

THE GELASTOCORIDAE OF AUSTRALIA (Hemiptera)

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Our knowledge of the gelastocorid fauna of Australia has developed very slowly since the description of *Mononyx suberosus* Erichson (1842). The subsequent advances by Stål (1854 and 1863), Montandon (1899 and 1900), Horvath (1902), Distant (1904) and Todd (1955, 1957 and 1959) have all been taxonomic in scope, each consisting of descriptions of one or more new species and/or further discussion of those previously described. All the Australian species belong to the genus *Nerthra*. There has been some increase in our knowledge of the geographic distribution of the Australian species, but to date most of the collecting has been in the vicinities of the metropolitan areas and large areas of the continent remain to be collected. The present paper does not vary from those preceding it, except that it is based on a much larger assemblage of specimens, that all the previously described species are recognized and treated, and that certain problems relative to the ecologies, life histories and distributions of some of the species are discussed. It is my hope that the knowledge of the existence of these problems will stimulate students in Australia to attempt their solution.

The 15 Australian species of *Nerthra* treated by Todd (1955) were assigned to the Alaticollis and Laticollis species groups. On the basis of further studies of much more material (only 45 specimens representing 12 species were available during the previous study) I now place the 21 Australian species into four species groups as follows:

Rugosa Group

Nerthra rugosa (Desjardins)
Nerthramacrothorax (Montrouzier)

Laticollis Group

Nerthra luteovaria (Distant)
Nerthra walkeri Todd
Nerthra grandis (Montandon)
Nerthra suberosa (Erichson)
Nerthra femoralis (Montandon)
Nerthra hirsuta (Todd)

Alaticollis Group

Nerthra alaticollis (Stål)

Nerthra soliquetra Todd, n. sp.

Nerthra hylaea Todd, n. sp.

Nerthra tasmaniensis Todd

Nerthra adspersa (Stål)

Nerthra plauta Todd, n. sp.

Nerthra stali (Montandon)

Nerthra tuberculata (Montandon)

Elongata Group

Nerthra elongata (Montandon)

Nerthra annulipes (Horvath)

Nerthra sinuosa Todd

Nerthra probolostyla Todd, n. sp.

Nerthra nudata Todd

The Elongata and Alaticollis groups are precinctive. The Laticollis group occurs also in the Papuan faunal region and, in fact, reaches its greatest development there. Even so, the two areas are not known to have any species of this group in common. The Rugosa

group contains widespread, oceanic species which are known to occur in the Australian, Papuan, Oriental and African faunal regions and have even reached the Western Hemisphere (Panama and Florida). However, all four groups occurring in Australia are more closely related to each other than to the Oriental and African Grandicollis group. The latter are intermediate to the Australian and Papuan groups and those occurring in the Western Hemisphere. The groups treated in this work are recognized as follows. Rugosa Group: Front of head with dense, rounded pads of setae. Elongata Group: Apex of head rounded, without a toothlike tubercle. Laticollis Group: Apex of head with conical toothlike tubercle; conspicuous clumps of scalelike setae present on hemelytra. Alaticollis Group: Apex of head with conical toothlike tubercle; hemelytra nearly glabrous, setae extremely minute.

This study has been based with one exception solely on adult specimens of which more than 300 have been studied. The nymphs of a few species may be recognized by means of a combination of morphological characteristics and geographical distribution, but generally nymphs cannot be determined beyond species group. The group characters applying to the head will separate the nymphs as well as the adults. The nymphs of the Laticollis group and Alaticollis groups differ in that the connexivum is sinuous in the latter, and even in the former.

Except for a few specimens from the collections of the United States National Museum, the material examined was made available through the courtesy and cooperation of the following individuals and institutions. C. E. Chadwick, Entomological Branch, Department of Agriculture, Sydney, N. S. W.; S. L. Tuxen, Zoologisk Museum, København, Denmark; A. N. Burns, National Museum of Victoria, Melbourne, Victoria; J. W. Evans and A. Musgrave, Australian Museum, Sydney, N. S. W.; G. Mack, Queensland Museum, Brisbane; G. F. Gross, South Australian Museum, Adelaide, South Australia; A. J. Nicholson, Commonwealth Scientific and Industrial Research Organization, Canberra, Australia; T. E. Woodward, University of Queensland, Brisbane; P. J. Darlington, Jr., Museum of Comparative Zoology, Harvard College, Cambridge, Mass. and C. J. Drake, U. S. National Museum, Washington, D. C.

Genus *Nerthra* Say

KEY TO AUSTRALIAN SPECIES OF NERTHRA

1. Rounded pads of dense clavate bristles present on front of head..... 2
 Front of head provided with some (usually 4 or 5) sharp-pointed, conical, toothlike tubercles..... 3
- 2 (1). Hemelytron with a short carination at middle of basal part, scarcely exceeding end of scutellum, and a shorter elevation at middle of hemelytron; head width about 7/10 width of pronotum..... **1. rugosa**
 Hemelytron with at least one elongate carina reaching to middle of hemelytron; pronotum broad, head not more than 6/10 as wide as pronotum **2. macrothorax**
- 3 (2). Apical part of hemelytral margin (fracture to apex) bent up almost at right angle to rest of hemelytron; ocelli absent **8. hirsuta**
 Apical part of hemelytral margin not as above, ocelli present 4
- 4 (3). Front of head ornamented with series of whitish granules in the shape of an

- inverted V **16. tuberculata**
 Front of head variously colored, but not marked as above 5
- 5 (4). Apical tubercle present on head (fig. 2) 6
 Front of head rounded, apical tubercle not present (fig. 1) 17
- 6 (5). Hemelytra entirely coriaceous, separate; dorsal surface nearly glabrous, setae present extremely minute 11
 Hemelytra variable, membrane well developed, reduced or absent, in the latter instance, hemelytra fused together; dorsal surface with conspicuous clumps and rows of scalelike setae..... 7
- 7 (6). Hemelytron with a well-developed membrane; scalelike setae of scutellum and hemelytra pale yellowish to light brown in color; apical 1/2 of paramere of ♂ broad, flattened dorsoventrally, greatest width of visible part¹ about 2/5 length of visible part **3. luteovaria**
 Membrane of hemelytron usually reduced or absent; scale-like setae of scutellum and hemelytra black; apical part of paramere of ♂ not strongly flattened dorsoventrally, greatest width of visible part less than 2/5 length of visible part 8
- 8 (7). Embolium very broad, width at basal 1/3 greater than width of eye; broad species, more than 3/4 as wide as long, usually 8/10 or more as wide as long 9
 Width of embolium at basal 1/3 less than width of eye; more elongate, species less than 3/4 as wide as long, usually less than 7/10 as wide as long..... 10
- 9 (8). Mesosternal process of thorax pointed (caudal or frontal aspect); hemelytra fused together, line of fusion usually marked by two thin, parallel rows of setae; connexivum only slightly exposed; scutellum with a thin, median, longitudinal row of setae extending from base to apex **4. walkeri**
 Mesosternal process of thorax very broad, truncate (caudal or frontal aspect); hemelytra usually not fused together, but often with overlapping parts stuck together by secretions and accumulated debris; connexivum prominent, usually slightly but sometimes distinctly crenulate; scutellum depressed basally, the median area with setae present only on apical part.....
 **5. grandis**
- 10 (8). Legs completely black, unicolorous with venter; width of pronotum usually less than 6.0 mm; abdomen wider than pronotum; scutellum depressed medially toward base **6. suberosa**
 Femora of legs yellowish brown or yellowish brown suffused with red, paler than rest of venter; width of pronotum usually greater than 6.0 mm; abdomen and pronotum more or less equal in width; scutellum with a longitudinal median carina bearing a thin row of black scalelike setae... **7. femoralis**
- 11 (6). Width of apical depression of head distinctly less than ocellar space; lateral tubercles of frontal margin not well developed (fig. 5) 13
 Width of apical depression of head approximately equal to ocellar space;

1. Specimen relaxed, paramere directed to venter and locked against abdominal sternites by the method described by Todd, 1955, Univ. Kansas Sci. Bull. 37, 1 (11): 294.

- lateral tubercles of frontal margin well developed, usually larger than median tubercles (fig. 6)..... 12
- 12 (11). Small species, pronotum less than 6.0 mm in width; width of lateral expansion of pronotum (edge of disc to lateral margin) less than ocular space... ..**13. adpersa**
- Larger species, pronotum more than 6.0 mm in width; pronotum very broad, width of lateral expansion of pronotum greater than ocular space..... **14. plauta**
- 13 (11). Embolium expanded basally, width immediately caudad of posterior margin of pronotum more than 1/2 greatest width of embolium..... 14
- Embolium not so expanded, width at base less than 1/2 greatest width, or if expanded, caudolateral angles of last visible abdominal sternite of ♀ conspicuously produced posteriorly 15
- 14 (13). Lateral margin of hemelytron not indented at distal end of embolium (fig. 20); a triangular area of the caudolateral part of the pronotum darkly pigmented, much darker than adjacent median part of lateral expansion of pronotum; paramere of ♂ recurved apically and bluntly knobbed **15. stali**
- Lateral margin of hemelytron indented at distal end of embolium (fig. 14); lateral expansion of pronotum more or less concolorous, caudolateral portion not conspicuously darker than median part; paramere not distinctly recurved, apex not bluntly knobbed..... **12. tasmaniensis**
- 15 (13). Pronotum of ♂ widest at middle of lateral margin or at level of the transverse furrow; last visible abdominal sternite of ♀ with caudolateral angles produced into triangular projections (fig. 12)..... 16
- Pronotum of ♂ widest at anterolateral angles; caudolateral angles of last visible abdominal sternite of ♀ not produced into triangular projections (fig. 11) **11. hylaea**
- 16 (13). Lateral margin of pronotum more or less evenly rounded, usually widest at middle, without an obvious caudolateral angle (fig. 14) **9. alaticollis**
- Median part of lateral margin of pronotum nearly straight, slightly convergent anteriorly, widest level with the transverse furrow, with an obvious, rounded, caudolateral angle (fig. 15) **10. soliquetra**
- 17 (5). Species of moderate size, greatest width of pronotum usually 6.0 mm or more (an occasional ♂ with pronotum less than 6.0 mm in width); membrane of hemelytron well developed **21. nudata**
- Smaller species, greatest width of pronotum less than 6.0 mm (usually less than 5.5 mm); membrane of hemelytron usually reduced..... 18
- 18 (17). Basal part of lateral margin of embolium concave; greatest width of basal 1/5 of embolium 1/4 or less greatest width of embolium (fig. 24)... **19. sinuosa**
- Basal part of lateral margin of embolium straight or convex; greatest width of basal 1/5 of embolium 1/3 or more greatest width of embolium (figs. 21 and 22)..... 19
- 19 (18). Males 20
- Females 22
- 20 (19). Apex of paramere extended as a curved digitiform process (fig. 34) **20. probolostyla**

- Apex of paramere terminating acutely, not produced into a curved digitiform process (fig. 32) 21
- 21 (20). Abdomen distinctly wider than pronotum; basal part of lateral margin of embolium straight, width at basal 1/5 about 1/3 greatest width of embolium...
..... **17. elongata**
- Abdomen and pronotum approximately equal in width; basal part of lateral margin of embolium slightly convex, greatest width at basal 1/5 about 1/2 greatest width of embolium **18. annulipes**
- 22 (19). Abdomen distinctly wider than pronotum; basal part of lateral margin straight, width at basal 1/5 about 1/3 greatest width of embolium **17. elongata**
- Abdomen and pronotum approximately equal in width; basal part of lateral margin of embolium straight or slightly convex, greatest width at basal 1/5 about 1/2 greatest width of embolium **23**
- 23 (22). Width of abdomen and pronotum usually less than 5.5 mm.; N. New South Wales and S. Queensland **18. annulipes**
- Width of abdomen and pronotum usually greater than 5.5 mm.; N. Queensland **20. probolostyla**

Rugosa Group

1. *Nerthra rugosa* (Desjardins)

Naucoris rugosa Desjardins, 1837, Soc. Ent. France, Ann. 6: 239.—Serville, 1837, Soc. Ent. France, Ann. 7: 243.—Westwood, 1840, Intro. Mod. Classif. 2: 464.

Peltopterus rugosus, Guérin-Ménéville, 1843, Rev. Zool. 6: 112.—Stål, 1863, Berliner Ent. Zeitschr. 7: 407; 1865, Hemiptera Africana 3: 173; 1876, Svenska Vet. Akad. Handl. ser. 4, 14 (4): 140.—Montandon, 1900, Soc. Sci. Bucarest-Roumanie, Bull. 8 (6): 9.—Kirkaldy, 1906, Amer. Ent. Soc., Trans. 32: 149.—Montandon, 1910, Mus. Zool. Univ. Napoli, Ann. n. s. 3 (10): 3.

Mononyx rugosus, Dohrn, 1859, Cat. Hemipt. (Ent. Verein zu Stettin), p. 53.

Nerthra rugosa, Todd, 1955, Univ. Kansas Sci. Bull. 37, 1(11): 412: 1957, Ent. Soc. Wash., Proc. 59 (4): 156; 1959, Nova Guinea, n. s. 10 (1): 68.

Glossoaspis brunnea Blatchley, 1925, Ent. News 36: 49.

This species and *N. macrothorax* (Montrouzier) differ from the other species occurring in Australia in that the front of the head bears rounded pads of dense clavate bristles. In the other species the front bears some sharp-pointed, rather conical, toothlike tubercles. *N. rugosa* (Desjardins) differs from *macrothorax* in that the basal expansion of the embolium is more truncate, the pronotum less expanded (head width about 7/10 width of pronotum), and the carination at the middle of the basal half of the hemelytron does not exceed the end of the scutellum.

Size: ♀, length 6.0–7.7 mm; width of pronotum 4.1–5.4; width of abdomen 4.2–5.4. Only ♀♀ have been examined.

Type: In the Muséum d'Histoire Naturelle, Paris. *Type locality*: "Isle de Maurice" (Mauritius).

DISTRIBUTION: It is not known whether this species occurs in Australia, however, it is included in consideration of its known distribution, i. e. Mauritius; Pearl Island, Panamá; and Florida, and because one specimen examined is labeled "N. G., Nat. Ver., N. Holl." It is not known whether "N. Holl." refers to New Holland, an old name for Australia or whether "N. G." refers to New Guinea. In any event, *rugosa* may occur in Australia and should be sought under or in debris and decaying vegetation on or near the ocean beaches.

2. *Nerthra macrothorax* (Montrouzier) Figs. 3, 4, 43.

Galgulus macrothorax Montrouzier, 1855, Ann. Sci. Phys. Nat. Lyon 2: 110.

Peltopterus macrothorax, Stål, 1863, Berliner Ent. Zeitschr. 7: 407; 1870, Öfv. Svenska Vet.-Akad. Förh., 27 (7): 706.—Distant, 1888, Ent. Soc. London, Trans. 1888 (4): 486.—Montandon, 1900, Soc. Sci. Bucarest-Roumanie, Bull. 8 (6): 8.—Kirkaldy, 1906, Amer. Ent. Soc., Trans. 32: 149.—Esaki, 1928, Insects of Samoa 2 (2): 75.—Ohshima, 1933, Japanese Jour. Zool. and Bot. 1: 410.—Sonan, 1934, Nat. Hist. Soc. Formosa, Trans. 24 (130): 21.—Esaki, 1936, Mushi 9: 43.—Miyamoto, 1953, Nymph (Rep. Biol. Club 2nd Branch Kyushu Univ.) 2: 35; 1954, Shin Konchu 7 (1/2): 28.

Syclaeus macrothorax, Stål, 1861, Öfv. Svenska Vet.-Akad. Förh. 18: 201; 1865, Hemiptera Africana 3: 173; 1876, Svenska Vet. Akad. Handl. ser. 4, 14 (4): 139.

Nerthra macrothorax, Todd, 1955, Univ. Kansas Sci. Bull. 37, 1 (11): 414; 1957, Ent. Soc. Wash., Proc. 59 (4): 157; 1959, Nova Guinea, n. s. 10 (1): 70; 1960, Ent. Soc. Wash., Proc. 62 (2): 116.

The presence of rounded pads of dense clavate setae on the front of the head permits the separation of this species from the other Australian species, except *rugosa*. Specimens of *macrothorax* are more robust (head not more than 6/10 width of pronotum) than those of *rugosa* and in *macrothorax* at least one of the longitudinal carinae exceeds the end of the scutellum.

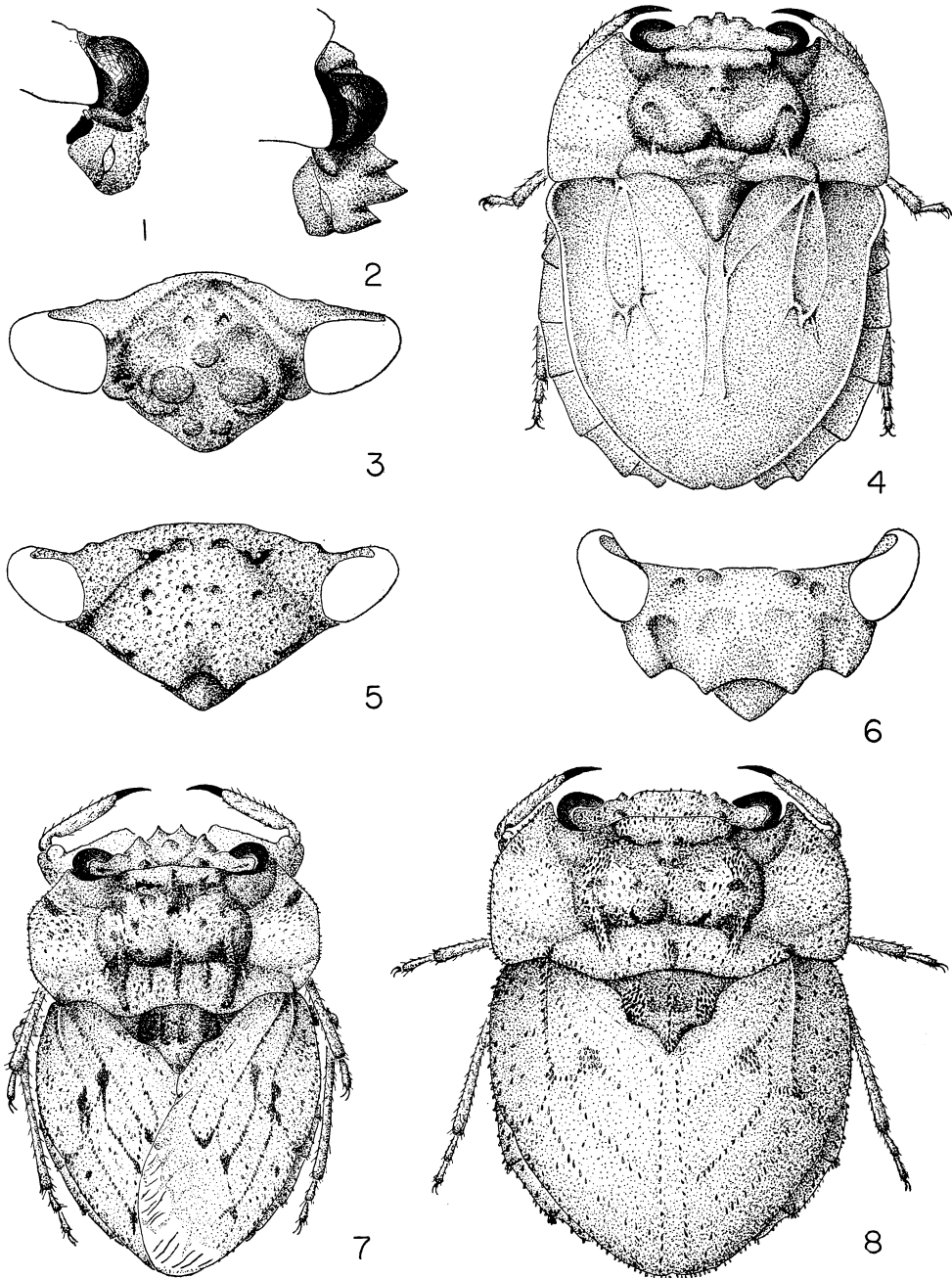
Size: ♂, length 7.1–9.5 mm; width of pronotum 5.0–7.1; width of abdomen 5.1–7.0. ♀, length 8.2–10.6; width of pronotum 5.8–8.2; width of abdomen 5.9–8.2.

Type: In the Muséum d'Histoire Naturelle, Paris, France. *Type locality:* Woodlark Island.

DISTRIBUTION: Only 2 specimens of this species have been seen from Australia. They are from Mindil Beach, Darwin, N. Terr. The species is known from many of the islands of the SW Pacific, from Tonga to Japan and to the Comoro Is. east of Africa. Both adults and nymphs have been collected several times in and under decaying vegetation (*Pandanus* and leaves of *Erythrina*) near the shore.

Laticollis Group

The species of this group are recognized by the combination of conspicuous clumps of bristles on the pronotum, scutellum and hemelytra and the presence of an apical tubercle on the head. Only 6 species occur in Australia. Two of the species, *luteovaria* and *walkeri* are found only north of the Tropic of Capricorn. The other Australian species of the Laticollis Group occur in the mediterranean area of SW Australia, in the Melbourne



Figs. 1-8. Lateral view of head; 1, *nudata*; 2, *femoralis*. Frontal view of head; 3, *macrothorax*; 5, *stali*; 6, *plauta*. General habitus, dorsal view; 4, *macrothorax*; 7, *femoralis*; 8, *walkeri*.

area of Victoria and on Tasmania. Although 1 species, *femorialis*, was described from Champion Bay, Sydney, I have not seen any specimens from New South Wales or Queensland south of the Tropic of Capricorn.

3. *Nerthra luteovaria* (Distant) Figs. 9, 42.

Mononyx luteovarius Distant, 1904, Ann. Mag. Nat. Hist. ser. 7, 14: 63.—Hale, 1925, Arkiv. Zool. 17 A (20): 15.

Nerthra luteovaria, Todd, 1955, Univ. Kansas Sci. Bull. 37, 1 (11): 430; 1957, Ent. Soc. Wash., Proc. 59 (4): 159.

Mononyx mixtus Montandon, 1899, Soc. Sci. Bucarest-Roumanie, Bull. 8 (4/5): 406 [In part].

This rather small, squat species differs from the other species of the Laticollis Group in that the scalelike setae are pale yellowish to light brown in color and the apical 1/2 of the paramere of the ♂ is broad, flattened dorsoventrally (fig. 42). The only other species of this group occurring in the northern part of Australia, *walkeri*, is much larger and has entirely coriaceous, fused hemelytra.

Size: ♂, length 7.5–8.2 mm; width of pronotum 5.7–6.5; width of abdomen 5.5–6.1. ♀, length 7.8–9.1; width of pronotum 6.0–6.7; width of abdomen 5.8–6.5.

Type: In the British Mus. (Nat. Hist.), London. *Type locality*: Townsville, Queensland.

DISTRIBUTION: The 32 specimens that have been examined are from the following localities: Queensland: Redlynch; Bowen; Almaden, Chillagoe Distr. N. Terr.: Daly River. W. Australia: Wyndham; Kimberley Distr.; Onslow; De Grey River, Yarrie Station.

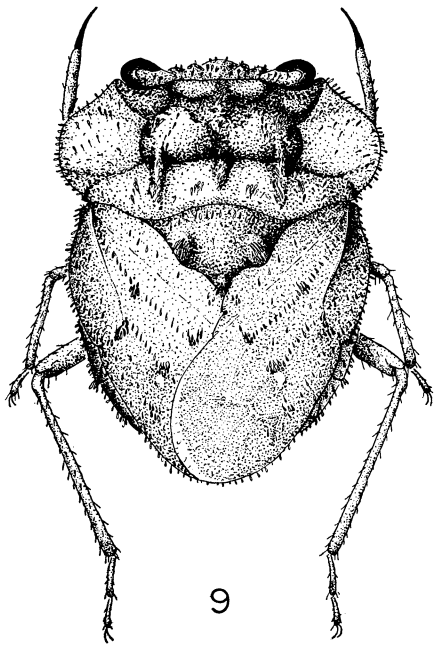
Remarks: When Montandon (1899, p. 406) described *Mononyx mixta* he included specimens from the following localities in Australia: "Cap York (Thorey). Mus. R. Stockholm"; "Port Denison Australia (A. Simson). Mus. R. de Belgique"; "Adelaide R. N. W. Australia (J. J. Walker). Coll. de Mr. le Dr. E. Bergroth." It is certain that Montandon included a mixture of species in the description of *mixta*. The specimens from "Cap York" and "Adelaide R." are undoubtedly examples of *luteovaria* as it is the only species in those localities that resembles *mixta*, as recognized by Todd (1959, p. 84). Since *luteovaria* is not represented by specimens from SW Australia in any collections available to me, it would appear that the "Port Denison" specimen or specimens are some other species, possibly *femorialis*.

4. *Nerthra walkeri* Todd Figs. 8, 40.

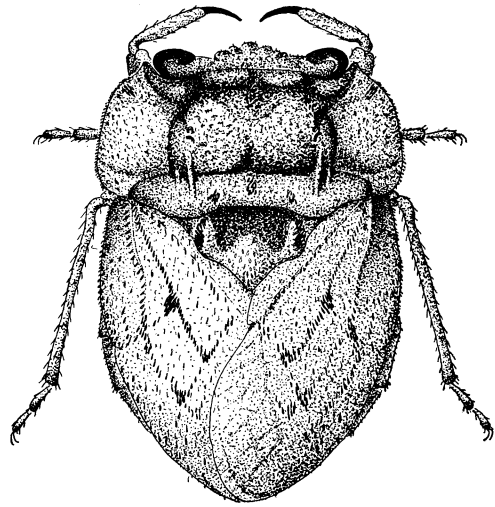
Nerthra walkeri Todd, 1955, Univ. Kansas Sci. Bull. 37, 1 (11): 439.

Mononyx grandis Montandon, 1900, Soc. Sci. Bucarest-Roumanie Bull. 8 (6): 6 [In part].

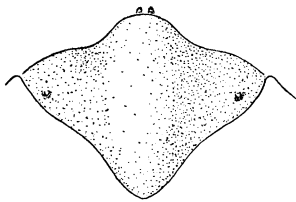
Superficially this species resembles specimens of *macrothorax*, but *walkeri* may be easily separated from that species by the presence of ocelli and toothlike tubercles on the front of the head. Among the Australian species of the Laticollis Group, *walkeri* most resembles *grandis*. Both species have the basal part of the embolium expanded laterally and the width at the basal 1/3 greater than the width of the eye. The pointed mesosternal process of the thorax, the fused hemelytra and the geographical distribution will permit



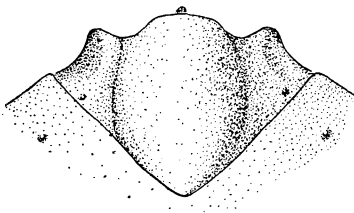
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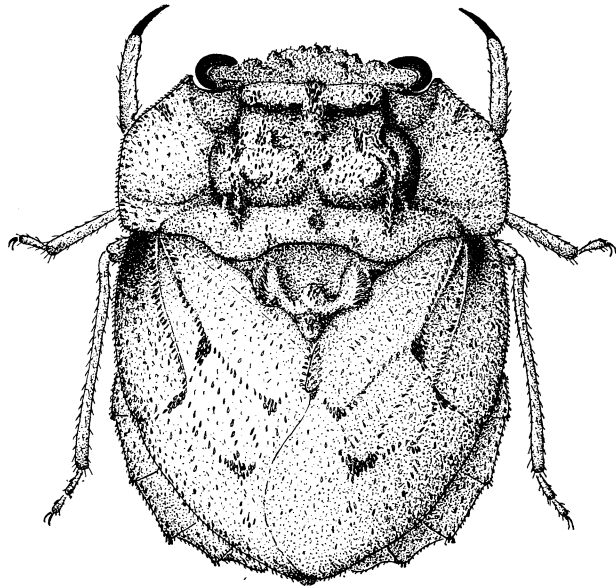
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Figs. 9-13. General habitus, dorsal view; 9, *luteovaria*; 10, *suberosa*; 13, *grandis*. Last abdominal sternite of ♀; 11, *hylaea*; 12, *soliquetra*.

the separation of this species from *grandis*.

Size: ♂, length 8.9–9.7 mm; width of pronotum 7.0–7.6; width of abdomen 6.9–7.5. ♀, length 9.4–10.2; width of pronotum 7.3–8.1; width of abdomen 7.3–7.9.

Type: In the British Mus. (Nat. Hist.), London. *Type locality*: Adelaide R., N. Terr. Australia.

DISTRIBUTION: 16 specimens have been examined, all from localities in N. Terr. The localities are: Adelaide River; King River; Stapleton; Darwin; and Daly River.

Remarks: The ♀ specimen from "Adelaide River, NW Australia (J. J. Walker)" referred to by Montandon (1900, p. 6) is without doubt a specimen of *walkeri*.

5. *Nerthra grandis* (Montandon) Figs. 13, 38.

Matinus grandis Montandon, 1900, Soc. Sci. Bucarest-Roumanie Bull. 8 (6): 6.

Nerthra grandis, Todd, 1955, Univ. Kansas Sci. Bull. 37 1 (11): 440; 1957, Ent. Soc. Wash. Proc. 59 (4): 159.

The large size; broad pronotum; basal expansion of the embolium; broad, truncate mesosternal process; and Victorian distribution characterize this species and distinguish it from the other Australian species of the Laticollis Group.

Size: ♂, length 8.4–9.6 mm; width of pronotum 6.3–7.7; width of abdomen 6.4–7.8. ♀, length 9.0–10.8; width of pronotum 6.4–8.2; width of abdomen 6.7–8.3.

Type: In the Muséum d'Histoire Naturelle, Paris, France. *Type locality*: "Australia".

DISTRIBUTION: 24 specimens of this species have been examined. All were from localities in Victoria. The localities are: Wallan; McEvelyn; Murrindindi; Baxter; Kilmore Junction; Wandin; Bright; and Caulfield.

6. *Nerthra suberosa* (Erichson) Figs. 10, 39.

Mononyx suberosus Erichson, 1842, Archiv für Naturg. 8 (1): 285.

Nerthra suberosa, Todd, 1955, Univ. Kansas Sci. Bull. 37, 1 (11): 438.

N. suberosa (Erichson) is most closely related to *grandis*, but it is smaller and more elongate than in the latter species and the basal part of the embolium is not so expanded, the connexivum less prominent. Due to the size and shape *suberosa* resembles *femoralis*, but it differs from that species in that the pronotum is usually less than 6.0 mm in width, the lateral margin of the pronotum differently shaped (fig. 10), the legs black, the abdomen usually slightly wider than pronotum, and the scutellum depressed medially toward the base.

Size: ♂, length 7.7–8.3 mm; width of pronotum 5.5–5.9; width of abdomen 5.6–5.9. ♀, length 8.2–9.1; width of pronotum 5.7–6.3; width of abdomen 5.9–6.5.

Type: Location unknown. Dr. St. von Kéler, Zoologisches Museum, Humboldt Universität zu Berlin, has informed me that the type is not in the collection of that institution. *Type locality*: "Vandiemensland" (Tasmania).

DISTRIBUTION: This species is known only from Tasmania and Flinders Island. Exact localities in Tasmania are: Beach Zone, Rupert Point, Pieman River; Kelsdo; an

Georgetown. 35 of the 39 specimens before me are from the Pieman River locality.

7. *Nerthra femoralis* (Montandon) Figs. 2, 7, 41.

Mononyx femoralis Montandon, 1899, Soc. Sci. Bucarest-Roumanie, Bull. 8 (4/5): 407.—

Horvath, 1902, Term. Füzetek, 25: 612.—Hale, 1925, Arkiv. Zool. 17 A (20): 16.

Nerthra femoralis, Todd, 1955, Univ. Kansas Sci. Bull. 37, 1 (11): 423; 1957, Ent. Soc. Wash., Proc. 59 (4): 159.

This species may be separated from *suberosa* and *grandis*, the only species of the Laticollis Group likely to be confused with it, by the following combination of characters. Femora of legs yellowish brown or yellowish brown suffused with red; width of embolium at basal 1/3 less than width of eye; elongate species usually less than 7/10 as wide as long; median part of lateral margins of pronotum not convergent anteriorly; width of pronotum usually greater than 6.0 mm; abdomen and pronotum more or less equal in width; and scutellum with a longitudinal median carina bearing a thin row of black scale-like setae.

Size: ♂, length 7.8–8.8 mm; width of pronotum 5.7–6.4; width of abdomen 5.7–6.4. ♀, length 8.1–10.0; width of pronotum 5.7–6.8; width of abdomen 5.8–6.8.

Type: In the British Mus. (Nat. Hist.), London. *Type locality*: Champion Bay, Sydney, N. S. W.

DISTRIBUTION: I have as yet to see specimens from New South Wales, but as Montandon's description does not fit any other Australian species known to me, I must therefore conclude that the specimens treated are *femoralis* and that this species does occur in N. S. W. Except for a single specimen labeled "Melbourne" from the Universitetets Zoologiske Museum, København, Denmark, all 30 specimens studied are from W. Australia. The exact localities are: Banbury; Bornholm; Bridgeton; Bridgetown; Capel River; Hovea; Inglewood; King George's Sound; Mundaring Weir; Pemberton; Perth; Rottnest Island; Swan River; Wallcliffe, Margaret River; Warren River; and Yanchep, 50 km N. of Perth.

8. *Nerthra hirsuta* Todd

Nerthra hirsuta Todd, 1955, Univ. Kansas Sci. Bull. 37, 1 (11): 417.

This species is characterized by the entirely coriaceous, fused hemelytra; up-turned part of lateral margin of hemelytron (fracture to apex); absence of ocelli; presence of toothlike tubercles on front of head; abundance of broad, clavate bristles on dorsal surface of body and head; and small size.

Size: ♀, length 6.2 mm; width of pronotum 4.4; width of abdomen 4.4.

Type: In the Mus. Comp. Zool. Harvard College, Cambridge, Mass. *Type locality*: Augusta, W. Australia.

DISTRIBUTION: Known only from the unique type.

Alaticollis Group

The Alaticollis Group is composed entirely of Australian species. The members of this group have an apical tubercle on the head, entirely coriaceous, free hemelytra, and

the setae of the dorsum extremely minute and very sparse. The very distinctive species, *tuberculata*, is included because the development of the setae agrees with that of the other species in the group. However, the well-developed membrane of the hemelytron and especially the very different ♂ paramere indicate a remote relationship between *tuberculata* and the other species of the Alaticollis Group.

The species of the Alaticollis Group occupy the area from S. Queensland south to Tasmania and west to the southern half of W. Australia. In the eastern part of Australia (S. Queensland to Tasmania) the Alaticollis Group is represented by 4 entities herein treated as species. In these species the parameres of ♂♂ are simple and practically identical. The similarity of the ♂ parameres is not considered to indicate that only a single species is involved because *adpersa* of southwestern Australia has a similar paramere, but a quite different modification of the head. Much more material, field observations and biological studies will be required to resolve the true status of the 4 entities discussed.

9. *Nerthra alaticollis* (Stål) Figs. 14, 29.

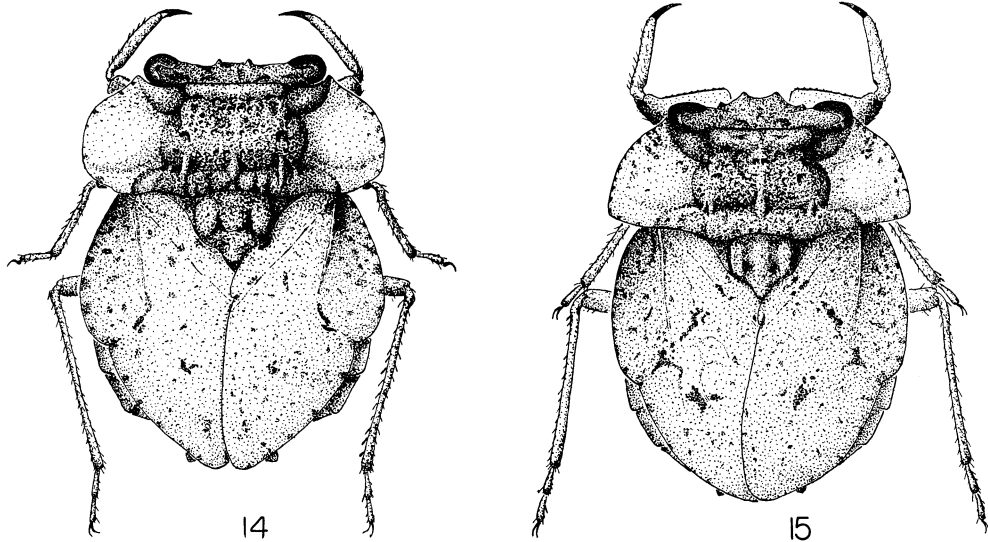
Mononyx alaticollis Stål, 1854, Öfv. Svenska Vet.-Akad. Förh. 11: 239.—Dohrn, 1859, Cat. Hemipt. (Ent. Verein zu Stettin), p. 54.

Matinus alaticollis, Stål, 1861, Öfv. Svenska Vet.-Akad. Förh. 18: 201; 1863, Berliner Ent. Zeitschr. 7: 407; 1876, Svenska Vet. Akad. Handl. ser. 4, 14 (4): 139.—Montandon, 1900, Soc. Sci. Bucarest-Roumanie, Bull. 8 (6): 4.—Kirkaldy, 1906, Amer. Ent. Soc., Trans. 32: 149.

Nerthra alaticollis, Todd, 1955, Univ. Kansas Sci. Bull. 37, 1 (11): 432; 1957, Ent. Soc. Wash., Proc. 59 (4): 161.

This species agrees with *tuberculata* and *hylaea* in lacking produced caudolateral angles of the pronotum. *N. tuberculata* differs from *alaticollis* and all the other Australian species of the Alaticollis Group in that there is an inverted, V-shaped cluster of white blisterlike granules on the front of the head and that the membrane of the hemelytron is well developed. The other species, *hylaea*, appears to be more closely related, but differs in that the median portion of the lateral margin of the pronotum is divergent anteriorly and/or the lateral margin of the embolium appears to be concave and ♀♀ lack projecting caudolateral angles on the last visible abdominal sternites. The following species, *soliquetra*, is very closely related to *alaticollis*, but differs in the shape of the lateral margin of the pronotum. The 2 species occupy the same range, so it is not likely they could be subspecies although they may represent morphological forms of a single species. The ♀♀ of *soliquetra* usually have the caudolateral angles of the last visible abdominal sternite more distinctly produced than in *alaticollis*. Both appear to vary in the degree of development of the hind wings so that the modification of the shape of the lateral margin of the pronotum probably is not related to the development or lack of development of the hind wings. However, studies along this line of investigation should be conducted on fresh specimens to verify the above opinion. Observation of the development of the hind wings is very difficult in the case of dried, pinned museum specimens, unless the hemelytra are removed.

Size: ♂, length 6.7–7.4 mm; width of pronotum 5.0–5.5; width of abdomen 4.9–5.6. ♀, length 7.4–8.5; width of pronotum 5.5–6.4; width of abdomen 5.2–6.3.



Figs. 14-15. General habitus, dorsal view; 14, *alaticollis*; 15, *soliquetra*.

Type: In Riksmuseum, Stockholm, Sweden. *Type locality*: Nova Hollandia.

DISTRIBUTION: 60 specimens from the following localities have been examined. Queensland: Brisbane; Dunwich, Moreton Bay; Stanthorpe; Mt. Lee; Caloundra; Canungra; Toowoomba; Milford and Sunnybank. New South Wales: Leura; Megalong Valley, Blue Mts.; Weathcote; Nelligen; Tubrabucca, Up. Hunter Dist.; Narrabeen; Hornsby; Wentworth Falls, Blue Mts.; Sydney; and Blackheath. Victoria: nr. Mt. Cobungra.

10. *Nerthra soliquetra* Todd, n. sp. Figs. 12, 15, 28.

Size: ♂, length 7.0-7.5 mm; width of pronotum 5.1-5.7; width of abdomen 5.1-5.7. ♀, length 7.7-8.8; width of pronotum 5.6-6.6; width of abdomen 5.6-6.5.

Color: Varying from yellowish brown to black. The paler specimens usually with the head, disc of pronotum and scutellum much darker. Dark specimens frequently with the head and occasionally the median part of the scutellum light yellowish brown. The venter mostly dark brown, except apical 1/3 of mid and hind femora, anterior expansion of front femora and lateral expansions of pronotum and embolia (pale specimens only) yellowish brown. The lateral expansions of the pronotum and embolia when pale, usually maculated with dark brown.

Structural Characteristics: Head with 5 small pointed tubercles, apical tubercle not visible from above, median and apical tubercles slightly larger than lateral tubercles; front rather flat; ocelli present but small; ocellar space greater than width of excavation between median tubercles. Pronotum widest at level of transverse furrow, as wide as abdomen; lateral margin mostly convergent anteriorly, anterior part strongly convergent, median part only slightly convergent; a prominent rounded, caudolateral angle usually extending laterad of base of embolium (fig. 15); disc elevated, pitted. Scutellum only slightly

elevated basally and laterally; 2 small submedian, circular depressions present slightly beyond middle. Hemelytra usually extending to or slightly beyond end of abdomen, bluntly pointed apically; membrane absent, hemelytra entirely coriaceous, not fused together; embolium roundly expanded apically, lateral margin convex, width at base usually less than $1/2$ greatest width. Bristles of hemelytra and scutellum extremely minute, sparse. Connexivum usually only slightly visible. Abdominal sternites of ♀ symmetrical; last visible segment projecting posteriorly and covering or nearly covering lobes of ovipositor; caudolateral angles of last segment produced into triangular extensions on either side of median projection (fig. 12). Abdominal sternites of ♂ asymmetrical, terminal sternites (VII-IX) small, greatest width less than $1/2$ width of posterior margin of sternite 4; sternite 9 oval, about $2/3$ as long as wide, longer than 8, about $3\times$ as long as 7. Male paramere simple, nearly straight, gradually tapering to very slightly recurved, digitiform apex.

Type: Holotype ♀, Stanthorpe, Queensland, 28 Sept 1929, E. Sutton; 1 ♂ paratype, same data as holotype; 1 ♂ and 1 ♀ paratype, Caloundra, Q., 30 Mar 1934, H. Hacker; and 2 ♀ paratypes, Mt. Mee, 10 Sept 1928, H. Hacker in the C. J. Drake Coll. at the U. S. Nat. Mus. One ♂ and 1 ♀ paratype, Noosa, Q., 16 Mar 1956, E. N. Marks; 1 ♂ paratype, Mooloolaba, Q., 2 Apr. 1956, Marks; 1 ♀ paratype, Stanthorpe, Q., 25 Oct 1922, Heath; 1 ♀ paratype, Brisbane, Q., 22 Nov 1932, T. E. Woodward; 1 ♀ paratype, same place, 17 Mar 1953, Woodward in the Woodward Coll., Brisbane, Q. One ♀ paratype, Stanthorpe, Q., Jan 1928, H. J. Carter in the Australian Mus., Sydney. One ♂ paratype, "Qld.," E. W. Fischer and 1 ♀ paratype, Fraser I., Q., S. A. White in the South Australian Mus., Adelaide. One ♂ and 1 ♀ paratype, N. S. W., C. F. Deuquet in the Nat. Mus. Victoria, Melbourne. One ♂ paratype, Armidale, N. S. W., 27 Nov 1900, W. W. F. in the coll. of the Dept. Agric., Sydney. Two ♂ and 2 ♀ paratypes, Stanthorpe, Q., E. Sutton; and 1 ♀ paratype, Gatton, Q., 11 Dec. 1933, M. Powell in the Queensland Mus. Brisbane. One ♂ paratype, Stanthorpe, Q., E. Sutton, in the U. S. Nat. Mus.

Remarks: Similar to *alaticollis*, but the pronotum with a differently shaped lateral margin (figs. 14 and 15). The other species of the *Alaticollis* Group which have an obvious, produced, caudolateral angle of the pronotum either have the lateral toothlike tubercles of the front of the head larger than the median tubercles or the basal part of the embolium expanded, the basal width exceeding $1/2$ the greatest width of the embolium. Field observations to determine whether *alaticollis* and *soliquetra* occur together in the same ecological niches and perhaps cross-breeding experiments may be required to resolve the status of the 2 entities.

11. *Nerthra hylaea* Todd, n. sp. Figs. 11, 19, 30.

Size: ♂, length 6.9–7.1 mm; width of pronotum 4.6–4.9; width of abdomen 4.9–5.2. ♀, length 7.4–7.8; width of pronotum 5.1–5.5; width of abdomen 5.3–5.6.

Color: Yellowish or orange brown with irregular shaped and spaced maculations, head, disc of pronotum and scutellum darker brown. Venter brown except apices of mid and hind femora, anterior expansion of front femur, and lateral expansions of pronotum and embolium which are yellowish brown.

Structural Characteristics: Head with 5 pointed tubercles, apical tubercle not visible from above, lateral tubercles distinctly smaller than median and apical tubercles; front

moderately rough, a small rounded tumescence in the middle of the frons; ocelli present, small; ocellar space exceeding width of excavation between median tubercles of frontal margin of head. Pronotum variable in shape, slightly smaller in width than abdomen; widest either at anterolateral angles or at middle; median part of lateral margin divergent anteriorly (1 ♂ and 1 ♀) or straight, parallel to longitudinal axis of body (3 ♀♀); caudolateral angle not produced; disc elevated, pitted. Scutellum with rather prominent lateral elevations. Hemelytra extending beyond end of abdomen, rather acute apically; membrane not developed, hemelytra entirely coriaceous, not fused together; embolium with lateral margin rounded apically, bent up and concave basally, width at base variable, but decidedly less than 1/2 greatest width. Scalelike setae extremely minute, sparse. Connexivum, especially in ♀, very prominent, caudolateral angles of exposed segments sometimes produced. Abdominal sternites of ♀ symmetrical; last visible sternite projecting posteriorly, concealing or nearly concealing lobes of ovipositor; caudolateral angles of last sternite not produced into triangular projections (fig. 11). Abdominal sternites of ♂ asymmetrical; terminal sternites (VII-IX) small, IX oval, wider than long, longer than VIII, about twice as long as VII. Male paramere simple, nearly straight, gradually tapering to slender digitiform apex.

Type: Holotype ♀, Beech Forest, Victoria, 11-19 Jan 1932, F. E. Wilson, in moss and lichens; 1 ♂ and 1 ♀ paratype, Kinglake, Victoria, 4 Dec 1927, F. E. Wilson, in copulation; and 2 ♀ paratypes, Victoria, 11 Dec 1918, P. C. French in Nat. Mus. of Victoria, Melbourne.

Remarks: This species appears to be quite variable as to the shape of the lateral margins of the pronotum and embolium. In one ♂ and one ♀, the median part of the lateral margin of the pronotum is distinctly divergent anteriorly, but in the other 3 ♀♀ that part is straight, more or less parallel to the longitudinal axis of the body. The degree of concavity at the basal 1/4 of the embolial margin is also variable. Accordingly, some of the specimens approach *alaticollis* in general habitus. However, they differ from *alaticollis* in that the caudolateral angles of the last visible abdominal sternite of the ♀ are not developed into projecting triangular lobes. In addition, the connexivum of *hylaea* is more expanded laterally and the tubercles of the scutellum more elevated. Furthermore, *hylaea* appears to be restricted in distribution to SW Victoria, an area from which *alaticollis* is not known.

12. *Nerthra tasmaniensis* Todd Fig. 27.

Nerthra tasmaniensis Todd, 1955, Univ. Kansas Sci. Bull. 37, 1 (11): 437.

The shape of the lateral margin of the pronotum resembles that of *soliquetra*, but in *tasmaniensis* the basal part of the embolium is expanded and the caudolateral angles of the last visible abdominal sternite of the ♀ are not produced into triangular projections. *N. tasmaniensis* greatly resembles *stali* of W. Australia in body shape (fig. 20), but *stali* has the lateral expansion of the pronotum differently pigmented, the connexivum more expanded, the apical part of the lateral margin of the embolium tapering into the fracture, not rounded as in *tasmaniensis* and ♂ paramere distinctive (fig. 26).

Size: ♂, length 6.3-7.8 mm; width of pronotum 4.4-6.0; width of abdomen 4.4-6.0. ♀, length 7.1-8.4; width of pronotum 4.9-6.3; width of abdomen 5.1-6.4.

Type: In British Mus. (Nat. Hist.), London. *Type locality*: L. St. Clair Res., Tasmania.

DISTRIBUTION: 7 specimens from the mainland of Australia have been placed tentatively as this species. Assuming the placement is correct the distribution of the species is: Tasmania: L. St. Clair Res. New South Wales: 40 km NE of Binnaway; Wyangala Dam; and Blackheath. Queensland: Brisbane; Gypsie; Stanthorpe; and Eidsvold.

13. *Nerthra adspersa* (Stål) Figs. 16, 31.

Matinus adspersus Stål, 1863, Berliner Ent. Zeitschr. 7: 407; 1876, Svenska Vet. Akad. Handl. ser. 4, 14 (4): 139. — Montandon, 1900, Soc. Sci. Bucarest-Roumanie, Bull. 8 (6): 5.

Nerthra adspersa, Todd, 1955, Univ. Kansas Sci. Bull. 37, 1 (11): 434; 1957, Ent. Soc. Wash., Proc. 59 (4): 162.

This species and *plauta* differ from the other species of the Alaticollis Group in that the lateral tubercles of the head are distinctly larger than the median tubercles and that the width of the excavation between the median tubercles is approximately equal to the ocellar space. *N. plauta* is a much larger species, the pronotum 7.0 mm in width, the body length exceeding 8 mm, the width of the lateral expansion of the pronotum exceeding the ocular space, and the apical part of the lateral margin of the embolium tapering (slightly concave) into the lateral margin of the distal part of the hemelytron.

Size: ♂, length 5.1–6.1 mm; width of pronotum 4.3–5.4; width of abdomen 4.2–5.2. ♀, length 5.8–6.8; width of pronotum 4.7–5.7; width of abdomen 4.7–5.6.

Type: In Riksmuseum, Stockholm, Sweden. *Type locality*: "Australia occidentalis."

DISTRIBUTION: Known only from the SW part of Western Australia: 22 specimens from the following localities have been examined: Quindilup; Yanchep, 50 km N of Perth; Swan River; Katanning; Albany; Point Peron; Geraldton; Perth; and Yallingup.

14. *Nerthra plauta* Todd, n. sp. Figs. 6, 17.

Size: ♀, length 8.5 mm; width of pronotum 7.0; width of abdomen 7.3.

Color: Dorsally straw yellow, heavily suffused with pink maculations. Ventrally mostly pale yellow, but the thorax, basal abdominal segments adjacent to the legs, and the front femora dark brown. The species is probably as variable in color as *adspersa*, but only 1 specimen is available for study.

Structural Characteristics: Head with 5 frontal tubercles, apical tubercle not visible from above, lateral tubercles distinctly larger than median and apical tubercles; front moderately rough; ocelli present, located on conspicuous elevations; ocellar space not noticeably exceeding width of excavation between median tubercles of head. Pronotum very broad, width of lateral expansion exceeding ocular space; widest at caudolateral angles, not so wide as abdomen; lateral margin entirely convergent anteriorly, the degree of convergence greater for the anterior 1/2; caudolateral angle conspicuous and slightly projecting caudad; disc elevated, moderately rough. Scutellum slightly elevated laterally and basally, 2 small oval depressions on either side of median line. Hemelytra not reach-

ing end of abdomen, membrane absent, hemelytra entirely coriaceous, free; embolium very broad, width much greater than width of eye, lateral margin convex except angled and concave at apex. Abdominal sternites of ♀ symmetrical, last visible sternite projecting posteriorly medially, nearly covering lobes of ovipositor.

Type: Holotype, unique, Ooldea, S. Australia in S. Australian Mus. Adelaide.

DISTRIBUTION: The ♀ type is the only adult specimen known, but a single nymph from Poochera, S. Australia, belongs to this species. It is recognizable as a specimen of *plauta* by the large size and modification of the front of the head (the lateral tubercles larger than the median or apical tubercles).

Remarks: Similar to *adpersa*, but much larger, the lateral expansion of the pronotum wider (exceeding ocular space), and the apical part of the lateral margin concave not rounded as in the former species. Furthermore, *adpersa* is presently known only from SW Western Australia, *plauta* only from South Australia. It is conceivable that *adpersa* and *plauta* represent extremes of a cline, but until such time as specimens from E. Western Australia and W. South Australia are available for study, it is my opinion that *plauta* should be treated as a distinct species.

15. *Nerthra stali* (Montandon) Figs. 5, 20, 26.

Matinus stali Montandon, 1900, Soc. Sci. Bucarest-Roumanie, Bull. 8 (6): 5.

Nerthra stali, Todd, 1955, Univ. Kansas Sci. Bull. 37, 1 (11): 435; 1957, Ent. Soc. Wash., Proc. 59 (4): 161.

The contrastingly dark, caudolateral area of the pronotum characterizes this species. The other species, *adpersa*, occurring in W. Australia has a differently colored pronotum, large lateral tubercles on the front of the head, distal part of lateral margin of embolium convex, and a differently shaped ♂ paramere. Two species, *tasmaniensis* and *soliquetra*, superficially resemble *stali* in body shape, but the pronotum is differently colored, ♂ parameres are differently shaped and they occur in the eastern part of Australia.

Size: ♂, length 6.6–8.1 mm; width of pronotum 5.2–6.3; width of abdomen 5.2–6.4. ♀, length 7.4–9.7; width of pronotum 5.6–7.3; width of abdomen 5.8–7.7.

Type: In Riksmuseum, Stockholm, Sweden. *Type locality*: "Western Australia."

DISTRIBUTION: Restricted to W. Australia. Localities from which the species is known are: Augusta; Yancheep, 50 km N of Perth; Swan River; Pemberton; Upper Blackwood Dist.; Bunbury; Albany; and Capel River. 16 specimens have been examined.

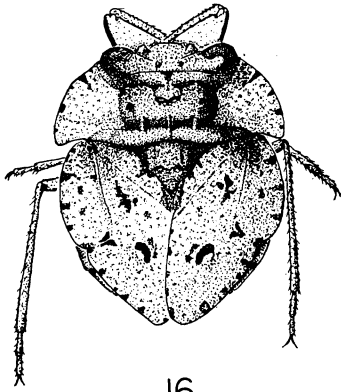
16. *Nerthra tuberculata* (Montandon) Figs. 18, 37.

Mononyx tuberculatus Montandon, 1899, Soc. Sci. Bucarest-Roumanie, Bull. 8 (4/5): 403.

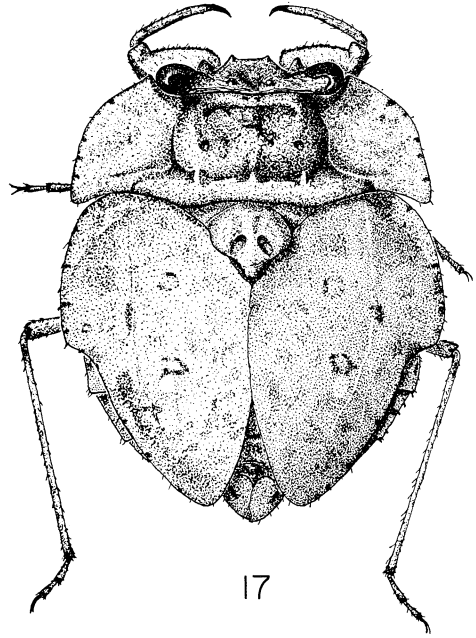
Nerthra tuberculata, Todd, 1955, Univ. Kansas Sci. Bull. 37, 1 (11): 431; 1957, Ent. Soc. Wash., Proc. 59 (4): 161.

N. tuberculata (Montandon) is easily recognized by the inverted white "V" on the front of the head, by the round, elevated, blisterlike granules of the hemelytra, by the rough, elevated, disc of pronotum and scutellum, and by the distinctive ♂ paramere.

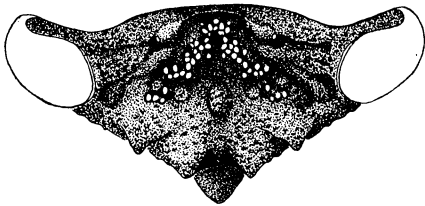
Size: ♂, length 8.5–8.9 mm; width of pronotum 5.9–6.4; width of abdomen 5.9–



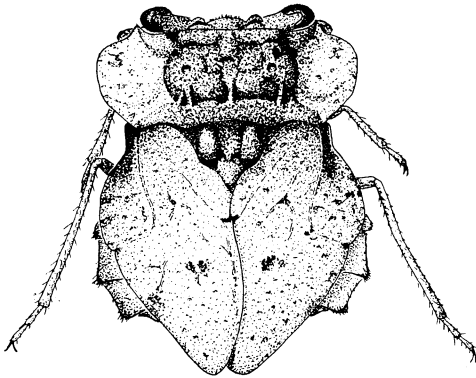
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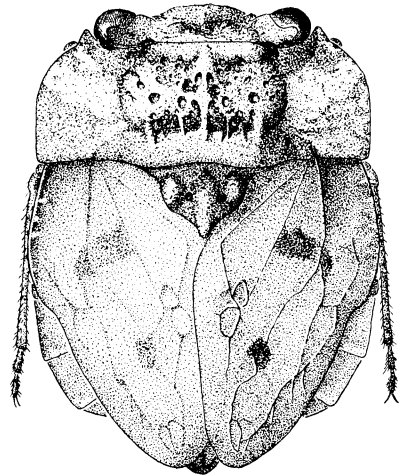
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Figs. 16-20. Frontal view of head; 18, *tuberculata*. General habitus, dorsal view; 16, *adspersa*; 17, *plauta*; 19, *hylaea*; 20, *stali*.

6.3. ♀, length 8.8–9.9; width of pronotum 6.4–7.0; width of abdomen 6.4–7.0.

Type: In Musée Royal d'Histoire Naturelle de Belgique, Bruxelles. *Type locality*: Port Denison, W. Australia.

DISTRIBUTION: 26 specimens from the following localities, all in W. Australia, have been examined: Margaret River; Pemberton; Wongong River, Perth; Flinder's Bay; Albany; Warren River; Denmark; and King George Sound.

Elongata Group

The species of the Elongata Group are easily recognized since the apex of the head is rounded, lacking an apical tubercle. The 5 species are closely related and very difficult to separate. The differences are for the most part slight and differences of degree, but even so, it is my belief that the differences are specific and I have treated the entities accordingly. The 5 species occur in E. Australia. *N. nudata* Todd, the largest species, is known to occur in Queensland, New South Wales and Victoria. The other species apparently are much more restricted in distribution, *probolostyla* in the northern half of Queensland, *annulipes* and *sinuosa* in N. New South Wales and S. Queensland, and *elongata* in New South Wales.

Further studies based on larger series, biological and ecological observations are desirable. Such studies would be certain to increase our knowledge of this species group and are necessary to resolve the actual status of the entities discussed.

17. *Nerthra elongata* (Montandon) Figs. 21, 32.

Matinus elongatus Montandon, 1900, Soc. Sci. Bucarest-Roumanie, Bull. 8 (6): 7.

Nerthra elongata, Todd, 1955, Univ. Kansas Sci. Bull. 37, 1 (11): 436.

This species is very similar to *annulipes* and *probolostyla*, but differs from both in that the abdomen, especially of the ♀, is wider than the pronotum. The basal part of the lateral margin of the embolium is nearly straight while in *annulipes*, especially the ♂, it is convex. The paramere of the ♂ (fig. 32) is simple and slightly curved, resembling most closely that of *nudata*, a similar but much larger species.

Size: ♂, length 7.2–7.7 mm; width of pronotum 4.4–4.8; width of abdomen 4.8–5.1. ♀, length 7.5–8.5; width of pronotum 4.9–5.4; width of abdomen 5.1–5.7.

Type: In Naturhistorisches Museum, Vienna, Austria. *Type locality*: "Australia."

DISTRIBUTION: In addition to the type which is labeled "Austral., Post I." 9 other specimens have been examined. 8 are from Canberra, A. C. T.; The other specimen is from Mount Keira, via Wollongong, New South Wales.

Remarks: In the type, a ♀, the abdomen is not so wide as in the other ♀, but still slightly wider than the pronotum. It agrees with the others placed as *elongata* in the shape of the lateral margin of the embolium.

18. *Nerthra annulipes* (Horvath) Figs. 22, 36.

Mononyx annulipes Horvath, 1902, Term. Füzetek, 25: 611.—Froggatt, 1902, Agric. Gaz. N. S. Wales, Misc. Publ. 538: 7. —McKeown, Austr. Mus. Mag. 8 (5): 176.

Nerthra annulipes, Todd, 1955, Univ. Kansas Sci. Bull., 37, 1 (11): 426; 1957, Ent. Soc. Wash., Proc. 59 (4): 160.

This species differs from the other closely related species of the Elongata Group in that the basal part of the lateral margin of the embolium is convex, the clumps of dorsal setae a little more conspicuous, and the paramere of the ♂ shorter and accordingly proportionately stouter. The degree of convexity of the basal part of the lateral margin of the embolium is greater in ♂♂ than in ♀♀. Therefore, some ♀♀ tend to approach ♀♀ of *elongata* and *probolostyla*, but in the former the abdomen is wider than the pronotum and the latter species is slightly larger and occurs in a different part of Australia.

Size: ♂, length 7.0–7.4 mm; width of pronotum 4.6–4.9; width of abdomen 4.6–4.9. ♀, length 7.6–8.3; width of pronotum 5.0–5.4; width of abdomen 5.0–5.4.

Type: In the Musée d'Histoire Naturelle de la Hongrie, Budapest. *Type locality*: Clarence River, New South Wales.

DISTRIBUTION: 11 specimens from N. New South Wales (Clarence and Upper Williams Rivers) and S. Queensland (Stanthorpe and Brisbane) have been examined.

Remarks: The type, a ♀, has been examined through the kindness of Cs. Dr. Eva Halászfy, Mus. Hist. Nat. de la Hongrie, Budapest. The head and pronotum are missing, but the shape of the embolium and the clumps of setae are sufficient to recognize the species. Furthermore, other specimens with identical labels are available for study.

The references by Froggatt and McKeown may or may not refer to this species, but they are included as the species referred to was considered by them to be *annulipes*. The specific name has been frequently incorrectly applied to several species, especially to *Nerthra alaticollis* (Stål) through museum identification labels.

19. *Nerthra sinuosa* Todd Figs. 24, 35.

Nerthra sinuosa Todd, 1955, Univ. Kansas Sci. Bull. 37, 1 (11): 440.

N. sinuosa Todd differs from the other species of the Elongata Group in that the basal part of the lateral margin of the embolium tends to be concave, the distal portion convex. In addition, the paramere of the ♂ is more slender, nearly straight (fig. 35).

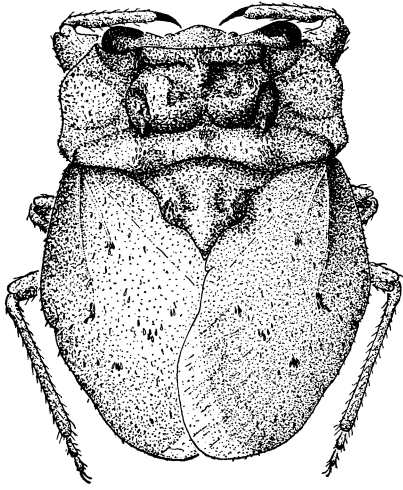
Size: ♂, length 6.9–7.3 mm; width of pronotum 4.4–4.7; width of abdomen 4.7–5.0. ♀, length 7.6–8.2; width of pronotum 5.0–5.2; width of abdomen 5.4–5.6. Macropterous ♂, length 9.0; width of pronotum 5.6; width of abdomen 5.9.

Type: In Mus. Comp. Zool., Harvard College, Cambridge, Mass. *Type locality*: Dorrigo, New South Wales.

DISTRIBUTION: 12 specimens have been studied. They are from the following localities: New South Wales: Dorrigo; Ulong, East Dorrigo and Binna Burra. Queensland: Brisbane.

Remarks: Todd (1957, p. 159, fig. 8) tentatively identified a ♂ of the following species, *probolostyla* as representing that sex of *sinuosa*. The error was recognized upon the receipt of a series of *sinuosa* from the type locality.

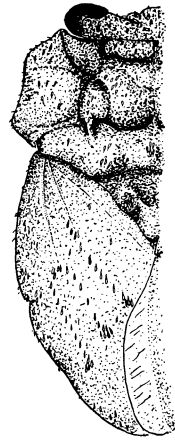
The specimen from Brisbane, Queensland (Woodward coll.), a large macropterous ♂, agrees with the other specimens in the shape of the lateral margin of the embolium and in the shape of the paramere. The membrane is usually limited to a narrow strip, in 2



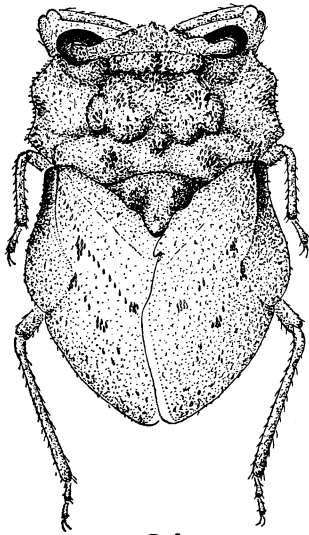
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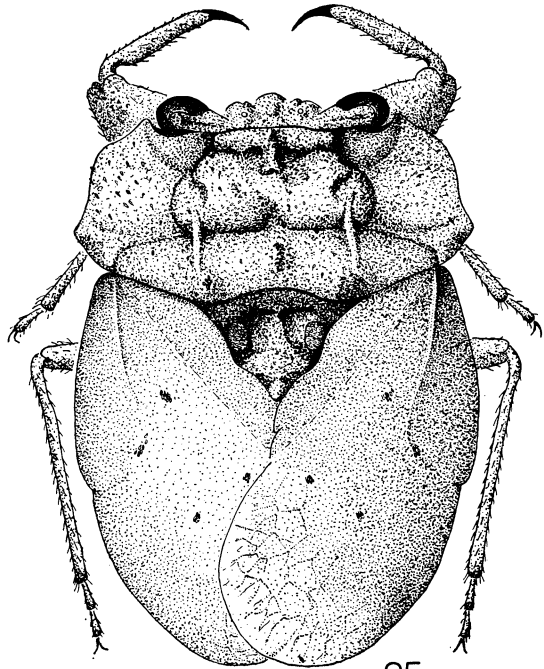
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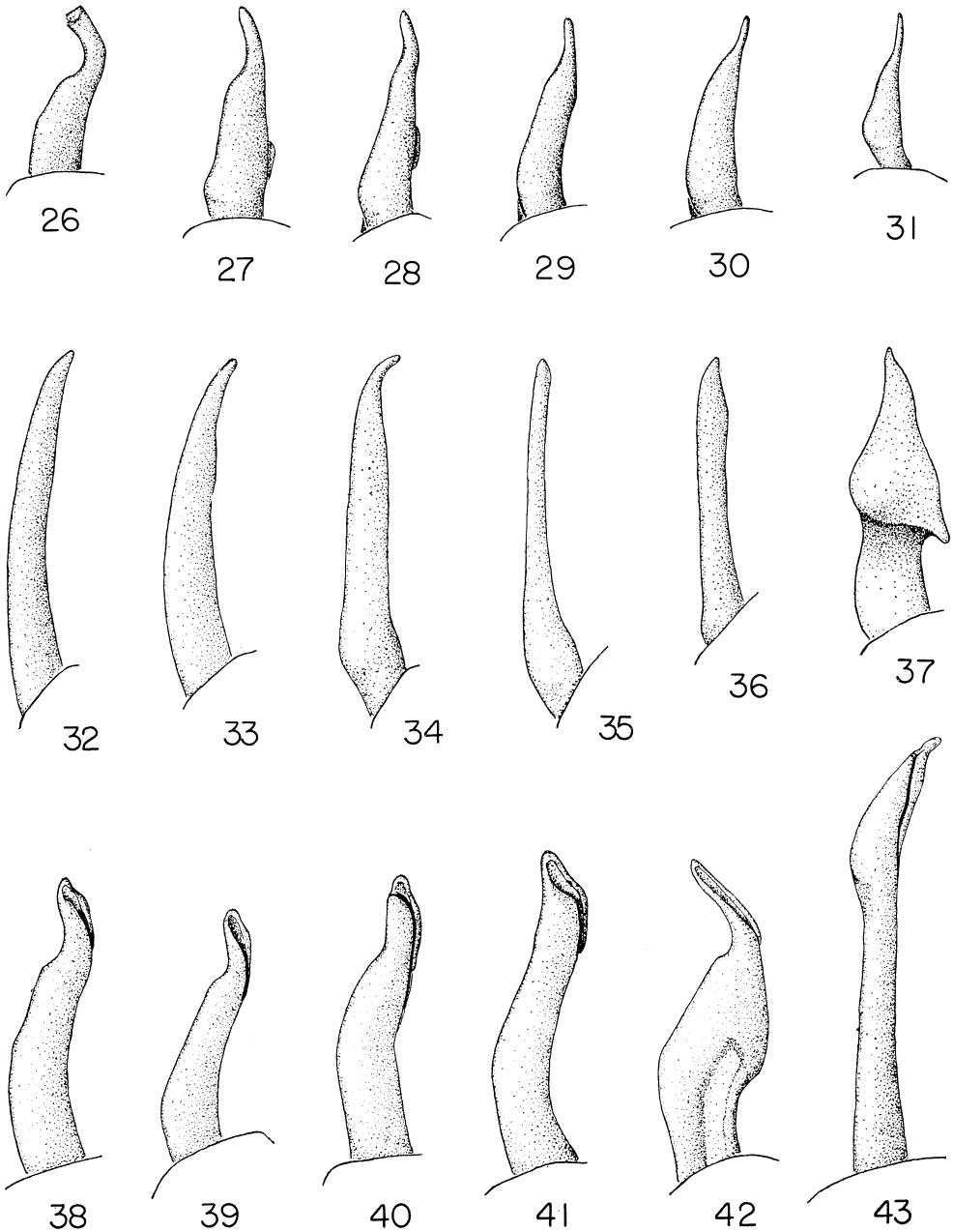


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Figs. 21-25. General habitus, dorsal view; 21, *elongata*; 22, *annulipes* (left 1/2); 23, *probolostyla* (left 1/2); 24, *sinuosa*; 25, *nudata*.



Figs. 26-43. Male parameres; 26, *stali*; 27, *tasmaniensis*; 28, *soliquetra*; 29, *alaticollis*; 30, *hylaea*; 31, *adpersa*; 32, *elongata*; 33, *nudata*; 34, *probolostyla*; 35, *sinuosa*; 36, *annulipes*; 37, *tuberculata*; 38, *grandis*; 39, *suberosa*; 40, *walkeri*; 41, *femoralis*; 42, *luteovaria*; 43, *macrothorax*.

specimens it appears to be absent, so it is surprising to find such a well-developed membrane in the same species. Other species of *Nerthra* and even *Gelastocoris* have shown some variation in the development of the membrane of the hemelytron, but the variation in this case is much greater. Further study of the occurrence and causes of brachyptery-macroptery in the Gelastocoridae are needed. Our present knowledge indicates that *sinuosa* should be the species selected for study.

20. *Nerthra probolostyla* Todd, n. sp. Figs. 23, 34.

Nerthra sinuosa, Todd, 1957, Ent. Soc. Wash., Proc. 59 (4): 159 [mis-identification].

Size: ♂, length 6.9–7.7 mm; width of pronotum 5.0–5.3; width of abdomen 4.9–5.2. ♀, length 8.1–8.7; width of pronotum 5.3–5.9; width of abdomen 5.5–5.9.

Color: Brown or yellowish brown variegated with irregular maculations of brown. Venter mostly dark brown, femora of legs yellowish brown (mid and hind femora ringed with brown).

Structural characteristics: Front of head with small irregular tubercles present, apex lacking tubercle; ocelli present, located on small rounded tubercles. Pronotum as wide as abdomen, widest at level of transverse furrow; disc rough, elevated; anterior part of lateral margin of pronotum nearly straight, convergent toward eye, median part of lateral margin concave, posterior part strongly convergent toward base of hemelytron. Scutellum with lateral and apical elevations, median and basal areas slightly depressed. Hemelytra reaching beyond end of abdomen; lateral margin of embolium nearly straight basally; connexivum not exposed; membrane of hemelytron moderately developed or slightly reduced. Short clavate bristles numerous, forming clumps on elevations of pronotum and scutellum and at various points on the hemelytra. Abdominal sternites of ♀ symmetrical, last visible sternite produced, nearly covering lobes of ovipositor, roundly keeled medially. Abdominal sternites of ♂ asymmetrical; terminal sternites small, sternite 9 moderately large, oval, about twice as wide as long, longer than sternite 8, about twice as long as 7. Paramere of ♂ simple, elongate, slightly swollen at base of visible part, bent mesad at apex into a short digitiform process (fig. 34).

Type: Holotype, ♂, Tolga, Queensland, Mjöberg in Riksmuseum, Stockholm. One ♂ paratype, Townsville, Queensland, Sept 1903, F. P. Dodd; 1 ♂ paratype, Gayndah, Q., Masters; and 1 ♀ paratype, Eidsvold, Q., Jan – Feb 1913, Dr. Bancroft in Australian Mus., Sydney. One ♀ paratype, N. Pine River, Q., 26 Dec 1932, H. Hacker in C. J. Drake coll., Washington. Two ♂ paratypes, Rocky River, Cape York, Q., 1958, Darlingtons; 1 ♂ paratype, v. Mount Molloy, Q., Dec 1957, Darlingtons; and 2 ♀ paratypes, Rockhampton, Q., Mar 1958, Darlingtons in Mus. Comp. Zool. One ♀ paratype, Rockhampton, Q., Mar 1958, Darlingtons in the U. S. Nat. Mus. Washington.

Remarks: The characteristic paramere of ♂ will permit the separation of ♂♂ of this species from others of the *Elongata* Group. Females are more difficult to identify. They are slightly smaller and more setose than ♀♀ of *nudata*, and they have a differently shaped lateral margin of the embolium than in the case of *annulipes* and *sinuosa*. Females of *elongata* have the abdomen wider than the pronotum and may be separated accordingly. A few specimens of *annulipes* do not have the basal part of the lateral margin of the embolium as convex as in ♂♂ and are therefore similar to ♀♀ of *probolostyla*. These

aberrant ♀♀ of *annulipes* usually have the membrane of the hemelytron more reduced than in *probolostyla*. Distribution and association with ♂♂ may be of some assistance and probably will need to be utilized in some instances.

21. *Nerthra nudata* Todd Figs. 1, 25, 33.

Nerthra nudata Todd, 1955, Univ. Kansas Sci. Bull. 37, 1 (11): 425; 1957, Ent. Soc. Wash., Proc. 59 (4): 160.

This is the largest species of the *Elongata* Group. Size alone (width of pronotum usually exceeding 6.0 mm) is usually sufficient for identification of the species. In general habitus the species is very similar to *probolostyla* and to *elongata*, but is less setose than either. The ♂ paramere is very similar to that of *elongata* but is smaller in proportion to body size.

Size: ♂, length 8.5–10.0 mm; width of pronotum 5.8–6.4; width of abdomen 5.9–6.5. ♀, length 8.4–10.5; width of pronotum 5.6–6.8; width of abdomen 5.7–6.9.

Type: In Mus. Comp. Zool., Harvard College., Cambridge, Mass. *Type locality*: Brisbane, Queensland.

DISTRIBUTION: This species ranges south from Cairns, Queensland into Victoria. 37 specimens from the following localities have been examined. Queensland: Brisbane; North Pine River; Ashgrove; McPherson Range National Park; Nagoorin; Darlington; Ladybrook; Kirklee; Maryborough; Stanthorpe; Warwick; Coomera River near Canungra; Cairns and Palm Island. New South Wales: Yass; Coxa River; Allyn River; Brooklana and Katoomba. Victoria: Bright; Woori Yallock and Dondangadale.

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