (BPBM); numerous examples recorded by Medler (1989) from Irian Jaya and Papua New Guinea. New distribution records: 1♀, Irian Jaya, Fak Fak, S coast of Bomberai (T. C. Maa) (BPBM); 1♂, Teminaboean (F. Hoekzema), 2♂, 1♀, Wandamen Baai (D. L. Leiker) (AM).

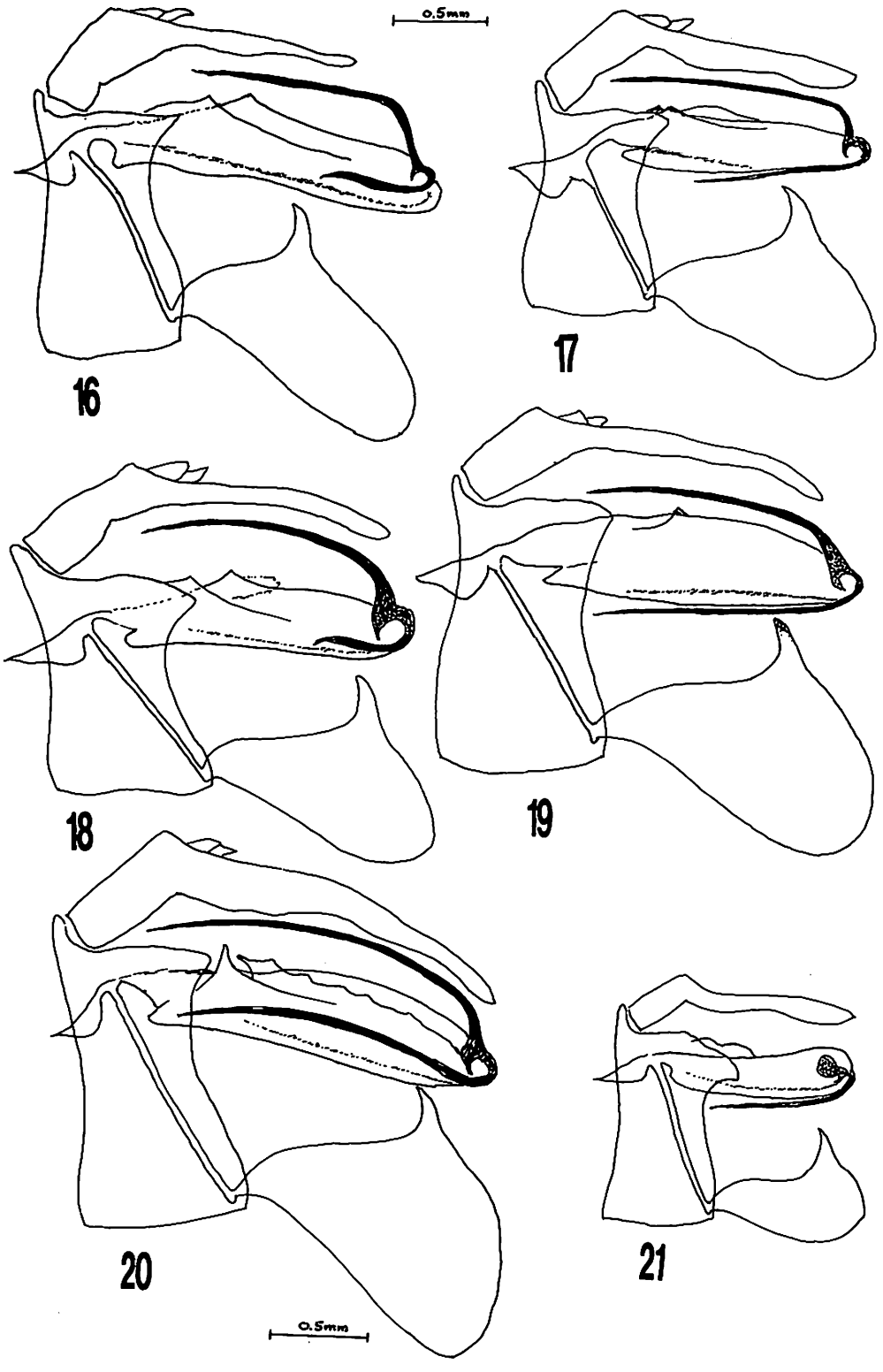
Remarks. The syntypes of *discoidalis* and *miniata* are the only *Taparella* known from Borneo. The specimens may be mislabeled, as no other data show a disjunct distribution of the genus in Borneo.

Taparella ambigua Medler, **new species** (Fig. 11)

Description. U-shaped carina of frons not sharply developed, evenly convex dorsally. Color pale stramineous, body and tegmina nearly concolorous, without distinctive markings. Closely related to *T. minima* but distinguished by larger size (13.5–15.5 mm), and its distribution that is usually in Irian Jaya. Ventral slender process arising from apex of aedeagus slightly shorter than dorsal process, apex of ventral process abruptly narrowed and sharply pointed; dorsal margin of aedeagus basally with small triangular projection (Fig. 11), differing in this character state from the lobate process found in *T. minima*.

Measurements. (holotype, allotype). Length: overall 13.50, 15.50; v 0.25, 0.33; p 0.50, 0.50; m 2.32, 2.66; f 1.41, 1.66; t 11.29, 12.62; pcl 3.65, 4.48. Width: v 1.16, 1.25; f 1.49, 1.58; t 6.14, 5.96. Hind leg spine formula – 1:6:6, 1:6:6.

Type data. Holotype ♂ (BPBM 14,660) and allotype ♀, Irian Jaya, Nabire, 5–50m, 25.VIII–20.IX.1962, light trap in jungle (H. Holtmann) (both in BPBM). Paratypes. IRIAN JAYA: 6♂, 6♀, Nabire, Geelvink Bay, 5–50 m, 25.VIII–7.IX.1962, light trap in jungle (Holtmann); 1♂, 9♀, Nabire, S Geelvink Bay, 0–30 m, 2–9.VII.1962 (J. L. Gressitt & J.



Figs. 16–21. Lateral view of ♂ genitalia: **16,** *Taparella intacta* plesiotype; **17,** *Taparella extola* holotype; **18,** *Taparella decolor* lectotype (= *doryca*); **19,** *Taparella* outacta holotype; **20,** *Taparella amata* plesiotype; **21,** *Paratella dipura* holotype. Scale = 0.5 mm.

Sedlacek); 1♂, 1♀, Biak I, 22.VI–1.VII.1962, light trap, (Gressitt & Sedlacek); 1 ♀, Waris, S of Hollandia, 450–500 m, 8–15.VIII.1959 (T. C. Maa) (all BMNH); 5♀, Hollandia, 250 ft (76 m), rain forest, I–V.1945 (H. Hoogstraal) (NCSU). PAPUA NEW GUINEA: 1♀, May Riv, 6.VI.1963, light trap (R. Straatman) (BPBM); 1♀, Madang, Benap Pltn, cacao foliage, 9.V.1962 (J.J.H. Szent–Ivany); 1♀, Madang Agr Sta, ex cacao, 11.X.1964 (G. S. Dun) (PNGDPI).

Transferred to *T. ambigua* at this time are 2♀ paralectotypes (NRS) that Medler (1986c) reported misidentified as *P. errudita* Melichar.

Taparella bellata Medler, **new species** (Figs. 4, 13)

Description. Head smoky yellow, thorax ochraceous, color contrasting sharply against black basal margins of tegmina; tegmina in large part black, dusted with white powdery wax, white color pattern variable, either only discal area translucent white, or with additional smaller white spot in clavus; sometimes entire tegmen faded to smoky pink, black margins reduced, except light fuscous apical margin. Ventral and apical slender processes from apex of aedeagus, each extending basally to pygofer margin, base of aedeagus with thick fingerlike dorsal process projecting apicad (Fig. 13). *T. bellata* and *T. delicata* are only species that have fingerlike process as described.

Measurements. (holotype, allotype). Length: overall 13.00, 13.75; v 0.25, 0.29; p 0.46, 0.50; m 2.32, 2.49; f 1.49, 1.49; t 11.12, 11.45; pcl 4.15, 3.98. Width: v 1.16, 1.29; f 1.58, 1.58; t 5.64, 5.64. Hind leg spine formula – 1:6:6, 1:7:7.

Type data. Holotype ♂ (BMNH 14,657) and allotype ♀, Papua New Guinea, Popondetta, 25 m, VI.1966, Shanahan–Lippert light trap, (both in BPBM). Paratypes. 1♂, 6♀, same data as holotype (BPBM); 4♂, 1♀, Popondetta, Wararota Pltn, cacao flush, 17.VIII.1964 (G. S. Dun) (PNGDPI); 1♂, 1♀ Wararota Pltn, same data (BPBM); 1♂, 3♀, Northern District, P.A.T.I., ex cacao flush, 16.II.1972 (E.S.C. Smith) (PNGDPI); 1♂, 1♀, P.A.T.I., same data (BPBM); 1♂, 2♀, Morobe Prov nr Buso, IX–XI.1979 (J. Martin) (BMNH).

A paratype from Wararota Pltn, ex PNGDPI No. 13,298 in BMNH, bears label "Paratella subcincta Dist., det. M.S.K. Ghauri 1970" (presented by Com. Inst. Ent., BM 1970–1).

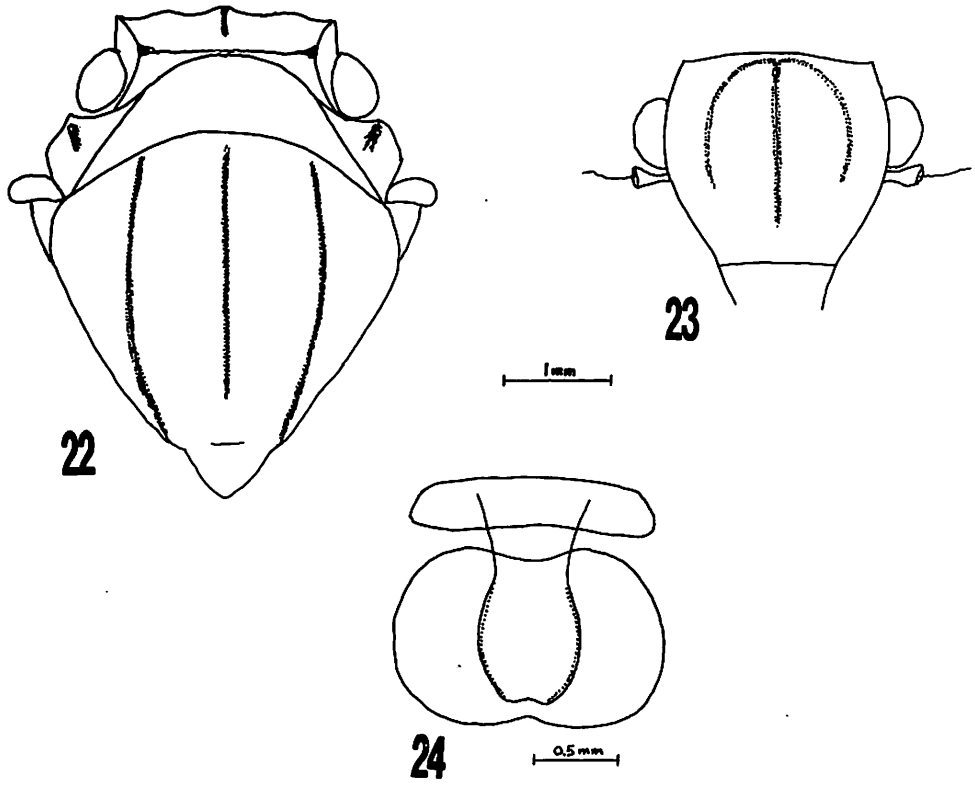
Taparella delicata Medler, **new species** (Figs. 8, 12)

Paratella iodipennis Distant, 1914:355, misidentified, not Guérin-Méneville, 1830.
Paratella intacta, Distant, 1914:355, misidentified, not Walker, 1870.
Paratella errudita, Distant, 1914:355, misidentified, not Melichar, 1902.

Description. Dorsum of head faintly ledgelike, not strongly sloping anteriorly along median line from basal transverse carina. Head, prothorax, and legs orange, tegulae and basal stems of tegmina orange, mesothorax and abdomen stramineous. Tegmina without dark markings, dusted with white wax, heaviest deposit on basal ⅔, much less so on apical ⅓, underlying membrane translucent white or faintly tinged light blue-green. Holotype genitalia illustrated (Fig. 12). Aedeagus with slender dorsal and ventral processes from apex, ventral process much shorter, similar to that in *T. doryca* and *T. intacta*. Thick fingerlike dorsal process extending apicad from base of aedeagus, similar to process in *T. bellata*.

Measurements (holotype, allotype). Length: overall 17.00, 17.00; v 0.33, 0.42; p 0.50, 0.50; m 3.15, 3.15; f 1.70, 1.70; t 13.28, 12.95; pcl 4.32, 4.32. Width: v 1.41, 1.33; f 1.83, 1.74; t 6.81, 6.64. Hind leg spine formula – 1:6:6, 1:6:6.

Type data. Holotype ♂ and allotype ♀, Irian Jaya: Utakwa Riv, 2,500–3,000 ft (762–914 m), XII.1912 (A.F.R. Wollaston) (BMNH 1914–139). Paratypes. 1♂, 1♀, same label as holotype (all BMNH); 5♂, 3♀; Utakwa Riv, sea level, XII.1912 (Wollaston) (BMNH 1914–201); 1♂, 1♀, Utakwa Riv, IX.1912–III.1913 (Wollaston) (BMNH 1922–96).



Figs. 22–24. *Taparella amata*: **22,** head and thorax in dorsal view; **23,** frontal view; **24,** dorsal view of ♀ segment X (wax plate).

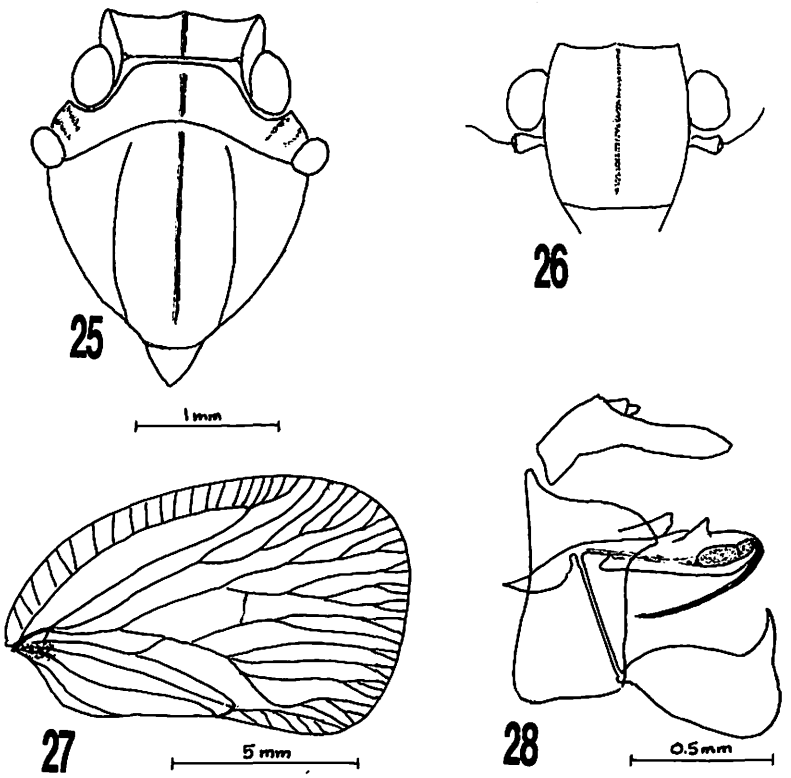
Remarks. Wollaston Expedition specimens from Utakwa Riv, Irian Jaya were given 3 different names by Distant. The new species is described to contain the misidentified specimens.

Taparella doryca (Boisduval) (Figs. 18, 30)

Flata doryca Boisduval, 1835:621; Medler, 1986d:167.
Nephesa decolor Walker, 1870:176; Medler, 1990:140 (synonymy).
Paratella errudita Melichar, 1902:118; Metcalf, 1957:375. *Paratella roseoalba* Melichar, 1902:119; Metcalf, 1957:378; Medler, 1986d (synonymy).
Paratella decolor, Distant 1910:333; Metcalf, 1957:374.
Taparella decolor, Medler, 1989:33.
Taparella doryca, Medler, 1989:33.
Taparella errudita, Medler, 1989:33.
Taparella roseoalba, Medler 1989:33.

Description. Coloration variable, usually whitish, due to wax deposits. Head, thorax, and basal part of tegmina stramineous, tegmen often with rosy tinge apically along margins. Apical margin of tegmen slightly convex, costal and sutural angles convex. Male genitalia with slender dorsal and ventral processes from apex of aedeagus, ventral process less than ½ length of dorsal process (Fig. 18). Female segment X (wax plate) small, circular (Fig. 30).

Measurements (paralectotype ♀ of *Nephesa decolor*, Victoria Mus.). Length: overall 15.00; v 0.29; p 0.58; m 2.66; f 1.58; t 13.50; pcl 4.00. Width: v 1.16; f 1.62; t 6.25. Hind leg spine formula – 1:6:7.



Figs. 25–28. *Paratella iodipennis*: **25,** head and thorax in dorsal view; **26,** frontal view; **27,** tegmen; **28,** lateral view of ♂ genitalia.

Specimens examined. *Flata doryca* Boisduval, holotype ♀, Manokwari (MNHN); *Nephesa decolor* Walker, lectotype ♂, Mysol (BMNH); *Paratella errudita* Melichar, lectotype ♂, Finschhafen (IRSN); *Paratella roseoalba* Melichar, lectotype ♂, Roon Island (HNHM); 1♀, Z. New Guinea, 26.XI.1912 (Klovfbin) (AM); 2♂, New Guinea, Andei (W. Doherty) (BMNH); 1♂, Mysol, 67–41 (Miss. Pascoe) (BMNH); 1♂, Irian Jaya, Dorey, 68–4 (Wallace) (BMNH); 1♂, 1♀, Irian Jaya, Utakwa Riv, IX.1912–III.1913 (A.F.R. Wollaston) (BMNH 1922–96); 1♀, Utakwa Riv, 2,500–3,000 ft (762–914 m), II.1913 (Wollaston) (BMNH 1914–139); 1♀, NE New Guinea, Karimui, S of Goroka, 1000 m, 6.VI.1961 (J. L. & M. Gressitt) (BPBM); 1♀, Madang Pr., Jais Aben, 16.XII.1988, coffee plantation (J. M. Quin); 1♀, Condor Point, 6.VI.1988, Sta 065 (J.V. Stalle) (IRSN IG No. 27303); 2♀, Ambon Z., Res. Manokwari, 22.XII.1960, 63 (G. Schneurs) (IRSN); 1♀, Waigeo, coll Noualhier, det *P. roseoalba* (MNHN).

Remarks. Externally, this species is closely similar to *T. ambigua* but is readily distinguished by the short ventral process of the aedeagus, whereas in *T. ambigua* this character is longer, extending to the pygofer.

Paratella errudita Melichar is here designated as a junior synonym of *Flata doryca* Boisduval, NEW SYNONYMY.

Taparella extola Medler, **new species** (Figs. 7, 17)

Description. Overall uniformly white or light stramineous, due to heavy waxy deposits; head and thorax light stramineous. Median longitudinal carina of head extending caudad to unite with posterior transverse carina. Pattern of male genitalia (Fig. 17) similar to *T. ambigua*.

Measurements (holotype, allotype). Length: overall 12.00, 13.00; v 0.29, 0.33; p 0.50, 0.50; m 2.32, 2.49; f 1.49, 1.58; t 9.96, 11.12; pcl 3.32, 3.98. Width: v 1.25, 1.33; f 1.58, 1.66; t 5.31, 6.14. Hind leg spine formula – 1:6:6, 1:6:6.

Type data. Holotype ♂ and allotype ♀, Papua New Guinea, Misima I, (Rev. H. K. Bartlett) (both SAM). Paratypes. 2♂, 3♀, same label as holotype (SAM); 1♂, 1♀, same label as holotype (BPBM); IRIAN JAYA: Kei I, 1♀, (Haglund) (RMS).

Remarks. This species is easily distinguished by its small size and sharp sutural angle of the tegmen (Fig. 7).

Taparella intacta (Walker) (Figs. 5, 16)

Nephesa intacta Walker, 1870:171; Medler, 1990:148.
Paratella intacta Melichar 1902:119; Distant 1914:355; Metcalf, 1957:376.
Paratella spectra Distant, 1914:355; Metcalf, 1957:378; Medler, 1990:181 (synonymy).
Taparella intacta, Medler, 1989:33.
Taparella spectra, Medler, 1989:33.

Description. Tegmina pink, faded pink, or white, dusted to variable extent with white wax, apical and sutural margins thinly pink or orange-pink; sutural angle acute (Fig. 5). Aedeagus with short ventral process, such as illustrated (Fig. 16).

Measurements (♂, ♀, plesiotypes). Length: overall 14.00, 16.00; v 0.33, 0.29; p 0.54, 0.50; m 2.49, 2.66; f 1.66, 1.74; t 12.28, 13.28; pcl 4.98, 5.31. Width: v 1.29, 1.41; f 1.74, 1.83; t 7.47, 8.47. Hind leg spine formula – 1:6:6, 1:6:7.

Specimens examined. Lectotype ♀, *Nephesa intacta* Walker, Aru I (BMNH); holotype ♀, *Paratella spectra* Distant, Irian Jaya, (BMNH); plesiotypes 1♂, 1♀, Eramboe, 80 km ex Merauke, 29.I,1960 (T. C. Maa) (BPBM). New records: Papua New Guinea, 1♂, W Distr., Oriomo Govt Sta., shelf fungus, 26–28.X.1960 (J. L. Gressitt); 1♀, Karimui, S of Goroka, 1,000 m, (J. L. & M. Gressitt); 1♀, Normanby I, Wakaiuna. Sewa Bay, 1–5.XI.1956 (W. W. Brandt) (BPBM).

Remarks. Color variation of the tegmina is similar to that found in *T. outacta*, but characters of the aedeagus distinguish the 2 species. The aedeagus of *intacta* is similar to that of *T. doryca*, but differences in the shape of the sutural angle enable reliable separation of the 2 species.

Taparella invasa (Walker) (Figs. 6, 15)

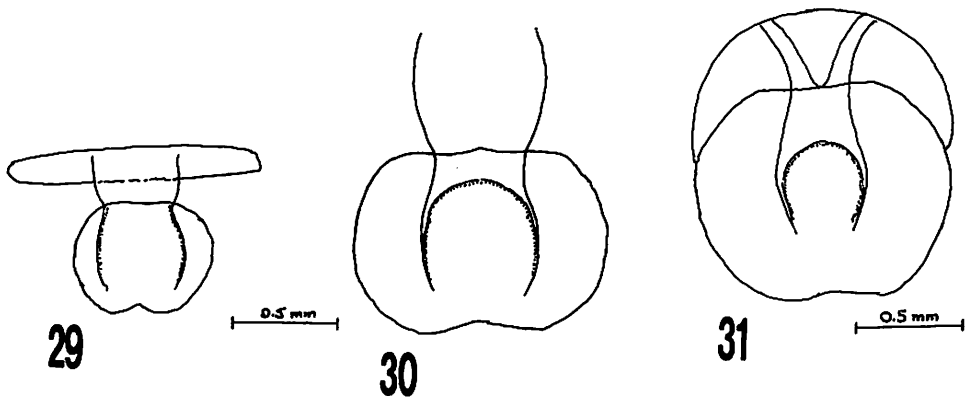
Nephesa invasa Walker, 1870:178; Medler, 1990:148.
Nephesa inversa (sic) Melichar, 1902:61, (error).
Paratella umbrimargo Melichar, 1902:121.
Paratella subcincta, Distant, 1910:333, new name for *Paratella umbrimargo* Melichar, 1902, not Walker, 1858; Metcalf, 1957:378: Medler, 1990:182 (synonymy).
Colgar invasa, Melichar 1923:60.
Colgar invasum, Metcalf, 1957:263.
Taparella subcincta, Medler, 1989:33.

Description. Tegmina with fully white costal margin in strong contrast to wide black stripe on veins R and S (Fig. 6). Male genitalia as shown (Fig. 15).

Measurements (lectotype ♂, paralectotype ♀). Length: overall 13.00, 14.50; v 0.25, 0.33; p 0.50, 0.50; m 2.49, 2.66; f 1.49, 1.58; t 11.62, 13.50; pcl 3.65, 4.19. Width: v 1.16, 1.33; f 1.54, 1.66; t 5.64, 6.00. Hind leg spine formula – 1:6:6, 1:6:7.

Specimens examined. Lectotype ♂, *Nephesa invasa* Walker, Waigeo (BMNH); ♀, *Paratella subcincta* Distant, New Guinea, (BMNH). New distribution records: 1♂, Irian Jaya, Sorong Vogelkop, 1–100 m, 12–13.X.1977 (J. L. Gressitt) (BPBM); 2♂, 3♀, Wasian, 10.IX.1939 (R. G. Wind) (NCSU); 1♀, Steenkool, Majado, Mogoi, 13.VI.1957 (D. Bergman) (RMS); 1♂, Aimae, Res. Sorong, 11.II.1960, No. 59, (R. T. Simon Thomas); Sorong Wal, 10.II.1957 (G. F. Mees) (RNHL); 1♂, New Guinea, 62–91 (BMNH).

Remarks. The distinctive color pattern of the tegmina was found only in this taxon. The



Figs. 29–31. Dorsal view of ♀ segment X (wax plate). **29,** *Paratella iodipennis*; **30,** *Taparella doryca*; **31,** *Taparella* mendica. Scales variable, as indicated.

male genitalia of the lectotype (Fig. 15) was illustrated previously by Medler (1990) but is reproduced here to enable comparison with a closely similar pattern also found in *T. minima* (Fig. 10).

Taparella mendica Medler, **new species** (Figs. 2, 14, 31)

Description. Tegmen with fuscous black margins and oblique fuscous band from apex of clavus to costal angle (Fig. 2). In the only known ♀ crossband faded, leaving smoky pink disc with broad fuscous margins. Male genitalia illustrated (Fig. 14) shows equal lengths of dorsal and ventral processes and basal position of small triangular projection on dorsal margin of aedeagus. Female segment X small, circular (Fig. 31).

Measurements (holotype, allotype). Length: overall 14.00, 14.25; v 0.21, 0.33; p 0.50, 0.50; m 2.66, 2.66; f 1.49, 1.49; t 10.96, 11.62; pcl 3.98, 4.15. Width: v 1.33, 1.33; f 1.66, 1.66; t 5.96, 5.81. Hind leg spine formula – 1:6:6, 1:6:6.

Type data. Holotype ♂ (BPBM 14,658) and allotype ♀, Papua New Guinea, Central Prov, Aieme Riv, 9.XII.1982 (J. W. Ismay), (both in BPBM). Paratype ♂, same label as holotype (BPBM).

Taparella minima Medler (Figs. 9–10)

Taparella minima Medler, 1989:31.

Description. Color stramineous, drab, body and tegmina nearly unicolorous, without distinguishing markings, specimens with or without powdery deposits of white wax; U-shaped carina of frons slightly angulate dorsally each side of junction with median longitudinal carina. Costal and sutural angles of tegmen convex (Fig. 9). Aedeagus basally with lightly sclerotized median dorsal lobate process (Fig. 10).

Measurements (holotype, allotype). Length: overall 12.50, 13.50; v 0.33, 0.33; p 0.58, 0.66; m 2.82, 2.82; f 1.66, 1.74; t 10.29, 10.79; pcl 3.15, 3.32. Width: v 1.33, 1.37; f 1.78, 1.83; t 6.14, 6.47. Hind leg spine formula – 1:6:7, 1:6:7.

Specimens examined. Lectotype, allotype, and all paratypes recorded by Medler (1989). New distribution records: Papua New Guinea, 1 ♀, Port Moresby, 7.V.1955 (G.A.V. Stanley); 1 ♂, 1 ♀, Jawarere Pltn, via Sogeri, 2.V.1958, No. 4,844–45, on newly planted rubber (E. Kanjiri), with label C.I.E. 19,259,

"*Neomelicharia* sp., det M.S.K. Ghauri 1964"; 1♂, Madang, No. 4,950, 9.VI.1956, *Coffea canephora*, No. 4,950 (J.J.H. Szent–Ivany); 1♂, Laloki, nr Port Moresby, on citrus, 14.VII.1959, No. 4,815 (Szent–Ivany and F.G.J. Simmonds) (PNGDPI). Irian Jaya, 1♀, Wisselmeren, Enarotadi, 1,800–1,900 m, 27.VII.1962 (J. Sedlacek); 1♀, Japen I, SSE Sumberbaba, Dawai Riv, jungle light trap, 20.X.1962 (H. Holtmann) (BPBM).

Remarks. Genitalia of the holotype (Fig. 10) has been redrawn from Medler (1989) to emphasize the diagnostic character state of the lightly sclerotized median dorsal lobate process near base of the aedeagus. Normally, this species may be recognized by the short length of males, 12.5 mm, and females, 13.5 mm, along with the convex costal and sutural angles of the tegmina (Fig. 9).

Taparella outacta Medler, **new species** (Figs. 3, 19)

Description. In frontal view, U-shaped carina of frons forming anterior margin of head; this margin slight but discernible distance below posterior margin of head delimited by strong interocular transverse carina. In effect, narrow sloping dorsum of head forms a "vertex." Head and thorax stramineous, tegmina pink, dusted with white wax to varying extent. In females especially, pink color faded to white, except for narrow remnant of pink-orange remaining in apical and sutural margins. Sutural angle acute as outlined (Fig. 3). Aedeagus of holotype (Fig. 19) with small triangular projection on dorsal margin; dorsal and ventral processes of nearly equal length extending to pygofer.

Measurements (holotype, allotype). Length: overall 16.00, 17.00; v 0.25, 0.25; p 0.50, 0.50; m 2.82, 2.82; f 1.66, 1.83; t 13.78, 14.94; pcl 5.48, 5.48. Width: v 1.41, 1.49; f 1.74, 1.91; t 6.81, 7.64. Hind leg spine formula – 1:6:7, 1:6:6.

Type data. Holotype ♂ (BMNH 14,659) and allotype ♀, Papua New Guinea, Popondetta, 25 m, VI.1966, light trap, (Shanahan–Lippert) (both in BPBM). Paratypes. Papua New Guinea, 2♂, 2♀, same label as holotype (BPBM), Morobe Prov., 1♂, coast, Buso, 5.XI.1979 (J. H. Martin) (BMNH 1980–150), Popondetta, 1♂, Agric. Stn., 10.VIII.1962 (A. Catley) (PNGDPI–No. 9,447).

DISPOSITION OF EXCLUDED SPECIES

Flatta flava Montrouzier, 1855:111; *Paratella flava*, Metcalf, 1957:375; *Taparella flava*, Medler, 1989:33.

Flatta rubra Montrouzier, 1855:111; *Paratella rubra*, Metcalf, 1957:378; *Taparella rubra*, Medler, 1989:33

The transfers to *Taparella* by Medler (1989) should be considered as provisional combinations because syntypes needed for proper generic placement of both species have not been found.

Nephesa nivosa Walker, 1870:178; *Paratella nivosa*, Melichar, 1902:119.

Transferred to *Sephena* Melichar by Medler, 1990:152.

Poeciloptera repleta Walker, 1858:334; *Paratella repleta*, Metcalf, 1957:378.

Transferred to *Dworena* Medler by Medler, 1990:157.

Paratella subflava Melichar, 1902:119; Medler, 1987:39.

Transferred to *Sabethis* Jacobi by Medler, 1987:39.

Paratella variegata Schmidt, 1904:370; Medler, 1986a:113.

Transferred to *Neomelicharia* Kirkaldy by Medler, 1986a:113.

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