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SOME SOUTH PACIFIC CARABIDAE WITH DESCRIPTIONS OF NEW AGONINI OF THE BISMARCK ISLANDS[1]

By C. J. Louwerens[2]

In regard to the following study I wish to acknowledge the kind assistance of Dr P. J. Darlington, Jr, Harvard University, Cambridge, Massachusetts, and of Dr Shun-ichi Uéno, Tokyo, Japan. Dr Darlington supplied me with his valuable comment on the new Agonini and I am much indebted to Dr Uéno for the fine drawings of the male genitalia of *Armatocillenus yokohamae* Bates, *Haplochlaenius femoratus* Dejean and *Lorostemma subnitens* Andrewes and also for the descriptions of the male genitalia of *A. yokohamae* from Palawan (Philippines) and of *L. subnitens* from Amboina I. (Moluccas). To both I wish to express my sincere thanks for their kindness and cooperation.

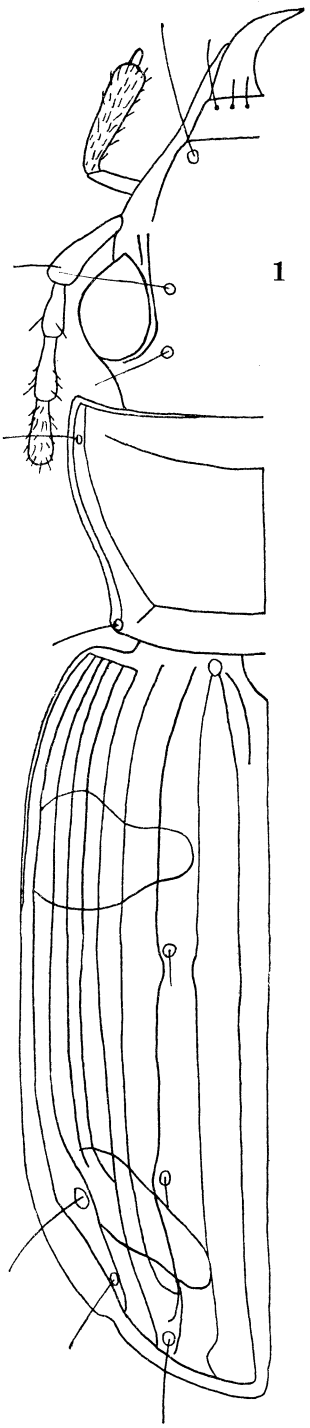
The holotypes of the new Agonini are in the Bishop Museum, Honolulu.

Armatocillenus yokohamae Bates Fig. 1, 2a, 2b.

It is a well-known fact, that all or most of the members of the genus *Cillenus* Samouelle (subfam. Bembidiini), of which *Armatocillenus* is usually considered as a subgenus, live on the seashore, often found far below the high-water mark (Darlington 1953). Through the kindness of Dr Bφrge Petersen (Universitetets Zoologiske Museum, Kφbenhavn) I was able to examine a good series of this species from Palawan (Philippines), collected by the Danish Noona Dan Expedition 1962/1963 (Louwerens 1967). At first, I thought it new because of slight differences in the shape of the pronotum and elytral markings, but after comparison with 4 Japanese specimens presented to me by Dr Shun-ichi Uéno, I considered it, at most, a variety or a local race. Though similar in size and outward aspect, apart from the slight differences mentioned above, the male genitalia are a little different. The Palawan specimens have the male genital organ relatively small and moderately sclerotized. Aedeagus fairly short, obviously smaller and shorter, basal part small and narrow but strongly bent towards the ventral side; apical beak wide, rather abruptly curved ventrad and rounded at apex; ventral side slightly convex behind middle; inner armature similar in disposition to that in *A. yokohamae* from Japan; styles relatively small, each with a single long seta at the tip. In short, the Palawan specimens are distinguished from those of Japan by the following two points: aedeagus smaller and shorter; basal part distinctly bent ventrad with the left lobe much less developed.

1. Part of the specimens studied was collected during fieldwork supported by a National Science Foundation grant to Bishop Museum under the program "Zoogeography and evolution of Pacific Insects."

2. Neuweg 399, Hilversum, Netherlands.



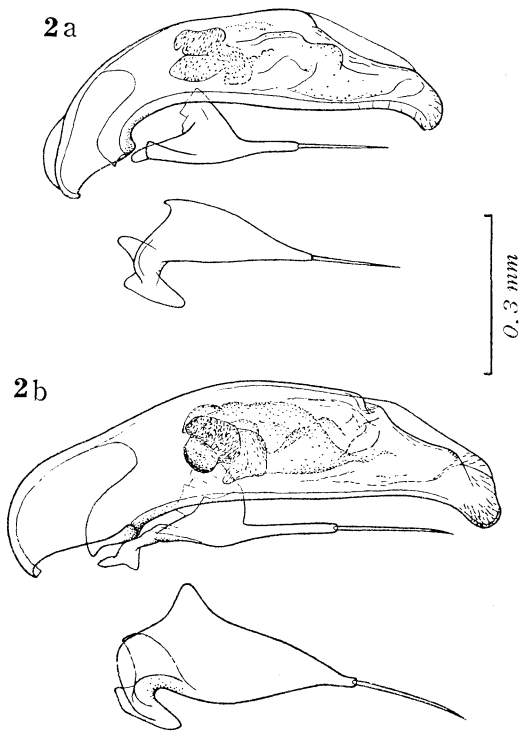


Fig. 1. *Armatocillenus yokohamae* Bates from Palawan; left half. Fig. 2a. *A. yokohamae* from Palawan; ♂ genital organ, left lateral view with detached left style. Fig. 2b, *A. yokohamae* from the Shin-Yodogawa River in Osaka, Japan; ♂ genital organ, left lateral view with detached left style. (2b after Shunichi Uéno, 1955).

Peronomerus fumatus Schaum Fig. 3, 4.

BISMARCK ARCH.: 1 sp., New Britain, Gazelle Pen., Mt. Sinewit, 900 m, 21-26.X.1962, J. Sedlacek.

As far as I know, this is the first record of *P. fumatus* (subfam. Panagaeini) from the Bismarck Islands. It is very close to *P. xanthopus* Andrewes from Java and West Celebes in size, build and color, but in *xanthopus* the hind angles of pronotum are acute and strongly projecting, whereas the pronotal hind angles in *fumatus* are practically right angles with rounded apex.

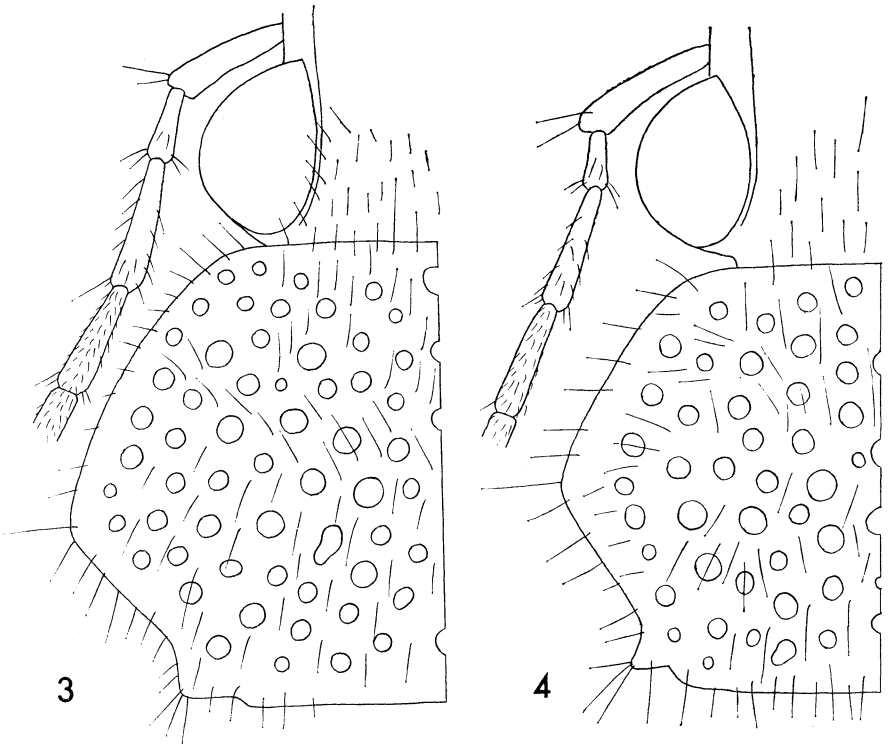


Fig. 3. *Peronomerus fumatus* Schaum from New Britain; left half of head and pronotum. Fig. 4. *Peronomerus xanthopus* Andrewes from West Celebes; left half of head and pronotum.

Also known from Tonkin, Hongkong, Japan, the Philippines and Sumatra.

Lorostemma subnitens Andrewes Fig. 5; 6 a, b.

According to Darlington (1952), members of the genus *Lorostemma* Motschulsky (subfam. Agonini) are dull, often alutaceous species having the elytral apices finely more or less subserrate or granulate, but in *Lorostemma informalis* Darlington from New Guinea and New Britain (Bismarck Is.) the blunt denticles are usually lacking. Fig. 5 depicts *L. subnitens* from Amboina I. (Moluccas). In this species the shape of the pronotum is somewhat variable. Here the sides of pronotum are subangulate a little before middle but sometimes the sides are rounded at widest point. Compared to *informalis* from New Guinea *subnitens* has the surface of elytra mostly dull; the antennae are longer; the hind tarsi relatively longer and slender, especially first segment much longer; the moderately to strongly transverse meshes on the elytra much more distinct than in *informalis*. In the latter species the elytra are a little more shiny; the pronotum has the basal area and the sides to about anterior pronotal lateral pore clearly punctate and roughened. The male genital organ of *subnitens* is well sclerotized. Aedeagus very slender, mod-

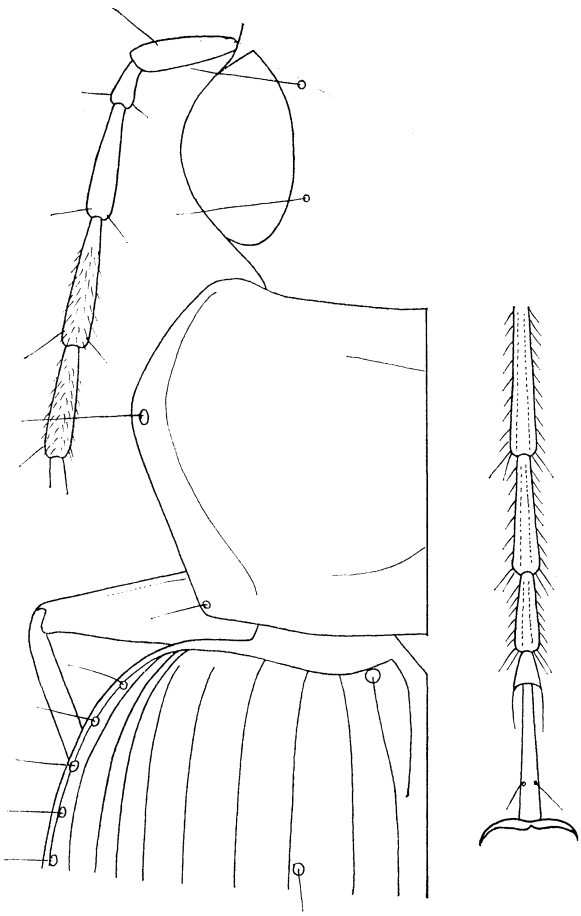


Fig. 5. *Lorostemma subnitens* Andrewes from Amboina I.; left half of head and pronotum and right hind tarsus.

erately arcuate with elongate basal part, which is provided with a fairly large sagittal aileron ; apical beak rather abruptly curved ventrad and ending in a blunt tip; viewed dorsally lateral sides gradually converging towards the blunt extremity. Inner sac scaly but devoid of sclerotized copulatory pieces. Styles conchoidal, rounded at apices, each with a prominent antebasal process on the internal side; right style obviously smaller than left. In short: in *subnitens* the basal part of the aedeagus is much wider and not so strongly bent.

Notagonum addendum Darlington
Fig. 7.

BISMARCK ARCH.: 1 sp., New Britain, Gazelle Pen., Gaulim, 130 m, 28.X.1962; 5 sp., Mt Sinewit, 900 m, 10.XI.1962; all J. Sedlacek.

First record for the Bismarck Arch. It was originally described from New Guinea.

Haplochlaenius peterseni Louwerens
Fig. 8 a, b and 9 a, b.

I (Louwerens 1967) described a new *Haplochlaenius*, viz. *peterseni* from Palawan (Philippines) brought home by the Danish Noona Dan Exp. 62/63. I compared it to specimens of *H. femoratus* Dejean from Java, where the latter species abundantly occurs. Both species are almost similar in size and outward aspect, though, differing in color. The main difference is to be found in the alternate subcostate intervals of the elytra in *peterseni*. In this species the intervals are otherwise punctured too. Fig. 8 and 9 depict the male genital organs of *femoratus* and *peterseni* respectively, which are widely different. Aedeagus of *peterseni* is relatively much narrower and much longer; basal part not so strongly bent; apical part quite differently built; the styles are of a different shape, especially the right style.

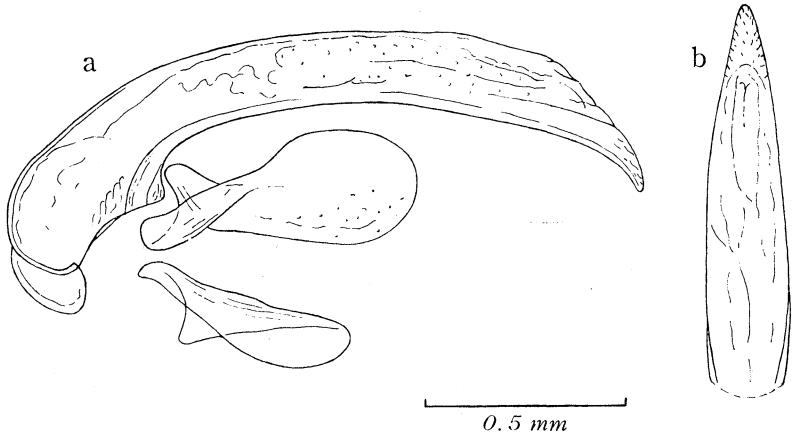


Fig. 6. *L. subnitens* from Amboina: a, left lateral view of the ♂ genital organ with detached right style ; b, dorsal view of the apical part of aedeagus.

Iridagonum laevis Louwerens, new species Fig. 10.

Black; mouthparts, antennae, narrowly side margins of pronotum and elytra, tarsi and underside at places brown. Upperside strongly polished and strongly iridescent, especially on elytra, when viewed in strong light. Body fully winged.

Length about 8 mm; width about 3 mm.

Head with moderately large and moderately prominent eyes; width of eyes about 0.65 × width of pronotum at widest point; hind orbital setae at level of hind-eyes; antennae reaching about basal 1/3 of elytra; surface smooth. Pronotum convex; width/length about 1.31; base/apex about 1.33 and width elytra/width pronotum about 1.41; largest width at about middle; sides nearly evenly rounded from the rather strongly advanced, a little rounded anterior angles to obtusely rounded posterior angles, more contracted in front than behind, not or slightly subsinuate posteriorly; moderately explanate, a little wider behind; apex deeply emarginate; base straight with oblique sides, which are a little convex backwards; the single lateral pore and seta just in front of posterior angle; median line fine, not quite reaching base; both transverse impressions barely visible; basal foveae large and moderately deep, sparsely punctate; remainder of surface smooth. Elytra convex; length/width about 1.60; basal border entire; obtusely angulate at shoulders; sides nearly straight, weakly sinuate before extreme apex, which is denticulate in line with suture; fully striate, the striae moderately impressed, deeper behind; intervals for the greater part flat, convex near apex, 7 and 8 not or very slightly modified towards apex, impunctate, third interval with 2 setiferous pores; disc distinctly depressed at or before middle. The microsculpture of front and sides of head consists of distinctly impressed isodiametric meshes, pronotum finely striate, less distinct than on head, no visible microsculpture on elytra. Underside not pubescent; tooth of mentum triangular with blunt tip; sides of sterna not distinctly punctate; tarsi sulcate at outer edges; fourth tarsal segment truncate or slightly emarginate; last ventral segment bisetose in the ♂, quadrisetose at apex in the ♀.

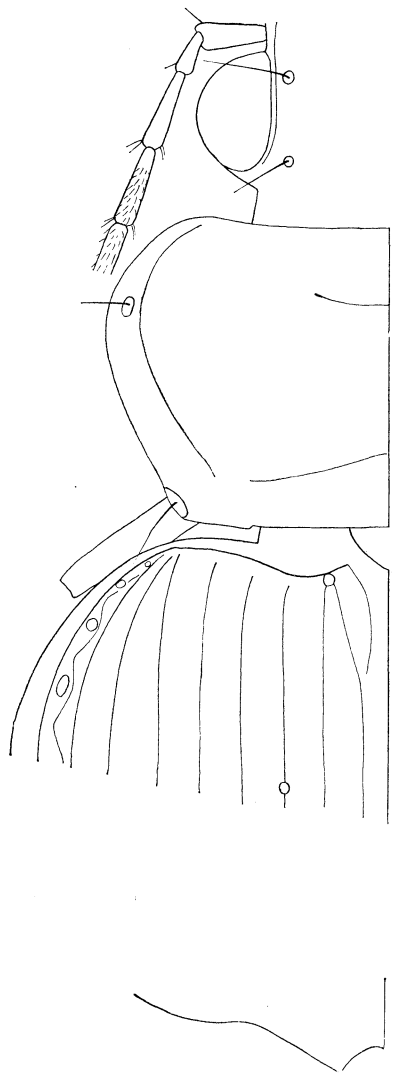


Fig. 7, *Notagonum addendum* Darlington from New Britain; left half of head and pronotum and extreme apex of left elytron.

Holotype ♂ (BISHOP 8887), and 1 paratype, Bismarck Arch., New Ireland, Schleinitz Mts, Lelet Plateau, X. 1959, W. W. Brandt.

In comparing paratypes of *I. quadripunctum* Darlington and *I. quadripunctellum* Darlington, both of New Guinea, *quadripunctum* is much bigger with the sides of the prosternum densely punctate. *Quadripunctellum* is lighter in color, the eyes a little more prominent; anterior angles of pronotum, though quite distinct, not so strongly advanced as in *laevis*, more rounded at tip, apex less deeply emarginate ; striae of elytra much deeper impressed throughout with convex intervals.

Iridagonum caudostriatum Louwerens, new species
Fig. 11.

Color black with sides of pronotum and elytra narrowly paler, palpi, antennae and legs dark brown, tarsi brown; underside brown at places. Hind wings fully developed. Surface strongly polished and, especially on elytra, strongly iridescent when viewed in strong light.

Length about 8 to 9 mm; width about 3.5 mm.

Head slightly narrower than pronotum between front angles; width over eyes/largest width of pronotum about 0.50; eyes moderately large and moderately prominent; genae well developed; neck slightly constricted behind; 2 setae on each side over the eyes, the hind seta at level of hind-eye; antennae reaching about basal 1/3 of elytra; surface not punctate. Pronotum convex; width/length about 1.40; base/apex about 1.33 and width elytra/width pronotum about 1.40; widest a little before middle; sides moderately explanate, a little wider behind, nearly evenly rounded, more contracted in front than behind, not or very weakly subsinuate before posterior angles, which are obtuse and rather strongly rounded; the single lateral pore and seta just in front of the hind angle; apex rather deeply emarginate with projecting angles, the tip a little rounded; base nearly straight with slightly oblique sides, which are a little convex backwards; median line finely impressed, not quite reaching base; both the transverse lines superficially impressed and only just visible; basal foveae large, moderately deep, finely and sparsely punctate, remainder of surface smooth. Elytra convex; length/width about 1.60; sides nearly parallel at middle, weakly sinuate, before extreme apex, which is denticulate in line with suture; basal border entire, obtusely angulate at humeri; the 7 inner striae for the greater part very superficially impressed, at places merely indicated by rows of small punctures, deeply impressed towards apex, the outer striae

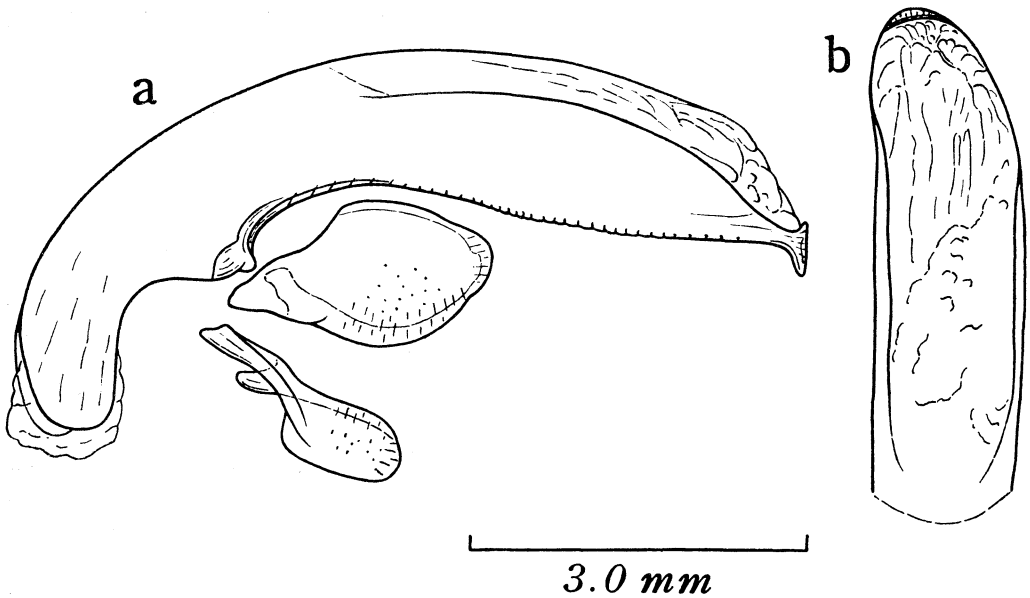


Fig. 8. *Haplochlaenius femoratus* Dejean from E. Java: a, left lateral view of ♂ genital organ with right style detached; b, dorsal view of the apical part of aedeagus. (8a and 8b after Shun-ichi Uéno, 1964).

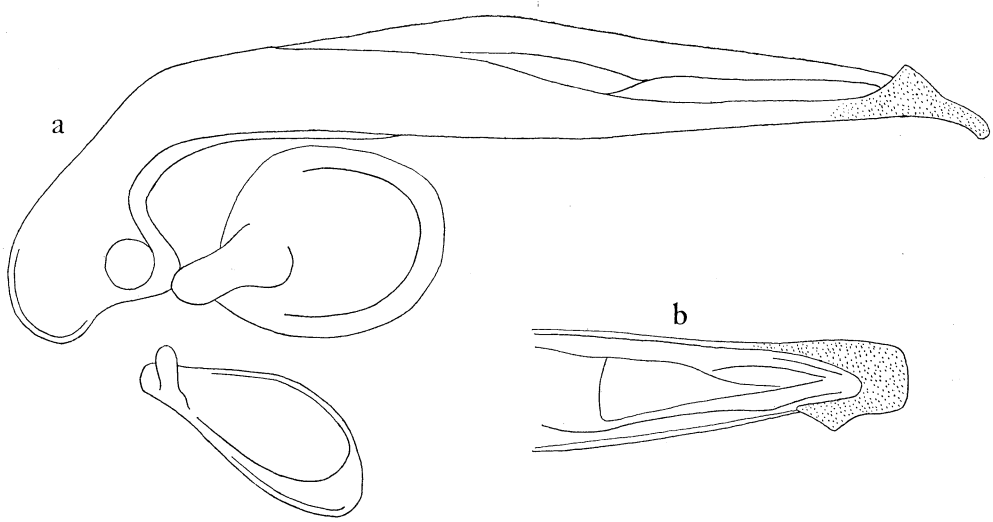


Fig. 9. *Haplochlaenius peterseni* Louwerens from the Philippines: a, left lateral view of ♂ genital organ with detached right style; b, dorsal view of apical part of aedeagus.

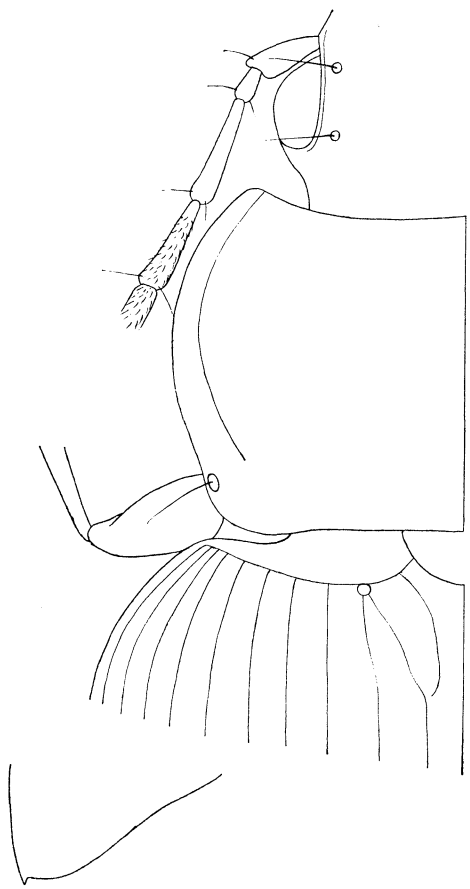


Fig. 10. *Iridagonum laevis* n. sp. from New Ireland; left half of head and pronotum and extreme apex of right elytron.

entire and normally impressed; intervals flat, convex behind and there impressed down the middle of the intervals, not punctate, 3rd interval with 2 setiferous pores; disc not depressed. Microsculpture of front and sides of head distinctly isodiametric, on pronotum striate, less distinct than on head, none on the elytra. Underside: sides of the sterna not punctate, last ♂ ventral segment bisetose, that of ♀ quadrisetose at apex; tarsal segments sulcate at outer edges; 4th tarsal segment emarginate in middle and hind tarsi, a little deeper in the protarsi; claw segment practically smooth, the underside with only a very few, very small hairs at places.

Holotype ♂ (BISHOP 8888), Bismarck Arch., New Britain, Gazelle Pen., Mt. Sinewit, 900 m, J. Sedlacek, ♂, 5-9. XI. 1962, 2 paratypes 13. XI. & 5-14. XI. 1962, and 1 paratype Gaulim, 130m, 23-28.X.1962; all light trap, J. Sedlacek.

At once recognizable by the elytral striae, which are only impressed apically.

I have placed both new species in the genus *Iridagonum* Darlington with some hesitation, for *Iridagonum* and *Altagonum* Darlington have nearly the same generic characters. In *Iridagonum* the upperside is strongly polished and strongly iridescent and the sides of the sterna are more or less punctate. Here the side pieces of the sterna are practically without any punctures. Iridescence of the elytra occurs in some species of *Altagonum* too and so it is as regards the modified intervals of the elytra apically and the denticulate, extreme apex.

Altagonum sedlaceki Louwerens, new species Fig. 12.

Color black; palpi, segments 4 (partly) to 11 and tarsi brown; moderately shiny; elytra faintly irridescent, when viewed in strong light. Hind wings fully developed.

Length about 7.5 to 8 mm; width about 3 mm.

Head a little wider than apex of pronotum between angles; width over eyes/largest width of pronotum is about 0.76; eyes large and prominent; hind supra-orbital seta at level of hind-eye; antennae reaching about basal 1/3 of elytra; surface not punctured. Pronotum transverse, subquadrate; width/length is about 1.48 and base/apex about 1.20; width elytra/width pronotum is about 1.60; side margins narrowly explanate, wider behind, slightly and about evenly rounded

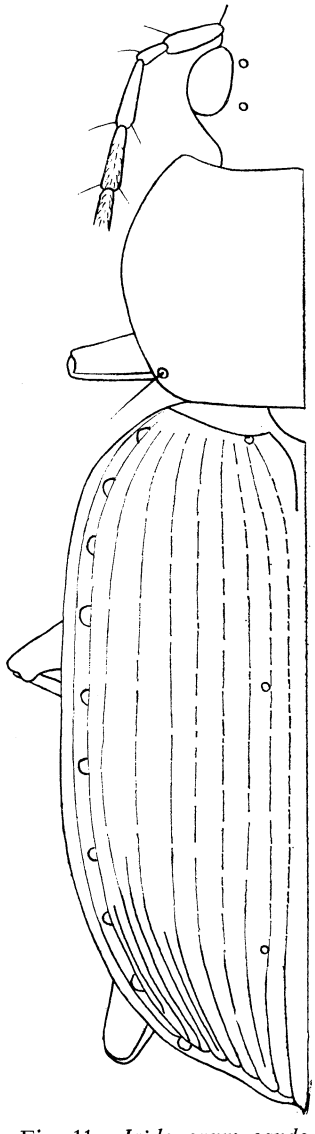


Fig. 11. *Iridagonum caudostriatum* n. sp. from New Britain; left half.

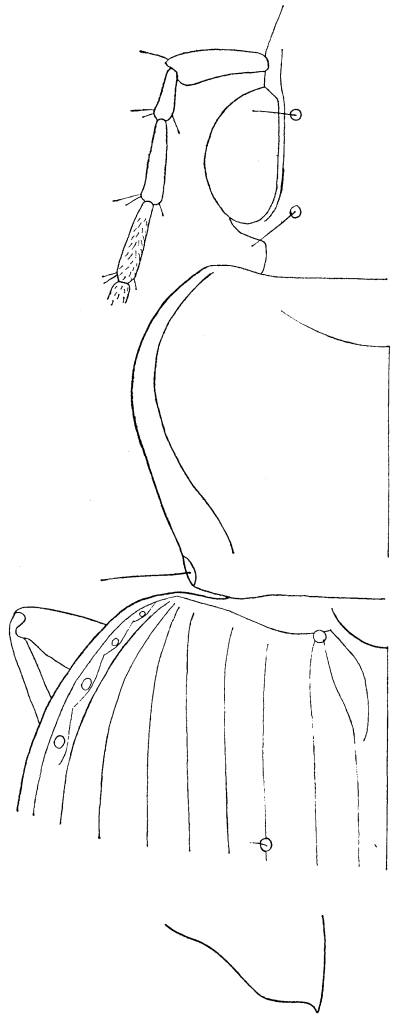


Fig. 12. *Altagonum sedlaceki* n. sp. from New Britain; left half of head and pronotum and extreme apex of left elytron.

from apex to base, a little more contracted in front than behind, widest a little before middle, very faintly subsinuate just before the obtuse posterior angles; the single lateral seta on the border and on the angle; apex only little emarginate with rounded, not advanced angles; side pieces of base rounded-oblique; median and transverse lines finely impressed; basal foveae large and deep; surface not punctate. Elytra width/length about 0.75; basal border obtusely angulate at shoulders; the angle a little rounded; sides slightly rounded, moderately sinuate before apex,

which is truncate with a small denticle in line with suture and with outer angles rounded; striae moderately impressed (in the holotype the 4 inner striae are less deep), indistinctly punctulate; intervals nearly flat, outer ones not modified towards apex; 3rd interval with 3 small pores, the front pore on stria 3, the 2 hind pores on stria 2; surface smooth; disc not depressed. Microsculpture of head moderately transverse, isodiametric at places, on pronotum strongly transverse with moderately transverse meshes along side margins, the lines on the elytra are very wide, almost striate. Underside not punctate; abdominal segments with a little pubescence near middle basally; last ventral segment of ♂ a little emarginate at middle apically and with 1 seta, of ♀ with 2 setae on each side of apex; 1st hind tarsal segment faintly bisulcate, 4th segment a little emarginate; claw segment glabrous beneath.

Holotype ♂ (BISHOP 8889), Bismarck Arch., New Britain, Gazelle Pen., Mt Sinewit, 900 m, ♂ 5-14.XI.1962, and 12 paratypes 5-16.XI.1962; all J. Sedlacek.

In the key to the New Guinean species of *Altagonum* (Darlington 1952) it comes next to *noctellum* Darlington, which I do not know in nature. Together with *nox* Darlington, *magnox* Darlington, *japenox* Darlington, *pubinox* Darlington, *noctellum* Darlington and *planinox* Darlington, the new species belongs to Darlington's *nox*-group. Only *nox* and *magnox* do not have ventral pubescence. Compared to *pubinox* the species of New Britain is relatively wider, the eyes larger and more prominent, elytra with much finer striae, intervals less convex, surface less iridescent, disk not depressed, etc.

ADDENDA

In *Treubia* 1956, **23**: 235 I described a new species of *Badister*, viz. *minor* from Obi I. (Moluccas), but failed to put it in the proper genus. The correct genus is *Physolaesthus* Chaudoir, characterized by the small size (about 5 mm), the deeply notched right mandible, segments 1-3 of antennae glabrous and by the elytra, which are not spined.

REFERENCES

Andrewes, H. E. 1929. Fauna Sumatrensis 64, Carabidae (Col.). *Tijds. Ent.* **72.**
1930. Catalogue of Indian Insects 18, Carabidae. Govern. of India, Centr. Publ. Branch.
1936. On some new species of Carabidae, chiefly from Java (II). *Treubia* **15**: afl. 3.
1938. On Cillenus Samouelle (Col. Carabidae). *Proc. Royal Soc. Lond.* **7** (9).
Darlington, P. J., Jr. 1952. The Carabid Beetles of New Guinea 2. The Agonini. *Bull. Mus. Comp. Zool.* **107**: (3).
1953. A new *Bembidion* (Carabidae) of zoogeographic interest from the Southwest Pacific. *Coleopterists' Bull.* **7** (2).
1959. The *Bembidion* and *Trechus* (Col. Carabidae) of the Malay Archipelago. *Pacif. Ins.* **1**: (4).
Louwerens, C. J., 1967. Philippine Carabidae (Col.) collected by the Noona Dan Expedition. *Ent. Meddel.* **35.**
Uéno, Shun-ichi. 1955. Studies on the Japanese Trechinae III (Col. Carabidae). *Publ. Seto Mar. Biol. Lab.* **IV.**