

A NEW TRIBE AND GENUS OF NOTONECTINAE (Heteroptera: Notonectidae) FROM BORNEO¹

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Abstract: A new tribe Aphelonectini and a new genus *Aphelonec:a* with 2 new species *alexis* and *nakatae* are described. The affinities of *Aphelonec:a* are discussed and a key to the Notonectinae suggested.

Amongst a large collection of Notonectinae recently received from Bishop Museum was a series of specimens from Borneo closely resembling *Enithares*. These specimens have been found to combine the characters of the Notonectini and Nychini following the tribal and generic concepts of Brooks (1951). The following key to the Notonectinae is adapted from Brooks (1951).

1. Hemelytral commissure without a definite hair-lined pit at anterior end...**Notonectinae** 2
Hemelytral commissure with a definite hair-lined pit at anterior end**Anisopinae**
2. Mid femur with an anteapical pointed protuberance**Notonectini** 3
Mid femur without an anteapical pointed protuberance 4
3. Anterolateral margins of prothorax not foveate **Notonecta**
Anterolateral margins of prothorax foveate **Enithares**
4. Eyes basally contiguous or forming an ocular commissure, ♂ gonoforceps asymmetrical.....**Nychini** 5
Eyes basally widely spaced, ♂ gonoforceps symmetrical.....**Aphelonectini** new tribe
5. Anterolateral margins of prothorax not foveate..... **Neonychia**
Anterolateral margins of prothorax foveate..... 6
6. Antennae 3-segmented **Nychia**
Antennae 4-segmented..... **Martarega**

Genus *Aphelonec:a* Lansbury, n. gen.

Type species: *Aphelonec:a alexis*, n. sp.

General facies very similar to *Enithares*. Hemelytral commissure without a definite hair-lined pit at anterior end. Mid femur without a pointed anteapical protuberance. Anterolateral margins of prothorax foveate. Eyes widely spaced basally. Labrum flat and triangular. Antennae 4-segmented. Infracoxal plates bare but margined with hairs. All tarsi 2-segmented with 2 claws, those of hind tarsus small and inconspicuous. Male geni-

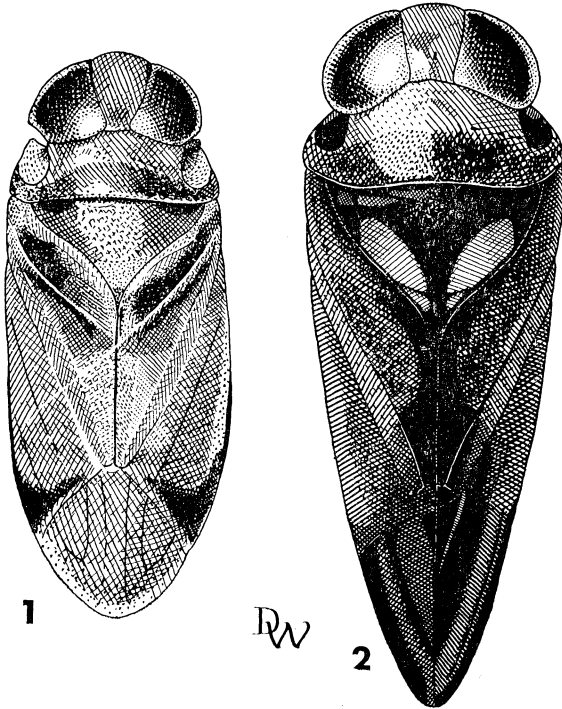
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talia (figs 9 & 10) very similar to *Enithares*. The terminology used follows that of Truxal (1952). Basal plate (bp) large. Aedeagus differentiated with phallosoma (ph) and endosoma (end). Phallosoma funnel-shaped, moderately sclerotised. Penis valves not visible. Gonoforceps (g) symmetrical and elongate. Genital capsule cleft posteriorly forming 2 lobes. Tergum IX (t9) forming a broad bridge across anterior region of capsule. Female genitalia (fig 15) identical with *Enithares*. The terminology follows that of Scudder (1959). Sternum VII produced posteriorly, partially covering genitalia. Paratergite VIII large and conspicuous, spiracle VIII apparently close to attachment with 1st gonocoxa. Paratergite IX smaller and not separated from tergum IX (t9). First gonocoxa (1gx) triangular in shape, membranous. First gonapophysis (1gpo) elongate, pigmented and sclerotised with stout spines along margins and at apices. Gonangulum (ga) membranous and triangular. Second gonocoxa (2gx) slender and very lightly sclerotised. Second gonapophysis (2gpo) heavily sclerotised throughout, ventrally bent at apex and with many stout spines. Gonoplas (gpl) separate, stylus-like, covered with fine hairs. Single median spermatheca present.

***Aphelonecta alexis* Lansbury, n. sp. Figs. 2-18.**

Size: 7.75 mm long, 2.75-3 mm wide.

Shape: very broad across pronotal humeral angles, tapering almost to a point at end

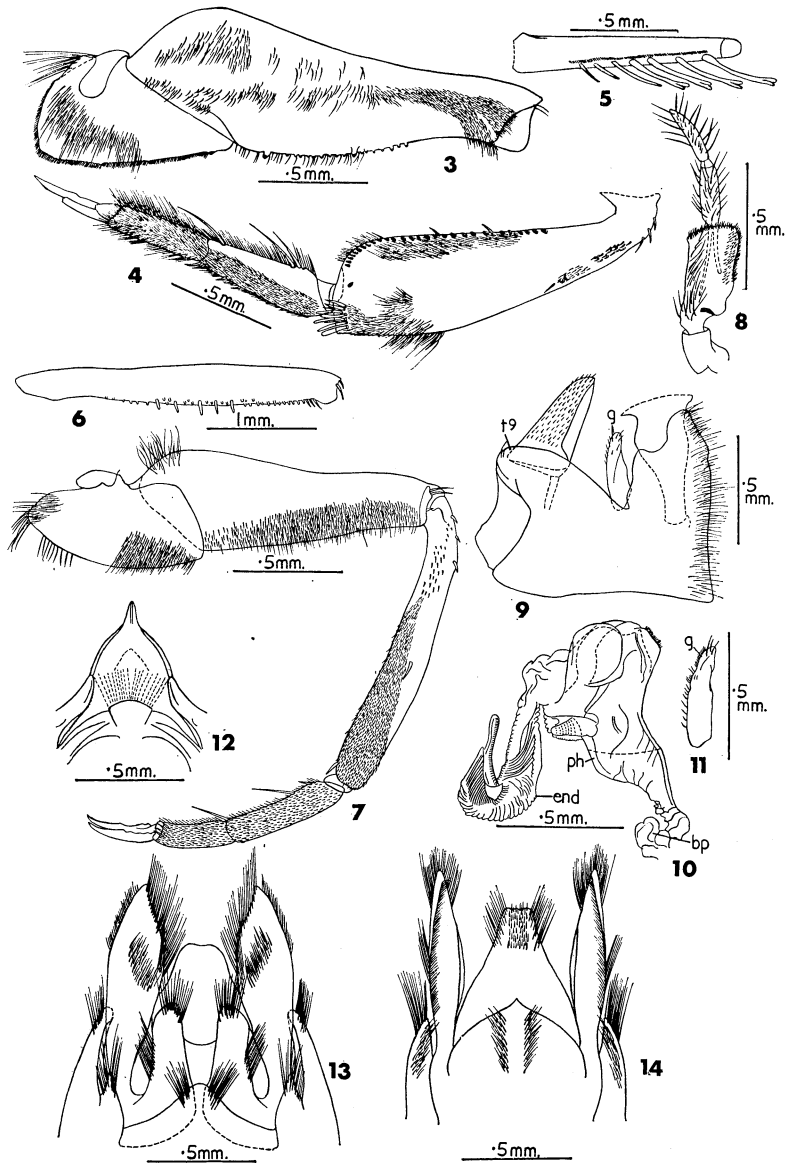


Figs. 1-2. 1, *Aphelonecta nakatae* n. gen., n. sp. ♀ dorsal view; 2, *Aphelonecta alexis* n. gen., n. sp. ♂ dorsal view.

of abdomen, margins of elytra slightly sinuate. Color: eyes shining black with brown flecks. Vertex pale yellowish brown between eyes dorsally, above labrum pale reddish. Pronotum shining, anterior 1/2 pale yellowish brown, remainder black flecked with brown. Pronotal fovea dark brown, tomentose. Scutellum shining black, lateral margins broadly pale yellowish brown. Elytra shining, minutely and distinctly punctate. Clavus mainly black, grayish hyaline along outer margins. Corium grayish hyaline with distal apices black. Membrane opaque, shining black. Legs and abdomen ventrally pale brown.

♂. Structural characters: viewed from above, the outline of the head is rounded. Greatest width of head just over 4× anterior width of vertex and about 7/8 pronotal humeral width. Synthlipsis 2/3 anterior width of vertex, head slightly longer than anterior width of vertex and slightly shorter than median pronotal length.

Pronotal humeral width $\frac{2}{3}$ greater than median length. Lateral margins curved, posterior margin slightly concave. Dorsal margin of pronotal fovea curving round towards eyes.



Figs. 3-14. *Aphelonecta alexis* n. gen., n. sp. ♂. 3, inner view of mid femur; 4, inner view of tibia and tarsus of mid leg; 5, tarsal segment 1 of hind leg (long hairs omitted); 6, hind femur; 7, inner view of fore leg; 8, antennae; 9, lateral view of genital capsule, aedeagus removed; 10, lateral view of aedeagus; 11, gonoforceps; 12, metaxyphus; 13, dorsal view of end of abdomen; 14, *ibid*, ventral view.

Scutellum large, nearly $1/3$ wider than long. Nodal furrow curved forward and less than its length removed from membranous suture. Chaetotaxy of fore leg (fig 7). Mid femur simple with no anteapical spine (fig 3). Mid tibia distally expanded and slightly concave viewed from inner aspect (fig 4). Hind femur with 5 prominent brown pigmented spines (fig 6). First hind tibia with 7 long spines, the distal 4 clearly bifurcate at apex (fig 5). Metaxyphus as in fig 12. Antennae 4-segmented, segments 2 and 3 elongate and covered with long fine hairs (fig 8). Genitalia, as in figs 9, 10 & 11. Base of abdomen dorsally and ventrally (figs 13 & 14).

♀. Structural characters: viewed from above the outline of the head is rounded. Greatest width of head $3\times$ anterior width of vertex and about $5/6$ pronotal humeral width. Synthlipsis $3/5$ anterior width of vertex. Head slightly longer than anterior width of vertex and almost equalling median pronotal length. Pronotum and scutellum similar to ♂. Fore femur similar to ♂. Fore tibia and tarsal segment 1, as in fig 18. Mid femur similar to ♂. Mid tibia more parallel-sided, not so conspicuously expanded distally (fig 17). Hind femur simple (fig 16). Genitalia as in fig 15.

Holotype ♂ (BISHOP 4184) and 5♂ 13♀ paratypes W. coast Residency, Ranau, 500 m, Sabah (North Borneo), 7.X-28.XI.1958, T. C. Maa. In Bishop Museum, Honolulu, except 2♂♂; 4♀ paratypes retained in Hope Dept. Entomology, University Museum, Oxford.

This species is notable for the remarkable spines on the hind femur and bifurcate spines on the hind tarsus of the male. These secondary sexual characters have not hitherto been noticed in the Notonectidae.

Aphelonecta nakatae Lansbury, n. sp. Figs. 1 and 19-24.

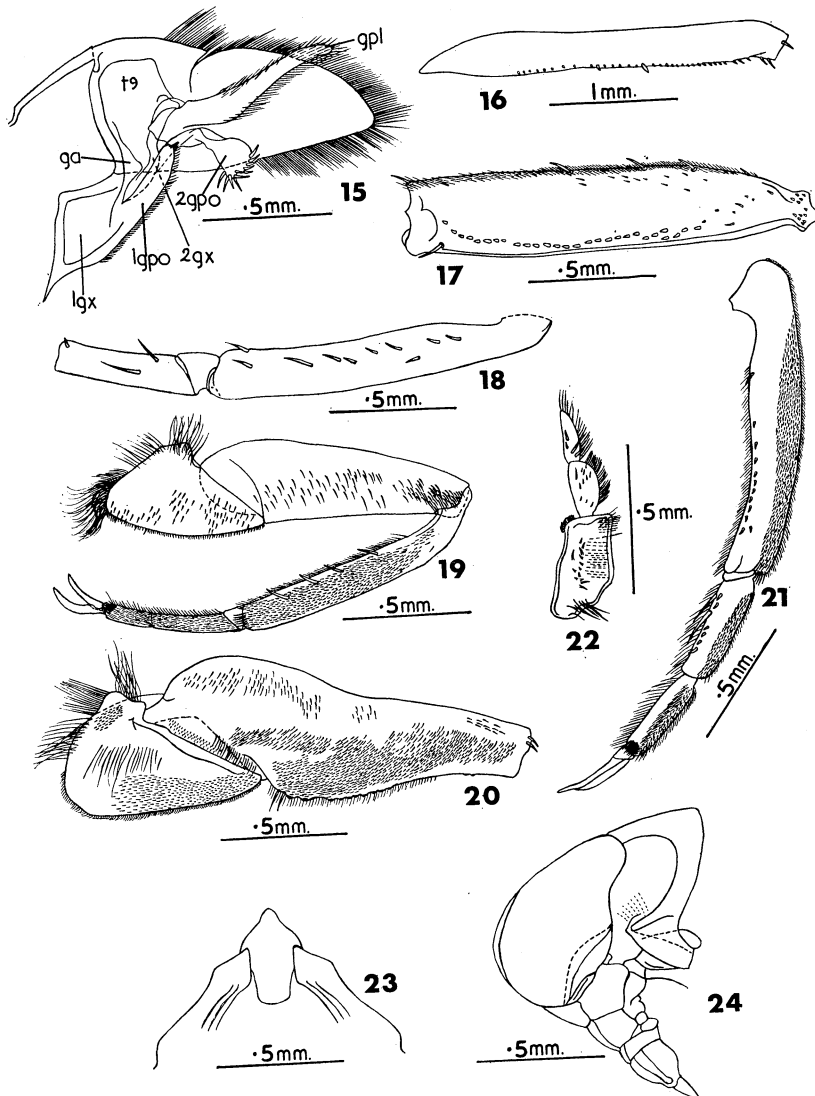
Size: 5.75-6.00 mm long, 2.00-2.25 mm wide.

Shape: very short robust species, head much narrower than pronotum. Viewed dorsally, parallel-sided on most of thorax and abdomen. Species very compressed dorso-ventrally. Color: eyes brick red with dark brown flecks. Vertex, pronotum and scutellum yellowish brown. Margins of vertex adjacent to eyes black. Hemelytra yellowish brown, partially hyaline. Anterior angles of clavus, posterior angle and outer lateral margins of corium suffused with bluish black iridescence. Membrane yellowish brown hyaline. Legs and abdomen ventrally yellowish brown.

♀. Structural characters: viewed from above, the outline of the head is rounded, vertex slightly exceeding anterior margin of eyes. Greatest width of head just over $5/6$ pronotal humeral width and $3\times$ anterior width of vertex. Synthlipsis slightly more than $1/3$ anterior width of vertex. Head length about $2/5$ greatest head width and about $1/4$ longer than median pronotal length. Pronotal humeral width $3.5\times$ median length, lateral margins divergent, straight and about $2/3$ median length. Posterior convex, medianly emarginate. Pronotal fovea tomentose. Dorsal margin of fovea curving round towards eyes. Anterior dorsal margin of fovea clearly distinct from posterior margin of eyes (figs 1 & 24). Scutellum with basal width $1/4$ greater than median length. Nodal furrow straight, only tip directed towards head and less than its own length removed from membranous suture. Elytra evenly and minutely punctate. Fore leg, tibia with 5 fine spines (fig 19). Mid femur without an anteapical pointed protuberance (fig 20). Mid tibia slightly flattened and enlarged medially (fig 21). Tarsal segment 1 of median leg with 6 stout heavily pig-

mented spines (fig 21). Antennae, basal segment not included as in fig 22.

Holotype ♀ (BISHOP 4185) and 3 ♀ paratypes, Nanga, Pelagus, nr. Kapit, 180-585 m, Sarawak, Borneo, 7-17. VIII. 1958, T. C. Maa. In Bishop Museum, Honolulu except 1 ♀ paratype retained in Hope Dept. Entomology, University Museum, Oxford.



Figs. 15-18. *Aphelonecta alexis* n. gen., n. sp. ♀: 15, inner view of genitalia (spermatheca not shown); 16, hind femur; 17, inner view of mid tibia; 18, inner view of fore tibia and tarsal segment 1. Figs. 19-24. *Aphelonecta nakatae* n. gen., n. sp. ♀: 19, inner view of fore leg; 20, inner view of mid femur; 21, inner view of mid tibia and tarsus; 22, antenna (basal segment omitted); 23, metaxyphus; 24, lateral view of head and pronotum (antennae omitted).

As previously stated *Aphelonecta* is in most detail similar to *Enithares* and can only be separated from the latter by the absence of the pointed anteapical protuberances on the mid femur. *Aphelonecta* appears to combine characters of the Notonectini and Nychini. It is clear, however, that despite the absence of the median femoral protuberance the Aphelonectini are much closer to Notonectini than Nychini. The male and female genitalia, bare infracoxal plates, foveate prothorax and basally widely separated eyes are all typical of the Notonectini. If *Aphelonecta* is only an aberrant form of *Enithares*, then the accepted concept of the Notonectini must be expanded to include the Nychini. This assumption is based on the combination of characters of both taxa present in *Aphelonecta*. It is felt that to include the three genera of Nychini (*Nychia*, *Neonychia* and *Martarega*) in the Notonectini would be a retrograde step, since two tribes as they are defined at present (Brooks 1951) do form relatively homogenous groups. With this in mind, it has been thought better to erect the new tribe Aphelonectini for the specimens described in this paper from Borneo.

REFERENCES

- Brooks, G. T. 1951 A revision of the genus *Anisops* (Notonectidae, Hemiptera). *Kans. Univ. Sci. Bull.* **34**(1): 301-519.
- Hungerford, H. B. 1946 A new genus and species of Notonectidae. *J. Kans. Ent. Soc.* **19**(2): 59-62.
- Scudder, G. G. E. 1959 The female genitalia of the Heteroptera: Morphology and bearing on classification. *Trans. R. Ent. Soc. Lond.* **111**: 405-65.
- Truxal, F. S. 1952 The comparative morphology of the male genitalia of the Notonectidae (Hemiptera). *J. Kans. Ent. Soc.* **25**(1): 30-38.