

NOTES ON SOME CORIXIDAE (HETEROPTERA) FROM NEW GUINEA AND NEW CALEDONIA

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Abstract. *Cnethocymatia*, n. gen. is described for *Cymatia nigra*, an Australian species previously known from a single female; the male characteristics are described and illustrated, and the species is newly recorded from the island of New Guinea. *Sigara (Tropocorixa) papuensis*, n. sp. is described from Papua New Guinea, and 3 Australian species of Corixidae, *S. (T.) tadeuszi*, *S. (T.) truncatipala* and *Agraptocorixa eurynome*, are newly recorded from New Guinea. A North American species, *Trichocorixa verticalis verticalis*, is newly recorded from New Caledonia. Records of the various *Trichocorixa* species from the Pacific area are summarized and reliability of these records, as well as possible means of dispersal of the species, are discussed.

When checking through miscellaneous museum materials for a worldwide study on the family Corixidae, I found some very interesting specimens in the collections of the Bishop Museum, Honolulu (BISHOP), and in the Department of Scientific and Industrial Research, Auckland (DSIR). The following notes are based on these materials.

In his revision of the Corixidae of the Western Hemisphere, Hungerford (1948) erected a new subfamily, Cymatiinae, in which he placed the genus *Cymatia* Flor. Jaczewski (1963) discussed the relationships of the 6 known species of *Cymatia*, but he could not compare *Cy. nigra* Hungerford with the others because the male characteristics of this Australian species were still unknown. Hungerford (1947) based the description of *Cy. nigra* on a single female, and although there is another female from the type-locality in the collections of the Snow Entomological Museum, Lawrence, Kansas, no males have been recorded so far.

In the BISHOP collections I found 3 males and 7 females of Cymatiinae collected from New Guinea. The females appeared to be identical with the holotype of *Cy. nigra*, and since the collecting localities are relatively close to the type-locality, it seems safe to assume that the associated males are conspecific. Close investigation of the specimens revealed that while *Cy. nigra* is a typical representative of the subfamily Cymatiinae, it shows such striking differences when compared to other species of the genus *Cymatia* that the characteristics do not agree with the redescription of the genus as given, e.g., by Hungerford (1948). Thus, besides amending Hungerford's (1947) description of *Cy. nigra* with the male characteristics, I am placing the species into a new genus described below and recognized according to the following key.

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KEY TO GENERA IN THE SUBFAMILY CYMATIINAE HUNGERFORD

1. Pronotum with median longitudinal carina on at least anterior $\frac{1}{2}$; ♂ without any particular structures on abdominal dorsum **Cymatia**
 Pronotum without median longitudinal carina; ♂ with a fingerlike projection on 7th abdominal tergite **Cnethocymatia, n. gen.**

Genus **Cymatia** Flor

Hungerford's (1948) redescription of the genus should be supplemented by the following statement: Claval pruinose area about equally long to the pruinose portion of embolar groove posterior to the point where the media vein curves to the costal margin.

Type-species: *Sigara coleoptrata* Fabricius.

Species included: *Cy. americana* Hussey, North America; *Cy. apparens* (Distant), SE Asia; *Cy. bonsdorffi* (C. Sahlberg), Europe to Central Asia; *Cy. coleoptrata* (Fabricius), Europe to Central Asia; and *Cy. rogenhoferi* (Fieber), Central Europe to SW Asia and N Africa.

Cnethocymatia Jansson, new genus

Face reduced, rostrum without transverse sulcations. Postocular area relatively broad. No median longitudinal carina on pronotum. Claval pruinose area only about $\frac{1}{2}$ as long as pruinose portion of embolar groove posterior to point where media vein curves to costal margin. Pala elongate, nearly cylindrical, with few palmar hairs and ending in a broad elongate claw in ♂, in a spinelike claw in ♀. Male abdominal asymmetry dextral. Strigil lacking, but 7th abdominal tergite with a peculiar fingerlike projection.

Etymology. The Greek verb "knéthō" (=to tickle) refers to the fingerlike projection on the 7th abdominal tergite of the male; the projection presumably attaches the male to the female during mating, thus being analogous with the strigil of many other Corixidae (cf. Larsén 1938).

Type-species: *Cymatia nigra* Hungerford.

Cnethocymatia nigra (Hungerford), new combination

Fig. 1-8

Cymatia nigra Hungerford, 1947 (orig. descr. from a single ♀).—Jaczewski, 1963 (states ♂ still unknown).

♂. *Size.* Length 4.6–4.8 mm (Hungerford gives 4.6 mm for holotype ♀, but ♀ from New Guinea are slightly larger, measuring 4.7–5.0 mm). Width of head across eyes 1.5–1.65 mm (♀ 1.5–1.7 mm). *Color.* As in ♀; solid dark mahogany brown with orange-yellow half-moon spot at outer distal angle of corium. *Structural characteristics.* Head slightly longer than pronotal disk. Interocular space $0.6\times$ width of an eye. Face reduced, broadly flattened, and without sharp dorsal angle on frons; some relatively long hairs on frons (Fig. 1–3). Pronotum, hemelytra, thorax, as well as middle and hind legs as in ♀. Front leg (Fig. 4): femur with relatively long fine hairs on basal $\frac{1}{3}$, 2 long stout bristles ventrally, and about $\frac{1}{2}$ dozen somewhat variably located, shorter spines anteroventrally; tibia short, with 1 anteroventral spine; pala cylindrical, with 6 long lower palmar hairs, 7 short upper palmar hairs and 5 long anterodorsal hairs; claw broad, elongate, and about $\frac{1}{2}$ as long as pala. Strigil lacking, but 7th abdominal tergite with

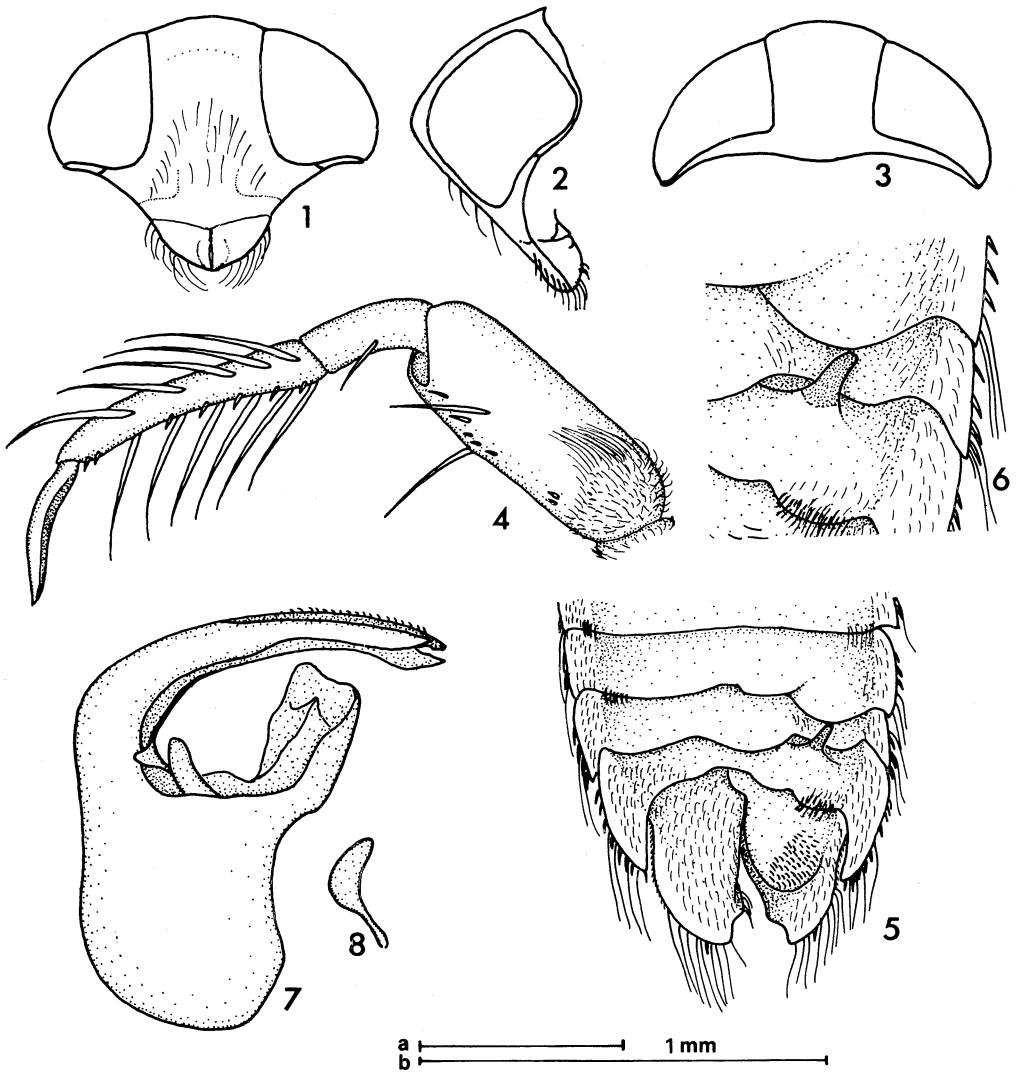


FIG. 1-8. *Cnethocymatia nigra*, ♂: 1-3, head in frontal, lateral, and dorsal views; 4, front leg; 5, abdomen dorsally; 6, details of the fingerlike projection on the 7th tergite; 7, genital capsule; 8, right paramere. Scale lines (1 mm) apply as follows: a = Fig. 1-3, 5; b = Fig. 4, 6-8.

a forward pointing fingerlike projection; right lobe of 8th tergite with an area of short stout bristles (Fig. 5-6). Genital capsule as illustrated, with right clasper relatively small (Fig. 7-8).

Remarks. Hungerford (1947) stated that in general appearance *Cn. nigra* resembles the South American *Heterocorixa nigra* Hungerford. This resemblance is evident because *Cn. nigra* is not even nearly as slender as the other Cymatiinae. Thus, it is rather surprising that Hungerford did not erect a new genus for the species, although

he also mentioned the lack of the pronotal carina and the shortness of the claval pruinose area. With the male characteristics of the species now known, it is obvious that *Cn. nigra* is remote from the genus *Cymatia*. The most striking difference appears in the 7th abdominal tergite. All species of *Cymatia* have this tergite rather reduced (evidently to allow free opening movement for the lobes of the 8th segment during mating), but the tergite of *Cnethocymatia* is not reduced; on the contrary, it carries the fingerlike projection as an extra organ. The projection of *Cnethocymatia* is unique among Corixidae known so far. While it is presumably analogous with the strigil of many other Corixidae, it cannot be homologous with the strigil, as the latter is always located on the 6th tergite.

Specimens examined. AUSTRALIA: holotype ♀ of *Cymatia nigra*, Prince of Wales I, 15.II.1939, R.G. Wind; 1♀, as above but collected 3.II.1939. PNG: NEW GUINEA (SE): 1♂, 3♀, Fly Riv, Kiunga, 35 m, VIII.1969, light trap, J. Sedlacek; 1♂, as above but collected by J. & M. Sedlacek; 1♂, Ruka, 9 m, 12.VIII.1964, light trap, H. Clissold; 1♀, Western Distr, Oriomo Riv, 3 m, 4.VIII.1964, light trap, H. Clissold; 2♀, middle Fly Riv, 250–300 mi (400–500 km) up, VII.1928, Pemberton. IRIAN: NEW GUINEA (NW): 1♀, Netherlands Hollandia area, W Sentani, Cyclops Mts, 50–100 m, 22–25.VI.1959, light trap, J.L. Gressitt & T.C. Maa. The holotype and other Australian specimen are in the Snow Entomological Museum, Lawrence, Kansas; other material is deposited in BISHOP, except for 1♂, 1♀ retained by the author.

OTHER CORIXIDAE FROM NEW GUINEA

The BISHOP material included a number of unidentified Corixidae from SE Asia and Australasia, and in these the following species are evidently new to the island of New Guinea.

***Agraptocorixa eurynome* (Kirkaldy)**

Specimens examined. IRIAN: NEW GUINEA (NW): 18♂, 34♀ (+3 nymphs), Wisselmeren, Itouda, Kamo V, 1500 m, 14.VIII.1955, J.L. Gressitt; 1♀, as above but Kamo-Debei div., 1700 m.

This species is widely distributed in Australia and has been recorded from all the territories except Tasmania (Knowles 1974). The very closely related *Agraptocorixa macrops* Hungerford has been described from New Guinea (Hungerford 1953) and recorded also from Western Australia. In separating the 2 species, Knowles (1974) used size and shape of the strigil, but unfortunately this character is applicable to males only. During the present study I compared the material above (as well as some Australian specimens of *A. eurynome*) with a male and a female paratype specimens of *A. macrops* and found a separating character that applies to both sexes. *A. eurynome* has a short but clear postnodal pruinose area, but in *A. macrops* the pruinose area of embolium does not extend beyond the nodal furrow.

***Sigara (Tropocorixa) tadeuszi* Lundblad**

Specimens examined. IRIAN: NEW GUINEA (NW): 1♂, 2♀, Wisselmeren, Enarotadi, 1800–1850 m, 13.VII.1962, J. Sedlacek; 1♀, as above but 1850–1900 m, 30.VII.1962; 1♂, Wamena, 1700 m, 10–25.II.1960, T.C. Maa.

Previous records of this species include Queensland and New South Wales (Lansbury 1970), as well as New Caledonia (Polhemus & Herring 1970). The last record was confirmed during the present study, as the BISHOP material also included specimens from 2 localities in New Caledonia: Ile de Pins and St. Louis Mission near Nouméa.

Sigara (Tropocorixa) truncatipala (Hale)

Specimens examined. PNG: NEW GUINEA (NE): 1♂, Mt Giluwe, 2180–2250 m, 5.VI.1963, M. Sedlacek.

This species has been previously recorded from South Australia, Victoria, New South Wales, and Queensland (Lansbury 1970). In addition, Polhemus & Herring (1970) mentioned Mr Lansbury's unpublished record from New Caledonia. This last record was confirmed during the present study, as the BISHOP material included specimens of *S. truncatipala* from the following localities in New Caledonia: Oua, Tom, Ouano Beach, Nakale River, and St. Louis Mission nr Nouméa.

Sigara (Tropocorixa) papuensis Jansson, new species

Fig. 9–16

Size. Length 6.0–6.5 mm; width of head 2.0–2.2 mm. *Color.* General facies medium to dark brown. Pronotum crossed by 7–8 brown lines, with some irregularities in middle. Claval lines usually regular at base, irregular distally. Brown markings of corium and membrane rather irregular, vermiculate. Embolium smoky. Head pale yellow, thorax and abdomen ventrally pale to smoky. Legs pale. *Structural characteristics.* Head about equal in length to pronotum in ♂, slightly shorter than pronotum in ♀. Facial hairs few; synthlipsis slightly wider than width of an eye; ♂ fovea broad and with clear dorsal angle when viewed laterally (Fig. 9–11). Lateral lobe of thorax somewhat tapering. Mesoepimeron narrow, osteole near tip. Metaxyphus clearly longer than wide, rounded at tip (Fig. 12). Male fore leg: femur with about 15 rows of faintly developed stridulatory pegs; tibia with well-developed dorsal carina; 27–30 palar pegs in 1 regularly curving row (Fig. 13). Middle leg femur : tibia : tarsus : claw = 100:48:35:44. Hind leg femur : tibia : tarsus 1 : tarsus 2 = 100:95:118:48. Male abdominal asymmetry dextral, strigil with 4 combs (Fig. 14–15). Right paramere as illustrated (Fig. 16).

Remarks. *S. papuensis* is a typical representative of the subgenus *Tropocorixa*, being very closely related to *S. australis* (Fieber) and *S. tasmaniae* Jaczewski from Australia, as well as to *S. insulana* Lundblad from Java and Borneo and to *S. infrequens* Young from New Zealand. While females of *Tropocorixa* are almost impossible to identify to species, males of *S. papuensis* can be separated from the closest relatives as follows. All Australian species mentioned have the dorsal edge of the foveal depression smoothly rounded, but in *S. papuensis* there is a clear angle when viewed laterally (Fig. 10). From *S. insulana*, the new species differs in a number of characters: palar peg row, median lobe of the 7th tergite, and the right clasper (cf. Lundblad 1933), and in *S. infrequens* the strigil is clearly larger than in *S. papuensis*.

Holotype ♂, PNG: NEW GUINEA (NE): Tambul, 2200 m, 2.VI.1963, J. Sedlacek (BISHOP 12,317). Paratypes: PNG: NEW GUINEA (NE): 1♂, 2♀, same data as holotype; 2♂, Mt Giluwe, 2180–2250 m, 5.VI.1963, M. Sedlacek; 3♂, 2♀, Tapo (=Tapu), 3 km NW of Kainantu, 1650

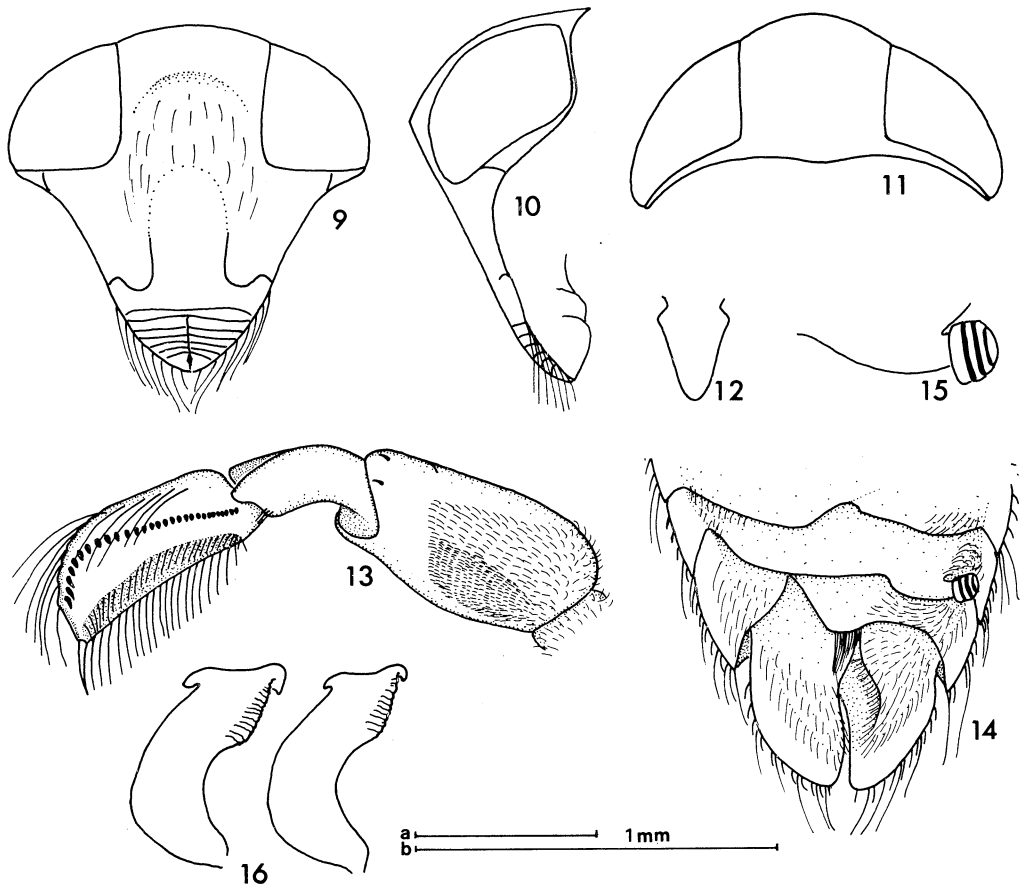


FIG. 9-16. *Sigara papuensis*, ♂: 9-11, head in frontal, lateral, and dorsal views; 12, metaxyphus; 13, front leg; 14, abdomen dorsally; 15, strigil; 16, right paramere. Scale lines (1 mm) apply as follows: a = Fig. 9-11, 14; b = Fig. 12-13, 15-16.

m, 22.X.1959, T.C. Maa. The series is deposited in BISHOP except for 2♂, 1♀ paratypes retained by the author.

Distribution. The collecting data indicate that *S. papuensis* inhabits fairly high altitudes, and thus, the species is expected to be found throughout the mountain range that extends from PNG to Irian Jaya. Further collecting will hopefully show whether the species is endemic to New Guinea.

TRICHOCORIXA VERTICALIS VERTICALIS FROM NEW CALEDONIA

In DSIR, Auckland, I had an opportunity to study a sample of small corixids collected from New Caledonia. To my great surprise, the material appeared to belong to *Trichocorixa verticalis verticalis* (Fieber), a North American subspecies normally

found along the Atlantic coast of the United States, coastal areas of the Gulf of Mexico, and in the Caribbean Islands.

Specimens examined. NEW CALEDONIA: 6♂, 2♀, Col d'Amieu, 15.X.1978, at light, J.S. Dugdale; 1♂, 1♀, as above but at night, J.C. Watt; 2♀, as above but 16.X.1978, at MV light, J.S. Dugdale & K.J. Fox. Specimens are in the collections of DSIR, Auckland, except for 2♂, 1♀ retained by the author.

In general, the genus *Trichocorixa* is confined to North and South America and their associated and neighboring islands. In his revision of the genus, Sailer (1948) reported the following species from the Pacific area: *T. reticulata* (Guérin-Méneville) along the coast from California to Peru, as well as from the Galapagos and the Hawaiian Islands; *T. beebei* Sailer from the Galapagos Islands; *T. parvula* (Champion) from Mexico; and *T. verticalis californica* Sailer and *T. verticalis saltoni* Sailer from California. Sailer had a further record of *T. calva* (Say) with a label "P.I.," which he with some doubt suggested might indicate Philippine Islands. On the other hand, I have seen labels R.I. (=Rhode Island) under many corixids in various collections, and because this would fit within the known distributional range of *T. calva*, I would be tempted to suggest careless writing of the label in this particular case.

In addition, Sailer (1948) also mentioned Lundblad's (1929) record of *T. reticulata* (as *T. wallengreni*) from Shanghai, China. However, this record also seems rather doubtful, because no later records of any *Trichocorixa* exist from anywhere in SE Asia. Lundblad (1929, 1931) did not state the origin of his material or where it would be deposited, but because he worked in close cooperation with the Copenhagen museum it is most probable that the record was based on specimens collected during the expedition of the Danish vessel *Galathea* in 1845-47. In the collections of the Copenhagen museum I have seen 1 male and 2 females of *T. reticulata* labeled "Shanghai, Galatea." However, these specimens cast even more doubt on the record, because Dr Nils Møller Andersen (pers. commun.) has experienced mislabelings in the *Galathea* material previously. In the present case, mislabeling seems rather obvious because the material on Corixidae includes specimens carrying either original labels or labels that have clearly been written more recently. While none of the *T. reticulata* specimens labeled "Shanghai, Galatea" have an original label, there is also 1 male labeled "Oahu, Galatea" (as well as 1 female *Sigara* sp. with an original label "Shanghai, Galatea"). It seems quite evident that during the journey the original labels were placed on only the 1st specimen in each series, and, while all the *T. reticulata* specimens were in fact collected from Oahu, the series was mixed with the material from Shanghai during subsequent labeling.

In discussing the means of dispersal of various *Trichocorixa* species to remote areas, Sailer (1948) gave a good example of natural dispersal of *T. verticalis verticalis*, from Florida to Bermuda, with the aid of strong winds. On the other hand, Sailer's suggestion that *T. reticulata* could have travelled from California to the Hawaiian Is, a distance of some 4000 km, with the aid of the California Current and the Northern Equatorial Current seems rather far-fetched, even though the species is known to

tolerate sea water to some extent. The fact that the first record of *T. reticulata* (=description of the species as *T. blackburnii*) from the Hawaiian Is dates as far back as 1877 does not prove that the population had been established before the coming of western man to the islands, as was suggested by Sailer (1948). Even the Galathea material that was collected some 30 years earlier does not prove such an early establishment of the population. It is well known that after the rediscovery of the islands by Captain James Cook in 1778, there was a period when, for example, sandalwood traders and Spanish pirates visited the islands frequently, and from 1820 on, various missionary groups founded permanent stations on the islands. Considering the distance from California, it would seem much more probable to suggest that dispersal has occurred with the aid of man. For instance, wet sand was used as ballast on ocean sailing ships, and it is not impossible for *T. reticulata* to have survived the journey in the egg stage under such conditions. Another possibility could have been the developmental stages being transported in water barrels and the like.

In the case of *T. verticalis verticalis* found on New Caledonia, natural dispersal is out of the question because it would involve a move from the Atlantic side of North America to the western Pacific area. For the same reason an accidental dispersal through the aid of man some 100–150 years ago seems improbable because the journey would have taken too long under obscure conditions on slow ships. On the other hand, for a relatively recent accidental introduction of the species, there is a possible explanation in connection with the introduction of the mosquito fish, *Gambusia affinis* (Baird & Girard), to New Caledonia. During World War II there was an American military base close to the site where the bugs were collected (Dr Kuschel, pers. commun.), and it is quite possible that the mosquito fish was introduced in the nearby swampy area during the war. The fish and the bug have sympatric distributions in the SE United States, and even though the former willingly feeds on any aquatic insects of suitable size, it may be that *T. verticalis verticalis* was carried to the area as eggs on pieces of aquatic plants, and thus escaped predation by the fish. The journey from the United States to New Caledonia by modern air transportation is now only a matter of hours, and several other possibilities for accidental introduction of the bug exist as well. Thus, more collections of introduced aquatic insects in the area would be needed before these speculations could lead to firmer conclusions.

Acknowledgments. I wish to express my sincere gratitude for loan of material and helpful cooperation to the following colleagues: Dr N. M. Andersen, Copenhagen; Dr P. D. Ashlock, Lawrence; Dr W. C. Gagné, Honolulu; and Dr T. Crosby and Miss C. Butcher, Auckland. Financial aid for my travel was obtained from the University of Helsinki.

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ERRATA

Errata to PI 23(1-2)

p. 55, line 9 down: keawe should be kiawe

p. 115, line 15 up: **Dorotartessus** should be **Dorrotartessus**

NOTICES**NOTICES FROM THE INTERNATIONAL COMMISSION
ON ZOOLOGICAL NOMENCLATURE**

The following Opinions and Directions have been published recently by the International Commission on Zoological Nomenclature in the *Bull. Zool. Nom.* **38**(4), 1981.

Opinion no. 1118 (p. 239) *Aphis pyri* Boyer de Fonscolombe, 1841 (Insecta, Hemiptera), conserved.

Opinion no. 1191 (p. 249) *Berytus consimilis* Horváth, 1855 (Hemiptera, Berytinidae), lectotype designation confirmed.

Opinion no. 1192 (p. 252) *Lecanium acuminatum* Signoret, 1873 (Insecta, Homoptera, Coccidae), neotype designated.

Opinion no. 1193 (p. 254) *Ceratophysella* Börner, 1932 (Insecta, Collembola), conserved.

Direction no. 110 (p. 280) *Ixodes* Latreille, 1795 (Arachnida, Acarina), entry in Official List of Generic Names confirmed.

(The Commission regrets that it cannot supply separates of Opinions or Directions.)

The Commission gives 6 months' notice of the possible use of its plenary powers in the following cases, published in *Bull. Zool. Nom.* **38**(4), 8 December 1981, and would welcome comments and advice on them from interested zoologists. Correspondence should be addressed to the Secretary and mention the following reference number: A.N.(S.) 120.

Case no. 2359 *Typus* Sellards, 1909 (Insecta, Protodonata), proposed conservation under plenary powers.

Case no. 2148 *Capsus ater* Jakovlev, 1889 and *Lygaeus quadripunctatus* Fabricius, 1794 (Insecta, Hemiptera, Heteroptera), proposed nomenclatural validation.

Case no. 2317 *Byrrhus semistriatus* Fabricius, 1794 (Insecta, Coleoptera, Byrrhidae), proposed conservation.