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Two New Species of *Amblypelta* STÅL Attacking Cacao in Papua New Guinea and Irian Jaya (West New Guinea), with a Key to Its Species

(Heteroptera, Coreidae)

With 98 Figures

M. S. K. GHAURI

London

Abstract. Mr. R. J. A. W. LEVER's comprehensive review of the economic genus *Amblypelta* (Coreidae, Heteroptera) injurious to coconut, cacao, cassava, papaya, mango, frangipani, custard apple, peaches, pineapple, plums, nectarines, cotton, beans, banana, fig etc., induced the writer to describe two new species of this genus, one from south east New Guinea (Papua New Guinea) and the second from north west New Guinea (Irian Jaya). An attempt has been made to devise an illustrated key to the species of this important genus and a distribution map. From the map it can be seen at a glance that there are several gaps, especially in Australia and the western ranges of its distribution, which require intensive collecting.

Introduction

A recent survey of the economic genus *Amblypelta* STÅL (Coreidae, Heteroptera) (distribution south eastern Indian and south western Pacific oceans) by Mr. R. A. LEVER (1981 and 1982) has added fresh information on the distribution, host plants, biology and taxonomy of its species. In this concise review LEVER also compared the nature of damage to coconut in Africa by *Pseudotheraptus wayi* BROWN and by an undescribed species of *Paradasynus* in south India. All the three genera, besides some others, belong to the same tribe Dasynini of the family Coreidae, and show remarkable similarities of habit, etc. when attacking coconut in different parts of the world. To recapitulate, STÅL (1873), CHINA (1934), VAN DUZEE (1940), DISTANT (1911, 1920), BLÖTE (1935), LEVER (1936), BROWN (1958) and BROWN & GHAURI (1961) published on the taxonomy of the genus. LEVER (1933, 1935), BROWN (1959) and SZENT-IVANY (1961, 1963) have been the major contributors on the biology of *Amblypelta*.

As mentioned by LEVER (1981), *A. madangana* BROWN & GHAURI (1961) was the last species described in the genus *Amblypelta*. The distribution, as given in the map (Fig. 98) of the species of *Amblypelta*, shows that there are many gaps in the records of old species as well as the possibilities of discovering new species. Two lots of *Amblypelta* species received some time ago remained uninvestigated due mainly to the untimely demise of Mr. E. S. BROWN. The present writer awaited the arrival of additional material to enable him to remove some of the confusing points in the taxonomy of *Amblypelta* both at the generic and specific levels. But the collection of fresh material was not forthcoming.

Now, thanks to Mr. R. A. LEVERs inspiring contribution mentioned above, the present writer felt encouraged to describe the two new species of *Amblypelta*, one from the south of Papua New Guinea and the second from north of the island (Irian Jaya). A revised key

based on the one by BROWN (1958) to facilitate rapid identification of the species, including the two new ones now described, and a distribution map is also provided.

The members of the genus *Amblypelta* feed upon and cause injury to several economic plants, such as coconut, cacao, cassava, papaya, mango, frangipani, custard apple, cotton, peaches, plums, nectarines, beans, banana, fig, etc.

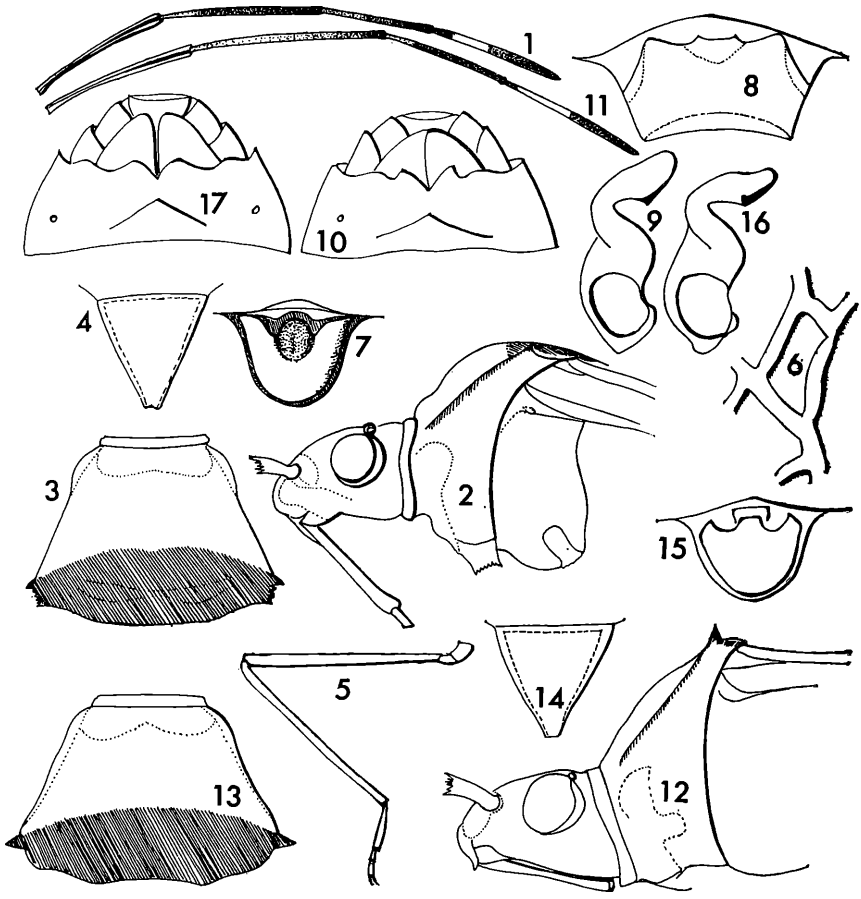
Genus **Amblypelta** STÅL

Amblypelta STÅL, 1873, pp. 74–75; type species *Amblypelta bilineata* STÅL, ibid.

Amblypelta bukharii sp. n. (Figs. 1–10)

Colour and puncturation. *Hemelytra* very dark brown, with a distinct black subcostal stripe contrasting externally with the dusky yellow costal margin and internally forming almost clear cut margin of the dark brown corium; clavus of the same dark brown tone as that of the corium; claval vein, veins on corium including margin separating membrane, rusty brown; membrane smoky, transparent, veins of same colour. *Pronotum* ochreous yellow two-thirds anteriorly, with posterior border chocolate brown, the anterior margin of this band is sinuous, slightly concave anteriorly in the centre (Fig. 3), the posterior half of this band slightly less brown than the anterior half, humeral angles concolorous with the anterior half of the dark band. *Scutellum* distinctly lighter in colour than hemelytra, the tip and lateral margins lighter than the rest. *Head* ochreous yellow without any dark markings on the disc, ocelli reddish, *eyes* dark with ochre yellow short peduncles; antennephores with smoky crescent at apex. *Underside* ochreous yellow, without any markings. *Antennae* yellowish brown, I segment with an anteriorly thick but becoming fine posteriorly dorsolateral longitudinal line. II dark smoky near apex up to $^1/_4$th of its length, becoming light smoky towards its base leaving $^1/_4$th of its length near base yellowish smoky. III similar in coloration to II except base and apex more contrasting than that of II; IV base slightly more than $^1/_6$th and apex more than half very dark, leaving a whitish yellow band in between these two dark bands (Fig. 1). *Legs* ochreous yellow, without postfemoral apical band; all claws black also tips of all tarsal segments of pro- and meso-legs but only of last tarsal segment of the metaleg. Puncturation coarse and deep on the pronotum, shining between the punctures throughout; elytra dull. *Scutellum* deeply punctate and slightly rugose. *Dorsum of abdomen* rich brown with a dark submarginal border throughout, connexivum uniformly ochreous yellow.

Measurements (mm) ♂ (♀). Width of head across eyes 2.17 (2.34–2.45), width of vertex between eyes 0.97 (1.02–1.07), space between eye and ocellus 0.14–0.17 (0.17), space between ocelli 0.31–0.34 (0.38–0.47), width across ocelli 0.66–0.67 (0.71–0.78), median length of head 1.59–1.69 (1.75–1.83), maximum thickness of head, measured in a lateral view, 1.26–1.29 (1.38); length of rostral segments I–IV, 1.89–1.95 (2.03–2.08), 1.78–1.89 (1.71–1.89), 1.33–1.35 (1.37–1.47) and 2.21–2.27 (2.13–2.15), respectively; length of antennal segments right/left I-IV, 3.57/3.57 (3.80–3.90/3.90), 4.28–4.55/4.15–4.55 (4.55/4.38–4.55), 2,72–3.06/3.01 (2.92/2.88–2.95) and 3.52–3.55/3.60 (3.45–3.76/3.53), respectively; width of pronotum at humeral angles 3.47–3.67 (4.24–4.36), width of pronotum at anterior angles 1.62–1.65 (1.75–1.84), median length of pronotum 2.36–2.52 (2.90–3.03), width of pronotal collar 1.46–1.47 (1.52–1.64), length of pronotal collar 0.17 (0.17–0.19), width of pronotal spine 0.08–0.12 (0.14–0.17); width of scutellum at base 1.52–1.64 (1.82–1.89), median length of scutellum 1.52–1.61 (1.77–1.89), length of lateral margin of scutellum 1.59–1.73 (1.89–2.05); length of femora III, II & I, 5.84 (5.57–5.84), 3.90 (3.90–4.22), 3.71–3.90 (3.90–4.22) respectively, length of tibiae III, II & I, 5.59 (5.19–5.84), 3.70–3.90 (3.75–3.90) and 3.51–3.90 (3.78–3.90), respectively; length of hind tarsus 2.08 (2.00–2.08); total length of body 11.04 (12.33–13.15) and width (minus humeral angles) 3.17–3.37 (3.75–3.90).



Amblypelta bukharii sp. n., figs. 1–10. 1, antenna of holotype; 2, lateral view of head and prothorax of same; 3, dorsal view of pronotum of same; 4, dorsal view of scutellum of same; 5, hind leg of same; 6, cell m-cu of right elytron of same; 7, posterior view of pygophore of same; 8, ventral view of the same; 9, inner view of paramere of ♂ paratype; 10, ventral view of tip of abdomen of ♀ paratype.
Amblypelta theobromae BROWN; figs. 11–17. 11, ♂ holotype antenna; 12, lateral view of head and prothorax of same; 13, dorsal view of pronotum of same; 14, dorsal view of scutellum of same; 15, posterior view of pygophore of same; 16, inner view of paramere of same; 17, ventral view of tip of paratype ♀.

Structure *Head* shorter than pronotum as 4.20–4.83 : 6.24–8.00. Ocelli equidistant from the eyes and the median line of the head; space greater between them than each from the eye; bucculae narrowing posteriorly, anterior angle acute. *Tylus* long, porrect. Juga clearly shorter than tylus. *Pronotum* much wider (including humeral angles) than long as 9.15–11.50 6.24–8.00; lateral margins almost straight; collar well marked, narrow; humeral angles acute and of moderate size; upper surface steeply declivous, viewed from the side. *Scent glands* with posterior lobe narrow but as long as the aperture. *Scutellum* at base as wide as long in middle, at lateral margin longer than middle length (4.21–5.40 4.00–5.00), tip not very clearly emarginate (Fig. 4). *Hemelytra* gently convergent posteriorly; cell m-cu rhomboidal, divergent posteriorly. *Antennae* moderately long and legs

relatively short; antennae about 1.26 times longer than head and body together in males (22.80 18.00), about 1.17 times longer in females (22.96 19.62); ratio of segments I–IV as 5.78 : 7.00. 4.71 : 5.47 (♂ holotype) on an average 5.64 : 6.75 : 4.51 5.48 in males and 5.96 6.94 : 4.49 : 5.52 in females; II about 18 per cent longer than I. *Rostrum* moderately long, extending up to posterior margin or slightly beyond of second visible ventral segment, ratio of segments I–IV on an average, as 5.25 : 4.80 : 3.60 5.80 (in male holotype as 5.15 4.71 3.56 : 5.84). *Legs* relatively long, hind legs longer than length of body and head together in ♂, subequal in ♀, ratio of femur, tibia and tarsus of hind leg as 5.84 5.59 2.08 (♂ paratype).

Male Pygophore with "shelf" in the inner cavity present, posterior margin of pygophore with a rounded central lobe indented in the middle and depressed on its posterior (outer) surface, separating the deep lateral emarginations (Figs. 7 + 8). Paramere with distal arm bent upwards apically (Fig. 9).

Female Transverse fissure of the VIIth abdominal sternum moderately sharply angled.

Length 11.04 (♂), 12.33–13.15 (♀); width near humeral angles 3.17–3.37 (♂), 3.75–3.90 (♀).

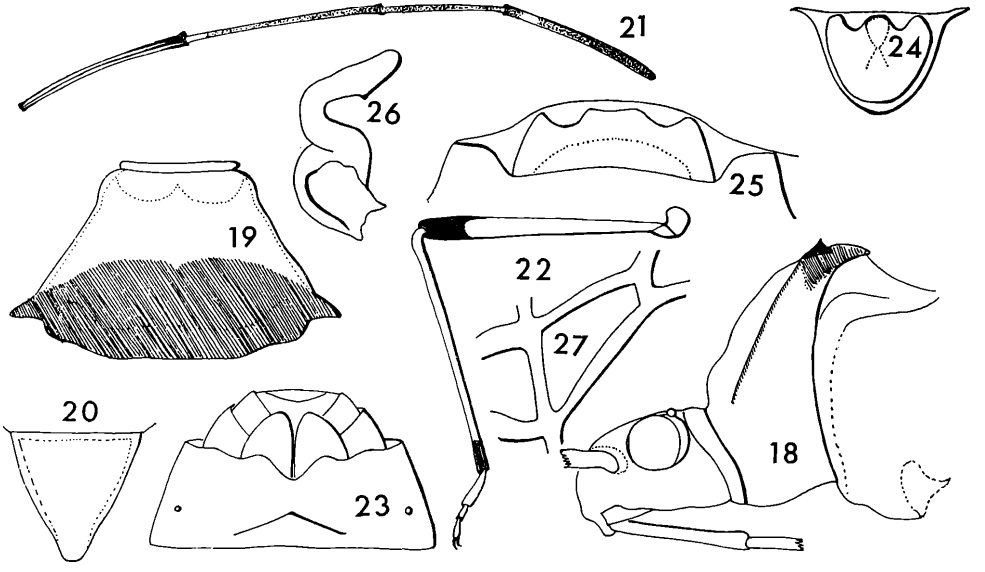
Distribution. Papua New Guinea, Brown River, 26–29 miles north from Port Moresby Central District, Agricultural Experimental Blocks, 10. 11. 1965 (J. J. H. SZENTIVANY, E. KANJIRI & J. BART) Nos. 6800, 6801, 6802 & 6803 (CIE No. A. 95). One male holotype, one male and two female paratypes; causing severe damage to cacao pods. All as permanent loan in the British Museum (Natural History), London.

Comparative notes On the basis of specific characters such as male and female genitalia and other morphological key characters, it appears that the new species is closely related to *A. theobromae, A. madangana, A. bloetei* and *A. ardleyi*. In view of their geographical distribution, so far as is known, the four old species are located in the west, north and north central, whereas the new species was collected from south east (near Port Moresby). Taking into account the most obvious key character, the colour of tip of hind femur, which is without black ring in the new species, *A. bukharii* sp. n. comes close to *A. theobromae* and differs from all other three species, *A. bloetei, A. ardleyi* and *A. madangana*. From *A. theobromae*, the new species differs in having much shorter humeral horns, a depression in the middle of the anterior margin of the dark band at the base of the pronotum, much narrower head viewed laterally behind the eyes, narrower bucculae and in having longer lateral margin of scutellum than its median length; by the shape of ♂ paramere the two species could be differentiated with a reference to figures 9 and 16. The transverse fissure of the VII abdominal sternum of the ♀ of the new species is more widely angled than that of *A. theobromae*. From *A. ardleyi, A. bukharii* differs, in addition to the already mentioned character, by much smaller humeral angles, longer scutellum, shape of dark band at base of pronotum and the posterior margin of pygophore; the apex of paramere, unlike that of *A. ardleyi*, is not so narrow and strongly turned upwards. The humeral angles are relatively more developed in the new species than either in *A. bloetei* or *A. madangana*. It apparently also looks like *A. costalis* VAN DUZEE, but the shape of pygophore and paramere and the suture of VII sternum of ♀, are quite different (c. f. figs. 12 A. E. BROWN, and figs. 7, 8, 9 + 10 in this paper).

The species is named in honour of my friend Professor Shuhrat BUKHARI who hails from Lahore and Delhi, the twin cities in Pakistan and India, which were the centre of science and culture during many past centuries.

Amblypelta danishi sp. n. (Fig. 18–27)

Colour and puncturation *Hemelytra* very dark brown, with an indistinct black



Amblypelta danishi sp. n., figs. 18–27. 18, lateral view of holotype ♂ head and prothorax; 19, dorsal view of pronotum of same; 20, dorsal view of scutellum of same; 21, antenna of same; 22, hind leg of same; 23, ventral view of tip of abdomen of ♀ paratype; 24, posterior view of pygophore of ♂; 25, ventral view of same; 26, inner view of paramere of same; 27, cell m-cu of right elytron of same.

subcostal stripe along with external brownish yellow very narrow costal margin and internally merging with the brown colour of the corium; clavus slightly darker than corium; claval vein and veins of corium including margin separating membrane rusty brown; membrane smoky, transparent, veins almost concolorous. *Pronotum* ochreous yellow two-thirds anteriorly, with posterior border chocolate brown, the anterior margin of this band almost straight in middle, occasionally with a slight dip in the centre (Fig. 19), the posterior half of this band less brown than the anterior half, humeral angles concolorous with the anterior half of the dark band. *Scutellum* lighter in colour than hemelytra, the tip and lateral margins lighter than the rest. *Head* ochreous yellow with minute dark markings along with posterointernal margin of ocelli which are bright yellow, eyes light brown with yellow short peduncles; antennephores with smoky crescent at apex. Underside smoky yellow, without any markings. *Antennae* yellowish brown, first segment with apex completely black dorsal surface, this becoming fine posteriorly dorsolateral longitudinal line, II & III segments mostly dark smoky leaving basal 1/4th of both segments yellowish smoky, IV segment base black, next to it about 1/4 yellowish smoky, the remainder about 3/4th black (Fig. 21). *Legs* smoky yellow, apex of hind femur with a black band, apices of pro-, meso- and metatibia, all segments of pro- and mesotarsus, tips of 1st and 2nd segments of hind tarsus, III segment of hind tarsus, dark brown, all claws black. Puncturation coarse and deep on the pronotum; shining between the punctures throughout; elytra dull. *Scutellum* deeply punctate. *Dorsum of abdomen* rich brown, last two terga completely and two terga before them with a dark submarginal border, connexiva uniformly smoky yellow.

Measurements (mm) ♂ (♀). Width of head across eyes 2.46 (2.55–2.61), width of vertex between eyes 1.14 (1.14–1.22), space between eye and ocellus 0.17 (0.18–0.19), space

between ocelli 0.47 (0.50–0.51), width across ocelli 0.76 (0.82–0.83), median length of head 1.71 (1.82–1.89), maximum thickness of head 1.45 (1.63–1.67); length of rostral segments I–IV, 1.89 (1.97–2.14), 2.01 (1.99–2.11), 1.52 (1.52–1.58), and 2.46 (2.34–2.35), respectively; length of antennal segments right/left I–IV 4.55/4.55 (4.27–4.31/4.12–4.31), 5.35/5.35 (5.19–5.19/5.19–5.37), 3.24/3.24 (3.24–3.41/3.24–3.24) and 4.55/4.28 (3.73–4.06/damaged – 3.62), respectively; width of pronotum at humeral angles 4.36 (4.92), width of pronotum at anterior angles, 1.71 (1.89), median length of pronotum 2.65 (3.03–3.16), width of pronotal collar 1.52 (1.68–1.72), length of pronotal collar 0.14 (0.14–0.15); width of pronotal spine 0.38 (0.34–0.38); width of scutellum at base 1.71 (1.89), median length of scutellum 1.79 (2.02–2.08), length of lateral margin of scutellum 1.89 (2.24–2.27); length of femora III, II & I, 6.49 (6.49–6.88), 4.55 (4.75–4.79) and 4.70 (4.55), respectively, length of tibia III, II & I, 6.73 (6.49), 4.55 (4.55–4.75) and 4.55 (4.22–4.55), respectively, length of hind tarsus, 2.46 (2.46); total length of body 12.89 (14.93) and width at but minus humeral angles 4.19 (4.55).

Structure *Head* shorter than pronotum as ♂ 4.50 : 7.00, ♀ 5.0 : 8.00, ocelli equidistant from the eyes and the median line of the head; space greater between them than each from the eye; bucculae squarish anteriorly, narrowing posteriorly, anterior angle right angle. *Tylus* long, porrect. *Juga* clearly shorter than tylus. *Pronotum* much wider (including humeral angles) than long as ♂ 12.22 : 7.00, ♀ 13 : 8.35; lateral margin straight in middle; collar well marked, narrow; humeral angles well developed; upper surface steeply declivous viewed from the side. *Scent gland* with posterior lobe fine, as long as aperture. *Scutellum* at base almost as wide as long in the middle (W L as ♂ 4.50 : 4.73, ♀ 5.00 : 5.50) at lateral margin slightly longer than middle length (L L as ♂ 5.00 : 4.73, ♀ 6.00 5.50), tip transverse (Fig. 20). *Hemelytra* gently convergent posteriorly; cell m-cu rhomboidal, gently divergent posteriorly. *Antennae* and *legs* long, antennae about one third times longer than head and body together in male, about one tenth times longer in female; ratio of segments I–IV as 7.00, 8.24 : 5.00 : 7.00 (♂ holotype), 6.60, 8.00 5.00 : 6.00 (female paratype); II about 21 % longer than I. *Rostrum* moderately long, extending to posterior margin of second visible ventral abdominal segment; ratio of segments I–IV on an average, as 5.28 : 5.38 : 4.06 : 6.31 (in ♂ holotype as 5.00 : 5.30 : 4.00 : 6.50). *Legs* relatively short, hind legs slightly longer than body in ♂, much shorter in ♀; ratio of femur, tibia and tarsus of hind legs as 6.40 6.73 2.46 (♂ holotype), 6.49 : 6.49 2.46 (paratype ♀).

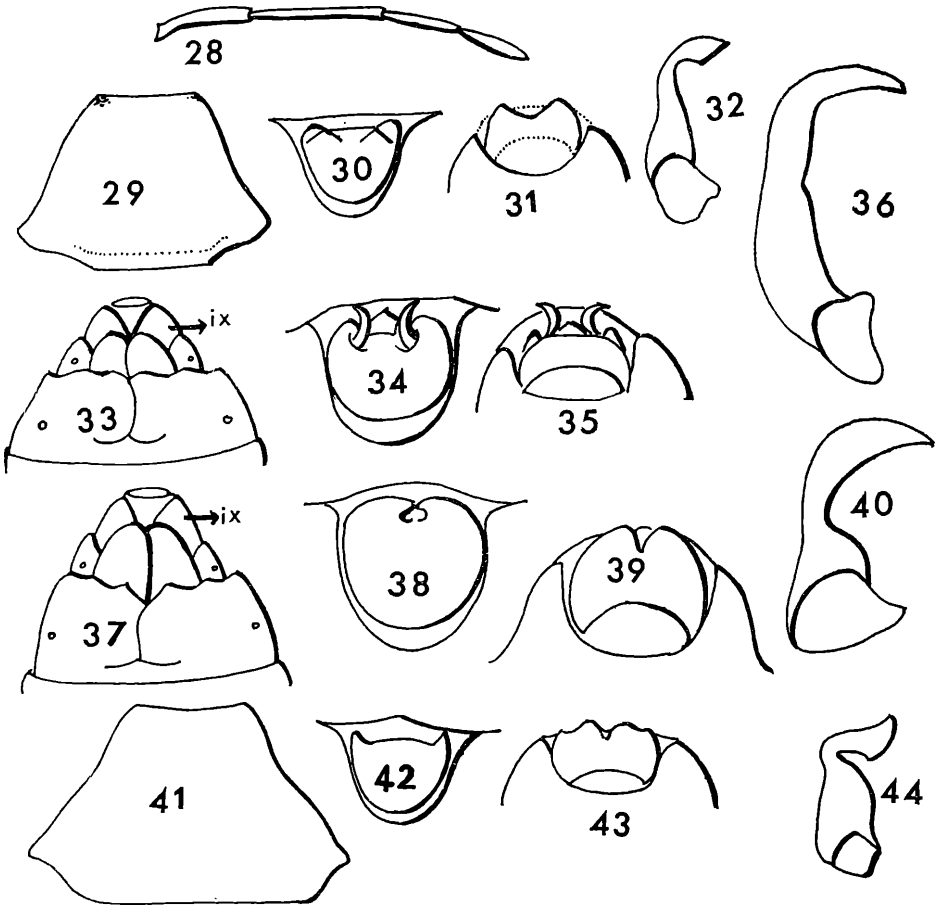
Male Pygophore with "shelf" in the inner cavity present, posterior margin of pygophore with a squarish central lobe, not indented in the middle and only slightly depressed on its posterior (outer) surface, separating the not so deep lateral emarginations (Figs. 24+25). Paramere with distal arm longish but not so bent upwards (Fig. 26).

Female Transverse fissure of the VIIth abdominal sternum shallowly angled (Fig. 23).

Length 12.99 (♂), 14.93 (♀); width near humeral angles 4.19 (♂), 4.55 (♀).

Distribution. Irian Jaya (Netherlands New Guinea), Manyuupi, altitude 90 m., Manokwari, 15. III. 1961 (J. SCHEUS?), No. 51, ♂ holotype, C. I. E. 17666, on cacao pods; 2 ♀♀ paratypes, same data as holotype ♂ except 1 ♀ from Nianohio? All three as permanent loan in the British Museum (Natural History), London.

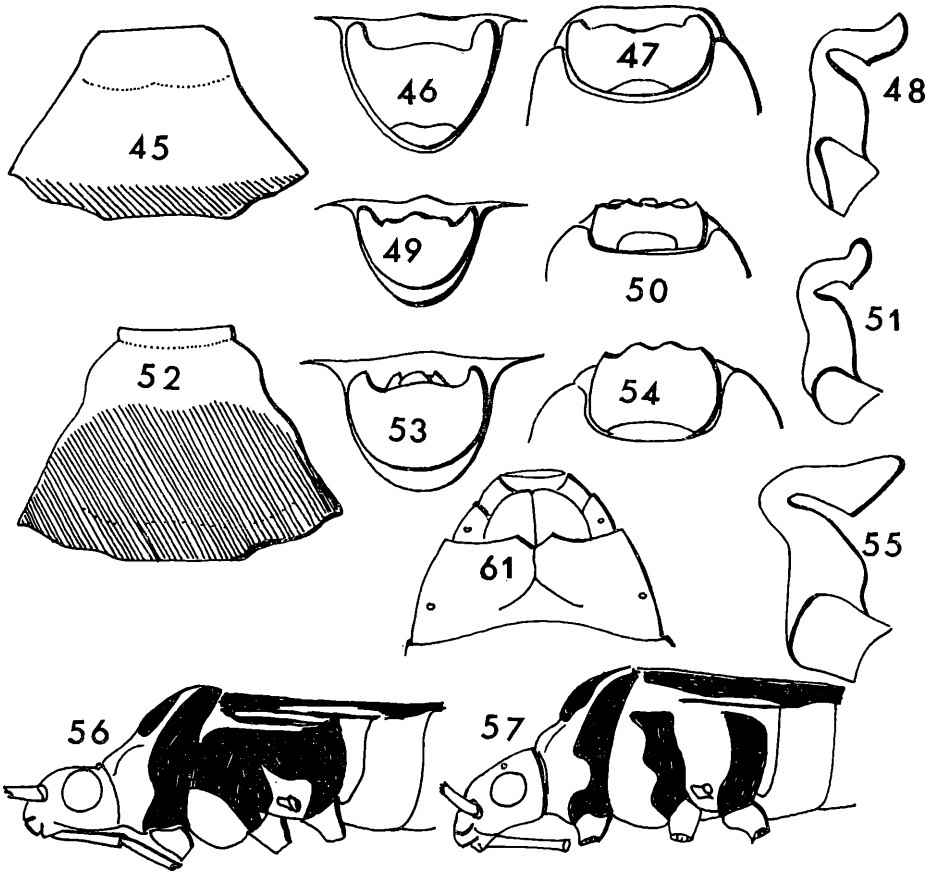
Comparative notes *A. danishi* sp. n. belongs to the group of species with hind femur apex black, *A. bloetei*, *A. ardleyi* and *A. madangana*. By virtue of its well developed humeral angles it is very distinct both from *A. madangana* and *A. bloetei*. From *A. ardleyi*, to which the new species is very closely related on account of its external features, it can be differentiated by the shape of its paramere whose distal arm unlike that of *A. ardleyi*, is not narrowed nor with tips bent upwards. The new species also differs from *A. ardleyi* in other respects. *A. danishi* sp. n. shares the black tip of hind femur with



A. brevicornis BROWN, figs. 28–32. 28, antenna; 29, pronotum; 30, posterior view of pygophore; 31, the same, ventral view; 32, inner view of paramere.
A. bilineata STÅL, figs. 33–36. 33, ventral view of tip of abdomen of ♀; 34, posterior view of ♂ pygophore; 35, ventral view of same; 36, inner view of paramere.
A. nitida STÅL, figs. 37–40. 37, ventral view of tip of abdomen of ♀; 38, posterior view of ♂ pygophore; 39, ventral view of same; 40, inner view of paramere.
A. manihotis (BLÖTE), figs. 41–44. 41, dorsal view of pronotum, showing absence of collar; 42, posterior view of ♂ pygophore; 43, ventral view of same; 44, inner view of paramere.

A. ardleyi, *A. bloetei* and *A. madangana*, but these four species share some characters and differ in others. This relationship is shown with the help of the following key.

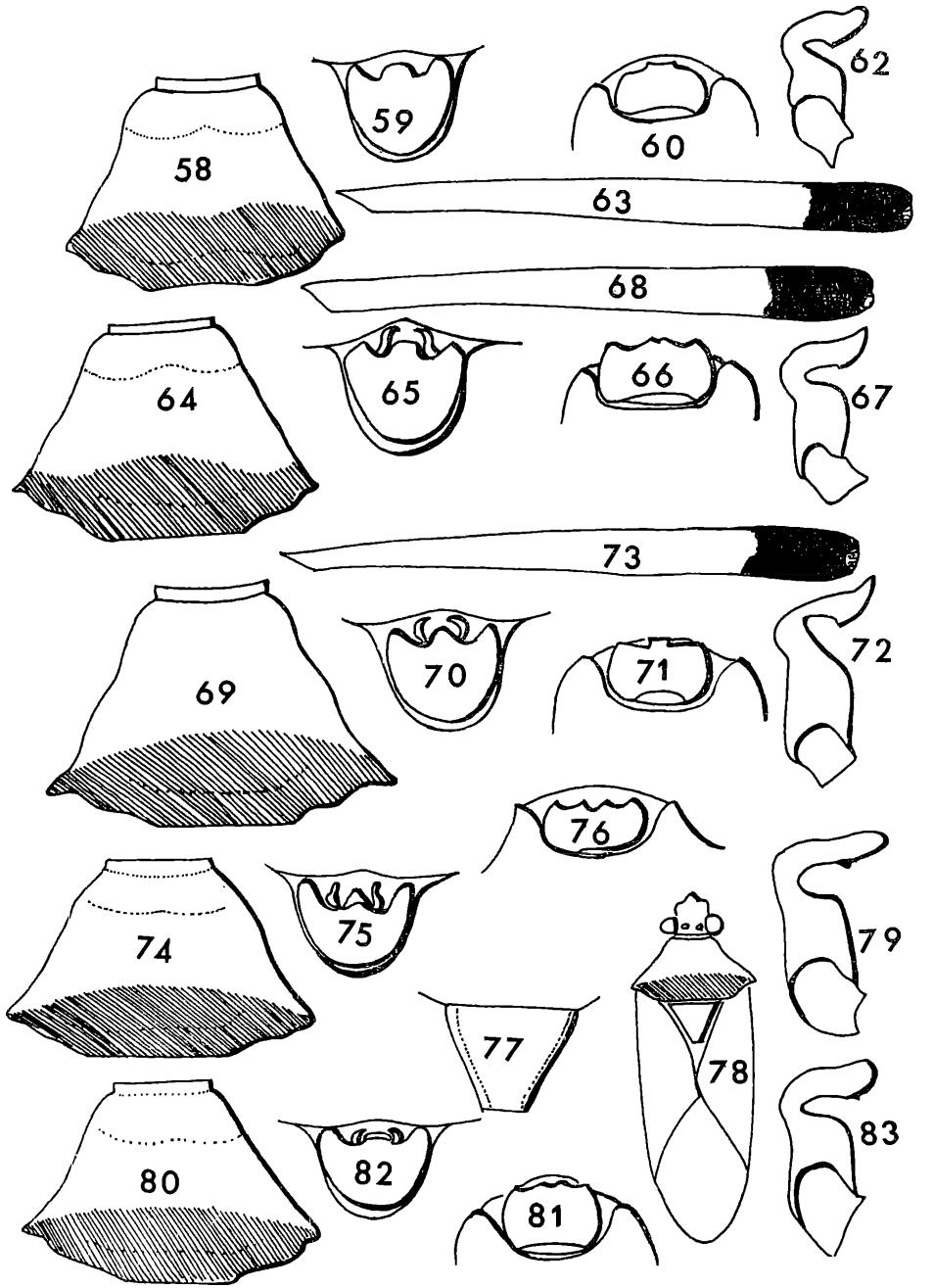
The zoogeography of *A. danishi* is also interesting. This is the most westerly species of *Amblypelta* found in the mainland of New Guinea and also the most northerly. The majority of the species of *Amblypelta* have been described from southern parts of its distribution range, only three – namely *A. bloetei*, *A. madangana* and now the third, *A. danishi* sp. n. originated from the north. It is quite conceivable that many more species are yet to be discovered in the different valleys and intervening areas. This can be easily seen with the help of the following map which shows, rather sketchily, the present distribution of the species of *Amblypelta*.



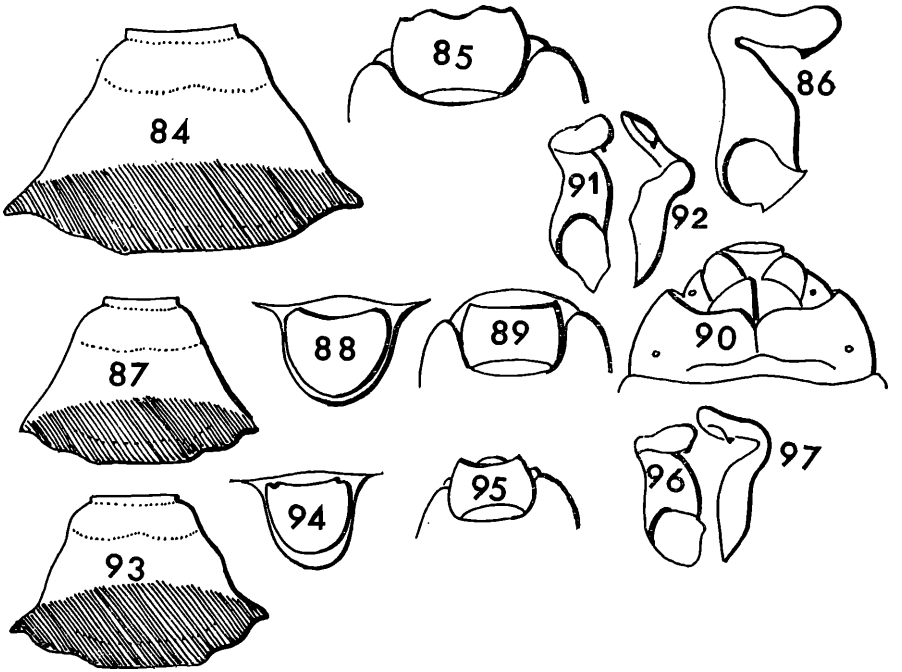
A. lutescens (DISTANT), figs. 45–48. 45, dorsal view of pronotum, showing absence of collar; 46, posterior view of ♂ pygophore; 47, ventral view of same; 48, inner view of paramere.
A. lutescens papuensis BROWN, figs. 49–51. 49, posterior view of ♂ pygophore; 50, ventral view of same; 51, inner view of paramere.
A. gallegonis gallegonis LEVER, figs. 52–56. 52, dorsal view of pronotum; 53, posterior view of ♂ pygophore; 54, ventral view of same; 55, inner view of paramere; 56, lateral view of head and thorax, showing colour.
A. gallegonis bougainvillensis BROWN, fig. 57, lateral view of head and thorax, showing colour.

▶

A. madangana BROWN & GHAURI, figs. 58–63. 58, dorsal view of pronotum; 59, posterior view of ♂ pygophore; 60, ventral view of same; 61, ventral view of tip of abdomen of ♀; 62, inner view of paramere; 63, hind femur, showing black tip.
A. bloetei BROWN, figs. 64–68. 64, dorsal view of pronotum; 65, posterior view of ♂ pygophore; 66, ventral view of same; 67, inner view of paramere; 68, hind femur, showing black tip.
A. ardleyi BROWN, figs. 69–73. 69, dorsal view of pronotum; 70, posterior view of ♂ pygophore; 71, ventral view of same; 72, inner view of paramere; 73, hind femur, showing black tip.



A. cristobalensis BROWN, figs. 74–79. 74, dorsal view of pronotum; 75, posterior view of ♂ pygophore; 76, ventral view of same; 77, dorsal view of scutellum; 78, dorsal view of whole body, appendages omitted; 79, inner view of paramere.
A. cocophaga cocophaga CHINA, figs. 80–83. 80, dorsal view of pronotum; 81, ventral view of ♂ pygophore; 82, posterior view of same; 83, inner view of paramere.



A. cocophaga malaitensis BROWN, figs. 84–86. 84, dorsal view of pronotum; 85, ventral view of ♂ pygophore; 86, inner view of paramere.
A. costalis costalis VAN DUZEE, figs. 87–92. 87, dorsal view of pronotum; 88, posterior view of ♂ pygophore; 89, ventral view of same; 90, ventral view of tip of abdomen of ♀; 91, inner view of paramere; 92, top view of same.
A. costalis szentivanyi BROWN, figs. 93–97. 93, dorsal view of pronotum; 94, posterior view of ♂ pygophore; 95, ventral view of same; 96, inner view of paramere; 97, top view of same.

The new species is dedicated to my friend Mr. Aqeel DANISH, a famous Urdu poet of U. K. and compere of Urdu poetry recitation gatherings in and around London and other important cities of the United Kingdom.

Key to the species of *Amblypelta*

1. Antennae with segment I longer than IV, and III equal to IV; rostrum with I segment longest; pronotum testaceous, concolorous except for slight infuscation of anterior angles; abdominal segments I–V with a red spot on each side (somewhat reminiscent of brown spots on the abdomen of rice bug, *Leptocorisa oratoria* [FABRICIUS]). Pronotal collar absent. Posterior margin of ♂ pygophore with a pair of prominent conical processes. ♂ paramere as in fig. 32. (Australia). **A. brevicornis** BROWN
—. Antennae with segment IV longer in some species, but subequal to or even a little shorter than I, and always longer than III; rostrum with segment IV longer than or at least equal to I; pronotum with posterior part more or less infuscate (except in *A. manihotis*); abdomen without red lateral spots. 2
2. Pronotum without trace of anterior collar; ♀ with transverse fissure of VII ventral segment more or less sinuate; posterior dark red area of pronotum narrow, with its anterior margin not or scarcely convex. 3
—. Pronotum with anterior collar indicated and often pronounced; ♀ with transverse

fissure of VII ventral segment angulate, not or scarcely sinuate; posterior dark area of pronotum broader in the middle, with a strongly convex anterior margin. 7

3. Size usually larger (♂ 12.0–13.0 mm, ♀ 13.0–14.0 mm); scutellum roundly truncate; surface usually dull between punctures; ♂ pygophore with a "shelf" across cavity; ♂ paramere rounded and reflexed apically, with a tooth half way along distal arm. 5

—. Size usually smaller (♂ 12 mm, ♀ 12.0–13.0 mm); scutellum squarely truncate; surface shining between punctures; ♂ pygophore without "shelf" across cavity; ♂ paramere pointed apically, or with a small tooth at the tip. 4

4. Posterior infuscate area of pronotum darker; ♂ pygophore as in figs. 34–35; parameres very large and evenly tapered, protruding from a pair of grooves in the posterior margin of pygophore; ♀ with two halves of IXth segment contiguous ventrally. (New Caledonia, New Hebrides) **A. bilineata** STÅL

—. Posterior infuscate area of pronotum paler; ♂ pygophore as in figs. 38–39; parameres smaller, constricted in the middle, invisible externally; ♀ with two halves of IXth segment not contiguous ventrally. (Australia) **A. nitida** STÅL

5. Colour uniformly pale with contrasting dark punctures; pronotum relatively broader, without a dark posterior band, humeral angles slightly infuscate and turned upwards; surface very dull between punctures; posterior margin of ♂ pygophore sinuate in ventral view, with two rounded lobes on either side of the middle line. (Java) **A. manihotis** (BLÖTE)

—. Colour, except in very pale specimens, with contrasting dark and pale areas, the punctures concolorous; pronotum relatively narrower, with usually a dark band along the posterior margin and the humeral angles horizontal; surface less dull, sometimes slightly shining between punctures. 6

6. ♂ pygophore relatively larger, the lateral processes more produced posteriorly and prominent in ventral view; colour usually paler, light and dark contrast less pronounced; antennae shorter than head and body in both sexes. (Australia and some islands to north) **A. lutescens** (DISTANT) (incl. **semifulva** BLÖTE)

—. ♂ pygophore relatively smaller, the posterior border more sinuate and the lateral lobes less prominent in ventral view; colour always darker, with strongly contrasting light and dark areas; antennae longer than head and body in males, equal to head and body in females. (New Guinea) **A. lutescens papuensis** BROWN

7 Colour sulphur- to orange-yellow, with extensive metallic black markings including the entire scutellum and elytra (except sometimes the costa), the posterior 3/4 of the pronotum, and markings on the sides of the thorax; ♂ paramere characteristic. 8

—. Colour otherwise, some shade of brown or chestnut above, with underside and anterior part of pronotum green or yellowish; scutellum with at most the tip blackened. 9

8. Thorax with three discrete vertical black stripes on each side, at the posterior margins of the segments (fig. 57) (Bougainville, Choiseul) **A. gallegonis bougainvillensis** BROWN

—. Thorax with black lateral stripes more extensive and confluent in the dorsal part (fig. 56) (Ysabel) **A. gallegonis gallegonis** LEVER

9. Tip of hind femora black. 10

—. Tip of hind femora not black. 13

10. Pronotum with humeral angles shortly produced. 11

—. Pronotum with humeral angles strongly produced, acuminate. 12

11. Humeral angles short; hind femur and tibia subequal; transverse fissure of VII abdominal sternum sharply angled; apex of rostrum reaching posterior margin of 2nd

or base of 3rd visible abdominal segment. (Papua New Guinea, North)
A. madangana BROWN & GHAURI

—. Humeral angles moderate; hind tibia about three-quarters length of hind femur; transverse fissure of VII abdominal sternum less sharply angled; apex of rostrum reaching posterior margin of posterior acetabula. (Irian Jaya, near north eastern border) **A. bloetei** BROWN

12. Pygophore as in figs. 70–71; paramere as in fig 72, distal arm narrow at its tip, tip bent upwards; I antennal segment shorter than IV. (Papua New Guinea, east)
A. ardleyi BROWN

—. Pygophore as in figs. 24+25; paramere as in fig. 26; distal arm not narrow at its tip, tip not bent upwards; I antennal segment slightly longer than or subequal to IV (Irian Jaya, north) **A. danishi sp. n.**

13. Pronotum viewed laterally, steeply declivous and pronotal collar very pronounced; scutellum with lateral margin as long as or longer than broad at base, tip usually concolorous; ♂ pygophore as in figs. 7+15; rostrum long, reaching at or beyond posterior margin of 2nd visible ventral abdominal segment; antennae long and unusually slender. 14

—. Pronotum less declivous and pronotal collar weaker; scutellum broader than long, with the tip infuscate (although sometimes very narrowly). 15

14. Scutellum with lateral margin of same length as width at base (fig. 14); humeral angles long (fig. 13); antennae, in absolute terms longer than that of **A. bukharii.** (Papua New Guinea, east and central) **A. theobromae** BROWN

—. Scutellum with lateral margin longer than width at base (fig. 4); humeral angles short (fig. 3); antennae, in absolute terms shorter than that of *A. theobromae.* (Papua New Guinea, south eastern) **A. bukharii sp. n.**

15. Relatively shorter and broader, scutellum short, very strongly truncate and narrowly infuscate at trip; margin of costa without black stripe. (San Cristobal)
A. cristobalensis BROWN

—. Relatively longer and narrower; scutellum much less strongly truncate; elytra with more or less well-marked black subcostal stripe. 16

16. Posterior margin of ♂ pygophore, viewed from behind, sinuate, the median part of it convex; parameres not or scarcely twisted; sub-costal stripe weaker and poorly defined. 17

—. Posterior margin of ♂ pygophore, viewed from behind, concave in the median part; parameres strongly twisted; sub-costal stripe weaker and poorly defined. 18

17 ♂ pygophore smaller, not or scarcely exceeding 9th tergum, more strongly tapered and narrower posteriorly; parameres with outer side of distal arm straight or scarcely concave; pronotum with humeral angles less strongly produced; elytra paler, chestnut brown; 4th antennal segment with approximately the distal half black. (Guadalcanal, Nggela, Western Solomon Islands) **A. cocophaga cocophaga** CHINA

—. ♂ pygophore larger, extending beyond the 9th tergum, less tapered and more parallel-sided posteriorly; parameres with outer side of distal arm strongly concave; pronotum with humeral angles more produced and acuminate; elytra darker, chocolate brown; 4th antennal segment more narrowly and indistinctly black at the tip. (Malaita) **A. cocophaga malaitensis** BROWN

18. Size smaller (♂ 11.5–12.7 mm, ♀ 13.0–13.8 mm); rostrum relatively longer, reaching the posterior margin of the 2nd abdominal (1st ventral) segment; antennae with segment IV longer than I in ♂, equal to it in ♀; colour of underside, when fresh, distinctly greenish. (Rennell I.) **A. costalis rennellensis** BROWN

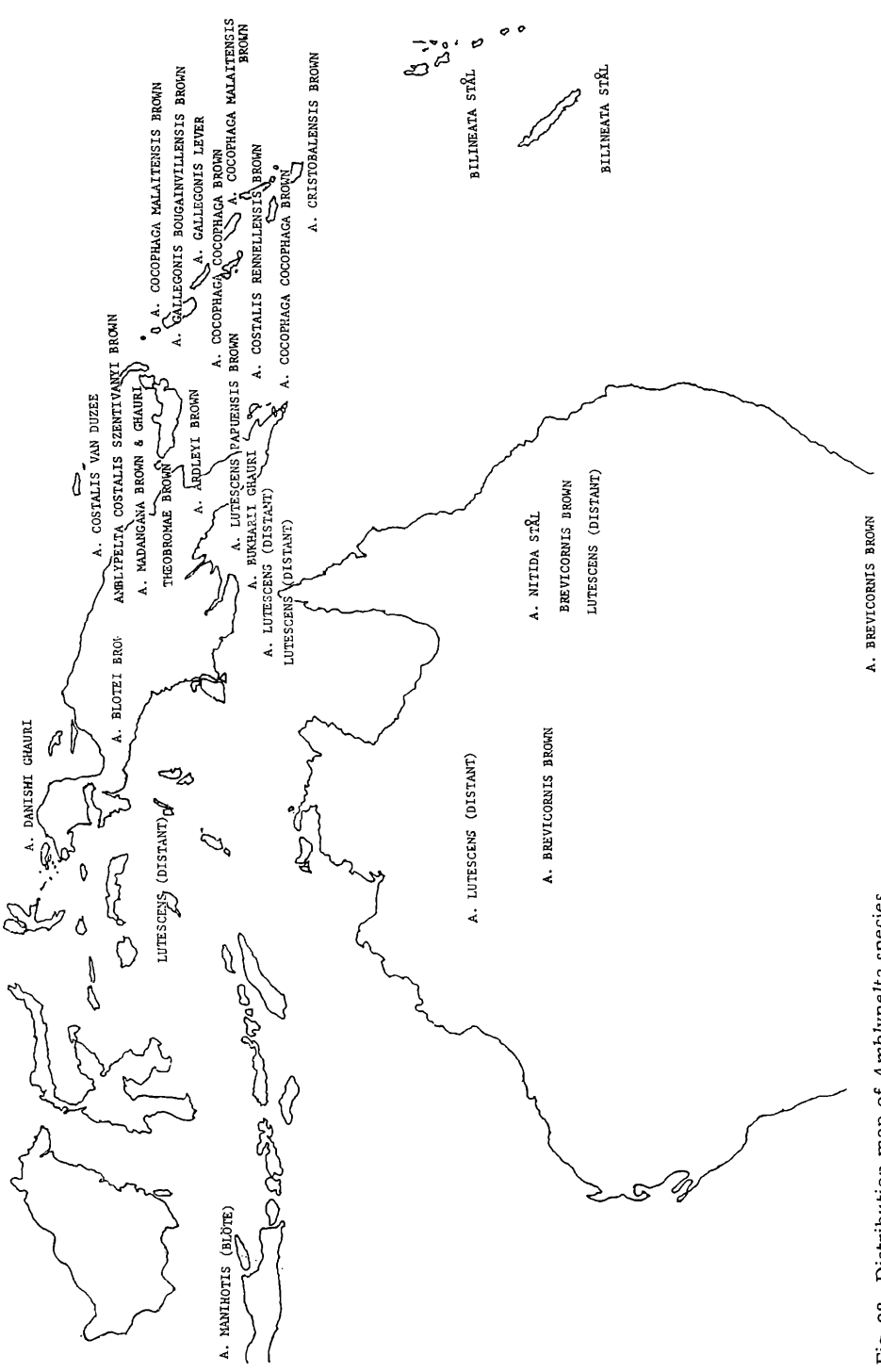


Fig. 98. Distribution map of *Amblypelta* species.

—. Size larger (♂ 13.0–14.1 mm, ♀ 14.3–15.8 mm); rostrum relatively shorter, reaching the middle of the 2nd abdominal segment; antennae with segment IV equal to I in ♂, shorter than I in ♀; colour of underside, when fresh, usually yellowish rather than green.

19. ♂ pygophore, viewed from behind, usually without a small notch in each side of the posterior border; lateral angles of pygophore, viewed from beneath, usually more rounded and lateral margins less convergent; parameres as in figs. 91+92. (Bellona I.) **A. costalis costalis** VAN DUZEE

—. ♂ pygophore, viewed from behind, usually with a small notch or groove in each side of the posterior border; lateral angles usually more pointed and lateral margins more convergent; parameres as in figs. 96+97. (New Guinea, New Britain) **A. costalis szentivanyi** BROWN

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Address of the author:
M. S. K. Ghauri, Commonwealth Institute of Entomology, c/o British Museum (Nat. Hist.), Cromwell Road, London SW7 5BD (U. K.)