

ON NEW AND LITTLE KNOWN SPECIES OF ARADIDAE, I. (HEMIPTERA, HETEROPTERA)

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Among the unidentified Aradidae in the collection of the junior author were two new species, which are described in this paper: *Aradus tonkinensis*, n.sp. from Tonkin, and *Calisius africanus*, n.sp. from South Africa. This report is of particular interest, as it is the southernmost locality in Africa for the genus *Calisius* STAL, 1860. From *Neocarventus angulatus* USINGER and MATSUDA, 1959, is known only the male. We give therefore a description of the female.

All measurements indicated in this paper were taken by a micromillimeter eyepiece, 25 units = 1 mm. The length of abdomen was taken for convenience from the tip of scutellum to the tip of genital segment, with exception of apterous species and *Calisius*. In the first it was taken from the fore border of tergum I to the tip of genital segment, and in the latter from fore border of connexivum II to the tip of genital segment. In ratios the first figure indicates the length and the second the width of measured portion.

Subfamily ARADINAE

Genus *Aradus* FABRICIUS, 1803

Aradus tonkinensis n.sp. (Foto 1; Figs. 1-5)

Female. Ovate. Head, pronotum, scutellum, and connexivum partially, covered with scale-like granulation.

Head as long as its width across eyes (31:31). Anterior process with parallel sides, rounded anteriorly, covered with short, incrustated bristles, reaching slightly beyond base of antennal segment II. Antenniferous tubercles spiniform, divaricating; without lateral tooth; preocular spines long, acute. Eyes strongly protruding, subpedunculate. Postocular tubercles blunt, but with a few incrustated bristles making them look pointed. Vertex depressed laterally. Antennae strong, antennal segment II as thick apically as fore femur; antennal segment I barrelshaped, II and III regularly widening toward apex, IV fusiform; relative length of antennal segments I to IV are: 7:21:21:13. Labium reaching half of prosternum.

Pronotum $2\frac{1}{2}$ × as wide as long (30:75). Antero-lateral borders expanded into wing-like projections, raised and rounded; the widest point of pronotum is across middle. Antero-lateral borders with 12 (6+6) spines, progressively diminishing from collar to humeri; crenulate on postero-lateral borders. Actual borders of pronotum separated from expanded "wings" by fine sulci. Hind border twice sinuate and carinate. Fore disc with 2 (1+1) ridges extending from collar to hind border of pronotum, parallel on fore lobe,

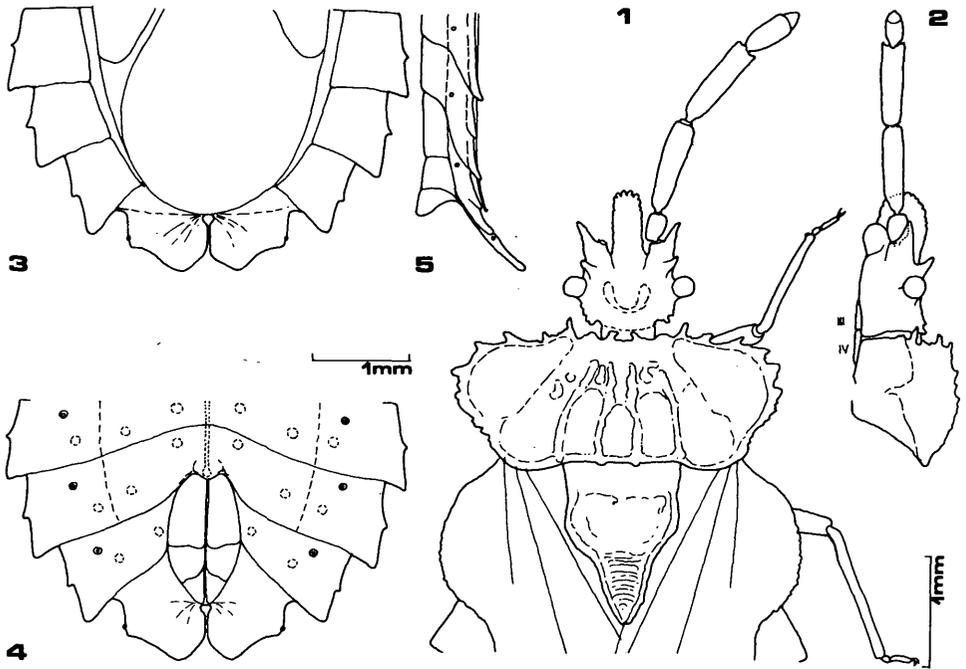


Fig. 1-5. *Aradus tonkinensis* n. sp.

1: Holotype ♂, head and pronotum, dorsal; 2: *ibid.*, lateral; 3: terminal abdominal segments, dorsal; 4: *ibid.*, ventral; 5: *ibid.*, lateral.

then diverging, forming an arc, and converging again before reaching hind border of pronotum. At middle of fore lobe these ridges are branching externally and extending across hind lobe as parallel ridges. Disc between ridges is with scale-like granulation.

Scutellum longer than its basal width (36:26); lateral borders parallel at base, strongly converging, raised and sinuate at middle, again convex and converging near apex, which is acute. Disc raised and scale-like granulate on basal 1/4, then transversely rugose.

Hemelytra reaching base of genital lobes; corium strongly expanded, raised and rounded at base, where hemelytra are wider than pronotum (85:75); then converging until 1/2 of connexivum III, straight from there; tip rounded, reaching hind border of connexivum V. Interior margin of corium sinuate, then convex. Veins of corium raised and with very short incrustated bristles. Membrane large, with 3 cells.

Abdomen ovate, shorter than its maximum width across segment IV (90:102); PE-angles of connexiva (postero-exterior) III to VII progressively increasing in size and become more acute, forming angular lobes from V to VII. Connexivum II concealed under basal expansions of hemelytra. Exterior borders of connexiva II to IV simple, slightly convex; exterior borders of connexiva V to VII with a small tooth in middle. Lobes of VIII with convex, rounded interior borders, and angularly produced exterior borders. Spiracles II to VII ventral, placed far from border; VIII lateral and visible from above.

Legs long and thin.

Color brown; darker are tips of antennal segments IV, infraocular callosities, callous spots on fore lobe of pronotum, hind lobe of pronotum between ridges, disc of scutellum, base of corium, and PE-angles V. Legs brown, tibiae with dark rings in middle.

Total length 7.68 mm; width of pronotum 3.00 mm; width of abdomen 4.08 mm.

Holotype ♀, Tonkin, Hoabinh, VIII. 1918, R. V. de Salvaza coll.

Aradus tonkinensis n.sp. is related to *A. orientalis* BERGROTH, 1885, but is smaller, antennal segment II as long as III; antero-lateral borders of pronotum with long spines, progressively diminishing from collar to humeri; exterior borders of connexiva V to VII with small tooth in middle.

Subfamily CALISIINAE

Genus *Calisius* STAL, 1860

Calisius africanus n.sp. (Foto 2; Figs.6-8)

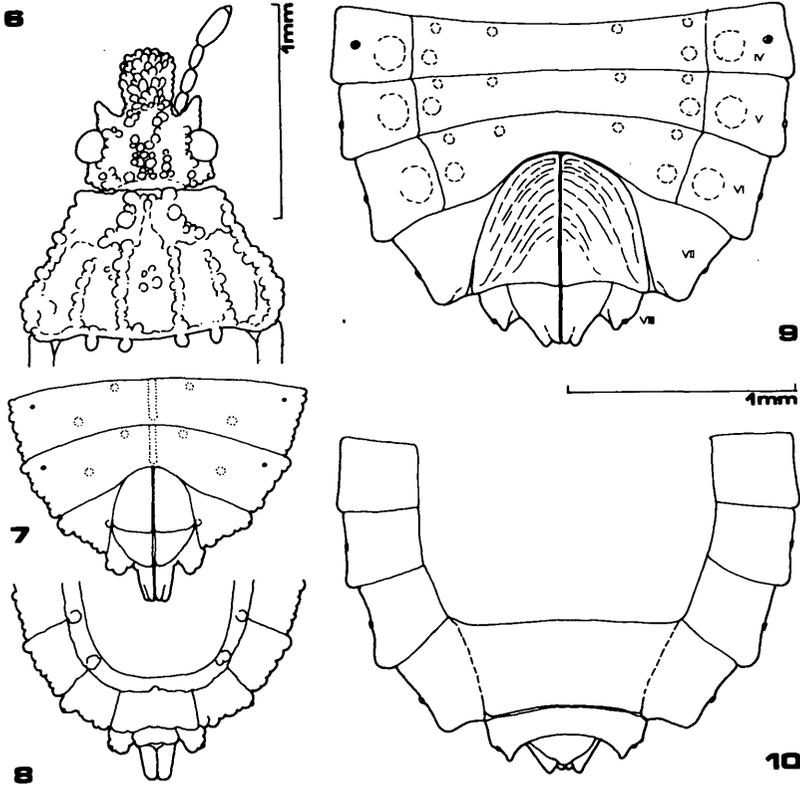
Female. Elongate ovate; head, pronotum and scutellum, partially covered with a thin layer of whitish incrustation; granulation round and rather prominent; scutellum roughly punctured.

Head slightly shorter than its width across eyes (15.5:16.5); anterior process obovate, roughly and densely granulate, reaching 1/2 of antennal segment III. Antenniferous tubercles acute, slightly divaricating; postocular minute, not reaching outer borders of eyes. Eyes strongly protruding. Vertex densely granulate with granules of various sizes. Antennae shorter than width of head across eyes (13:16.5); antennal segment I cylindrical, II and III obovate, IV fusiform; relative length of antennal segments I to IV are: 2.5:3:2.5:5. Labium reaching hind border of a narrow labial groove, which is closed posteriorly.

Pronotum half as long as its maximum width (16:31). Collar truncate, with 2 (1+1) large, round granules; anterior borders laterad of collar truncate; antero-lateral angles forming slightly obtuse angle; lateral borders of fore lobe straight, diverging backward, with a row of spicules; lateral borders of hind lobe rounded at humeri, converging and posteriorly, with a row of larger and smaller granules; hind border convex medially and laterally, sinuate between produced portions. Fore disc with 2 (1+1) clusters of 3 granules each, fused together, in anterior row, and with 2 (1+1) more spaced granules in posterior row. Along lateral borders extend 2 (1+1) rows of 3 smaller granules each. Hind disc with 4 (2+2) carinae formed by round granules, and a double row of granules on each humerus.

Scutellum longer than its maximum width (43:24); basal triangular elevation with 4 (2+2) spicules along fore border and with scattered, small granules else where on disc. Median carina with a dense row of smaller granules, which, some times, is double. From baso-lateral angles of the basal triangular elevation extend 2 (1+1) dense rows of small granules reaching lateral borders and proceeding along the latter and around tip of scutellum. Disc roughly punctured and with a few, spaced granules.

Hemelytra: Corium with a dense row of irregular granulation.



Figs. 6-8. *Calisius africanus* n.sp. 6: Holotype ♀, head and pronotum, dorsal; 7: terminal abdominal segments, ventral; 8: *ibid.*, dorsal.

Figs. 9-10. *Neocarventus angulatus* US. et MATS. 9. female, terminal abdominal segments, ventral; 10: *ibid.*, dorsal.

Abdomen ovate, longer than its maximum width across segment IV (50:37). Connexiva with a double row of small granules on exterior borders; discs of connexiva with a few larger granules along hind borders. Tergum VII small, with a row of small granules along borders. Paratergites formed by a cluster of small granules, reaching basal 1/3 of tricuspidate segment IX. Spiracles II to VI ventral, VII and VIII lateral, placed on granules.

Color: testaceous; connexivum ferruginous with testaceous hind borders of connexiva II to VII and entire connexivum I. Scutellum with 4 (2+2) white spots: 2 (1+1) laterad of basal triangular elevation and 2 (1+1) at 3/5 length of disc.

Total length 3.64 mm; width of pronotum 1.24 mm; width of abdomen 1.48 mm.

Holotype ♀, South Africa, Port St. John, Pondoland; V. 1924, R. E. Turner coll.

Calisius africanus n.sp. is related to *C. schoutedeni* HOBERLANDT, 1954, but is larger; anterior process of head relatively narrower, ratio width of anterior process: width of head across eyes as 7:16.5; abdomen more evenly narrowed posteriorly, and antennal segment I as long as III (shorter in *C. schoutedeni*).

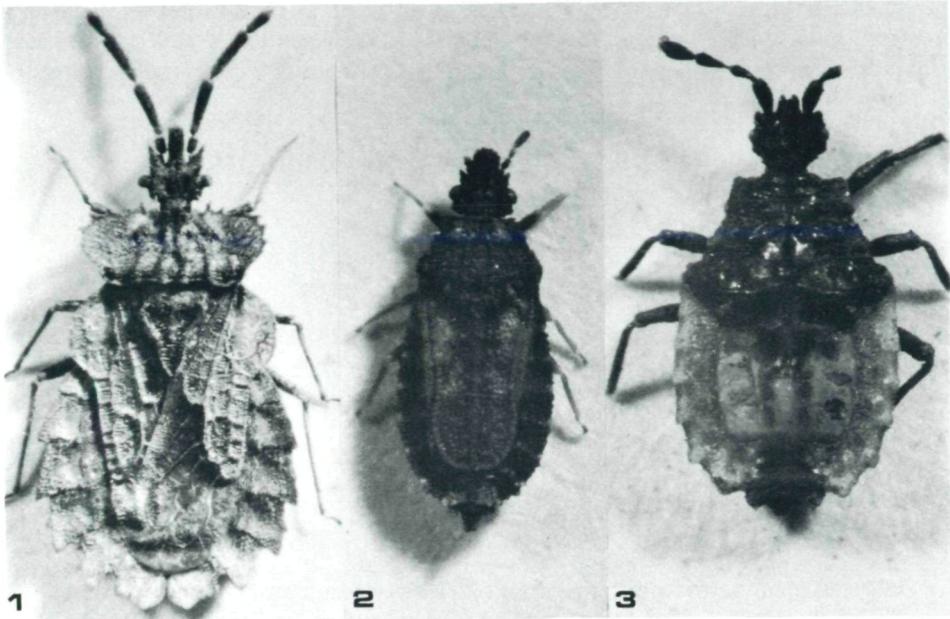


Foto 1-3.

1: *Aradus tonkinensis* n.sp., Holotype ♀; 2: *Calisius africanus* n.sp., Holotype ♀; 3: *Neocarventus angulatus* US. et MATS., female from New Zealand.

Subfamily CARVENTINAE

Genus *Neocarventus* USINGER and MATSUDA, 1959

Neocarventus angulatus USINGER and MATSUDA (Foto 3; Figs. 9-10)

Neocarventus angulatus USINGER and MATSUDA, 1959, Class. Aradidae, p. 166.

Female. Elongate ovate, glabrous, apterous.

Measurements: head 18:19; relative length of antennal segments I to IV are: 9:6.5:8:8; pronotum 13:30; mesonotum 12.5:38; width of metanotum 50; abdomen 55:54 (across segment II); width of tergum VIII 18.

The drawing of USINGER and MATSUDA (Class. Aradidae, p.167, fig.48) is a little stylized: antenniferous tubercles are less pointed, median longitudinal groove of pronotum is shorter than indicated, and closed anteriorly; median elevation of mesonotum is much wider, forming short, triangular process anteriorly, and apically rounded process posteriorly. Central dorsal plate (terga III to IV) forming a rectangle, shorter than wide (28:35); round callous spots are almost obliterated either on central dorsal plate, or on connexivum. Central dorsal plate is yellow, infuscate only on terga III-IV medially and two longitudinal stricks along median elevation on terga V and VI. Paratergites are angular with pointed tips, reaching 1/2 of incised posteriorly segment IX. Postero-exterior angles

of connexiva IV to VI are blunt, rounded, not so acute as on drawing. PE-angles VII rounded, not extended into acute lobe. Spiracles II to IV ventral, V to VIII lateral and visible from above.

Total length 4.00 mm; width of pronotum 1.20 mm; width of abdomen 2.16 mm.

Female, New Zealand (North Island), Ohakune, 11. XI. 1920, J. G. Myers coll.

Summary

From the unidentified material of the junior author two new species of Aradidae are described in this paper: *Aradus tonkinensis* n.sp., from Tonkin, and *Calisius africanus* n.sp., from South Africa. As from *Neocarventus angulatus* US. et MATS., 1959, is known only the male, the authors give a description to the female.

Zusammenfassung

Über neue und wenig bekannte Aradidae, I. (Hemiptera, Heteroptera)

Im unbestimmten Aradidenmaterial der Coll. Heiss befanden sich zwei neue Arten, die beschrieben werden: *Aradus tonkinensis* n.sp., von Tonkin, und *Calisius africanus* n.sp., von Südafrika. Da von *Neocarventus angulatus* US. et MATS., 1959, bisher nur das Männchen bekannt ist, wird eine Beschreibung des Weibchens gegeben.

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