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ARADIDAE IN THE BISHOP MUSEUM, HONOLULU
V. (Supplement)
(Hemiptera-Heteroptera)[1]

By Nicholas A. Kormilev[2]

Abstract: Fifteen new species in the subfamilies Aneurinae, Calisiinae and Carventinae are described: *Acaraptera solomonensis* (Solomon Is.), *Aneurus* (*A.*) *insularis* (Hainan Is.), *A.* (*A.*) *tainguensis* (Viet Nam), *A.* (*Aneurillus*) *borneensis* (Borneo), *Biroana armigera* (NE New Guinea), *Calisius caledonicus* (New Caledonia), *C. diffusus* (NE New Guinea), *C. gracilicornis* (Solomon Is.), *C. gressitti* (Laos), *C. histrionicus* (New Caledonia), *C. orientalis* (Viet Nam), *K. stylatus* & *L. caledonicus*, type species of new genera *Kaulocoris* & *Leurocoris*, respectively (both New Caledonia), *Proxius* (*Nesoproxius*) *yoshimotoi* (Philippines) and *Zimmermania breviceps* (Bismark Arch.). New distribution records are: *Aradacanthia multicalcarata* Costa (Papua), *Aradus abnormis* Bergroth (Laos) & *Gnostocoris gressitti* Kormilev (New Caledonia). The Oriental, Australian & South Pacific carventine genera are keyed.

During the last 2 years additional material of Aradidae has accumulated in the collections of the Bishop Museum, Honolulu, among them 2 new genera of Carventinae from New Caledonia, and various new species of Calisiinae, Aneurinae and Carventinae. Two new species of the genus *Calisius* Stål, 1860, from Laos and Viet Nam considerably change the pattern of distribution of this curious genus. *Calisius* is a world-wide genus in the warmer areas, but until 1965, when Bloete described *Calisius spinulosus* from Java, this genus was not recorded from the Oriental Region, a very surprising fact considering that it was present in New Guinea, Australia, South Pacific and even Micronesia, then again in North and South America, across tropical Africa, Southern Europe, Syria and Russian Central Asia.

In the Oriental Region another curious genus of Calisiinae was distributed, *Aradacanthia* Costa, 1864, with a single species, *A. multicalcarata* Costa, 1864, recorded from Indo-China, Malaya, Borneo and Philippines. Now 4 specimens have been collected in Pa-

1. Material examined is a result of field work supported by grants to Bishop Museum from the U. S. National Science Foundation (G 2127, 4774, 1073) and the U. S. A. M. R. D. C. (DA-MEDDH-60-1) and a grant to J. L. Gressitt from the J. S. Guggenheim Foundation (1955-56). For previous parts of this series, see *Pacif. Ins.* **9** (3): 447-79; **10** (2): 249-60; **10** (3-4): 575-97; and **11** (1): 49-70.

2. Bishop Museum, Honolulu, Hawaii 96818.

pua.

One of the new genera of Carventinae, which I propose to name *Kaulocoris* n. g., has very peculiar, strongly stylate eyes, a character mostly found among Mezirinae, but rarely in Carventinae. Another case is with the new species of the genus *Biroana* Kormilev, 1957. The 2 known species of *Biroana* have a very characteristic, widely rounded postocular border, without any trace of postocular tubercles; the new species has the border deeply cut out just behind eyes, and the left posterior portion of the postocular border forms strong, tooth-like projections.

In the ratios the first figure indicates the length, and the second the width of measured portion. The length of abdomen was taken from the tip of scutellum, or from the fore border of tergum I in apterous forms, to tip of abdomen; only in the genus *Calisius* Stål it was taken from fore border of connexivum I to the tip of abdomen.

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Subfamily CHINAMYERSINAE

Genus **Gnostocoris** Kormilev

Gnostocoris Kormilev, 1967, *Pacif. Ins.* **9** (3): 449.

This curious genus has a single species, described from New Hebrides; now it also has been collected in New Caledonia.

Gnostocoris gressitti Kormilev

Gnostocoris gressitti Kormilev, 1967, *Pacif. Ins.* **9** (3): 452, fig. 1-3.

3 ♂♂, 2 ♀♀ & 2 nymphs, NEW CALEDONIA, Mt Koghi, 450-600 m; 4-6.X.1967, J. & M. Sedlacek coll. (BISHOP).

Subfamily ARADINAE

Genus **Aradus** Fabricius

Aradus Fabricius, 1803, *Systema Rhyngotorum*: p. 116.

The genus *Aradus* has numerous species in the Palaearctic and Nearctic Regions, but is rather rare in the tropics and the Southern Hemisphere, those there mostly belonging to the "lugubris group," good flyers, to which the following species also belongs.

Aradus abnormis Bergroth

Aradus abnormis Bergroth, 1889, *Ann. Mus. Civ. Stor. Nat., Genova* **27**: 730.

1 ♀, LAOS, Ban-van-eue, SE of Phou-kow-kuei, 12.IV.1965; J. L. Gressitt coll. (BISHOP).

This species was originally described from Tenasserim, S. Burma, and to my knowledge has not been recorded since then. Distant (1903: 154) only repeated the data of Ber-

groth.

Subfamily CALISIINAE

Genus **Calisius** Stål

Calisius Stål, 1858 (1860), *Kongl. Svenska Vet.-Akad. Handl.* **2** (7): 68.

Six new species were represented in this lot: 1 from Laos, 1 from Viet Nam, 1 from New Guinea, 1 from Solomon Is., and 2 from New Caledonia.

Calisius orientalis Kormilev, new species

♀. Elongate ovate, attenuated anteriorly, granulate.

Head longer than its width across eyes (18: 16). Anterior process obovate, slightly incised anteriorly and roughly granulate, reaching to tip of antennal segment III. Antenniferous tubercles strong, acute, divaricating. Eyes semiglobose, protruding. Postocular spines consisting of one granule, reaching outer border of eye. Vertex with a double row of 12(6+6) granules converging posteriorly. Antennae strong; relative length of antennal segments I to IV are: 2.5 : 3.5 : 5 : 6.5 ; segments I and II cylindrical, III slightly tapering toward base, IV fusiform. Labium reaching hind border of labial groove, the latter closed posteriorly.

Pronotum half as long as its maximum width (15: 30). Collar with 2 (1+1) large granules; anterolateral angles each with 4-5 granules of different sizes; humeri with a double row of small granules of various sizes, those in the upper row semi-fused and reaching only to middle of humerus. Fore disc with 2 (1+1) larger granules in the fore row and 2(1+1) smaller granules in the hind row, placed more apart. Hind disc with 4 (2+2) rows of granules fused forming carinae.

Scutellum almost 2 × as long as its width at basal 1/3 (44: 23). Basal, triangular elevation with 4 (2+2) spicules anteriorly, overlapping hind border of pronotum, and with 2 (1+1) transverse granules between them in middle. Lateral borders of triangular elevation with 2 (1+1) semiobliterated granules in middle; base of scutellar carina, and carina itself, without granulation; lateral and apical borders of scutellum with obliterated granulation; disc roughly and evenly punctured.

Hemelytra: Exposed portion of corium without granulation.

Abdomen longer than its maximum width across segment IV (50: 38); connexiva with 3 small granules in upper row (the middle one is darker), and with semi-obliterated granules in lower row, which are more conspicuous on posterior connexiva. Spiracles very small and difficult to observe on connexiva II and III, more conspicuous on IV, placed on tubercle on V and VI, lateral, placed on a tubercle on VII, and terminal on VIII. Paratergites in a shape of short, double granules, reaching basal 1/3 of segment IX; the latter strongly tapering. Discs of connexiva rough, lacking granulation, only hind borders with almost obliterated granulation.

Color: Orange-yellow; eyes brown; scutellum with 2 (1+1) elongate brown spots with orange center on basal half of basal elevation; a large brown spot with white center on apical 2/5 of disc, and with an inverted "V" white spot in middle; 1, sometimes 2, granules in upper row on the border of connexiva, brown.

Total length 3.25 mm; width of pronotum 1.07 mm; width of abdomen 1.36 mm.

Holotype ♀ (Bishop 9201), Viet Nam, 10 km E of Ban-me-thuat, 570 m, 8.V.1960; R. E. Leech coll.

Calisius orientalis n. sp. in my key for South Pacific species (1967: 456) runs to *C.*

ashlocki Kormilev, 1967, from New Guinea, but is smaller, vertex with 12 (6+6) granules; anterolateral borders of pronotum with round granules, not spicules; scutellum with more conspicuous punctures and different pattern of spots; main color is orange, not brown.

Calisius gressitti Kormilev, new species Fig. 1 - 2.

♂. Elongate ovate, roughly granulate.

Head longer than its width across eyes (23 : 20). Anterior process obovate with slightly convex, granulate borders; rounded and finely granulate anteriorly, reaching 1/2 of antennal segment III. Antenniferous tubercles dentiform, divaricating; postocular consisting of a single spicule. Vertex with a "V"-form row of granules; infraocular carinae with a few, widely spaced granules; rest of vertex covered with dense, minute, scale-like granules. Antennae strong, almost as long as head (22 : 23); antennal segment I cylindrical, II attenuated at base, III subcylindrical, attenuated at base, IV fusiform; relative length of antennal segments I to IV are: 4 : 5 : 5 : 8. Labium reaching hind border of labial groove, which is closed posteriorly.

Pronotum 1/2 as long as its maximum width (17.5 : 35); collar with 2 (1+1) spicules; anterolateral angles with 4 (2+2) spicules directed sideways; fore disc with 2 (1+1) erect spicules in front row, and with 2 (1+1) more spaced spicules in hind row; lateral borders of hind lobe with 2 rows of spicules: 4-5 in the upper row and 2 in the lower row; hind disc with 4 (2+2) rows of rough granules.

Scutellum longer than its maximum width (55 : 27); basal, triangular elevation with 2 (1+1) large spicules on the fore border laterally, overlapping hind border of pronotum and with 2 (1+1) larger and 2 (1+1) smaller granules between them; lateral borders of basal elevation with 2 (1+1) large granules in middle; scutellar carina with a row of large, sharp granules; lateral borders of scutellum with a row of larger granules extending from base to tip of corium, then

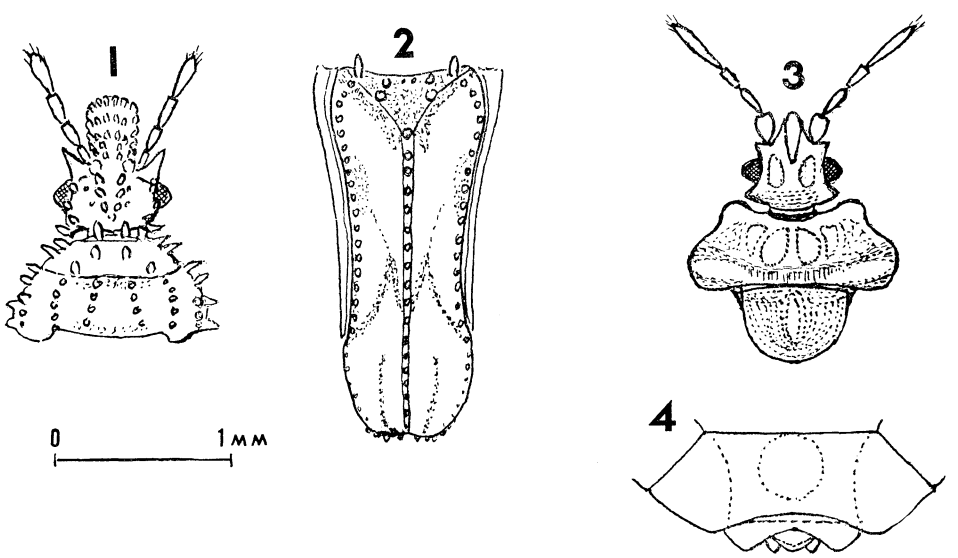

Fig. 1-4. 1, *Calisius gressitti* n. sp., ♂, head and pronotum; 2, same, scutellum and corium; 3, *Aneurus tainguensis* n. sp., ♀, head, pronotum and scutellum; 4, same, tip of abdomen from above.

with a row of smaller granules. Disc of scutellum punctured.

Hemelytra: Exposed border of corium with obliterated granulation.

Abdomen ovate, longer than its maximum width across segment IV (55: 46); connexiva with 2 rows of rough granules on exterior borders; discs of connexiva densely covered with scale-like granulation; hind border of tergum VIII with a row of granules. Hypopygium ventro-caudal in position, seen from above, shorter than wide (5: 12); with 2 rows of 2 (1+1) granules, each, posteriorly.

Color: Testaceous; eyes, a few scattered, small spots on pronotum, basal triangular elevation of scutellum and adjacent areas posterolaterally, "M"-shaped streak near apical 1/3 of disc, 2 (1+1) longitudinal spots flanking scutellar carina in middle, and 2 (1+1) thin streaks on apical 1/3 of disc, black or dark brown; 2 granules in the upper row of exterior border of connexiva and hypopygium, black; 2 (1+1) ovate, baso-lateral spots, 1 spot in the middle of scutellar carina, and apical 1/3 of disc, white or whitish; 2 (1+1) longitudinal streaks in the middle 1/3 of scutellum, yellow; corium and most of scutellar carina, orange-yellow.

Total length 3.43 mm; width of pronotum 1.17 mm; width of abdomen 1.53 mm.

Holotype ♂ (BISHOP 9202), Laos, Vekinak, 170 m, 22.IV.1965, J. L. Gressitt coll.

It is a pleasure to dedicate this species to Dr J. L. Gressitt, who collected it.

In my key for South Pacific *Calisius* species (1967: 456), *C. gressitti* n. sp. runs to *C. zimmermani* Kormilev, 1967, from Fiji, but is slightly larger, head longer than its width across eyes, antennal segments II and III equal in length and IV is distinctly longer; pattern of spots on scutellum is different.

Calisius gracilicornis Kormilev, new species

♀. Elongate ovate; pronotum rather convex and with reduced granulation on lateral borders of hind lobe.

Head shorter than its width across eyes (16: 18). Anterior process robust, dilated anteriorly, with converging lateral borders and rough granulation apically, reaching 3/4 of antennal segment III. Antenniferous tubercles dentiform, divaricating. Eyes reniform, protruding. Post-ocular borders with 6 (3+3) granules, of which the middle one is elongate. Vertex roughly granulate. Antennae thin and short, shorter than head (14: 16); antennal segment I cylindrical, II barrel-shaped, III evenly attenuated toward base, IV fusiform; relative length of antennal segments I to IV are: 3: 2.5: 3.5: 5. Labium reaching hind border of labial groove which is closed posteriorly.

Pronotum convex, truncate anteriorly, shorter than its maximum width (17.5: 33). Collar with 2 (1+1) granules; anterolateral angles obtuse, laterally with 6 (3+3) small granules; lateral borders of hind lobe with 6 (3+3) granules in upper row, progressively diminishing backward, in the lower row they are obliterated. Fore disc with 2 (1+1) granules in front row and with 2 (1+1) clusters of 3 small granules each in the hind row, placed farther apart; fore disc sulcate medially on hind half. Hind disc with 4 (2+2) semiobliterated rows of small granules, more prominent only in the middle rows.

Scutellum longer than its maximum width across basal 1/3 of disc (40: 25); basal triangular elevation with 2 (1+1) large round granules along basal border and 4 (2+2) smaller ones between them; lateral borders of basal elevation with 2 (1+1) rows of minute, round granules on basal half, without granules on apical half. Scutellar carina with 2 rows of minute granules. Lateral borders of scutellum very finely granulate, disc punctured.

Hemelytra: Exposed portion of corium without granulation,

Abdomen longer than its maximum width across segment IV (46 : 38) ; connexivum moderately reflexed, exterior borders with 2 rows of granules : each connexivum has 1 pale granule and in front of it, 2 or 3 smaller, black granules in each row ; on connexiva VI and VII smaller granules sometimes obliterated ; hind borders of connexiva with a row of large, flattened, yellow granules. Paratergites large, diverging, reaching 1/2 of long, apically-incised segment IX.

Color : Black ; antennae, anterior process of head and vertex, middle of fore lobe and posterolateral angles of pronotum, granulation near basal angles and transverse, zigzag line in the middle of scutellum, connexivum I and hind borders of connexiva II to VII, tergum VIII laterally and paratergites, ochraceous ; basal, triangular elevation of scutellum and its baso-lateral and posterolateral borders, and corium testaceous ; ventral side of the body brown ; legs ochraceous ; middle and hind femora with dark rings.

Total length 2.73 mm ; width of pronotum 1.10 mm ; width of abdomen 1.27 mm.

Holotype ♀ (BISHOP 9203), Solomon Is., New Georgia group, Kolombangara, 29.VI. 1964 ; J. & M. Sedlacek coll.

Calisius gracilicornis n. sp. runs in my key for South Pacific species (1967 : 456) to *C. nasutus* Kormilev, 1967, from New Guinea, from which it may be separated by anterior process of head much shorter and wider, dilated anteriorly and bearing 4 (2+2) rounded granules on the fore border ; by the convex pronotum with reduced granulation on lateral borders, and by the different color.

Calisius diffusus Kormilev, new species

♀. Elongate ovate, granulation obliterated on lateral borders of scutellum, and corium and semiobliterated on exterior borders of connexiva.

Head as long as its width across eyes (22 : 22). Anterior process obovate, rounded anteriorly, with minute and inconspicuous granulation, reaching basal 1/3 of antennal segment III. Antenniferous tubercles dentiform, sturdy, slightly divaricating. Postocular consisting of 1 spicule, not reaching outer border of eyes. Infraocular carinae consisting of 3-4 round granules, the first 2 of them farther apart ; vertex with a "V"-shaped row of granules. Antennae robust, as long as head (22 : 22) ; relative length of antennal segments I to IV are : 3 : 4.5 : 6.5 : 8. Labium reaching hind border of a narrow labial groove.

Pronotum half as long as its maximum width (20 : 39) ; collar with 2 (1+1) round granules ; lateral borders of fore lobe with 6 (3+3) blunt spicules directed obliquely backward ; fore disc with 2 (1+1) granules in front row and with 2(1+1) farther spaced granules in hind row. Humeri with a short carina formed by fused granules in upper row, and with obliterated granulation in the lower row ; disc with 4 (2+2) carinae formed by fused granules.

Scutellum longer than its maximum width across basal 1/3 (53 : 32) ; basal, triangular elevation with 2 (1+1) spicules and 4 (2+2) smaller granules between them ; lateral borders of elevation without granules ; scutellar carina with a row of elongate, low granules ; lateral borders of scutellum with obliterated granulation, disc coarsely punctured.

Hemelytra : Exterior exposed portion of corium with obliterated granulation.

Abdomen longer than its width across segment IV (60 : 49) ; connexivum reflexed, exterior borders of connexiva with an elongate, semi-obliterated granule in upper row, and 2 similar, spaced granules in lower row. Paratergites consisting of a cluster of 4-5 granules ; segment IX long and narrow.

Color : Testaceous ; eyes piceous, scutellum dirty whitish with diffused X-shaped, brown spot posterolaterad of basal elevation.

Total length 3.67 mm; width of pronotum 1.30 mm; width of abdomen 1.63 mm.

Holotype ♀ (BISHOP 8030), SE New Guinea, above Tigobi near Tari Gap, 2400 m, Southern Highlands, 2.VI.1966; J. L. Gressitt coll.

Calisius diffusus n. sp. runs in my key for South Pacific species (1967: 456) to *C. sordidus* Kormilev, 1967, from New Guinea and Solomon Is., but is larger, antennae longer and more robust, granulation on humeri, lateral borders of scutellum and corium obliterated and on connexivum semi-obliterated; the color is more uniform.

Calisius caledonicus Kormilev, new species

♀. Ovate, roughly granulate.

Head almost as long as its width across eyes (17: 18). Anterior process obovate, rounded anteriorly and granulate, reaching basal 1/3 of antennal segment III. Antenniferous tubercles dentiform, short, diverging; postocular tubercles small, not reaching outer border of eyes; infraocular carinae consisting of 3 spaced granules; vertex with "V"-shaped rows of granules. Antennae robust, but much shorter than head (13.5: 17); relative length of antennal segments I to IV are: 3 : 3 : 2.5 : 5. Labium almost reaching hind border of labial groove which is closed posteriorly.

Pronotum half as long as its maximum width (15.5: 32). Collar with 2 (1+1) spicules; anterolateral borders with a row of round tubercles; fore disc with 2 (1+1) round granules in front row, and with 2 (1+1) smaller and further spaced granules in hind row. Lateral borders of hind lobe with 1 large granule in upper row and 1 in lower row, others obliterated; disc with 4 (2+2) rows of granules.

Scutellum longer than its width across basal 1/3 (39: 25). Basal, triangular elevation with 4 (2+2) spicules anteriorly, densely and finely granulate elsewhere, but without larger granules; scutellar carina with a row of small granules, which are partially double; lateral borders of scutellum with a row of rough granules on basal 1/3 which are diminishing in size posteriorly becoming larger on apical border. Disc finely punctured.

Hemelytra: Exposed border of corium with a double row of semi-obliterated, fine granules.

Abdomen longer than its width across segment IV (46: 42.5); connexivum reflexed, exterior borders of connexiva with a double row of granules of the same size; hind borders of connexiva II to VI with a row of similar granules; discs of connexiva II, VI and VII finely granulate. Paratergites large, granulate, reaching 1/2 of segment IX, which is long and truncate posteriorly.

Color: Antennae, head, pronotum medially, and corium, testaceous; postocular borders of head, pronotum laterally, large medial inverted trapezoidal spot at base of scutellum, 2 (1+1) small, spear-shaped spots in the middle of scutellum laterally, transverse ovate spot at the tip of scutellum, and most of connexiva II and VI, black; 2 (1+1) ovate, baso-lateral, and a large, inverted "V" spot in the middle of scutellum, connexivum and ventral side of the body, ochraceous.

Total length 2.90 mm; width of pronotum 1.07 mm; width of abdomen 1.42 mm.

Holotype ♀ (BISHOP 9204), New Caledonia, Mt Koghi, 500-700 m, 25-26.X.1967; J. & M. Sedlacek coll.

Calisius caledonicus n. sp. runs in my key for South Pacific species (1967: 456) to *C. zealandicus* Pendergrast, 1968, from which it may be separated by antennal segment II longer than III, and by the different pattern of spots on scutellum.

Calisius histrionicus Kormilev, new species

♂. Elongate ovate, roughly granulate.

Head as long as its width across eyes (17.5: 17.5). Anterior process obovate, rounded and granulate anteriorly, reaching basal 1/3 of antennal segment III. Antenniferous tubercles dentiform, divaricate; postocular obliquely truncate, partially with small granules; infraocular carinae consisting of 2 larger and a few smaller granules; vertex granulate. Antennae stout, as long as head (17.5: 17.5); relative length of antennal segments I to IV: 3:4:4.5:6. Labium reaching hind border of labial groove which is closed posteriorly.

Pronotum almost 1/2 as long as its maximum width (16: 30); collar with 2 (1+1) erect, round granules; lateral borders of fore lobe with 4 (2+2) large, spiculoid granules; disc with 2 (1+1) granules in front row and 2 (1+1) more widely spaced granules in hind row. Humeri with 1 granule in each, upper and lower row, rest of granules obliterated; disc with 4(2+2) rows of large granules, 2-3 in a row.

Scutellum longer than its width across basal 1/3 of disc (41: 24); basal, triangular elevation with 2 (1+1) large spicules anteriorly, 2 (1+1) oblique rows of 3 small granules each between the spicules and with 2(1+1) small granules in middle of fore border. Scutellar carina with a row of large, round, well spaced granules; lateral and apical borders of scutellum with a row of smaller granules.

Hemelytra: Exposed portion of corium with obliterated granulation.

Abdomen longer than its width across segment IV (45: 33); connexivum reflexed, exterior borders of connexiva with 2 rows, and posterior borders with 1 row of rough granules of the same size. Paratergites small, cylindrical; hypopygium ventro-caudal in position, seen from behind, shorter than wide (6: 10), with a few granules on upper side.

Color: Pale yellow with pink tinge; eyes, humeri and rows of granules on hind disc of pronotum, with exception of first granule in inner row, 2(1+1) curved streaks along basal elevation of scutellum and basal 1/3 of scutellar carina, and a large, subtriangular spot at the tip of scutellum, some granules in upper row on exterior borders of connexiva, and a longitudinal streak on hypopygium, black; 2(1+1) ovate, baso-lateral spots and an inverted "V" spot in the middle of scutellum, white.

Total length 2.87 mm; width of pronotum 1.00 mm; width of abdomen 1.10 mm.

Holotype ♂ (BISHOP 9205), New Caledonia, Mt Koghi, 500 m, 27.X.1967, J. & M. Sedlacek coll.

Paratype: 1 ♂ (BISHOP), collected with holotype, has a smaller, brown spot on scutellum instead of black.

Calisius histrionicus n. sp. runs in my key for South Pacific species (1967: 456) to *C. montanus* Kormilev, 1967, from New Guinea, but may be separated from it by the much stronger granulation and by the color.

Genus **Aradacanthia** Costa

Aradacanthia Costa, 1864, *Ann. Mus. Zool. Nap.* **2**: 142.

This curious genus with a single species, the largest among Calisiinae, as was said earlier, has been recorded from Indochina to the Philippines. Now it has been collected in Papua. This genus alone among Calisiinae has a stridulatory mechanism (Usinger 1954: 543).

Aradacanthia multicalcarata Costa

Aradacanthia multicalcarata Costa, 1864, *Ann. Mus. Zool. Nap.* **2**: 142, t. IV, f. 3.

3 ♂♂ & 1 ♀, NEW GUINEA, Papua, Fly R., Kiunga, 35 m, VIII.1969; J. & M. Sedlacek coll. (BISHOP).

Subfamily ANEURINAE

Genus **Aneurus** Curtis

Aneurus Curtis, 1825, *Brit. Ent.* **2**: pl. 86.

Aneurus Curtis is a cosmopolitan genus having numerous species in the Oriental Region, Australia, Micronesia, New Guinea, Solomon Is., New Caledonia and New Zealand, but is not recorded in Polynesia.

Aneurus insularis Kormilev, new species

♂. Elongate ovate, shiny.

Head as long as its width across eyes (17.5: 18). Anterior process conical, rounded anteriorly, genae parallel, slightly shorter than clypeus, the latter reaching tip of antennal segment I. Antenniferous tubercles truncate anteriorly and divergent, their antero-exterior angles acute. Postocular tubercles blunt, not reaching outer border of eyes. Vertex transversely rugose; infraocular callosities large. Antennae less than twice as long as width of head across eyes (31.5: 18); antennal segment I barrel-shaped, II fusiform, III subcylindrical, tapering toward base, IV fusiform; relative length of antennal segments I to IV: 5.5 : 6.5 : 6.5 : 13. Labium reaching line connecting middle of eyes.

Pronotum shorter than its maximum width (16: 40); fore lobe narrower than hind lobe (30: 40). Collar sinuate anteriorly; anterior borders truncate, anterolateral angles subangularly rounded, produced forward as far as collar; lateral borders parallel at humeri, converging anteriorly and weakly sinuate behind anterolateral angles. Hind border shallowly sinuate in middle. Fore disc with 4 (2+2) large, pear-shaped callosities; hind disc with a wide, transverse, striate belt anteriorly, and with 2 (1+1) transverse callosities behind belt; hind border transversely striate laterally.

Scutellum semicircular, shorter than its basal width (16: 23); with a large, subtriangular, longitudinally striate area in middle of disc, and concentrically striate around it.

Hemelytra reaching hind border of tergum VII, outer borders weakly sinuate at the level of connexivum II; corium reaching middle of scutellum; membrane with very fine and dense, irregular rugae.

Abdomen longer than its maximum width across segment IV (86: 57); exterior borders of tergum scalloped; connexivum wide, PE-angles (postero-exterior angles) slightly, rectangularly protruding; PE-VII (postero-exterior angles of connexivum VII) angularly rounded. Paratergites small, rounded, reaching apical 1/3 of hypopygium; the latter in the shape of an acorn, shorter than wide (12.5: 14). Spiracles II, V to VII lateral and visible from above, III and IV ventral, VIII terminal.

Color: Dark brown; antennae, callosities of pronotum, middle of scutellum, tergum, connexivum, most of ventral side, labium and legs, brown to yellow brown.

Total length 4.60 mm; width of pronotum 1.33 mm; width of abdomen 1.90 mm.

Holotype ♂ (BISHOP 9206), China, Hainan I., Tai-pin-ts'uen, Lamka-heung, Lai-mo-

ling (Mt Range), Kinug-shen District, 5-7.V.1935; F.K. To coll.

Aneurus insularis n. sp. is related to *A. hainanensis* Kormilev, 1968 also from Hainan, but may be separated from it by: spiracles V and VI lateral (ventral in *A. hainanensis*).

Aneurus tainguensis Kormilev, new species Fig. 3-4.

♀. Closely related to *A. socialis* Bergroth, 1914, but antennae are more robust and with shorter antennal segment IV; postocular tubercles less protruding, not produced beyond outer borders of eyes; anterolateral angles of pronotum more produced forward and more convex; scutellum with lateral borders oblique, convergent at base (almost parallel in *A. socialis*). Membrane brown. Spiracles II, V to VIII lateral and visible from above. Antennal segment I obovate, II fusiform, III subcylindrical, IV elongate fusiform. Other characters as in *A. socialis* Bergroth.

Measurements: Head 17.5: 17.5; relative length of antennal segments I to IV are: 5: 5.5: 5: 11; pronotum 15: 37, ratio width of fore lobe/width of hind lobe: 26: 37; scutellum 13: 21; abdomen 73: 50; segment IX 1.5: 7.

Color: Testaceous; membrane brown, labium and tarsi, yellow brown.

Total length 4.29 mm; width of pronotum 1.32 mm; width of abdomen 1.79 mm.

Holotype ♀ (Zoological Institut, Leningrad), N. Viet Nam, 40 km NE of Tai-nguen, 600-800 m, 5.II.1963; Kabanov coll,

Aneurus (Aneurillus) borneensis Kormilev, new species

♂. Elongate; thorax with parallel sides, abdomen elongate ovate: glossy.

Head almost as long as width across eyes (♂-16: 16, ♀-17: 18); anterior process conical, rounded apically, reaching 5/6 of antennal segment I; antenniferous tubercles short, obliquely truncate anteriorly; postocular tubercles obsolete, postocular borders almost straight, slightly convex; vertex finely, transversely rugose; infraocular callosities large, ovate. Antennae thin, more than 2 × as long as width of head across eyes (♂-37.5: 16.5, ♀-44: 18); antennal segment I obovate, II clavate, III subcylindrical, IV elongate fusiform; relative length of antennal segments I to IV are: ♂-5.5: 6.5: 9: 16.5, ♀-6: 7.5: 11: 19.5. Labium slightly produced beyond line connecting hind borders of eyes.

Pronotum less than half as long as its maximum width (♂-17: 36.5, ♀-18: 41); collar strongly sinuate anteriorly; anterior borders sinuate, anterolateral angles rectangular with rounded tips, produced forward beyond collar; fore acetabulae visible from above as semiglobose lobes; lateral borders parallel at humeri, strongly converging and twice sinuate in front of them; longitudinally sulcate on the limit between pronotum and propleuron, the latter with a rounded ridge on upper border posteriorly, visible from above. Hind border weakly sinuate in middle. Disc flat, with a thin median sulcus on fore lobe, and with a thin interlobal sulcus.

Scutellum subtriangular with broadly rounded tip, shorter than its basal width (♂-15: 22, ♀-16: 26); disc separated from flat borders by a thin, distinct sulcus. Disc finely, concentrically striate.

Hemelytra reaching beyond fore border of tergum VII in both sexes; corium reaching middle of scutellum.

Abdomen longer than its width across segment V (♂-87: 53, ♀-95: 56); connexivum narrow, its exterior borders evenly convex, PE-angles not protruding; connexivum VII with a fine sulcus postero-interiorly separating a small, triangular sclerite. In the ♂: paratergites large, round-

ed, adherent to connexivum VII and reaching apical 1/4 of hypopygium; the latter pear-shaped, shorter than its maximum width (6: 8.5), with apical half much narrower than basal (5: 8.5), and rounded posteriorly. Spiracles II and VII lateral, III to VI ventral, placed close to connexivum, VIII terminal.

Legs: Femora with a double row of small granules beneath in middle; fore tibiae with a small comb at the tip, interiorly.

Color: Dark brown, partially yellow brown.

♀ Differing from ♂ in short, rounded paratergites, produced as far as a short segment IX; the latter truncate posteriorly.

Total length ♂-4.57, ♀-5.10 mm; width of pronotum ♂-1.22, ♀-1.42 mm; width of abdomen ♀-1.77, ♀-1.87 mm.

Holotype ♂ (BISHOP 9207), N. Borneo (Sabah), Tenompok, 1460 m, 48 km E of Jesselton, 26-31.I.1959; T. C. Maa coll.

Allotype ♀ (BISHOP), collected with holotype.

Paratypes: 10 ♂♂ & 22 ♀♀, collected with holotype (BISHOP).

Aneurus (*Aneurillus*) *borneensis* n. sp. runs in my key for *Aneurillus* species (1968: 260) to *A.* (*A.*) *cetratus* Bergroth, 1895, but is much larger, the scutellum is widely rounded apically, and the hypopygium is pear-shaped and strongly atttenuated on the apical half.

Subfamily CARVENTINAE

Usinger & Matsuda's key for the genera of Carventinae is already out of date, so I am giving a new key for the Oriental, Australian and South Pacific Carventinae.

KEY TO GENERA OF THE ORIENTAL, AUSTRALIAN AND PACIFIC CARVENTINAE

1. Labium apical, the clypeus and genae not produced beyond apex of atrium. Fore tibiae with preapical spines 2
   Labium preapical, the clypeus and genae extending beyond and over tip of atrium. Fore tibiae with preapical spines or combs at or near apex 5
2 (1) Labial atrium open 3
   Labial atrium closed, with a slit-like opening 4
3 (2) Lateral borders of pronotum with brush-like, single or double rows of thickly incrustate bristles. Scutellum distinct. (New Guinea, Solomon Is., Fiji and New Hebrides) ..... **Zimmermania** Usinger, 1948
   Pronotum without such bristles. Scutellum indistinct. (Micronesia) ..... **Lissocoris** Matsuda & Usinger, 1957
4 (2) A large, trapezoidal plate extending from meso-metanotal suture to central dorsal plate, formed by completely fused metanotum and 2 1st tergites. Fore tibiae with preapical spines. (Ceylon, Philippines) ..... **Acanthaptera** Usinger & Matsuda, 1959
   Without trapezoidal plate as above. Mesonotum fused with metanotum and 2 1st tergites in middle. Fore tibiae with preapical spinelike combs. (India) ..... **Chelysosoma** Kormilev, 1956
5 (1) Brush-like rows of thickly incrustate bristles forming ivory-like carvings on head, pronotum, scutellum and connexivum; the edge of connexiva usually appearing double 6
   Body without ivory-like carvings; connexivum with a single edge 7

6 (5) Postocular spines long and acute. Fore tibiae with preapical spines. (India) ..... **Drakeida** Kormilev, 1958

Postocular tubercles angular, not spine-like. Fore tibiae without preapical spines. (Indonesia, Viet Nam, New Guinea) ..... **Proxius** Stål, 1873

7 (5) Scutellum fully developed 8

Thorax variously fused, without scutellum 10

8 (7) Genae short, not surpassing clypeus; membrane without visible veins; pronotum deeply excavated anteriorly, broadly flattened and glabrous posteriorly. (Tonkin) ..... **Lissonotocoris** Usinger & Matsuda, 1959

Genae well developed, surpassing apex of clypeus; membrane with distinct veins; pronotum different 9

9 (8) Pronotum without sulcus on the fore lobe posteriorly; anterolateral angles with 3, rarely with 2 prongs. (Orient, New Guinea and South Pacific Is.) ..... **Camerarius** Distant, 1902

Lateral borders of pronotum mostly with a lateral tooth in the interlobal sinus; scutellum with median carina. (Orient, Australia, New Guinea, South Pacific Is.) ..... **Carventus** Stål, 1865

10 (7) Eyes strongly stylate 11

Eyes not stylate 12

11(10) Spiracles II ventral, but placed on tubercle directed sideways and visible from above; III to VII ventral and not visible from above. (India) ..... **Indiaradus** Drake, 1957

Spiracles II ventral, remote from margin and not visible from above; III to VII lateral and visible from above. (New Caledonia) ..... **Kaulocoris** n. g.

12(10) Labial atrium open 13

Labial atrium closed, slit-like 16

13(12) In the middle of meso-metanotum is placed a rhomboid, smooth plate; spiracles II, III and VIII dorsolateral. (Australia) ..... **Rhombocoris** Kormilev, 1965

Meso-metanotum without such plate; spiracles II and III lateral, VIII terminal 14

14(13) Body elongate ovate, strongly attenuated anteriorly, flat; pronotum longer, less than 2.5 × shorter than wide. (Australia) ..... **Aellocoris** Kormilev, 1964

Body ovate and often very convex; pronotum transverse, more than 2.5 × shorter than wide 15

15(14) Body smooth, naked, or nearly so. (New Zealand, South Pacific Is.) ..... **Acaraptera** Usinger & Matsuda, 1959

Body coarsely punctured and with short, stiff bristles. (New Guinea) ..... **Biroana** Kormilev, 1957

16(12) Meso-, metanotum and first 2 tergites traversed by a broad, smooth, longitudinal plate at middle 17

Meso-, metanotum and first 2 tergites variously fused and sometimes traversed by longitudinal folds or rugosities, but not by a flat, smooth plate 18

17(16) Lateral lobes of thoracic nota with tufts of long hairs; longitudinal plate depressed anteriorly. (Indonesia) ..... **Dasyaptera** Usinger & Matsuda, 1959

Lateral lobes of thoracic nota naked; longitudinal plate not depressed anteriorly. (Borneo, Burma) ..... **Notoplocaptera** Usinger & Matsuda, 1959

18(16) New Zealand genera 19

Oriental, Australian & South Pacific genera 21

19(18) Terga I and II completely fused with meta- and mesonotum in middle; mesonotum not produced backward as a subtriangular lobe. (New Zealand) ..... **Leuraptera** Usinger & Matsuda, 1959

Terga I and II separated from metanotum by a complete, transverse suture; meso-

notum produced backward as a subtriangular lobe 20
20(19) Head evenly narrowed behind eyes, without postocular spines. (New Zealand) ..... **Neocarventus** Usinger & Matsuda, 1959
Head with well-developed postocular spines. (New Zealand) ..... **Carventaptera** Usinger & Matsuda, 1959
21(18) Thorax and abdomen strongly raised medially, forming ridges and bumps 22
Thorax and abdomen more or less flat 24
22(21) Clypeus and vertex do not form a contiguous ridge; infraocular callosities between vertex and eyes not deeply depressed. (Australia) ..... **Probatoceps** Kormilev, 1965
Clypeus and vertex together forming a high, contiguous ridge; infraocular callosities deeply depressed between vertex and eyes 23
23(22) Anterior process of head not reaching tip of antennal segment I; pronotum at most 3.5 × wider than long. (Australia) ..... **Glyptoaptera** Kormilev, 1965
Anterior process of head produced beyond tip of antennal segment I; pronotum 5 × wider than long. (India) ..... **Signocoris** Hoberlandt, 1958
24(21) Head 2 × as long as wide across eyes, forming posteriorly a long, narrow neck; connexiva II and III separated. (Indonesia) ..... **Apteraradus** Drake, 1957
Head shorter and without long, narrow neck; connexiva II and III fused 25
25(24) Lateral margins of thorax lobulately produced, with deep clefts between pro-, meso- and metanotal lobes. (New Guinea, Australia) ..... **Eurycoris** Kormilev, 1957
Lateral margins of thorax not, or only slightly, cleft between pro-, meso- and metanotum 26
26(25) Central dorsal plate of abdomen pentagonal 27
Central dorsal plate of abdomen subrectangular 28
27 (26) Spiracles II to V ventral, VI to VIII lateral and visible from above. (Micronesia) ..... **Trigonaptera** Matsuda & Usinger, 1957
Spiracles II and III ventral, IV to VII lateral and visible from above. (Burma, Philippines) ..... **Zoroaptera** Drake, 1957
28(26) Thorax attenuated anteriorly; lateral borders of pronotum converging 29
Thorax with subparallel sides; lateral borders of pronotum subparallel 30
29(28) Body strongly attenuated anteriorly, rather flat; antennae stout, at least 2.5 × as long as head; lateral borders of pronotum straight and strongly convergent. (New Guinea) ..... **Libiocoris** Kormilev, 1957
Body less attenuated anteriorly and less flat; antennae only 2 × as long as head; lateral borders of pronotum convex and less convergent. (New Guinea) ..... **Sibilocoris** Bloete, 1965
30(28) Metanotum divided by mesonotum into 2 (1+1) subtriangular plates; it is separated from tergum I by a thin, transverse sulcus. (Australia) ..... **Paracarventus** Kormilev, 1964
Metanotum completely fused with terga I and II into a flat, subtrapezoidal plate, deeply cut out anteriorly in middle for reception of a median, posterior projection of mesonotum. (New Caledonia) ..... **Leurocoris** n. g.

Genus **Zimmermania** Usinger

Zimmermania Usinger, 1948, *Proc. Hawaiian Ent. Soc.* **13** (2): 261.

Zimmermania Usinger has 8 species distributed in New Guinea, Solomon Is. and Fiji. Now I am able to add one species more from Bismark Archipelago.

Zimmermania breviceps Kormilev, new species Fig. 5-6.

♀. Macropterous. Elongate ovate; head, pronotum, scutellum partially, and connexivum, with rows, or groups, of heavily incrustate bristles glued together.

Head shorter than its width across eyes (15.5: 18.5). Anterior process extremely short, jugae slightly longer, both shorter than antenniferous tubercles and declivous. Head, with exception of eyes, labium and 2 (1+1) narrow slits above infraocular callosities, covered with groups of erect bristles glued together into ivory-like protuberances. Postocular tubercles tiny, adjacent to eyes and not reaching outer borders of the latter. Antennae robust, first 2 segments incrustate, last 2 covered with short, inclined bristles. Relative length of antennal segments I to IV: 11: 7.5: 15: 9. Labium reaching hind border of labial groove, which is closed posteriorly.

Pronotum subtrapezoidal, shorter than its maximum width across humeri (23: 41); fore lobe narrower than hind lobe (29: 41); collar truncate anteriorly; anterolateral angles covered with heavily incrustate bristles forming rounded lobes; interlobal notch sinuate; lateral borders of hind lobe convex, rounded and slightly incised in middle; hind border deeply sinuate in middle, produced backward and rounded laterad of it. Fore disc with a row of incrustate bristles behind collar; 2 (1+1) high, oblique ridges, formed by incrustate bristles glued together extend along anterolateral angles; disc with a "M"- shaped spot anteriorly, and 2 (1+1) small, round spots posteriorly, which are not incrustate. Interlobal depression covered with incrustation. Hind disc with 2 (1+1) high, curved ridges laterally, formed by incrustate bristles and with a thin, low, transverse row of incrustate bristles connecting lateral ridges. Disc in front and behind this row of bristles without incrustation.

Scutellum subtriangular, shorter than its basal width (13.5: 20); lateral borders straight, apex angular, acute; disc with 2 (1+1) patches of incrustate bristles at basal border medially, and along lateral borders and tip; center of disc with a small, round patch of short, incrustate bristles.

Hemelytra almost reaching hind border of tergum VII; corium reaching middle of scutellum, covered with incrustate bristles; membrane transversely rugose on basal half interiorly, and partially incrustate exteriorly, without veins.

Abdomen longer than its width across segment IV (65: 50); lateral borders parallel and slightly festooned from II to V, converging on VI and VII. Connexivum with a double row of short, incrustate bristles exteriorly, and with a single row of similar bristles interiorly, leaving a depression between interior and inner exterior rows; PE-angles of connexiva raised and rounded, progressively becoming higher from II to VII, so that exterior borders are vertically festooned. Tergum VII with a transverse, incrustate carina along hind border. Paratergites short, incrustate, diverging, reaching 1/3 of a tricuspidate segment IX. Spiracles II lateral and visible from above, III to VII ventral, VIII terminal.

Ventral side of the body partially incrustate and with naked spots.

Legs: fore tibiae with a spur subapically on interior side.

Total length 4.03; width of pronotum 1.37 mm; width of abdomen 1.67 mm.

Holotype ♀ (BISHOP 9208), Bismark Arch., New Britain, Vudal, SW of Keravat, 13. XII.1959, T. C. Maa coll.

Zimmermania breviceps n. sp. runs in my key (1968: 577) to *Z. magdalenae* Kormilev, 1954, but is much smaller, with shorter pronotum and less excavated exterior borders of connexiva VII.

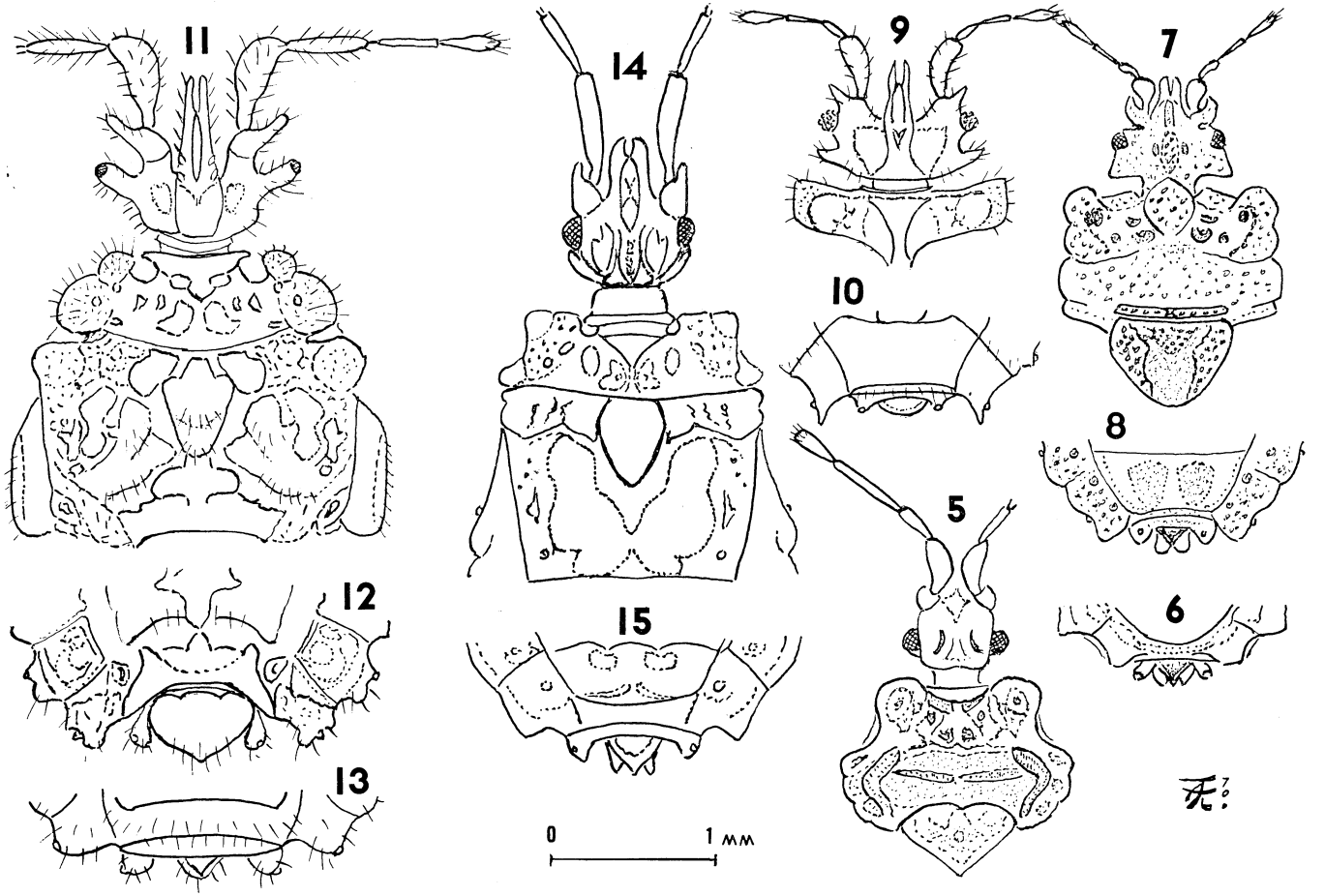

Fig. 5-15. 5, *Zimmermania breviceps* n. sp., ♀, head, pronotum and scutellum; 6, same, tip of abdomen from above; 7, *Proxius* (*Nesoproxius*) *yoshimotoi* n. sp., ♀, head, pronotum and scutellum; 8, same, tip of abdomen from above; 9, *Biroana armigera* n. sp., ♀, head and pronotum; 10, same, tip of abdomen from above; 11, *Kaulocoris stylatus* n. g., n. sp., ♂, head, pronotum, meso-metanotal plate and terga I and II; 12, same, tip of abdomen from above; 13, same, ♀, tip of abdomen from above; 14, *Leurocoris caledonicus* n. g., n. sp., ♀, head, pronotum, mesonotum and metanotum with terga I and II; 15, same, tip of abdomen from above.

Genus **Proxius** Stål

Proxius Stål, 1873, *Kongl. Svenska Vet. Akad. Handl.* 11 (2): 141.

Proxius sensu strict is an American genus, but in the Oriental Region and New Guinea it is represented by its subgenus *Nesoproxius* Usinger & Matsuda, 1959. *Nesoproxius* has 6 species to which I am now adding one more.

Proxius (Nesoproxius) yoshimotoi Kormilev, new species Fig. 7-8.

♀. Differs from *P. (N.) vietnamensis* Kormilev, 1968, as follows: Smaller, anterior process of head longer, surpassing tip of antennal segment I; incrustate and deeply punctured median ridge of vertex ovate, not subtriangular, and only reaching median hood of pronotum. Pronotum is similar to that of *P. vietnamensis*, but median hood is rhomboid, not constricted at base, and shorter, only slightly overlapping hind border of head; its hind border angular, not truncate; lateral inflations narrower, and rounded anteriorly, not produced mesad. Hind lobe with scattered, circular granules anteriorly, but without 2 (1+1) crescent-shaped, transverse, incrustate ridges, only with 2 (1+1) transverse, linear ridges along hind border, which are coarsely punctured. Scutellum is similar to that in P. *vietnamensis*, only lateral incrustate areas are wider at basal half. Abdomen is also similar, fine suture visible between connexiva II and III only; then tergum VII has 2 (1+1) subtriangular, glabrous areas separated from each other and from tergum VI by smooth, incrustate stripes (in *P. vietnamensis* these spots are ovate and fused together). Position of spiracles is the same: II to IV are ventral, VI and VII lateral and visible from above, but VIII are dorsal, not dorsolateral.

Measurements: Head 19: 19 (19: 21 across postocular processes); relative length of antennal segments I to IV are: 6: 3.5: 6: 7; segment I clavate only 2 × as long as wide; II smaller and narrower; III tapering toward base; IV fusiform. Pronotum 25: 39, fore lobe narrower than hind lobe 36: 39; scutellum 14: 25; abdomen 65: 50 across segment III (the widest).

Color: Yellow brown; membrane white, semitransparent; incrustation ivory.

Total length 4.39 mm; width of pronotum 1.39 mm; width of abdomen 1.79 mm.

Holotype ♀ (BISHOP 9209), Philippines, Negros Or., L. Balinsasayao, 1-7.X.1959; L. Quate & C. M. Yoshimoto coll.

It is a pleasure to dedicate this species to Dr Carl M. Yoshimoto, who collected it.

Genus **Acaraptera** Usinger and Matsuda

Acaraptera Usinger & Matsuda, 1959, The Classification of the Aradidae, p. 148.

This genus of small, apterous aradids is distributed in New Zealand, Lord Howe I., Fiji and Samoa, and now is recorded from Solomon Is.

Usinger & Matsuda split *Acaraptera* into 3 subgenera: *Acaraptera* s. str., *Lissaptera* and *Nesiaptera* but the limits between *Acaraptera* s. str. and *Nesiaptera* in some species are not very clear.

Acaraptera solomonensis Kormilev, new species

♂. Apterous. Elongate ovate, ♀ ovate; naked, covered with a thin layer of gray incrustation, leaving callosities and higher portions exposed.

Head shorter than width across eyes (♂-16: 22, ♀-15: 22.5); anterior process robust, cleft anteriorly, genae longer than clypeus and not contiguous, reaching 1/2 of antennal segment

I. Antenniferous tubercles with subparallel outer borders, reaching basal 1/3 of antennal segment I. Eyes small. Postocular tubercles blunt, rounded, almost reaching outer border of eyes; postocular borders behind them straight (♂), or weakly convex (♀). Vertex with a "V"-shaped carina; infraocular callosities large, ovate, slightly incised anteriorly. Antennae with segment I clavate, robust; II much thinner, fusiform; III thin, petiolate at base and dilating toward tip; IV fusiform; relative length of antennal segments I to IV are: ♂-10: 4.5: 6.5: 8, ♀-9: 3.5: 6: 7.5. Labium arising from an open atrium and almost reaching hind border of labial groove, which is wide and deep, with carinate lateral borders.

Pronotum short and wide (♂-10: 35, ♀-10: 35); borders carinate, median ridge constricted laterally and fused posteriorly with median ridge of mesonotum; disc with 6 (3+3) elevated callosities.

Mesonotum wider than pronotum (♂-40: 35, ♀-42: 35); carinate sublaterally along lateral borders and on posterior border; median ridge more robust than that of pronotum, dilated posteriorly and fused with median ridge of metanotum; disc with 2 (1+1) large, elevated callosities and laterad of them with 4 (2+2) small ones, separated from large ones by 2 (1+1) triangular depressions and fine carinae.

Metanotum wider than mesonotum (♂-44: 40, ♀-47: 42), fused with tergum I posteriorly in middle, and separated from it by fine carinae laterally; lateral borders carinate; disc split by median ridge into 2 (1+1) large, ovate plates, each with 3 irregularly shaped, elevated callosities and some carinae between them. Median ridge sulcate medially.

Abdomen shorter than its width across segment IV (♂-45: 48, ♀-45: 53); tergum I elevated medially, fused with metanotum anteriorly, and separated from tergum II by a fine sulcus. Tergum II also raised medially, with 2 (1+1) small, raised callosities flanking median line, and with 2 (1+1) short, high, longitudinal carinae laterally. Central dorsal plate, consisting of terga III to VI, placed at a lower level than tergum II; its anterior border almost straight, lateral convex, and hind border sinuate (♂), or straight (♀); median ridge flanked by 4 (2+2) rows of round callosities. Tergum VII raised medially in male, less so in female. Connexivum wide, horizontal; exterior borders of abdomen slightly festooned; PE-angles II to VI rounded, PE-VII forming large, subtriangular, blunt lobes (♂), or rounded (♀). Connexiva II and III fused exteriorly, others separated by fine sulci. Spiracles II to VI lateral and visible from above, VII dorsolateral, VIII terminal. Paratergites (♂) cylindrical, reaching 1/2 of a subtriangular, granulate hypopygium. Paratergites (♀) short, blunt, reaching tip of a short segment IX.

Legs unarmed.

Color: Red brown, partly piceous; incrustation gray.

Total length ♂-2.90, ♀-2.83 mm; width of pronotum ♂-1.17, ♀-1.17 mm; width of abdomen ♂-1.60, ♀-1.80 mm.

Holotype ♂ (BISHOP 9210), Solomon Is., Malaita (NW), Dala, 22.VI.1964; M. Sedlacek coll. (Berlese funnel).

Allotype ♀ (BISHOP), same locality, 14.VI.1964, J. Sedlacek coll. (Berlese funnel).

Acaraptera solomonensis n. sp. is related to *A. minuta* Kormilev, 1966, from Lord Howe I., but is much larger and the relative length of the antennal segments is different.

Genus **Biroana** Kormilev

Biroana Kormilev, 1957, *Philip. J. Sci.* **85** (3): 395.

Biroana has only 2 species, both from New Guinea; now I am able to add a third,

also from New Guinea. Both species of *Biroana* recorded previously had curious, convex, rounded postocular borders, without any trace of tubercles; the new species has them deeply excavated, so that remainder forms a tooth-like projection.

Biroana armigera Kormilev, new species Fig. 9-10.

♀. Apterous. Ovate, abdomen convex medially, body finely punctured and with sparse, short, erect bristles.

Head much shorter than its width across eyes (21 : 30); anterior process long, slightly constricted laterally and deeply cleft anteriorly, genae much longer than clypeus and not contiguous. Antenniferous tubercles strong, dentiform, divaricate. Eyes small, slightly stalked, with convex facets. Postocular borders deeply excavated just behind eyes, then produced into strong teeth, slightly surpassing outer border of eyes. Vertex raised in the shape of "M." Antennae slightly longer than width of head across eyes (33 : 30); antennal segment I robust, clavate; II fusiform, much thinner; III evenly tapering toward base, the thinnest; IV clavate; relative length of antennal segments I to IV: 12.5 : 5 : 6.5 : 9. Labium reaching hind border of a very wide and shallow labial groove; labial atrium open.

Pronotum short and wide (15 : 41); collar thin, truncate anteriorly; anterolateral angles obliquely produced forward and angularly rounded, reaching fore border of collar; lateral borders slightly convex, subparallel; hind border angularly convex. Disc with median ridge; twice (1+1) depressed laterad of it and coarsely punctured; from collar sideways are extending 2 (1+1) thin carinae separating anterolateral angles from the disc proper.

Mesonotum with median ridge widening backward and completely fused with tergum I posteriorly; laterad of median ridge with 6 (3+3) depressions and with 2 (1+1) small callosities near lateral borders.

Metanotum split into 2 (1+1) large, rounded plates slightly raised backward.

Abdomen slightly shorter than its width across segment IV (62 : 65). Tergum I completely fused with median ridge of mesonotum and separated from tergum II by a fine, transverse depression. Tergum II highly raised and separated from central dorsal plate by fine sulcus and by change of level, the latter is placed at much lower level. Central dorsal plate, consisting of terga III to VI, subrectangular, with convex lateral borders; it is strongly raised medially forming a stout ridge, sloping laterally. Scars of dorsal scent glands visible on terga IV and V; laterad of median ridge are 4 (2+2) rows of callous spots. Connexivum slightly sloping laterally; PE-angles II to IV barely protruding, rounded; V and VI more protruding, angular; VII produced backward beyond IX as pointed lobes. Paratergites small, rounded posteriorly, slightly shorter than segment IX; the latter rounded posteriorly. Spiracles II ventral, placed far from border; III to VIII lateral and visible from above.

Color: Mahagony red, shiny, concealed under heavy incrustation.

Total length 3.77 mm; width of pronotum 1.37 mm; width of abdomen 2.17 mm.

Holotype ♀ (BISHOP 9211), New Guinea (NE), Morobe District, Lake Trist, 1600 m, 21-26.XI.1966; G. A. Samuelson coll.

Biroana armigera n. sp. may be separated from the other 2 species by strongly excavated postocular borders.

Kaulocoris Kormilev, new genus

Apterous. Elongate ovate in both sexes; eyes stalked, body glabrous, shiny, partially covered with stiff, erect bristles and heavily incrustate.

Head shorter than width across eyes; anterior process long, slightly tapering and deeply cleft anteriorly, genae longer than clypeus and parallel, reaching about 1/2 of antennal segment I; clypeus raised. Antenniferous tubercles strong, strongly divergent, attenuated on apical half and rounded apically, separated from anterior process and from eyes by deep incisures. Eyes strongly stylate, placed on long stems parallel to antenniferous tubercles. Postocular borders first sinuate, then convex, rounded, without any trace of postocular tubercles. Infraocular carinae absent, infraocular callosities small, ovate, oblique, well defined. Vertex raised. Antennae with strong antennal segment I and much thinner others; antennal segment I clavate, II elongate fusiform, III evenly tapering toward base, there petiolate; IV fusiform; labium subapical, arising from a closed atrium and not reaching hind border of wide and shallow labial groove.

Pronotum less than half as long as maximum width; collar strongly produced forward and dilated anteriorly, separated from anterior borders by 2 (1+1) deep, rounded incisures, and fused posteriorly with a semicircular plate, the latter is separated from disc by fine, but deep sulci. Anterolateral angles inflated and rounded, forming round elevations; humeri more inflated and rounded exteriorly, with a few minute granules on upper surface, separated from anterolateral angles and disc by depressions. Hind border evenly convex. Disc with a short, but deep, median depression, flanked by 2 (1+1) raised callosities, by 2 (1+1) small tubercles and again by 2 (1+1) smaller callosities.

Mesonotum about 2 1/2 × shorter than maximum width; medially raised in the shape of an irregular pentagon with rounded angles, which is fused posteriorly with tergum I and separated laterally by 2 (1+1) fine sulci. Laterad of median elevation, disc is unevenly raised, then depressed mesad of inflated and rounded lateral borders. Lateral borders are separated from lateral borders of pronotum and connexivum II by rounded incisures. Depressed areas are with fine rugae and elevated with fine granules.

Metanotum split by protruding portion of mesonotum into 2 (1+1) large, irregularly shaped plates, limited anteriorly and posteriorly by deep depressions. Front border of metathoracic plates is thrice sinuate and inflated between sinuses; a larger, ovate inflation is placed along postero-interior border; exterior border depressed and deeply punctured, separated from lateral borders of body by connexivum II.

Abdomen slightly longer than maximum width across segment III, with subparallel, slightly convex, lateral borders. Terga I and II fused; 2 (1+1) round, deep pits placed on connecting line, laterad of the fused, middle portion. Tergum I fused with metathoracic plates laterally, but tergum II is separated from them by 2 (1+1) deep depressions. Central dorsal plate consist of terga III to VI, subrectangular in shape and raised, with slightly convex lateral borders, separated from terga II and VII, and connexivum, by deep depressions or sulci. Median elevation produced anteriorly and posteriorly into long, narrow ridges, reaching anterior and posterior borders of central dorsal plate, and laterally into 8 (4+4) lateral ridges, or branches, diminishing in length from segment III to VI, and separated from each other by deep depressions. Tergum VII (♂) strongly raised backward for reception of a large hypopygium; disc of tergum VII with 3 ridges arising from the high hind border and directed forward, reaching fore border of plate in the middle and laterally. Connexiva II and III completely fused, others separated by fine sulci. Exterior borders of connexiva II to V straight, PE-angles II to IV not protruding, V and VI angularly protruding, VII produced backward as stout, rounded lobes, almost reaching tips of paratergites; the latter stout, clavate, reaching 2/3 of cordate, declivous hypopygium. PE-VII (♀) angularly rounded; paratergites strong, reaching tip of short segment IX. Spiracles II ventral, placed far from border; III and IV ventral, placed nearer to border; V to VIII lateral and visible from above.

Sternum VII (♂) with 2 (1+1) flattened tubercles with narrow stem.

Legs: Trochanters free, femora and tibiae cylindrical; fore tibiae with a comb subapically; claws with thin arolia.

Type-species: *Kaulocoris stylatus* n. sp.

Kaulocoris n. g. is a very singular genus not closely related to any other genus of Carventinae. The only other genus of Carventinae with stylate eyes, *Indiaradus* Drake, 1957, is not very closely related, and other Oriental and Australian Carventinae do not have stylate eyes.

Kaulocoris stylatus Kormilev, new species Fig. 11–13.

♂. Elongate ovate, apterous, completely covered with gray incrustation; under incrustation reddish brown and shiny. Antennae, legs and more prominent portions of the body covered with stiff, erect bristles.

Measurements: Head ♂-32 : 40, ♀-34 : 45; relative length of antennal segments I to IV: ♂-19 : 15 : - : - (2 apical segments missing), ♀-20 : 14 : 13 : 11; pronotum ♂-17 : 53, ♀-20 : 60; width of mesonotum ♂-62.5, ♀-70; width of metanotum ♂-55, ♀-65; abdomen ♂-76:73, ♀-90 : 87, both across segment III; hypopygium 12 : 20.

Total length: ♂-4.93, ♀-5.67 mm; width of pronotum: ♂-1.77, ♀-2.00 mm; width of abdomen: ♂-2.43, ♀-2.90 mm.

Holotype ♂ (BISHOP 9212), New Caledonia, Forêt de Thi to Hamma, 700–800 m; 16. VII.1958; B. Malkin & J. Rageau coll.

Allotype ♀ (BISHOP), collected with holotype.

Leurocoris Kormilev, new genus

Apterous. Elongate ovate, glabrous, partially covered with incrustation.

Head longer than width across eyes; anterior process with parallel sides, rounded and incised anteriorly, genae longer than clypeus and not contiguous, reaching about basal 1/3 of antennal segment I. Antenniferous tubercles dentiform, with parallel borders. Eyes semiglobose, protruding. Postocular tubercles small, dentiform, directed upward and not reaching outer borders of eyes. Infraocular carinae thin, extending from hind border of eyes backward in an arc. Infraocular callosities large, incised anteriorly. Vertex raised, dilated backward, where it forms roof-like, lateral projections overlapping lower portion of head; 2 (1+1) thin, curved carinae, contiguous posteriorly, limiting the middle, rugged portion of vertex. Antennae strong, antennal segment I long, clavate; II cylindrical (III and VI missing). Labium preapical, arising from a closed atrium, and not reaching hind border of labial groove, which is closed posteriorly; bucculae contiguous in front of atrium, produced downward like a horn.

Pronotum subrectangular, shorter than wide; collar raised and protruding laterally, separated from anterior borders by deep, rounded incisures; posteriorly fused with a triangular plate, separated from disc of pronotum by 2 (1+1) fine sulci, which are contiguous posteriorly, passing into a deep, median depression. Anterior borders truncate, anterolateral angles rectangular with rounded tip; lateral borders parallel, slightly sinuate and granulate; hind border carinate and slightly convex. Disc with 4 (2+2) callosities flanking median depression, laterad of them humeri have a few smaller callosities. At posterolateral angles, but at a lower level, are placed 2 (1+1) rounded projections of propleura, clearly visible from above.

Mesonotum short and wide, produced backward medially like a large, flat, pentagonal plate,

not covered with incrustation, with exception of a few streaks. Lateral borders of mesonotum with 4 (2+2) rounded projections.

Metanotum is completely fused with terga I and II into a large, subtrapezoidal plate deeply emarginate anteriorly in middle for reception of median plate of mesonotum. Metanotal plate is depressed posterolaterally and covered with incrustation only laterally; a few rugae and granules along lateral borders.

Abdomen subrectangular with convex lateral borders, longer than maximum width across segment IV. Connexivum wide and moderately reflexed, connexiva II and III fused; connexivum II produced forward, reaching hind border of mesonotum. Central dorsal plate consisting of terga III to VI also subrectangular, with convex lateral borders and straight anterior and posterior borders. Disc flat, limits of terga discernible; tergum III posteriorly and tergum IV in middle forming an ovate elevation with scar of scent gland opening, another scar placed on tergum V postero-medially. Laterad of median line are 4 (2+2) rows of round callous spots, the inner rows larger. Tergum VII raised backward (♀) forming a double, transverse ridge along hind border, separated from hind border by a deep depression; hind border with a row of sharp granules. Paratergites (♀) dentiform, reaching 1/2 of tricuspidate segment IX, which is placed at a lower level. Spiracles II ventral, placed far from border; III to VII lateral and visible from above, VIII dorsolateral.

Prosternum posteriorly, meso- and metasternum, flat in middle. Sterna II to V with hind borders slightly sinuate, not inflate; VI deeply emarginate posteriorly in middle; VII forming 2 (1+1) small plates behind sternum VI laterally.

Legs: Unarmed, trochanters free, femora fusiform, tibiae cylindrical; fore tibiae covered with stiff, inclined bristles; tarsi with small claws and long arolia.

Type-species: *Leurocoris caledonicus* n. sp.

Leurocoris n. g. is related to *Libiocoris* Kormilev, 1957, but may be separated from it by: connexivum II produced forward and reaching mesonotum, by spiracles II ventral, placed far from border, and by metanotum fused with terga I and II forming one large, flat plate.

Leurocoris caledonicus Kormilev, new species Fig. 14-15.

♀. Apterous, elongate ovate, glabrous, partially covered with ochraceous incrustation. Connexivum sublaterally, tergum VII posteriorly, tergum VIII and metanotal plate laterally, with granules.

Measurements: Head 28: 25, relative length of antennal segments I to IV: 19: 12.5: -: - (III and IV missing); pronotum 16: 40; width of mesonotum 48; width of metanotum 45; abdomen 85: 69.

Color: Yellow-brown; ovate elevation on terga III and IV piceous.

Total length 5.10 mm; width of pronotum 1.33 mm; width of abdomen 2.30 mm.

Holotype ♀ (BISHOP 9213), New Caledonia, Mt Koghi, 500-800 m, 23-27.X.1967; J. & M. Sedlacek coll.

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