INSECTS OF MICRONESIA

Coreidae (Alydini by J. C. Schaffner), Neididae, and Nabidae

By GORDON F. GROSS
SOUTH AUSTRALIAN MUSEUM, ADELAIDE

INTRODUCTION

This report includes the Coreidae, Neididae, and Nabidae of Micronesia. In the Coreidae, the whole section on the tribe Alydini in the Alydinae and the corresponding part of the distribution table are contributed by J. C. Schaffner; I (G. F. G.) am responsible for the remainder of the paper.

The collections studied were made by Kyushu University, Japan, from 1936-1940; by Bernice P. Bishop Museum in 1936; by United States military personnel from 1944 to 1946 and by collectors for the Pacific Science Board and the National Research Council from 1947 to 1954. New material was added by Brown and Tuthill in 1956, Sabrosky in 1957, and Gressitt in 1958.

The United States Office of Naval Research, the Pacific Science Board (National Research Council), the National Science Foundation, and Bishop Museum have made this survey and publication of the results possible. Field research was aided by a contract between the Office of Naval Research, Department of the Navy and the National Academy of Sciences, NR 160-175.

Specimens are in the collections of Bishop Museum (BISHOP), Kyushu University (KU), and Chicago Natural History Museum (CM). Several specimens were retained for the South Australian Museum collections.

\[1\] This represents, in part, Results of Professor T. Esaki's Micronesian Expeditions (1936-1940), No. 118.
### Distribution List of Micronesian Coreidae, Neididae, and Nabidae

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* Described as new.
† Guam only.
wish to express my thanks to Dr. Gressitt and Miss Nakata of Bishop Museum who arranged for this study.

ZOOGEOGRAPHY

The distribution of the species of these three families follows much the same pattern as for other families of Heteroptera in Micronesia. Common species in Polynesia, which may also, but not necessarily, be common in the lands south (New Guinea and North Australia) and west (Indonesia, Philippines, and the Asian mainland) of Micronesia are usually present and well scattered over the island groups. In this category are *Liarhyscus hyalinus, Leptoglossus australis*, and *Nabis capsiformis*. Lands to the west have a strong influence on the fauna of the South Mariana and Palau Islands. Western-derived elements include *Leptocoris vicina, L. acuta, Acanthocoris scaber*, and *Plinachtus acicularis*. Lands to the south have a strong influence on the fauna of the Palau Islands again and the Marshalls. Elements of southern derivation include *Leptocoris isolata, Noliphus erythrocephalus*, and *Dasynus fuscescens*. Elements which may have come from either south or west are *Leptocoris vicina, L. tagalica*, and *Arbelia nitidula*.

The Palau group has the richest fauna, presumably because of its close proximity to two source areas. It also has three of the four endemic species of the group, *Dasynus pallidolimbatus, Riptortus macleani*, and *Arbelia hibisci*. *Protacanthus pacificus*, now recorded from the Palaus, was known formerly only from Polynesia. *Arbelia hibisci* occurs also on Ponape. The Gilbert, Bonin, and Volcano Islands, the larger atolls of the Eastern Carolines (Kusaie and Ponape, for example), and the low Caroline atolls have the poorest fauna. What species do occur are usually common Pacific species, except *Leptocoris acuta* on the Bonins which is of western derivation and may actually have been recently introduced.

SYSTEMATICS

FAMILY COREIDAE

Despite the large size of this family on a world-wide basis, the number of Micronesian species is small and the general picture is very similar to that found on other Pacific island groups. The subfamilies Rhopalinae and Alydinae are both fairly well represented (by comparison, the four coreids found in Hawaii belong to these two subfamilies). The subfamilies Pseudophloeinae and Agriopocorinae are absent and the Coreinae is comparatively poorly represented. In the Coreinae, the tribes Physomerini, Pendulini, Gonocerini, and Anisoscelini are the only ones represented; larger coreines of the tribes Amorbini, Mictini, Petascelini, Homoceerini, Cloresmini, and Hygiini,
which are very common on the more continental island groups to the southeast, south, and west of Micronesia, are absent.

The three subfamilies of Micronesian coreids can be separated by the following key.

**Key to Subfamilies of Micronesian Coreidae**

1. Odoriferous orifices distinct, on the dorsal surface base of abdominal segments 4 and 5 simulate..................................................................................2
   Orifices rarely distinguishable, but if they are, then placed behind hind acetabula ..................................................................................Rhopalinae
2. Bucculae generally long and extending behind insertion of antennae..........Coreinae
   Bucculae short, placed wholly in front of insertion of antennae..............Alydinae

**Subfamily Rhopalinae**

The Rhopalinae in Micronesia are represented by the two widespread genera *Liorhyssus* Stål and *Leptocoris* Hahn. The two genera may be separated by the following key.

Hemelytra more or less transparent. Mostly small yellowish species about 5 mm. in length.................................................................Liorhyssus

Hemelytra opaque, membrane black. Larger species, 12-29 mm., reddish or reddish ochraceous, often markedly infuscated with black..........................Leptocoris

**Genus Liorhyssus** Stål


*Liorhyssus* Zimmerman, 1948, Insects of Hawaii 3: 44.


Segment 1 of antennae short, incrassated, not or very slightly passing apex of head, segment 4 longer than 3; head more or less narrowed behind eyes and moderately cor rectly produced in front.

Pronotum raised from apex toward base, with scutellum coarsely punctate; hemelytra more or less transparent and venation strongly developed, membrane transparent hyaline.

1. **Liorhyssus hyalinus** (Fabricius). (Figure 1.)

*Lygaeus hyalinus* Fabricius, 1794, Ent. Syst. 4: 168.

*Corisus* (*Liorhyssus*) hyalinus, Van Duzee, 1917, Cat. Hemipt., 120 (gives full synonymy up to this date).
Liorhyssus hyalinus, Cheesman, 1927, Ent. Soc. London, Trans., 156.—
Corius (Rhopalus) hyalinus, Usinger, 1939, Sixth Pacific Sci. Congr.,
Proc. 4: 313.

A variable species. Micronesian specimens yellowish or reddish fawn above with
a fairly long pilosity. Pronotum and scutellum coarsely punctate with punctations on
scutellum tending to lie in two longitudinal bands in some specimens. Humerai angles
of pronotum always infuscated; always with two transverse sinuous black markings
near anterior margin. In front of these, pronotum is raised as a transverse smooth fold
before narrow raised anterior collar. Pronotum sometimes much more infuscated.

![Figure 1.—Liorhyssus hyalinus.](image)

Head with prominent black marks around ocelli; marks run onto tumescences
which bear eyes and also run forward to join as a Y in front of eyes. Apical angle of
corium reddish; a brownish, oblong-rectangular spot on hind margin of corium mid-
way between apical angle and claval suture. Rest of hemelytra hyaline except for
strongly marked brown veins. Antennae and legs strongly spotted with fuscous macu-
lations, rest of underside usually pale. Length: 4.5-7 mm.

DISTRIBUTION: Almost cosmopolitan; Australia, Oceania, Micronesia.
BONIN IS. CHICHI JIMA: 10, Omura, “Camp Beach,” May-June 1958,
Snyder; one, Okumura, “Yankee Town,” May-July 1958, Snyder; Sakai-
ura, “Bull Beach,” May 1958, Snyder. OTOTO JIMA: One, Kammuri-iwa
(Southwest Bay), July 1958, Snyder.
N. MARIANA IS. Agrihan: One, Aug. 1949, Mead; two, Aug. 1951, Bohart.

S. MARIANA IS. Saipan: One, Isely Field, on sugar cane, Aug. 1944, Hall; one, 1.2 miles east of Tanapag, Nov. 1944, one, Dec. 1944, Dybas; four, As Mahetog area, Nov. 1944, Edgar; four, Nov. 1944, Edgar; two, Dec. 1944, Edgar; one, As Mahetog area, Dec. 1944, Dybas; 55, Achugau area, Jan. 1945, Dybas; one, Sadog Talofofo, Talofofo area, Feb. 1945, Dybas; one, May 1945, Dybas; three, Chalan Laulau, Apr. 1946, Krauss; four, Garapan, Apr. 1946, Krauss; seven, U.S.C.C. farm, June 1946, Oakley; one, June 1946, Townes. Tinian: One, March 1945, Dybas; five, Marpo Valley, June 1946, Oakley; two, July 1946, Townes; one, South end, June 1946, Townes; two, June 1946, Oakley; three, Nov. 1952, Beardsley; four, Lake Hageya, in swept grass, April 1946, Townes. Guam: One, Ordot, on corn, May 1945, Bohart and Gressitt; one, Agana Spring, by sweeping, May 1945, Bohart and Gressitt; one, Agana Airport, Aug. 1945, Dybas; 17, Talofofo, Apr. 1946, Krauss; three, Mt. Alifan, Apr. 1946, Krauss; one, Agana Airport, June 1946, Townes; two, Agana Heights, July 1945, Wallace; one, Talofofo, Aug. 1952, Krauss.


This widely distributed species is rare in Australia; it is common in Micronesia and in Oceania where it is a common strand species (Usinger 1939).

Genus Leptocoris Hahn


Antennal segment I a little shorter than head; ocelli slightly nearer eyes than each other, a very distinct nodule behind eyes; pronotum flattish, with a distinct anterior collar, lateral margins straight or slightly convex. Hemelytra of typical corydoid form, membrane usually black.

Reddish, orange, or rarely yellow or cyclamen-colored bugs over 12 mm. in length.
Gross, Schaffner—Coreidae, Neididae, Nabidae

The species of this genus from the Indo-Pacific region have recently been revised by me [South Australian Mus., Rec. 13 (4) : 403-451, 1960]; a full list of references and synonymy of the genus is given there.

KEY TO MICRONESIAN SPECIES OF LEPTOCORIS

MALES

1. Paranidia (posteriorly directed lobelike processes of penultimate segment of male genital capsule) roughly circular in cross section, narrowish.................2. vicina

Paranidia roughly semicircular in cross section with upper surface often slightly concave, wide.................................2

2(1). Paranidia of pygophore as long as clasper, markedly concave on upper and inward surface; parameres fairly thin and not very elaborate.............4. tagalica

Paranidia not as long as claspers, less concave above..................................................3

3(2). Parameres prominently hooked at apex, thence becoming broad and laminate before roughly circular basal part; produced ventral part of penultimate segment of pygophore (genital capsule) only vaguely triangular. Larger species (13-29 mm.).................................3. rufomarginata

Parameres hooked at apex but narrowing between hooked region and base and not becoming laminate; produced plate of ventral part of pygophore elongate triangular, noticeably keeled. Smaller species (under 23 mm.)....

...............................................................5. isolata

FEMALES

1. Female genital capsule with upper pair of visible valves as clublike processes, but these clubs devoid of spines, smallish, and rounded with a long pilosity..................3. rufomarginata

Female genital capsule with clublike processes as above but these clubs generally larger, always with prominent spines..............................2

2(1). Upper valves large club-shaped but not noticeably flattened on inner surface, fairly circular in cross section, spines always numerous.............................................4. tagalica and 5. isolata

Upper valves generally not so large, noticeably flattened on inner side, outer and terminal parts moderately convex, giving a club-shaped impression .............................................2. vicina

2. Leptocoris vicina (Dallas). (Figures 2, a, b; 3, a.)


Leptocoris vicina, Gross, 1960, South Australian Mus., Rec. 13 (4) : 422, figs.

Astacops nigricornis Walker, 1872, Cat. Heteropt. 5 : 36.


Leptocoris carnivorous Usinger, 1946, B. P. Bishop Mus., Bull. 189: 25, figs.
Purplish or yellowish red; long pilosity black, fine pubescence grayish. Pronotum sometimes infuscated posteriorad; also clavus and inner half of corium.

Distinguished by male capsule. Pygophore is thrown into two lateral lobes (paran- dria) which are round in cross section, with a long yellow pilosity. Claspers fairly simple, curved downward at apex and feebly concave on underside in terminal half. In basal half, undersurface changes inclination by 45 degrees, becoming broader and less concave. Ventrally, pygophore is produced posteriorad between claspers as a narrow lamina (hypandrium?) with its broad face in the perpendicular plane. Upper valvulae produced as two clublike processes which are flat on their inner surfaces and with numerous, fairly long spines on their outer surfaces and a few long hairs. Length: 12-15 mm.

Figure 2.—Male genital capsule: a, Leptocoris vicina, from above; b, L. vicina, from below; c, L. rufmarginata, from above; d, L. rufmarginata, from below; e, L. tagalica, from above; f, L. tagalica, from below; g, L. isolata, from above; h, L. isolata, from below.
DISTRIBUTION: Indonesia, Philippine Is., Northern Territory of Australia, S. Mariana Is., western Caroline Is.

S. MARIANA IS. SAIPAN: Female, Afenia-Charanka, July 1939, Esaki. 
ROTA: Male, three nymphs, July 1952, Kondo. GUAM: Male and female (paratype of L. carnivorus Usinger), Cetti Bay, May 1936, Usinger; six males, female, Inarajan, on Ficus sp. and Colubrina asiatica, Sept. 1938, Oakley; female, no precise locality or date, Fullaway; male (paratype of L. carnivorus Usinger), Ritidian Point, June 1936, Swezey; three males, three females, beating vegetation, May 1945, Dybas, male, female, May 1945, Bohart and Gressitt, four males, six females, July 1945, Gressitt; two females, on beach, July 1945, Bohart and Gressitt; female, Aug. 1945, Gressitt; six males, three females, Point Oca, June 1945, Gressitt and Bohart, two females, 1 mile southeast of Asan, 180-240 m., Nov. 1947, Oct. 1949, Dybas.


YAP. YAP: Female, Matade, near Yapetown, July 1946, Townes. RU-MUNG: Three males, June 1957, Sabrosky.


3. Leptocoris rufo-marginata (Fabricius). (Figures 2, c, d; 3, b; 4.)

Lygaeus rufo-marginatus Fabricius, 1794, Ent. Syst. 4: 152; 1803, Syst. Rhyn., 220 (exclude reference to stolli).


Lygaeus taitense Guérin, 1830 (1838), Voy. Coquille, Zool. 2: 178, pl. 12, fig. 15.

Serinetha fimbriata Dallas, 1852, List Hemipt. Ins. 2: 462.

Lygaeus flavo-marginatus Matsumura, 1913, Thousand Insects of Japan.


Micronesian specimens mostly reddish ochraceous, with two elongate large longitudinal blackish spots on hind part of pronotum which are sometimes fused into one or absent; clavus and inner corium sometimes infuscated. Beneath black except underside of head, lateral margins of propleura broadly, mesopleura and metapleura (also upper hind margin of latter) and dorsal margins of abdominal segments broadly (except the sixth which is completely red or yellow) which are concolorous with pale color of above surface.

Easily distinguished from all others by shape of genital capsules. Male capsule has penultimate segment produced into two broad, lateroventrally flattened pilose lobes which are feebly convex on ventrolateral surfaces and almost flat on dorsal interior ones. Ventrally, penultimate segment is produced between claspers as a triangular, short arched plate, directed upward at about 45-degree angle. Male claspers are quite elaborate, beginning basally with an almost triangular cross section, then become almost flat, broadish, and sinuate. Apically they turn ventrally and have a lateral hook on outer surface.

Female genital capsule has upper valves produced as club-shaped, very pilose processes which are flat (or even slightly concave) on inner surfaces as in most other species but these clubs are completely devoid of spines. Lateral and ventral pairs of valves are also quite distinct. Basal part of ventral valves are convex only near their inner margins and appear to give off membranous processes beneath, which protrude up under lateral valves. Length, 13-29 mm. (range of Micronesian specimens 20-25 mm.).

**Figure 3.**—Female genital capsule: **a**, *Leptocoris vicina*; **b**, *L. rufomarginata*; **c**, *L. tagalica*.


PONAPE. Female, Colonia-Jokaj, July 1939, Esaki; Nanue, female, June-Sept. 1950, Adams.

*L. rufomarginata* is extremely variable. It is the only large species found east of Indonesia (excepting the New Guinea race of *abdominalis*) but Micronesian specimens tend to be smaller than average and Polynesian specimens even more so.

![Figure 4.—Leptocoris rufomarginata.](image)

4. **Leptocoris tagalica** Burmeister (figs. 2, e, f; 3, c).
(nec Guerin).


Micronesian specimens generally deep chocolate brown with black head; abdomen beneath paler than ground color (several specimens are brick red).

Lateral margins of pronotum behind calli edged like a selvage and almost straight or very shallowly concave. Disc behind calli flat or almost so.

Male genital capsule with penultimate segment produced laterally into prominent pilose lobes convex on ventrolateral surface and noticeably concave and more pilose on inner dorsal surface. Ventrally, penultimate segment produced between claspers as a prominent triangular process. Claspers fairly simple, feebly hooked on their underside toward apex and turning somewhat ventrad. Claspers lack elaborate structure of L. rufomarginata and lateral lobes of penultimate segment are much longer in relation to length of claspers than in either L. rufomarginata species or in L. isolata. Capsule is generally the same color as the rest of insect but in specimens from Saipan and Tinian it is black.

Female genital capsule with upper valves produced into pilose, clublike structures with about 20 strong spines. Clubs flat on inner surfaces; lateral valves just perceptible as flat plates with a terminal pilosity beneath upper valves; ventral valves fairly convex. Length 9-13 mm.


5. Leptocoris isolata (Distant). (Figure 2, g, h.)


Ground color fuscous brown, reddish, or reddish ochraceous above. In infuscated specimens, lateral regions of head, anterior and lateral margins of pronotum, and outer base of hemelytra ochraceous, reddish ochraceous, or reddish. Antennae, membrane, and legs black or blackish brown. Calli on pronotum, usually scutellum, and sometimes a small quadrate area between eyes in otherwise not infuscated specimens, blackish or purplish. Anterior smooth areas of pronotum not quite transverse, convex. In infuscated specimens they are concolorous with fuscous center of pronotum, in others they range from red through bright purple and black and all stages may be seen in a series of specimens from any one locality. In front of these, pronotum is slightly raised into a narrow, shallowly triangular area which terminates laterally as two feeble pilose tumescences. Lateral margin of pronotum behind calli ovate, almost straight but usually a feeble concavity just behind ocelli.

Male genital capsule not very distinct from that of tagataica and female capsules virtually indistinguishable. Male genital capsule has penultimate segment produced
laterally into prominent pilose lobes which are convex on ventrolateral surfaces and noticeably concave and more pilose on inner dorsal surfaces. Ventrally, penultimate segment is produced between claspers as a fairly prominent triangular process. Claspers more robust than those of *tagalica* and strongly hooked on their underside toward apex, somewhat excavated beneath at middle, turning somewhat but not markedly ventrad at apex. Claspers much longer in relation to parandria than those of *tagalica*, the one definite distinguishing feature between the species; genital capsule also paler than *tagalica*. Length 11-16 mm.


**MARSHALL IS. KWAJALEIN:** Two males, two females, Bweje, Jan. 1945, Wallace; two males, two females, Berlin, Jan. 1945, Wallace; female, Kwaitalein, airfield, Aug. 1946, Oakley; six males, no precise locality, Apr. 1948, Machler. **NAMU:** Seven males, five females, Majkon (Kogen), on *Allophylus*, Oct. 1953, Beardsley. **JALUIT:** Male, Imroj, Aug. 1946, Townes (paratype of *Leptocoris lariversi* Usinger). **MAJURO:** Five males, female, Uliga, on *Allophylus*, Nov. 1953, Beardsley. **ARNO:** Male, six females, Ine, July 1950, La Rivers; seven males, three females, nymph, no precise locality, July 1950, La Rivers. **RATAK ISLANDS:** Male, no precise locality, von Chamisso. No other data, two males [one labeled *indecorus* Esch. (= Eschscholtz?)]; as explained in my revision of this genus this appears to be a nomen nudum.

**SUBFAMILY ALYDINAE**

The Alydinae, like the Rhopalinae, are well represented in Micronesia by four genera belonging to two tribes, the Leptocorisini and the Alydini. The two genera of the Alydini are revised by J. C. Schaffner in this paper under his name (pp. 373-377).

**KEY TO MICRONESIAN TRIBES OF ALYDINAE**

Hind femora somewhat incrassated, with several or many spines on ventral surface .................................................. Alydini

Hind femora elongate, unarmed, not incrassated .................................. Leptocorisini

**TRIBE LEPTOCORISINI**

**KEY TO GENERA OF MICRONESIAN LEPTOCORISINI**

Head long, jugae prorect, produced in front of tyulus and longer than it; pronotum longish, lateral angles unarmed ........................................ Leptocoriza

Head short, somewhat declivious in front of antennae, pronotum shorter, convex; each lateral angle armed with a spine ...................................... Noliphus
Genus Leptocorixa Berthold


Cimex acuta Thunberg, 1783, Dissert. Ent. Ins. 2: 34.
Cimex angulata (in part) Fabricius, 1787, Mant. Ins. 2: 308.
Gerris oratoria Fabricius, 1794, Ent. Syst. 4: 191; 1833, Syst. Rhynch., 261.

Myodocha trinotata Herrich-Schaeffer, 1848, Wanzen. Ins. 8: 95, fig. 863.
Leptocorisa maculiventris Dallas, 1852, List. Hemipt. Ins. 2: 484.


General color pale ochraceous, legs entirely pale ochraceous. Apical segment of antennae more than 1.5 times as long as second. Length 14-18 mm.

DISTRIBUTION: India, Ceylon, Thailand, Malay Peninsula, Indonesia, Philippines, Bonin Is., Mariana Is., Caroline Is.

“Bull Beach,” May 1958, Snyder; no precise locality, two, July 1951, Bohart.

N. MARIANA IS. PAGAN: Two, Laguna-Malas, April 1940, Yasumatsu.

S. MARIANA IS. SAIPAN: Two, As Mahetog area, Nov. 1944; two, Nov. 1955; one, Nov. 1944, all by Dybas; three, no precise locality, Nov. 1944, Edgar; five, 1.2 miles east of Tanapag, Nov. 1944, Edgar; same locality, four, Apr. 1945, two, July 1945, Dybas; one, Laulau Bay, Jan. 1945, Dybas; two, Kannate Edto, June 1946, Townes; two, no precise locality, June 1946, Townes.

TINIAN: One, Tinian Harbor, Mar. 1945, Dybas; one, Mt. Lasso, June 1946, Townes; one, no precise locality, Nov. 1952, Beardsley.

ROTA: Two, Oscilila, June 1946, on rice, Oakley; three, no precise locality, June 1951, Bohart.

GUAM: Five, July 1945, Gressitt and Bohart; one, Piti, Jan. 1936, Swezey; four, Pt. Oca, in light trap, June 1945, Bohart and Gressitt; two, Mt. Aultum, July 1945, Wallace; one, Pt. Ritidian, Aug. 1945, Gressitt; one, Mt. Balanos, Aug. 1952, Krauss.


KOROR: One, May 1936, Ono; one, Arabaketsu, Jan. 1938, Murakami; one, July 1946, Townes; one, July 1946, Oakley; eight, northeast corner of Koror, July 1946, Townes; two, Nov. 1947, Dybas; one, Dec. 1947, Dybas; one, sweeping grass, Sept. 1952, Beardsley; two, Sept. 1952, Beardsley; three, Sept. 1952, Krauss; one, at light, May 1953, Beardsley; one, Mar.-May 1954, Osborne; two, Apr. 1957; six, Apr. 1957, Sabrosky.

NGERKABESANG: Four, July 1946, Townes; one, Apr. 1957, Sabrosky.

YAP. RUMUNG: One, north part, two, west part, four, east part, two, south part, July-Aug. 1950, Goss.

Mab: Two, central part, four, east part, six, south part, July-Aug. 1950, Goss.

YAP: One, Rul-Nif, Sept. 1939, Esaki; five, Gagit District, July 1946, Oakley; five, July-Aug. 1950, Goss; five, central part, July-Aug. 1950, Goss; one, Dugoi, July-Aug. 1950, Goss; one, Rul, July 1946, Oakley; one, Aug. 1952, Krauss; one, Sept. 1952, Krauss; four, Oct. 1952, Krauss; one, Dugor-Rumu, 10 m, Nov. 1952, Gressitt; three, Yap Hill behind Yaptown, 50 m, in light trap, Dec. 1952, Gressitt; one, no date, Ono; four, Kolonia (Yaptown), July-Aug. 1950, Goss; 24, Rul, July-Aug. 1950, Goss; six, south part, July-Aug. 1950, Goss; one, no precise locality, July 1951, Gressitt.

TRUK. WENA (Moen): Three, Dec. 1935, Ono; 25, 0-400 feet, May 1946, Townes; four, south slope, Mt. Tonaachau, sweeping grass, Feb. 1949, Potts; Civ. Ad. Area, three, Feb. 1949, one, at light, March 1949, nine,

In general, larger and more robust than the rest of the Oriental species but many Micronesian specimens, particularly from southern island groups tend to be smaller. Micronesian specimens often have the basal segment of the antenna darkish with a fuscous apex. There seems little doubt that the species is acuta on the basis of male genital claspers.

**Genus Noliphus** Stål


Head not very long, arched downward in front of antennae, jugs not as long as tylius. Pronotum very raised posteriorly with each posterior angle developed into an acute spine. Collar of pronotum quite distinct and the whole surface strongly punctate. All femora slender and unarmed.

7. **Noliphus erythrocephalus** Stål.


Head reddish ochraceous, eyes brown, ocelli margined with black on inner margins. Antennae yellowish, apices of segments 1 to 3 and all but base of segment 4 infuscated. Pronotum black, somewhat lightened in anterior region. Scutellum, apical two-thirds of clavus, and inner half of corium brown, outer half of corium and base of clavus black; membrane hyaline.

Upper surface of abdomen red with black bars on lateral margins and last segment blackish. Proposerae, prosternum, rostrum, and anterior two-thirds of mesopleurae and mesosternum black. Posterior third of mesopleurae, mesosternum, and all of meta-pleurae and metasternum yellowish. Abdomen beneath reddish with four lateral black spots in the same positions of those above, last two visible segments black, also disc of two segments preceding apical black pair is black. All coxae red, all femora basally pale, apically darkened, apical dark region of femur with a pale band dividing it in two. Tibiae yellowish brown, apically infuscated, first two segments of tarsi yellowish brown, apical one darkened. Length 10-13 mm.

**DISTRIBUTION:** Philippines, Indonesia, W. Caroline Is., New Guinea, North Australia.

**PALAU.** BABELTHUAP: One, Melekeiok, Apr. 1936, Ono. **KOROR:** One, Jan. 1938, Esaki.

*N. discoperus* Stål from Samoa and *N. insularis* Stål from Fiji may possibly be just races of *N. erythrocephalus* which is widely distributed in the Pacific.
TRIBE ALYDINI FABRICIUS*

KEY TO GENERA AND SPECIES OF MICRONESIAN ALYDINI

1. Humeral angle of pronotum rounded or angulate but not forming spine; rostrum not extending beyond posterior margin of mesothoracic coxae..........................................................8. Melanacanthus margineguttatus
   Humeral angle drawn out into spine; rostrum surpassing mesothoracic coxae (Riptortus) ...........................................................................................................................2

2. Antennal segment 4 shorter than 2 and 3 combined.................................................9. Riptortus saileri
   Antennal segment 4 longer than 2 and 3 combined..............................................10. Riptortus macleani

Genus Melanacanthus Stål

Melanacanthus Stål (as subgenus of Mirperus Stål), 1873, Enumeratio Hemipterorum 3: 92.

This genus is apparently restricted to Australia, Java, and Pacific islands. It extends from Australia northward to Formosa and the Marianna Islands, and eastward to Samoa. Three of the four described species are found in Australia.

8. Melanacanthus margineguttatus Distant.


DISTRIBUTION: Australia, New Zealand, Fiji, Samoa, Marianna Is.

S. MARIANA IS. GUAM: Two females, five males, May 1939, Oakley; one female, two males, from sorghum, June 1938, Oakley; one female, 1946, Krauss; three females, two males, Agana Heights, July 1945, Wallace. ROTA: Two males, from pigeon pea, June 1946, Oakley. AGIGUAN: One male, West Point, May 1952, Kondo. TINIAN: Three males, Mar. 1946, Hadden; two females, four males, March 1946, Hadden; two males, June 1946, Townes; one male, Mt. Lasso, June 1946, Townes; two females, one male, Camp Churo, June 1952, Kondo. SAIPAN: Two females, from Cajanus cajanus, June 1946, Oakley; one female, two males, March 1948, Lange; two females, Kannat Edot, June 1946, Townes; one female, USCC Farm, June 1946, Oakley; one male, Garapan Sadog Tasi, May 1940, Yasumatsu and Yoshimura. PAGAN: One female, Sōngsōng Begusa, April 1940, Yasumatsu and Yoshimura.

Additional locality records from Guam, with notes on the biology of this species, are given by Usinger (1946).

As with other members of the genus, both sexes of M. margineguttatus exhibit many varying degrees and combinations of size and appearance which

* This section by J. C. Schaffner, Iowa State University, Ames, Iowa.
make it a confusing species to study. Comparative measurements, lack of variation of genitalia, and certain rather consistent characters of the pronotum seem to warrant the conclusion that only one species is involved. It does, however, differ somewhat from the original descriptions of all members of the genus and until specimens can be compared with the types, it seems advisable to accept, with some reservations, the name applied to the species considered here. Specimens from the Mariana Islands differ from those from the New Hebrides which agree more closely with Distant's description of *M. margineguttatus*.

Genus *Riptortus* Stål


This widespread, primarily tropical, genus ranges from western Africa eastward through Asia to the Marshall Islands but is not found in the Western Hemisphere. Two species, one of which is new, are known from Micronesia.


**DISTRIBUTION**: Marshall Islands (Kwajalein).

**MARSHALL IS. KWAJALEIN**: Kwajalein L., airfield, Aug. 1946, Oakley.

Apparently this species is known only from the holotype in the United States National Museum (61438). The character given in the key combined with its somewhat smaller size should make it easy to distinguish from *R. macleani*. An outline drawing of the male clasper accompanies Usinger's description.

10. *Riptortus macleani* Schaffner, n. sp. (fig. 5).

**Male**: Head: Ferrugineous, with dark brown to black on lateral portion of jugum and posteriorly beneath antenna to eye, an area at base of each ocellus which extends back onto neck and occasionally forward to eyes and behind eyes; flavescent line laterally from behind anterior portion of tylius, posteriorly, beneath antenna and eye and continuing on thorax; also a narrow light testaceous line between antennal socket and eye. Comparative measurements of head width (through eyes) to length (measured laterally from tip of tylius to posterior margin of eye), 51: 47. Clothed with many short appressed hairs imparting golden coloration under strong illumination; a few longer hairs especially on tylius and around eyes. Antenna ferrugineous with segments 1 to 3 usually dark brown to black apically, segment 4 sometimes lighter basally. Segments 1 to 3 with sparse short hairs which become longer near apex of segment 3; terminal segment densely covered with short appressed hairs; comparative lengths of antennal segments, 66: 43: 43: 123. Rostrum ferrugineous, apical half or more of segment 4 and sometimes anterior margins of all segments dark brown to black; smooth and shining with sparsely scattered hairs; labrum rugose. Comparative lengths of segments, 36: 37: 20: 36; rostrum reaching or almost reaching hind coxae.

Thorax: Ferrugineous; ventral portion dark brown to black, midventral groove of mesothorax lighter than bordering areas as are areas of metathorax immediately behind mesothoracic coxae. Flavescent line on prothorax continued from head, dorsal
and ventral margins of flavescent areas on meso- and metapleur, not parallel with those margins of prothorax (as in *R. linearis*); small callosity at posterior margin of mesopleuron also flavescent. Anterior one-fifth of pronotum not raised above level of head; minutely reticulate with sparse punctures and middorsally with two short impressed grooves on posterior portion of area. Remaining four-fifths of pronotum angling more abruptly upward to a point well above level of head; humeral angles projecting posterolaterally into black-tipped spines about as long as distance of line between outer margins of both ocelli. Pronotum indented somewhat along middorsal line; posterior margin turned downward; strongly punctate and clothed with short appressed hairs appearing golden under strong illumination. Meso- and metapleur with large smooth flavescent spots, shining and with sparse vestiture; rest of lateral portions smooth to minutely granulate, punctate at dorsoposterior angles and along posterior margins onto area above coxal cavities. Entire thorax grooved midventrally. Ostiolar peritreme broadly curved, testaceous; evaporative area minutely reticulate and with grooves running mesially. Legs testaceous, sometimes dark brown or black, occasionally mottled with darker spots. Hairs of femora and tibiae short, not longer than diameter of tibiae; sparse and more or less in longitudinal rows. Apex of tibiae sometimes darker and hind femur tending to be darker ventrally and sometimes rugose. Posterior margin of hind femur with row of spines; a series of short spines or protuberances between last two large apical spines and between last large spine and apex of femur. Last tarsal segment and sometimes middle segment darker than first; claws dark brown or black, at least at tip. Scutellum ferrugineous with flavescent tip. Wing with corium ferrugineous and clearly punctate with short hairs emanating from punctures. Membrane light brown and transparent with 11 or 12 prominent veins.

Abdomen: Testaceous to ferrugino-testaceous; usually with brown to brownish-black areas laterad to midventral line of segments 3 or 4 to 7, sometimes covering midline on segment 5 and posterior portion of 6 and nearly always covering midventral area of 7. Many short appressed hairs and some longer hairs especially laterally;

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**Figure 5.—*Riptortus macleani*, male: a, head and thorax, lateral view; b, head and pronotum, dorsal view; c, genital capsule, dorsal view; d, genital capsule, posterior view.**
trichobothria brown. Dorsal surface of abdomen testaceous with wide middorsal dark brown to blackish band extending posteriorly to hind margin of dorsum; posterior corners of connexivum of segments 5 and 6 each with a dark spot. Comparative measurements of segments 3 to 5 along midventral line, 19:42:25. Genital capsule testaceous with posterior margin sometimes dark brown to black; many long hairs. Claspers narrow, curved inwardly, flattened and somewhat rounded at apex. Length 14-17 mm.; width 2.5-3.3 mm.

Female: Very similar to male but differing somewhat in occasionally having a lateral thoracic fascia or series of spots much narrower than that of male. Abdomen more robust; color pattern of underside diffuse or lacking, frequently spotted with red, dark brown, or black.


The following specimens are in too poor condition to be considered as paratypes. Palau: Babeldaoob, Ngardok, Ngarmisukan, Feb. 11, 1938, Esaki; Ngerkabesan, Apr. 25, 1957, Sabrosky; Yap, Yaptown, Mt. Matada, July 13, 1946, Townes.

Philippine Islands: Several specimens.

DISTRIBUTION: Caroline Is. (Palau, Yap), Philippine Is.

Included in a series of specimens taken from Arakabesan by Townes, July 18, 1946, are a male and female having a color pattern variation which seems worthy of mention. The general color is a rich reddish brown and the normally flavescent parts are white; the structural characters, however, compare closely with those of other members of the species. The color difference probably is due to methods of killing or of preservation.

This medium-sized species can be separated from all other Riprotorus species by the comparative lengths of the antennal segments, the margins of the lateral thoracic fascia which are not parallel through its entire length, the shape of the pronotum with its spines of medium length, the black stripe on the dorsum of the abdomen, and the external male genitalia.
R. macleani is closely related to an apparently undescribed species found in the Philippine Islands which has an abdomen lacking the black stripe on the dorsum. It is also closely related to R. saileri Usinger, but differs in having antennal segment 4 longer than 2 and 3 combined.

This species is named in honor of Professor G. E. McLean whose enthusiasm as an amateur naturalist stimulated me to choose the biological field for a lifetime study.

**SUBFAMILY COREINAE**

The species of Coreinae are apparently not particularly adept at crossing ocean barriers and are found only rarely on oceanic islands. In the Pacific, only the genus Leptoglossus of the whole subfamily is at all widespread, and even this is absent from Hawaii although the much smaller subfamilies Alydinae and Rhopalinae both have representatives there.

There are six genera of Coreinae known from Micronesia but, with the exception of Leptoglossus, the species are found only on island groups close to other large land masses, for example, two genera and two species in the Marianas and one genus and two species in Palau.

The four tribes of Micronesian Coreinae can be separated as follows:

**KEY TO MICRONESIAN TRIBES OF COREINAE**

1. Hind femora armed with spines.................................................................................................................. 2
   Hind femora unarmed, slender.................................................................................................................. 3
2(1). Hind femora not very incrassated, hind tibiae with laminate expansions....
   .................................................................................................................................................. Anisoscelini
   Hind femora incrassated, hind tibiae slender.................................................................................. Physomerini
3(1). Hind angles of pronotum with an acute, forwardly directed spine.................................................................................. Gonocerini
   Hind angles of pronotum obtuse or only with an obtuse spine.................................................................. Dasynini

**TRIBE PHYSOMERINI**

Genus *Acanthocoris* Amyot and Serville


Claval suture longer than apical margin of corium; segment 4 of antenna shortest of all; eyes small. Posterior tibiae moderately dilated, posterior femora incrassated, shiny, apices above with a short spine or tubercle. Mesosternum not sulcate. Pronotum above with numerous fine tubercles, lateral margins serrate. Numerous stiff, hairlike spines on pronotum, head, antennae, legs, and outer basal margin of corium.

*Cimex scaber* Linnaeus, 1763, Centuria Insectorum Rarium, 17; 1763, 
Amoen. Acad. 7: 400; 1767, Syst. Nat., 12th ed. 1 (2): 719.—Gmelin, 


*Acanthocoris acutus* Dallas, 1852, List Hemipt. Ins. 2: 516.

Dark chocolate brown, corium near apical margin, abdominal incisions above and 
a band on all tibiae (especially broad on middle tibia) yellowish. Last segment of 
a tarsus lighter brown. Above covered with a fine whitish or yellowish adpressed pilosity, 
beneath this much thicker, giving a hoary appearance beneath. Pilosity, on legs 
intermediate in thickness between that above and that below.

**DISTRIBUTION:** Java, China, S. Mariana Is.

S. MARIANA IS. GUAM: One, Tutujan, Sept. 1953, Liming; one, Mt. 
Lamlam, Oct. 1957, Krauss; six adults, three nymphs, Umatac, March 1958, 
Krauss.

The early descriptions of the species from our region are extremely brief 
and not a single paper has set out clearly the differences between *scaber* Lin-
naeus, *scabrator* Fabricius, *clavipes* Fabricius, and *sordidus* Thunberg. These 
Guam specimens differ from our series of *scabrator* from Malaya and hence 
the Linnaean name seems the most applicable.

**Tribe Anisoscelini**

**Genus Leptoglossus** Guérin

*Leptoglossus* Guérin, 1838, IN Duperrey, Voy. Coquille, Zool. 2 (2), Div. 1: 
11 (2): 68.—Distant, 1902, Fauna Brit. India, Rhynch. 1: 382.—Van Du-
Afrique noire, 101.

*Anisoscelis* Spinola, 1837, Essais Genres Ins. Hemipt. Rhyn., 200.—Walker, 
1871, Cat. Hemipt. 4: 124.

Förh., 544.

Head elongate, produced in front of antenniferous tubercles. Antennae long and 
slender, segment 1 thicker and feebly curved. Pronotum broader than long, lateral 
angles prominent. Fore femora lightly armed beneath, middle femora with more spines, 
and hind femora strongly armed and reaching apex of abdomen. Hind tibiae expanded 
near base into large plates on either side, the inner one narrower and rounder, the 
outer one wider and dentate on its outer margin.
12. Leptoglossus australis (Fabricius).


_Lygaeus australis_ Fabricius, 1794, Ent. Syst. 4: 140; 1803, Syst. Rhyn., 211.


_Lygaeus membranaceus_ Fabricius, 1794, Ent. Syst. 4: 139; 1803, Syst. Rhyn. 209.—Wolff, 1800, Icones Cimicum 1: 22, fig. 22.


_Cimex mormoricae_ Forster, 1844, Descript. Anim., 16.

_Anisoscelis orientalis_ Dallas, 1852, List Hemipt. Ins. 2: 454.


_Anisoscelis flavopunctatus_ Signoret, 1863, IN Maillard, Notes l’île Réunion, Annexe J, 27, pl. 21, fig. 4.


_Leptoglossus bidentatus_, Stål, 1873, K. Sven. Vet.-Akad., Handl. 11 (2):


Black or dark chocolate brown above. Several longitudinal bars on head, a large arcuate fascia crossing anterior area of pronotum, extreme apex of scutellum, sometimes a small dot on disc of corium, abdominal incisures above, numerous maculae on body beneath, sometimes one or two spots on foliaceous dilations of hind tibiae, broad bands on antennal segments 2 and 3 and most of segment 4 (except extreme base) reddish ochraceous or yellow.


N. MARIANA IS. PAGAN: Three, Sept. 1949, Kondo; one, July 1951, Bohart; five, Aug. 1954, Corwin.

S. MARIANA IS. SAIPAN: Two, Tanapaku, Feb. 1936, Esaki; four, As Mahetog area, Nov. 1944, Dybas; one, Nov. 1944, Hagen; four, Dec. 1944, Dybas; five, As Akina area, Dec. 1944, Dybas; two, Mt. Tagpo-chau, 1 mile north northeast of summit, Jan. 1945, Dybas; one on cotton plant, southern part, May 1945, Dybas; two by beating vegetation, May 1945, Dybas; five, Apr. 1946, Krauss; one, Garapan, Apr. 1946, Krauss; two, Chalan Laualau, Apr. 1946, Krauss; three, Matansha, Apr. 1946, Krauss; five, former Japanese Experimental Station, June 1946, Oakley; six, northern part, Dec. 1944, Dybas; four, no precise locality, June 1951, Bohart. TINIAN: One, Mar. 1945, Dybas; 10, Mar. 1946, Hadden; 14, on Passiflora foetida, June 1946, Townes; one, June 1946, Oakley; two, July 1949, Mead; three, on watermelon, Nov. 1952, Beardsley. AGIGUAN: One, July 1949, Mead and Kondo. ROTA: One, Sosan Ishmus, Oct. 1945, Necker; one, July 1949, Kondo. GUAM: One, edge of forest, 1923, Hornbostel; eight, on milkweed, Mar. 1924, Hornbostel; one, Namru 2, May 1945, Bohart and Gressitt; one, Agana, May 1945, Bohart and Gressitt; one, Agana Heights, July 1945, Wallace; one, Mt. Santa Rosa, May 1945, Bohart and Gressitt; two, Amantes Pt., May 1945, Dybas; one, Pago Bay, June 1945, Dybas; one, Barrigada, Aug. 1945, Wallace; one, Aug. 1945, Chaffee; two, Mt. Alifan, Apr. 1946, Krauss; three, near Yona, Apr. 1946, Krauss; six, Yona, Oct. 1952, Krauss; one, Anderson Air Force Base, Aug. 1952, Krauss; two, Metizo, Oct. 1957, Krauss.

PALAU. One, no precise locality, Apr. 1936, Ono. KOROR: Two, northeast corner, July 1946, Townes; two from Passiflora, Aug. 1952, Beardsley; one, Jan. 1954, Beardsley; one, Apr. 1957, Sabrosky. NEGERKABESANG (Ara-kabesang): Two, July 1946, Townes; one, July 1946, Oakley.

I have seen an African specimen and a large series from Micronesia, New Guinea, and Australia and am unable to concede that there is more than one species involved. African and Indian specimens tend to be dark brownish with the spine on the humeral angles of the pronotum and the foliaceous dilations of the hind tibiae maximally developed. Australian and Micronesian specimens are black and in general have the humeral angles obtuse and the foliaceous dilations of the hind tibiae narrower. But there are peculiar specimens in the Australian series that are chocolate-colored with obtuse humeral angles and narrower dilations, and in the Micronesian series that are black with an acute spine on the humeral angles and maximally developed foliaceous dilations. The size in the Micronesian series varies from specimens larger than I have seen for Australian and New Guinea specimens to quite small individuals, but by and large the average size of specimens of the two groups tends to be about the same.

Bearing in mind that Pacific island Hemiptera often tend to be smaller and that the more prominent spines and dilations tend to be smoothed somewhat, compared to forms of the same species found on adjacent continental or large island areas, variations in Leptoglossus australis are conservative when compared to species of Leptocoris and certain other Pacific Heteroptera.

The species has been recorded several times feeding on cucurbit; other host plants recorded are banana, guava (Psidium), Citrus, Acacia, and Passiflora foetida.

TRIBE DASYNINI

Only one genus, Dasynus, is found in Micronesia.

Genus Dasynus Burmeister


Head quadrate, produced a little in front of antenniferous tubercles. Ocelli small and placed quite far apart. Antennae with segments 1 and 2 subequal in length, 3 shorter and often dilated at apex into a flattened area.

Two species of this genus, one of them evidently new, are now recorded from Palau.
KEY TO MICRONESIAN SPECIES OF DASYNUS

Brown species, antennal segment 3 not expanded distally. 13. *D. fuscescens*
Reddish-ochraceous species, antennal segment 3 expanded distally into a flattened area. 14. *D. pallidolimbatus*


Brownish ochraceous, body beneath and legs pale testaceous, their extreme apices black, fourth segment grayish brown, with a broad pale annulation at base. Lateral angles of pronotum subacutely produced, infuscated. Scutellum paler at tip. Membrane hyaline or smoky brown.

**DISTRIBUTION:** Northern Australia, New Guinea, Caroline Is. (Palau).

**PALAU. Ngarmalk:** Two, Northwest Auluptagel, 25 m., Dec. 1952, Gressitt.

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**Figure 6.—*Dasyus pallidolimbatus.*
14. Dasynus pallidolimbatus Gross, n. sp. (fig. 6).

Reddish ochraceous. Two obsolete lines on head beginning in middle of insertion of antennae and running back to hind margin of head and lateral margins of pronotum, fuscous. Lateral margins of corium in first third narrowly, then expanded in middle third, yellow. Beneath, rostrum and most of femora and tibiae also yellowish. Eyes dark red; ocelli, coxae, apices of femora bases and apices of tibiae, all tarsi, patches on thoracic pleurae above coxae, abdominal margin broadly and most of abdomen above, paler bright red. Some black patches near apex of abdomen above and beneath. Membrane hyaline.

Antennal segment 1 rather robust, with a small spine on its hind margin about two-thirds distance from base; segment 2 about as long, thinner; segment 3 at base as thick as 2 and expanded in terminal half into a flat foliaceous dilation; segment 4 missing. Head fairly prominent, a prominent groove on either side just inside insertion of antennae, forking in front of them, one going to lateral margin just in front of insertions, the other converging with its fellow from the other side and going to anterior margin. Another prominent short groove in midline just in front of eyes and two small pits immediately in front of ocelli. Rostrum reaches almost to hind coxae, segment 1 does not reach base of head, segment 2 terminates midway between first and second coxae. Sides of pronotum almost straight, converging anteriorly, finely serrulate, hind angles with a sharp but short, outwardly directed tooth. Above coarsely punctate, beneath thorax fairly coarsely punctate, abdomen finely punctate. Length 12 mm.


DISTRIBUTION: West Caroline Is. (Palau).

The expanded third segment of the antenna allies this species to the coccocinicas (Burmeister)--laminatus Stål group of species, but its coloration and size are very different from others of this section.

TRIBE GONOCERINI

Genus Plinachus Stål


Head distinctly produced in front of insertion of antennae. Pronotum produced into short acute spines directed slightly forward. Abdominal spiracles about equidistant from basal and apical margins of segments or nearer apical margin, but nearer lateral margin than apical or basal margin.

15. Plinachus acicularis (Fabricius).

Alyus acicularis Fabricius, 1803, Systema Rhyngtorum, 251.
Leptoscelis ventralis Dallas, 1852, List Hemipt. Ins. 2: 458.
Cleitus conspicuus Walker, 1871, Cat. Heterop. 4: 198.
Variable in color; most of the specimens before me with antennae and head violet or greenish black with a yellowish or reddish spot behind ocelli; legs, scutellum (and pronotum, in one specimen), and sometimes all the hemelytra concolorous with head and antennae. Pronotum usually with a broad ochraceous or reddish bar which may be transverse with four angulate prolongations toward hind margin or semicircular in shape with ends resting on hind margin. Clavaus and inner cortex lightened, either ochraceous or reddish. In three specimens whole ground color reddish with two faint infuscated longitudinal parallel bars on pronotum. One reddish specimen has darker legs and antennae, head has two dark patches on vertex behind insertion of antennae and anterior margin of pronotum (broadly), two longitudinal parallel bars and spots on humeral angles, black.

Underside of head and pronotum may be almost completely black, or underside of head black with one or two black spots on each thoracic pleura. Underside of abdomen always reddish or yellowish with conspicuous black spots on lateral margin of all visible segments; segment 4 has also a large spot about halfway from lateral margin to midline. Length 12-17 mm.

**DISTRIBUTION**: India, Ceylon, Mariana ls.

**S. MARIANA IS. AGIGUAN**: Three, ex opiuma, Nov. 1955, Davis.

**ROTA**: One, Sonson-Tarpingot, Nov. 1937, Esaki. 


**FAMILY NEIDIDAE**

In the Neididae, a family of small slender bugs which frequents damp vegetation, some rather curious distribution patterns are known.

**Genus Protan anthus** Uhler


Rostrum reaching posterior coxae, basal segment not as long as head, antennal segments 2 and 3 subequal. Pronotum anteriorly armed on each side with an obliquely directed spine, and with a prominent central keel; trituberculate posteriorly. Hemelytra longer than abdomen, which tapers from base to apex. Scutellum armed with a prominent spine, process of odoriferous apertures not prolonged vertically above level of hemelytra.

Species of *Protan anthus* are found in the West Indies, Polynesia, Micronesia, India, and Australia.

16. **Protan anthus pacificus** China.

*Protan anthus pacificus* China, 1930, Ins. Samoa 2 (3) : 111, fig. 2.—Gross, 1950, South Australian Mus., Rec. 9 (3) : 324.

Anterior lobe of head (in front of ocelli) and eyes intense shining black, remainder fulvous, flecked with brown. Pronotum fulvous anteriorly and shading through brown to black posteriorly, abdomen pale green.

Head with a few short hairs, especially at apex of rostrum which reaches almost
to abdominal segment 2, relative lengths of rostral segments 35:17:20:22. Humeral angles of pronotum subglobosely swollen, the median longitudinal keel on disc very distinct posteriorly, strongly elevated between tumescent humeral lobes and dilated to form an elongate, lobelike protrusion. Spines of anterior collar robust, about as long as head is wide between eyes. Hemelytra extending well beyond apex of abdomen. (Abbreviated from China.) Length 4 mm.; width 0.72 mm.

**DISTRIBUTION:** Samoa, Fiji, Caroline Is. (Palau).
**PALAU.** Koror: One, May 1953, one, at light, June 1953, Beardsley.

**FAMILY NABIDAE**

Nabids are small, slender, predaceous bugs with exceptional prowess to cross ocean barriers and colonize oceanic islands. The two genera and three species that are represented in Micronesia may be separated by the following key.

**KEY TO MICRONESIAN SPECIES OF NABIDAE**

1. Thorax anteriorly with a broadish annuliform collar; ocelli approximated, almost contiguous. *Arbela*.......................................................... 2
   Thorax without a strong transverse impression forward, hence no distinct collar, ocelli well separated..................................19. *Nabis capsiformis*

2. Head, eyes, fore lobe of pronotum, hind lobe except for three pale longitudinal bands, scutellum laterally, and central position of hemelytra piceous.....
   Above and beneath light brown........................................17. *Arbela nitidula*

**Genus Arbela** Stål


*Arbelopsis* Poppius, 1915, Archiv Naturgesch., A. 8, 80 : 5.

Body fairly elongate. Ocelli conspicuous, very close together. Pronotum narrowed anteriorly, transversely constricted at or near middle, front lobe with a distinct ring-like collar. Hind tibiae often swollen near base in males.
17. *Arbela nitidula* Stål.


*Arbela umbonata*, Poppius, 1913, Ent. Tidsskr. 34: 258.

*Lorichius umbonatus* Distant, 1904, Fauna Brit. India, Rhynch. 2: 402, fig. 257.


Micronesian specimens dark. Head, eyes, anterior lobe of pronotum, hind lobe of pronotum (excepting three longitudinal pale streaks, one median and two lateral) scutellum (except a median pale streak), hemelytra (except laterally), and beneath piceous. Legs, antennae, and rostrum yellowish brown. Margins of hemelytra and longitudinal bars on pronotum and scutellum pinkish white. Length 5.7-6.3 mm.

**DISTRIBUTION**: Japan, Philippines, Ceylon, India, Indonesia, New Guinea, New Hebrides, Caroline Is. (Palau).


18. *Arbela hibisci* Esaki and Ishihara.

*Arbela hibisci* Esaki and Ishihara, 1943, Mushi 15: 71, fig.

Yellowish brown. Last two segments of antennae, eyes, apices of femora and bases of tibiae, and last tarsal segments, brown or purplish. Ocelli red. Scutellum and sometimes central portion of hemelytra somewhat darker brown than rest of body. Pronotum and lateral portions of hemelytra sometimes with a greenish tinge. Fore and mid femora with long spines. Length 5.4 to 6.6 mm.
DISTRIBUTION: Caroline Is. (Palau, Ponape).


Apparently a paler species than A. mitidula.

Genus Nabis Latreille


Body fairly elongate, eyes well separated from anterior margin of pronotum. Ocelli fairly well separated, rostrum long. Pronotum lightly constricted behind middle, no longitudinal keel. Fore femora somewhat incrassate, becoming slender toward apex, anterior tibiae shorter than anterior femora.


Elongate, grayish testaceous; an oblong spot between eyes, a central longitudinal line on pronotum and scutellum, discs of meso- and metasterna, two punctate spots on corium, one behind middle and one on hind margin and a lateral fascia to pro sternum black or fusceous. Hemelytra uniformly pale. Male clasper fairly simple, rounded beneath and without a tooth (see Zimmerman's figure). Length 8-10 mm.

DISTRIBUTION: Cosmopolitan.

VOLCANO IS. IWO JIMA: One, Sept. 1945, Dybas.
S. MARIANA IS. AGRIHAN: Two, July 1948, Mead; one, July 1951, Bohart. ALAMAGAN: One, July 1949, Mead. SAIPAN: Two, 1.2 miles east of Tanapag, Sept. 1944, Edgar; two, Nov. 1944, Dybas; one, Ants Valley, June 1946, Oakley; one, Afetna Pt., June 1946, Townes; one, As Mahetog area, Nov. 1944, Dybas; nine, Nov. 1944, Dybas; three, at light, Nov. 1944, Edgar; seven, Nov. 1944, Edgar; one, at light, Jan. 1945, Dybas; 13, at light, Apr. 1945 Dybas; one, at light, May 1945, Dybas; six, Achugau area, sweeping, Jan. 1945, Dybas; two, Talofofo, sweeping vegetation, Jan. 1945, Dybas; one, Laulau Bay, Jan. 1945, Dybas; one, Garapan, Apr. 1946, Krauss; six, no precise locality, Nov. 1944, Hagen. TINIAN: Three, no precise locality, June 1946, Townes; one, Hagoya Lake, June 1946, Townes; two, south end, June 1946, Townes; one, no precise locality, Nov. 1952, Beard sley. ROTA: Two, July 1951, Bohart. GUAM: One, Upi Trail, ex grass, May 1936, Swezy; one, Pt. Oca, at light, May 1945, two, in light trap, three, June 1945, Gressitt and Bohart; one, Dec. 1945, Gressitt; one, Barrigada, Aug. 1945, Wallace; one, Mungmung, in light trap, June 1945, Bohart and Gressitt; one, Agana, May 1945, Bohart and Gressitt; one, airport, Aug. 1945, Dybas, one, June 1946, Townes; three, Mt. Alifan, Apr. 1946, two, Agat, Apr. 1946, two, Talofofo, Apr. 1946, two, Aug. 1952, all by Krauss; one, northern Guam, Apr. 1946, Krauss; one, Anderson Airforce Base, Aug. 1952, Krauss; one,


TRUK. WENa (Moen): One, Civ. Ad. Area, at light, Mar. 1949, Potts; one, 0-400 ft., May 1946, Townes; one, 1952, Beardsley.


Some authors believe the species is originally Australian and it is certainly widely distributed on that continent, from desert and arid environments to sclerophyll forests. Hawaii has many species of Nabis, which belong
to two series, a group without a ventral tooth on the male clasper (the simplest shape occurring in *N. capsiformis*) and a group in which there is a prominent ventral tooth on the male clasper. The most generalized clasper possibly belongs in this group to *N. blackburni*. It is interesting to note that there is a second species of *Nabis* in Australia rather darker on the whole than *capsiformis* (although in most collections the two are mixed together) which has a clasper of the *blackburni* type, though rather simpler. This species is probably undescribed.

20. **Nabis fasciata** Stål.


Kirkaldy claimed that this species occurs in this region. “Diese Art ist der *N. perpulchra* Stål aus Afrika (Kaffraria, Abyssinien U. S. W.) sehr ähnlich, aber sie ist ohne Schwierigkeit zu unterscheiden durch die viel feinere Punktirung des Hirtertheils des Pronotums sie stammt von der Philippinen Inseln und Pegu (Palou!)”