

Further new and rare species of the genera *Fortagonum* Darlington and *Collagonum* Baehr from New Guinea

(Insecta, Coleoptera, Carabidae, Agoninae)*

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Fortagonum hornabrookianum, spec. nov., *Fortagonum substriatum*, spec. nov., *Collagonum thoracicum*, spec. nov., all from central Papua New Guinea, *Fortagonum insulare*, spec. nov. from Japen Island, and *Fortagonum laevissimum*, spec. nov. and *Collagonum longipenne*, spec. nov., both from Star Mountains, westernmost Papua New Guinea are described. For both genera *Fortagonum* and *Collagonum* new keys are provided that replace the most recent keys to the respective genera (Baehr 1995, 1998). For *Collagonum thoracicum*, spec. nov. a new subgenus *Procollagonum*, and for *Collagonum distortum* (Darlington) and *Collagonum limum* (Darlington) a new subgenus *Paracollagonum* is erected. In view of striking differences in external morphology, but in particular in shape of the male aedeagus, *Procollagonum* is the most plesiotypic member of *Collagonum*, whereas *Paracollagonum* combines plesiomorphic character states in structure of the male genitalia with highly apomorphic character states in external morphology.

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Introduction

Recently Dr. R. W. Hornabrook (Wellington, New Zealand) kindly sent me a sample of carabid beetles from New Guinea (mainly Papua New Guinea) for identification. Although they were collected 25–30 years ago, they were no more included in Darlington's (1968, 1971) monograph about the Carabidae of New Guinea. The sample includes a number of new records and new species, inter alia two new species of the genus *Fortagonum* Darlington and one new species of the genus *Collagonum* Baehr that are being described below. Material received recently from Mr. A. Riedel (München), the indefatigable and unexcelled collector of rare species from Irian Jaya, and from Mr. P. Schüle, (Düsseldorf) included three additional new taxa of the genus *Fortagonum* that are added to this paper.

The genus *Fortagonum* was founded by Darlington (1952). In a supplementary volume, Darlington (1971) described several additional species of very different shape and structure. Baehr (1992) again described additional species, and Baehr (1995) redefined the genus and erected a new genus *Collagonum* for some species hitherto included in *Fortagonum*. Most recently Baehr (1998) again described additional species of *Fortagonum* and gave a revised key to this genus. The most recent key to the species of *Collagonum* was given by Baehr (1995).

* In part results of the scientific collections of A. Riedel in New Guinea 1998.

Measurements

Measurements were made under a stereo microscope using an ocular micrometer. Length has been measured from tip of labrum to apex of elytra, hence, measurements may slightly differ from those of Darlington. Length of pronotum for width/length ratio has been measured from middle of apex to base.

Location of types

The types are shared with the Museum of New Zealand, Wellington (MNZ) and Zoologische Staatssammlung, München (ZSM). Some paratypes are located in the working collection of the author at Zoologische Staatssammlung (CBM).

Fortagonum insulare, spec. nov.

Fig. 6

Types. Holotype: ♀, 5.8.1996 41 Schüle/Stüben West Papua 1000 m Japen Serui nach Ambeiduru km 9 Primärwald (ZSM). – Paratype: 1♀, same data (CBM).

Diagnosis. Distinguished from its nearest relative, *F. spinipenne* Baehr, by light colour of surface, legs, and antennae, and by basally wider pronotum that also has less projecting anterior angles.

Description

Measurements. Length: 10.4-10.6 mm; width: 4.10-4.25 mm. Ratios. Width/length of pronotum: 1.48-1.52; width base/apex of pronotum: 1.68-1.74; width pronotum/head: 1.85-1.96; width elytra/pronotum: 1.64-1.68; length/width of elytra: 1.29-1.37.

Wing-and-seta formula: + w; + +; - -; - + +.

Colour. Dark reddish piceous, lateral margin of pronotum, suture of elytra, labrum, and mandibles slightly lighter. Mouth parts, antenna, tibiae, and tarsi light reddish, femora slightly darker. Lower surface piceous.

Head. Rather narrow compared with prothorax. Neck rather wide, somewhat imbedded in prothorax. Eyes fairly large, laterally moderately projecting, orbits distinct, evenly curved. Clypeal suture distinct. Labrum rectangular, apex feebly concave. Mandibles elongate, straight, but not porrect. Antenna very slender and elongate, surpassing base of pronotum by about four antennomeres, median antennomeres almost 5 × as long as wide. Both palpi slender and elongate, basal palpomere of maxillary palpus thickened. Mentum with an elongate, unidentate tooth. No furrow medially of eyes, though a shallow furrow above antennal base present. Either both supraocular setae present or only the posterior supraocular seta present, the latter situated at posterior margin of eye. Clypeus and anterior part of frons with short, shallow, parallel furrow on either side, frons evenly convex, absolutely smooth. Microreticulation isodiametric, somewhat superficial. Surface glossy.

Prothorax. Comparatively narrow, somewhat conical, widest at posterior third, laterally evenly though feebly convex, strongly narrowed to apex, moderately narrowed to base. Disk slightly convex, lateral margins widely explanate though barely separated from disk. Anterior angles rather projecting, obtuse at apex. Apex regularly and deeply excised. Basal angles rectangular, at apex obtusely rounded. Base laterally straight, in middle very faintly produced. Disk convex with extremely shallow, v-shaped sulcus in apical fourth, base near basal margin with a rather deep, oblique, somewhat linear impression on either side and with a very shallow transverse impression. Median line incomplete, very fine, ending far from apex and base. Apex distinctly bordered, lateral margin and base not bordered. Both marginal setae absent. Disk impunctate. Microreticulation very fine, absent on disk, near apex and base highly superficial, isodiametric. Surface glossy.

Elytra. Rather narrow and elongate, dorsal surface markedly convex, lateral borders in middle almost straight. Preapical sinuosity extremely feeble. Widest diameter about in middle. Humeri wide, obtusely angulate but not dentate, apex spinose with elongate spine opposite 3rd interval, spines rather widely separated. Sutural angle with minute denticle. Striae shallow, deepened towards apex, minutely punctulate, intervals depressed. Anterior discal seta absent, both median and posterior setae situated

at 2nd stria. 17-18 marginal setae and 1 preapical seta at 7th stria present, humeral group of marginal series consisting of 6 setae, median and apical pores not much more conspicuous than basal pores, series slightly interrupted in middle. Intervals impunctate. Microreticulation almost wanting. Surface highly glossy, rather iridescent. Posterior wings present.

Lower surface. Prosternal process short, posteriorly slightly convex, triangular, ventrolaterally and posterolaterally bordered. Proepisternum smooth. Mesepisternum coarsely punctate. Metepisternum moderately elongate, c. 1.5 × as long as wide at anterior border. Epipleura anteriorly moderately wide, rugose. Abdomen impunctate, though laterally with several fine, elongate wrinkles and shallow impressions. Microreticulation dense, isodiametric, very superficial. ♂ sternum VII unknown, ♀ sternum VII quadrisetose, apex regularly curved.

Legs. Very elongate and slender. 4th tarsomere medially faintly excised. 5th tarsomere asetose beneath. Vestiture of ♂ anterior tarsus unknown.

♂ genitalia. Unknown.

♀ genitalia. Stylomere 2 rather elongate, little curved, with obtuse apex, with 3 fairly small ventral ensiform setae, a dorsal ensiform seta situated about in middle, and one nematiform seta in a deep furrow moderately close to apex. Apex of stylomere 1 ventrally with 7-8 setae near base of stylomere 2. Lateral plate with 8-9 setae at or near margin.

Variation. Rather similar though the paratype has slightly wider pronotum and elytra, and it possesses only the posterior supraorbital seta, which is the first instance of instability of chetaotaxy of supraorbital setae ever recorded in the genus.

Distribution. Japan Island, western central Irian Jaya. Known only from type locality.

Collecting circumstances. Largely unknown. Both specimens collected in "primary forest" at median altitude, probably under log or in litter on the ground.

Etymology. The name refers to the occurrence on Japan Island.

Relationships. Certainly this species is very closely related to *F. spinipenne* Baehr from mainland western central Irian Jaya that externally looks extremely similar. Unfortunately, the male genitalia are thus far unknown in both species. Because in the species group to which both species belong aedeagi usually are highly distinctive, reference to the aedeagi when they are known may settle the question of full specific or of subspecific status of *F. insulare*.

Fortagonum substriatum, spec. nov.

Figs 1, 7

Types. Holotype: ♂, Papua NG, Morobe-Pr. Mindik 1400-1500 m 27.4.1998, A. Riedel (ZSM). – Paratype: 1♀, same data (CBM).

Diagnosis. Distinguished by presence of wings, absence of anterior supraocular seta, both pronotal setae, and anterior discal seta, rather narrow, fairly conical pronotum, narrow and elongate elytra, and markedly elongate elytral spine opposite 3rd stria. Distinguished from most closely related species *F. spinipenne* Baehr and *F. insulare*, spec. nov. by colouration, longer elytra, shallow, almost impunctate striation and the many sclerotizations in the internal sac.

Description

Measurements. Length: 11.1-11.7 mm; width: 4.45-4.65 mm. Ratios. Width/length of pronotum: 1.44-1.46; width base/apex of pronotum: 1.60-1.65; width pronotum/head: 1.86-1.90; width elytra/pronotum: 1.62-1.66; length/width of elytra: 1.35-1.38.

Wing-and-seta formula: + w; - +; - -; - + +.

Colour. Glossy black, elytra with very faint greenish lustre. Labrum, mouth parts, antenna, and median and posterior tarsi piceous, three basal antennomeres black, anterior tarsi reddish. Lower surface black.

Head. Moderately narrow compared with prothorax. Neck rather wide, somewhat imbedded in prothorax. Eyes fairly large, laterally moderately projecting, orbits distinct, evenly curved. Clypeal suture distinct. Labrum rectangular, apex feebly concave. Mandibles elongate, straight, but not porrect.

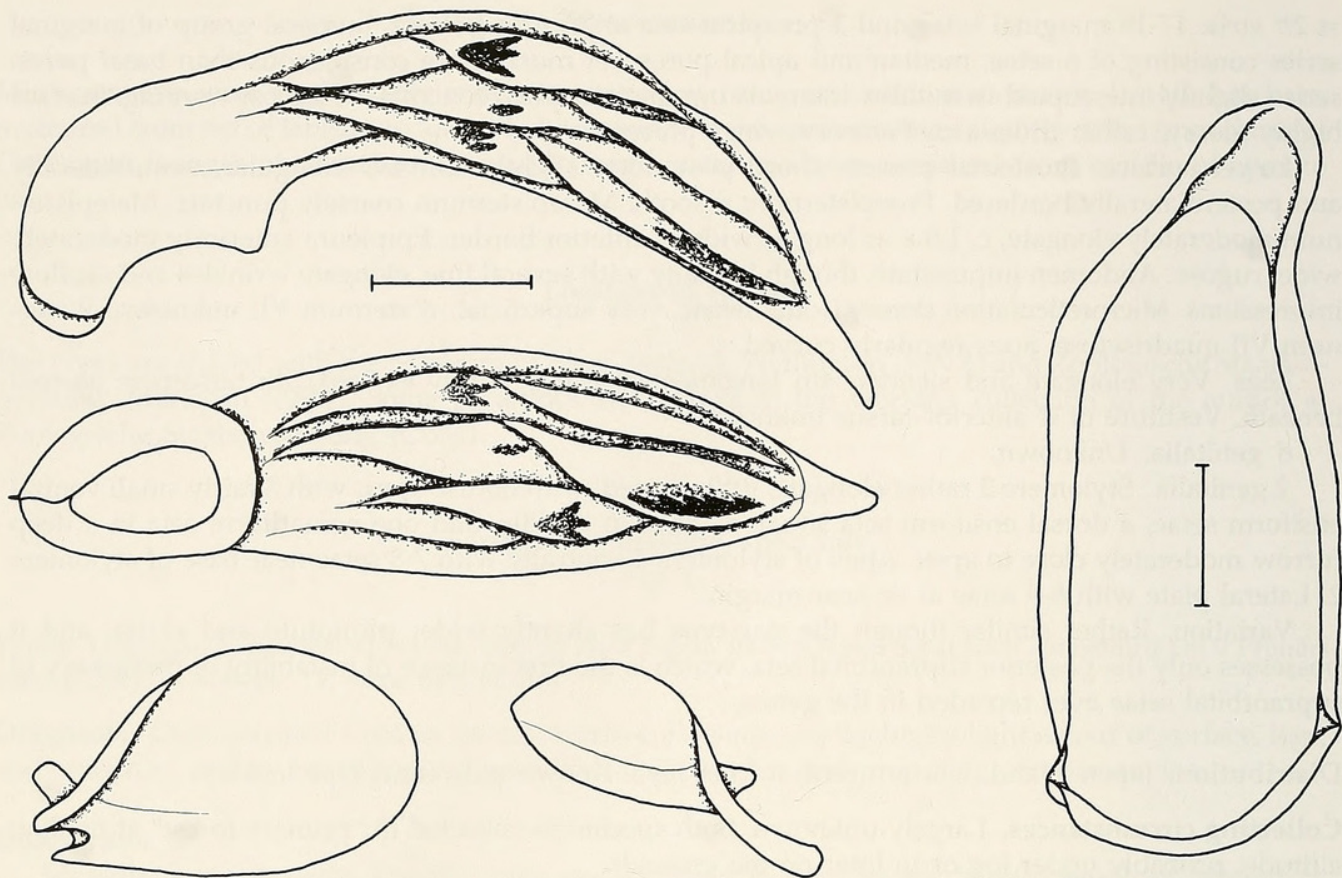


Fig. 1. *Fortagonum substriatum*, spec. nov. ♂ genitalia. Scale: 0.5 mm.

Antenna very slender and elongate, surpassing base of pronotum by more than four antennomeres, median antennomeres $> 5 \times$ as long as wide. Both palpi slender and elongate, basal palpomere of maxillary palpus thickened. Mentum with an elongate, unidentate tooth. No furrow medially of eyes, though a shallow furrow above antennal base present. Only posterior supraocular seta present, at posterior margin of eye. Clypeus and anterior part of frons with short, shallow, parallel furrow on either side, frons evenly convex, absolutely smooth. Microreticulation isodiametric, somewhat superficial. Surface glossy.

Prothorax. Comparatively narrow, somewhat conical, widest in posterior third, laterally evenly though feebly convex, strongly narrowed to apex, moderately narrowed to base. Disk slightly convex, lateral margins widely explanate though barely separated from disk. Anterior angles rather projecting, obtuse at apex. Apex regularly and deeply excised. Basal angles rectangular, at apex obtusely rounded. Base laterally straight, in middle very faintly produced. Disk convex with extremely shallow, v-shaped sulcus in apical fourth, base near basal margin with a rather deep, circular impression on either side and with a very shallow transverse impression. Median line incomplete, very fine, ending far from apex and base. Apex distinctly bordered, lateral margin and base not bordered. Both marginal setae absent. Disk impunctate. Microreticulation very fine, absent on disk, near apex and base highly superficial, isodiametric. Surface glossy.

Elytra. Comparatively narrow and elongate, dorsal surface markedly convex, lateral borders in middle almost straight. Preapical sinuosity extremely feeble. Widest diameter about in middle. Humeri wide, obtusely angulate but not dentate, apex spinose with elongate spine opposite 3rd interval, spines rather widely separated. Sutural angle with minute denticle. Striae very shallow, deepened towards apex, extremely finely, almost invisibly punctulate, intervals depressed. Anterior discal seta absent, both median and posterior setae situated at 2nd stria. 17-18 marginal setae and 1 preapical seta at 7th stria present, humeral group of marginal series consisting of 6 setae, median and apical pores not much more conspicuous than basal pores, series slightly interrupted in middle. Intervals impunctate. Microreticulation almost wanting. Surface highly glossy, rather iridescent. Wings present.

Lower surface. Prosternal process short, posteriorly slightly convex, triangular, ventrolaterally and posterolaterally bordered. Proepisternum smooth. Mesepisternum coarsely punctate. Metepisternum

num moderately elongate, c. $1.5 \times$ as long as wide at anterior border. Epipleura anteriorly moderately wide, rugose. Abdomen impunctate, though laterally with several fine, elongate wrinkles and shallow impressions. Microreticulation dense, isodiametric, very superficial. ♂ sternum VII bisetose, ♀ sternum VII quadrisetose, apex regularly curved.

Legs. Very elongate and slender. 4th tarsomere medially faintly excised. 5th tarsomere asetose beneath. 1st-3rd tarsomeres of ♂ anterior tarsus biserially squamose.

♂ genitalia. Genital ring narrow, rather parallel, at apex asymmetric. Aedeagus stout, rather symmetric, lower surface very faintly bisinuate. Apex acute and rather short, lateral margins near apex faintly concave. Internal sac with four denticulate sclerites: one elongate, about quadridentate rod apically at bottom of right side, two tridentate plates basally at roof on right and left sides, respectively, and a small unidentate plate in middle. Both parameres wide, at apex very faintly angulate.

♀ genitalia. Stylomere 2 rather elongate, little curved, with obtuse apex, with 3 fairly small ventral ensiform setae, a dorsal ensiform seta situated about in middle, and one nematiform seta in a deep furrow moderately close to apex. Apex of stylomere 1 ventrally with 6-8 setae near base of stylomere 2. Lateral plate with 6-8 setae at or near margin.

Variation. Apart of some minor differences in shape of pronotum little variation noted.

Distribution. Eastern central Papua New Guinea. Known only from type locality.

Collecting circumstances. Unknown. Presumably collected under log in rain forest at median altitude.

Etymology. The name refers to the light striation of the elytra.

Relationships. This species is presumably most closely related to *F. spinipenne* Baehr, *F. insulare*, spec. nov., and *F. subconicollae* Darlington, though is distinguished by narrower elytra and very shallow, almost impunctate elytral striae.

***Fortagonum hornabrookianum*, spec. nov.**

Figs 2, 8

Types. Holotype: ♂, Garaina Morobe District NE. New Guinea Hornabrook (MNZ).

Diagnosis. Characterized by presence of wings, absence of anterior supraocular seta, both pronotal setae, and anterior discal seta, rather narrow, fairly conical pronotum, narrow and elongate elytra, and markedly elongate elytral spine opposite 3rd stria. Distinguished from most closely related species *F. spinipenne* Baehr and *F. insulare*, spec. nov. by violaceous lustre of elytra, approached elytral spines, and almost impunctate elytral striae.

Description

Measurements. Length: 11.0 mm; width: 4.4 mm. Ratios. Width/length of pronotum: 1.45; width base/apex of pronotum: 1.53; width pronotum/head: 1.86; width elytra/pronotum: 1.64; length/width of elytra: 1.29.

Wing-and-seta formula: +w; - +; - -; - + +.

Colour. Dark piceous black, elytra with slight violaceous lustre. Lateral margins of pronotum faintly reddish translucent, labrum, mouth parts, antenna, and tarsi dark reddish-piceous, antenna from 3rd antennomere reddish. Femora and tibiae piceous. Lower surface black.

Head. Moderately narrow compared with prothorax. Neck rather wide, somewhat imbedded in prothorax. Eyes fairly large, laterally moderately projecting, orbits distinct, evenly curved. Clypeal suture distinct. Labrum rectangular, apex feebly concave. Mandibles elongate, straight, but not porrect. Antenna very slender and elongate, surpassing base of pronotum by about four antennomeres, median antennomeres c. $5 \times$ as long as wide. Both palpi slender and elongate, basal palpomere of maxillary palpus thickened. Mentum with an elongate, unidentate tooth. No furrow medially of eyes, though a shallow furrow above antennal base present. Only posterior supraocular seta present, at posterior margin of eye. Clypeus and anterior part of frons with short, shallow, parallel furrow on either side, frons evenly convex, absolutely smooth. Microreticulation isodiametric, extremely superficial. Surface highly glossy.

Prothorax. Comparatively narrow, somewhat conical, widest at posterior third, laterally evenly

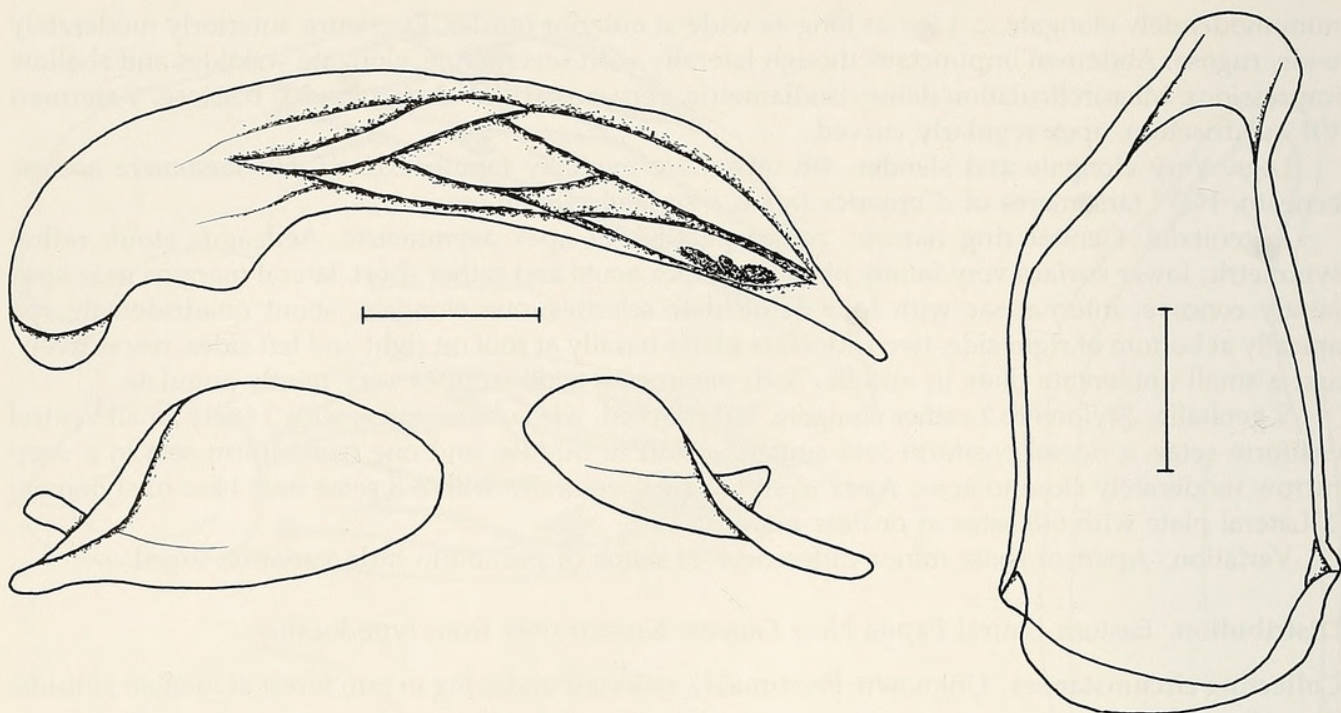


Fig. 2. *F. hornabrookianum*, spec. nov. ♂ genitalia. Scale: 0.5 mm.

though feebly convex, strongly narrowed to apex, moderately narrowed to base. Disk slightly convex, lateral margins widely explanate though barely separated from disk. Anterior angles rather projecting, obtuse at apex. Apex regularly and deeply excised. Basal angles rectangular, at apex obtusely rounded. Base laterally straight, in middle very faintly produced. Disk convex with extremely shallow, v-shaped sulcus in apical fourth, base near basal margin with a rather deep, oblique, slightly longitudinal impression on either side and with a very shallow transverse impression. Median line incomplete, very fine, ending far from apex and base. Apex distinctly bordered, lateral margin and base not bordered. Both marginal setae absent. Disk impunctate. Microreticulation very fine, absent on disk, near apex and base highly superficial, isodiametric. Surface highly glossy.

Elytra. Rather narrow and elongate, dorsal surface markedly convex, lateral borders in middle almost straight. Preapical sinuosity extremely feeble. Widest diameter about in middle. Humeri wide, obtusely angulate but not dentate, apex spinose with elongate spine opposite 3rd interval, though rather approached. Sutural angle with minute denticle. Striae shallow, deepened towards apex, only inner four striae extremely finely punctulate, puncturation barely recognizable, intervals depressed. Anterior discal seta absent, both median and posterior setae situated at 2nd stria. 18-19 marginal setae and 1 preapical seta at 7th stria present, humeral group of marginal series consisting of 6 setae, median and apical pores not much more conspicuous than basal pores, series slightly interrupted in middle. Intervals impunctate. Microreticulation wanting. Surface highly glossy, iridescent. Posterior wings present.

Lower surface. Prosternal process short, posteriorly slightly convex, triangular, ventrolaterally and posterolaterally bordered. Proepisternum smooth. Mesepisternum coarsely punctate. Metepisternum moderately elongate, c. 1.5 × as long as wide at anterior border. Epipleura anteriorly moderately wide, rugose. Abdomen impunctate, though laterally with several fine, elongate wrinkles and shallow impressions. Microreticulation dense, isodiametric, very superficial. ♂ sternum VII bisetose, ♀ sternum unknown, apex regularly curved.

Legs. Very elongate and slender. 4th tarsomere medially faintly excised. 5th tarsomere asetose beneath. 1st-3rd tarsomeres of ♂ anterior tarsus biseriately squamose.

♂ genitalia. Genital ring rather parallel, at apex highly asymmetric, apex wide. Aedeagus fairly elongate, rather symmetric, lower surface very faintly concave. Apex acute, moderately elongate, straight. Internal sac on right side at bottom near apex with a small, elongate, faintly tridentate sclerotized plate. Both parameres rather wide, at apex evenly convex.

♀ genitalia. Unknown.

Variation. Unknown.

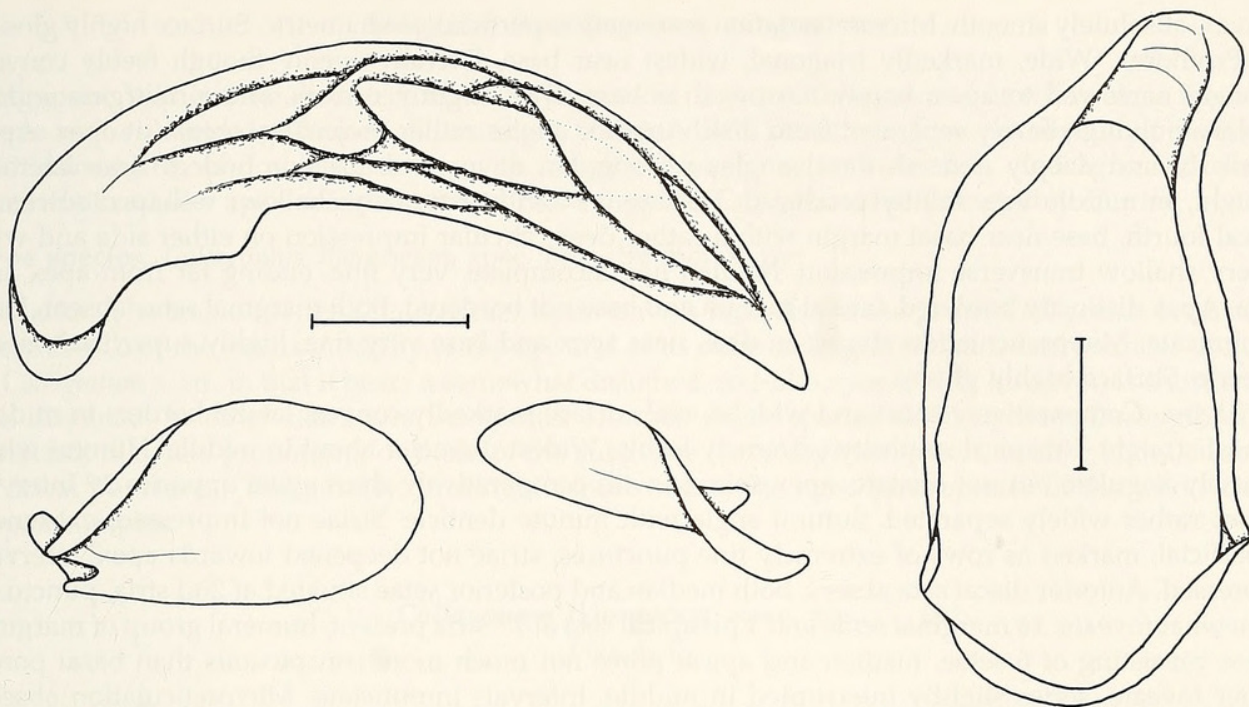


Fig. 3. *F. laevissimum*, spec. nov. ♂ genitalia. Scale: 0.5 mm.

Distribution. Eastern central Papua New Guinea. Known only from type locality.

Collecting circumstances. Unknown. Presumably collected under log in rain forest of median altitude.

Etymology. The name is an acronym in honour of the collector of this and additional species.

Relationships. This species certainly belongs to the *bisetosiceps*-group, but occupies a somewhat isolated position due to the markedly approached elytral spines.

Fortagonum laevissimum, spec. nov.

Figs 3, 9

Types. Holotype: ♂, Busalmin 5000 ft. Star Mts. 16/10/75 Papua New Guinea R. W. Hornabrook (MNZ).

Diagnosis. Distinguished by presence of wings, absence of anterior supraocular seta, both pronotal setae, and anterior discal seta, fairly narrow and elongate elytra, and elongate elytral spine opposite 3rd stria. Distinguished from other species of the *bisetosiceps*-group by colouration, wide, triangular pronotum, laevigate elytra, and almost unarmed aedeagus.

Description

Measurements. Length: 11.1 mm; width: 4.6 mm. Ratios. Width/length of pronotum: 1.60; width base/apex of pronotum: 1.78; width pronotum/head: 2.10; width elytra/pronotum: 1.59; length/width of elytra: 1.24.

Wing-and-seta formula: + w; - +; - -; - + +.

Colour. Reddish-piceous, elytra with distinct greenish lustre. Palpi, antenna, and tarsi light reddish, 3rd antennomere apically slightly darker, femora and tibiae piceous. Lower surface piceous.

Head. Narrow compared with prothorax. Neck rather wide, somewhat imbedded in prothorax. Eyes fairly large, laterally moderately projecting, orbits distinct, evenly curved. Clypeal suture distinct. Labrum rectangular, apex feebly concave. Mandibles elongate, straight, but not porrect. Antenna slender and elongate, surpassing base of pronotum by slightly < 4 antennomeres, median antennomeres c. 4.5 × as long as wide. Both palpi slender and elongate, basal palpomere of maxillary palpus thickened. Mentum with an elongate, unidentate tooth. No furrow medially of eyes, though a shallow furrow above antennal base present. Only posterior supraocular seta present, at posterior margin of eye. Clypeus and anterior part of frons with short, shallow, parallel furrow on either side, frons evenly

convex, absolutely smooth. Microreticulation extremely superficial, isodiametric. Surface highly glossy.

Prothorax. Wide, markedly triangular, widest near base, laterally evenly though feebly convex, strongly narrowed to apex, barely narrowed to base. Disk slightly convex, lateral margins widely explanate though barely separated from disk. Anterior angles rather projecting, obtuse at apex. Apex regularly and deeply excised. Basal angles rectangular, at apex obtusely rounded. Base laterally straight, in middle very faintly produced. Disk convex with extremely shallow, v-shaped sulcus in apical fourth, base near basal margin with a rather deep, circular impression on either side and with a very shallow transverse impression. Median line incomplete, very fine, ending far from apex and base. Apex distinctly bordered, lateral margin and base not bordered. Both marginal setae absent. Disk impunctate. Microreticulation absent on disk, near apex and base very fine, highly superficial, isodiametric. Surface highly glossy.

Elytra. Comparatively short and wide, dorsal surface markedly convex, lateral borders in middle almost straight. Preapical sinuosity extremely feeble. Widest diameter about in middle. Humeri wide, obtusely angulate but not dentate, apex spinose with comparatively short spine opposite 3rd interval, spines rather widely separated. Sutural angle with minute denticle. Striae not impressed, extremely superficial, marked as rows of extremely fine punctures, striae not deepened towards apex, intervals depressed. Anterior discal seta absent, both median and posterior setae situated at 2nd stria, punctures somewhat foveate. 16 marginal setae and 1 preapical seta at 7th stria present, humeral group of marginal series consisting of 6 setae, median and apical pores not much more conspicuous than basal pores, rather foveate, series slightly interrupted in middle. Intervals impunctate. Microreticulation absent. Surface highly glossy, rather iridescent. Wings present.

Lower surface. Prosternal process short, posteriorly slightly convex, triangular, ventrolaterally and posterolaterally bordered. Proepisternum smooth. Mesepisternum slightly punctate. Metepisternum moderately elongate, $<1.5 \times$ as long as wide at anterior border. Epipleura anteriorly moderately wide, rugose. Abdomen impunctate, though laterally with several fine, elongate wrinkles and shallow impressions. Microreticulation dense, isodiametric, very superficial. ♂ sternum VII bisetose, ♀ sternum VII unknown, apex regularly curved.

Legs. Very elongate and slender. 4th tarsomere medially faintly excised. 5th tarsomere asetose beneath. 1st-3rd tarsomeres of ♂ anterior tarsus biserially squamose.

♂ genitalia. Genital ring rather parallel, at apex asymmetric. Aedeagus stout, rather symmetric, lower surface faintly concave. Apex short and acute, regularly triangular, symmetric. Internal sac without any sclerotized plates. Left paramere rather wide, at apex evenly convex, right paramere comparatively elongate.

♀ genitalia. Unknown.

Variation. Unknown.

Distribution. Westernmost Papua New Guinea. Known only from type locality.

Collecting circumstances. Unknown. Presumably collected under log in rain forest at median altitude.

Etymology. The name refers to the laevigate elytra.

Relationships. This species certainly belongs to the *bisetosiceps*-group, but occupies a somewhat isolated position due to the markedly wide pronotum, extremely fine elytral striation, and almost unarmed aedeagus.

Genus *Collagonum* Baehr

Baehr, 1995: 30.

Note. The genus *Collagonum* Baehr was erected for those species of Darlington's genus *Fortagonum* that are characterized by

1. distorted, disk-like pronotum as shown in fig. 11;
2. more or less deep sulcus medially of eye that separates the eye from the frons;
3. characteristically elongate, rod-shaped apex of the aedeagus.

The typical species (of the nominate subgenus) usually also have elongate, not spinose elytra that bear 3 discal punctures. Almost all species are fully winged (see appendix 2).

Subgenus *Procollagonum*, subgen. nov.

Diagnosis. Without the distorted, disk-like pronotum of genus *Collagonum*, but with sulcus medially of eye and with rounded humeri. Elytra short, without discal punctures. Eyes not abruptly prominent. 1st-3rd tarsomeres of ♂ anterior tarsus with few sparse squamae on inner side. Aedeagus with short, somewhat rod-like apex, fairly similar to that of typical *Collagonum*, but perceptibly shorter.

Type species. *Collagonum thoracicum*, spec. nov., by monotypy.

Remarks. The single species *C. thoracicum*, spec. nov. is included in the genus *Collagonum* because of the presence of the sulcus medially of the eye and of its male aedeagus which is fairly similar to those of *Collagonum* s. str. in that it bears a somewhat disjoined, rod-like apex which, however, is shorter and less disjoined. In other characters the species reminds either species of *Fortagonum* Darlington (not distorted, disk-like pronotum), or those of the subgenus *Paracollagonum* (short, ovalish elytra, absence of discal punctures). Presumably, in certain aspects this is the most basic species of the whole *Collagonum*-complex.

Collagonum thoracicum, spec. nov.

Figs 4, 10

Types. Holotype: ♂, Papua NG, Morobe-Pr. Saureri 10 km s. Garaina 1600-1800 m 24.-25.3.1998, A. Riedel (ZSM-CBM). – Paratypes: 2♂♂, Papua NG, Morobe-Pr. Saureri 10 km s. Garaina 1550-1700 m 27.3.1998, A. Riedel (CBM).

Diagnosis. Distinguished by absence of wings, absence of all fixed setae on head, pronotum, and elytra, wide, not distorted pronotum with markedly narrowed base, wide and short, unarmed elytra, and short, rod-like apex of aedeagus.

Description

Measurements. Length: 8.7-8.9 mm; width: 3.7-3.9 mm. Ratios. Width/length of pronotum: 1.46-1.50; width base/apex of pronotum: 1.50-1.54; width pronotum/head: 1.90-1.91; width elytra/pronotum: 1.36-1.39; length/width of elytra: 1.19-1.21.

Wing-and-seta formula: – w; – –; – –; – – –.

Colour. Black, including four basal antennomeres, femora, and tibiae. Elytra with faint violaceous lustre. Labrum and mandibles piceous, palpi, antenna, and tarsi reddish. Lower surface black.

Head. Narrow compared with prothorax. Neck rather narrow, elongate behind eyes. Eyes rather large, moderately protruding, orbits short, obliquely convex. Clypeal suture distinct. Labrum moderately elongate, apex straight. Mandibles moderately elongate, straight. Antenna moderately elongate, surpassing base of pronotum by c. 2½ antennomeres, median antennomeres c. 2.5 × as long as wide. Both palpi elongate, basal maxillary palpomere thickened. Furrow above antennal base and encircling the eye deep, conspicuous. Both supraocular setae absent. Frons rather evenly convex, impunctate, laterally with a shallow groove that is crossed by some oblique wrinkles. Microreticulation extremely fine, very superficial, isodiametric. Surface glossy.

Prothorax. Wide, lateral margin slightly deplanate, especially in posterior half, evenly curved, slightly more narrowed to apex than to base. Widest diameter a short distance behind middle. Anterior angles projecting, at apex widely rounded off. Apex deeply excised, excision almost straight. Lateral margin in posterior half convex, just in front of basal angles very gently concave, basal angles angulate, c. 100°, at apex obtuse. Base laterally straight, in middle feebly produced. Disk rather convex, lateral parts slightly deplanate. Anterior transverse depression barely visible, median line fine, almost attaining apex and base, base with a shallow transverse depression. Basal grooves deep, large, irregularly circular. Apex and lateral margins bordered, base bordered in middle. Both marginal setae absent. Lateral channel and basal grooves coarsely and irregularly punctate-vermiculate. Disk impunctate, though with some fine, transverse wrinkles. Microreticulation near apex and base highly superficial, barely visible, about isodiametric, in middle absent. Surface on disk highly glossy.

Elytra. Short and wide, dorsal surface highly convex, lateral borders almost straight in anterior ⅓, towards apex evenly rounded. Widest diameter about in middle. Preapical sinuosity rather shallow. Humeri wide, rounded. Apex separately rounded, without denticle at sutural angle. Striae fairly deep,

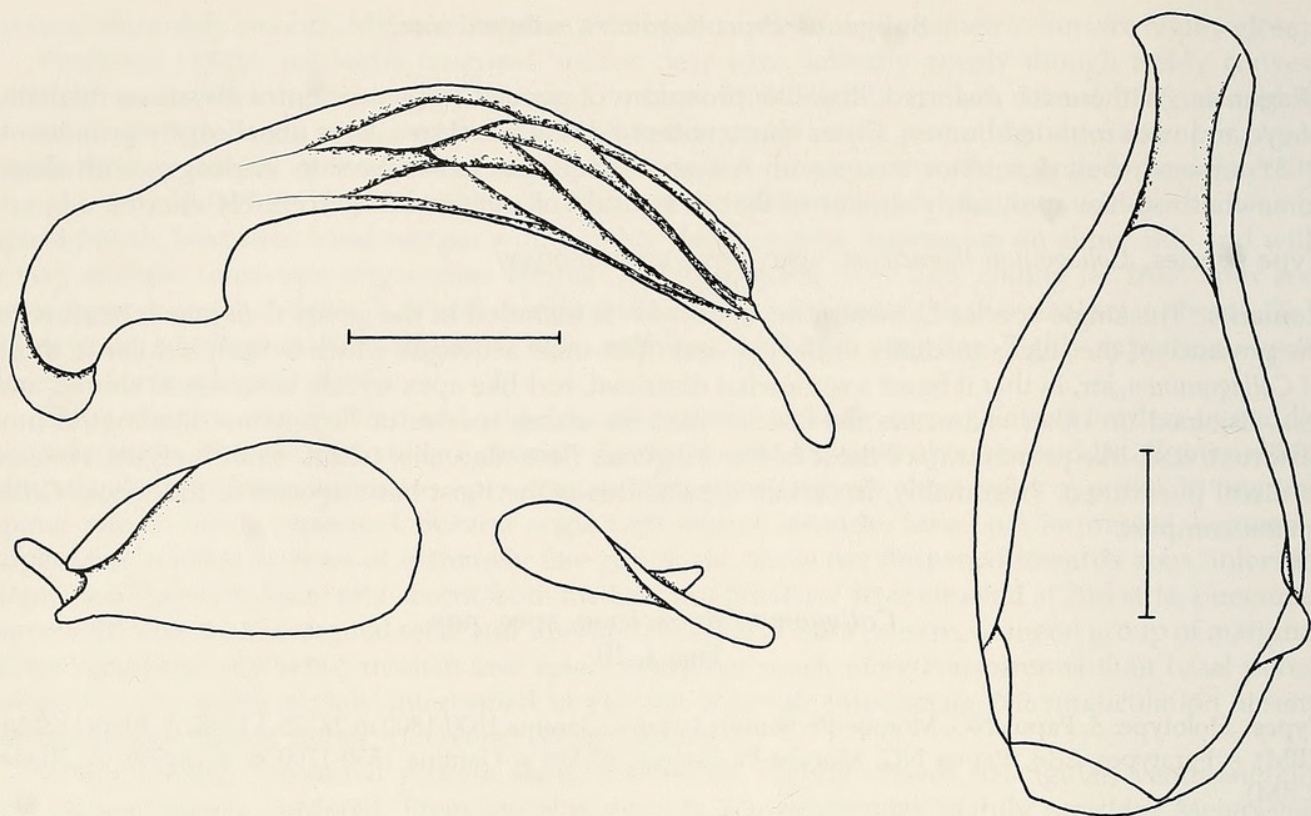


Fig. 4. *Collagonum* (*Procollagonum*) *thoracicum*, spec. nov. ♂ genitalia. Scale: 0.5 mm.

impunctate, intervals slightly convex. Discal setae absent. 17-18 marginal setae and 2 apical setae present, the latter situated near end of 7th stria. Intervals impunctate. Microreticulation absent. Surface markedly iridescent. Posterior wings very short.

Lower surface. Prosternum very short, not surpassing procoxae, rounded off, posteriorly depressed, ventrally bordered. Proepisternum almost impunctate, with dense microreticulation. Mesepisternum rather densely, though somewhat superficially punctate. Metepisternum short, c. 1.2 × as long as wide at anterior border. Epipleura anteriorly moderately wide, posteriorly very narrow, moderately rugose. Abdomen impunctate, though laterally with some fine wrinkles. Microreticulation distinct, isodiametric. ♂ sternum VII bisetose, ♀ sternum VII unknown, apex evenly rounded.

Legs. Moderately thin and elongate. 5th tarsomere asetose beneath. 4th tarsomere medially slightly excised. 1st-3rd tarsomeres of ♂ anterior tarsus sparsely, asymmetrically squamose.

♂ genitalia. Genital ring very elongate, with elongate, slightly asymmetric, spoon-shaped apex. Aedeagus slightly curved, apical part extended to a moderately elongate, strongly sclerotized rod that is slightly downcurved and slightly widened towards apex. Internal sac without sclerotized plates or teeth. Both parameres rather elongate, at apex evenly rounded.

♀ genitalia. Unknown.

Variation. Very little variation noted.

Distribution. Eastern central Papua New Guinea. Known only from type locality.

Collecting circumstances. Unknown. Presumably collected under log in rain forest at median altitude.

Etymology. The name refers to the unusual shape of the pronotum.

Genus *Paracollagonum*, subgen. nov.

Diagnosis. With external characters of genus *Collagonum*, e.g. wide, distorted pronotum, deep sulcus medially of eye, rounded humeri. But aedeagus without the elongate, rod-like apex of typical *Collagonum*, elytra without discal punctures, eyes abruptly prominent, and pronotum with very wide, conspicuously upturned margins.

Type species. *Fortagonum distortum* Darlington, 1971, by present designation.

Remarks. In view of its short, impunctate elytra, abruptly prominent eyes, very wide, conspicuously upturned margins of pronotum *Collagonum limum* (Darlington) probably belongs to this subgenus. However, any final decision is premature, until the male genitalia of this species are recorded which so far is known only from the slightly damaged female holotype.

Collagonum (Paracollagonum) distortum (Darlington)

Darlington 1971, p. 321, fig. 76 (*Fortagonum*); Mateu 1977, p. 21, fig. 1 (*Fortagonum*); Baehr 1992, p. 75 (*Fortagonum*); Baehr 1995, p. 31 (*Collagonum*).

This peculiar species is externally similar to the other species of the genus *Collagonum* Baehr that was erected for those species of the genus *Fortagonum* Darlington that possess a deep sulcus medially of the eyes, a characteristically wide, distorted pronotum, and a conspicuous, elongate, rod-like apex of aedeagus. Although in some other character states *C. distortum* is also different from all other species of *Collagonum* except for *C. limum* Darlington (see above), namely in the distorted head, abruptly prominent eyes, very wide and upturned lateral margins of pronotum, short ovalish, impunctate elytra, the main difference is in shape of the aedeagus that does not show the markedly elongate apex typical for all species of the genus *Collagonum* that have been examined for this character. As figured in Mateu (1977), the aedeagus has a fairly short apex, although in those specimens examined by me the apex is longer and more disjoined than in Mateu's figure. In spite of this important difference, *C. distortum* is yet included in the genus *Collagonum*, though ranked in a new subgenus *Paracollagonum*, because it takes a basic though at the same time highly isolated taxonomic position within the genus *Collagonum*.

New records: 1♂, Lufa, Mt. Michael, New Guinea, 18.10.72, R. Hornabrook (MNZ); 1♂, Okapa, Eastern Highlands, New Guinea, 3.1.1974, R. Hornabrook (MNZ); 1♂, Daulo Pass, Asarao-Chimbu Divide, New Guinea, 13.3.72, R. Hornabrook (CBM).

Subgenus *Collagonum* s. str.

Baehr, 1995: 30.

Type species. *Fortagonum laticolle* Baehr, 1992, by original designation.

Note. The subgenus *Collagonum* s. str. conforms with the diagnosis as given in the original description of the genus (Baehr 1995).

Collagonum violaceum Baehr

Baehr 1995, p. 33, figs 18, 21, 22.

New records: 1♀, Marawaka, Eastern Highlands, New Guinea, R. Hornabrook (MNZ); 1♀, Orie, Okapa, Eastern Highlands, New Guinea, Jan. 1968, R. Hornabrook (MNZ).

Note. This species is known from a rather restricted area in the Eastern Highlands of Papua New Guinea.

Collagonum longipenne, spec. nov.

Figs 5, 11

Types. Holotype: ♂, Bultem 5000 ft. Star Mts. 23/10/75 Papua New Guinea R. W. Hornabrook (MNZ).

Diagnosis. Distinguished from its nearest relative *C. riedeli* Baehr by longer and narrower elytra and wider prothorax with less acute and less produced anterior angles.

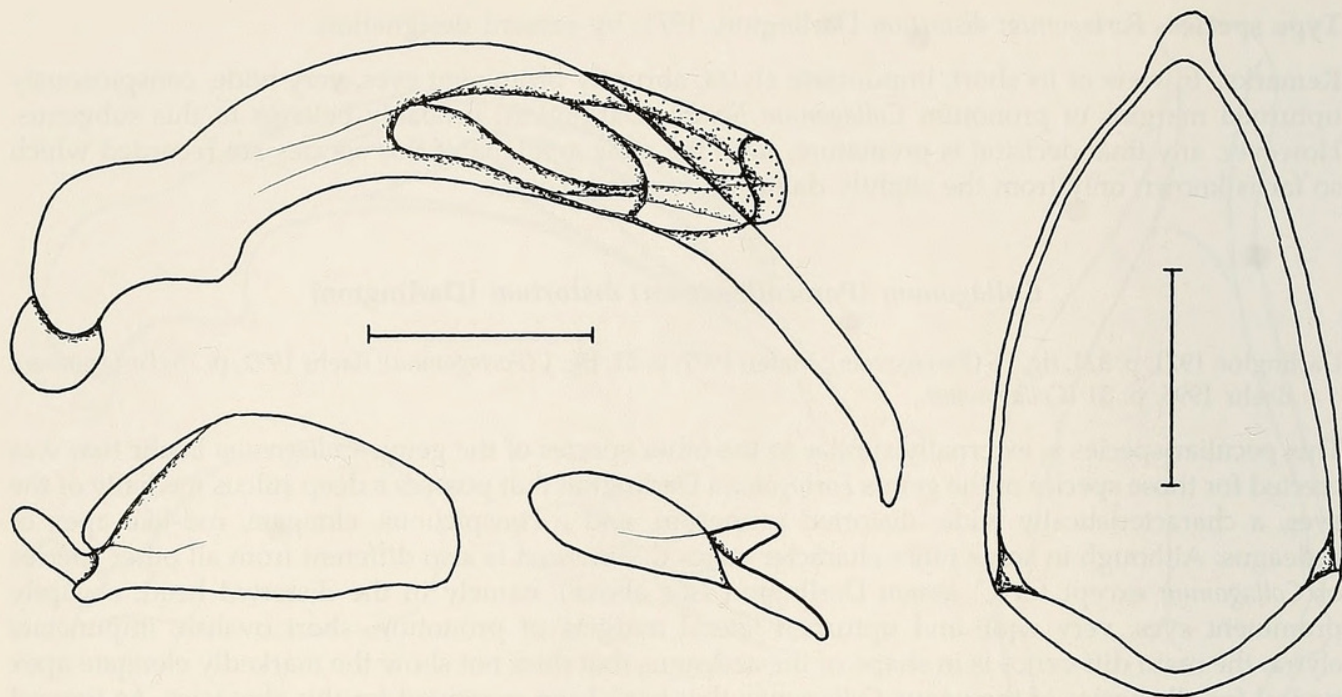


Fig. 5. *Collagonum* (s. str.) *longipenne*, spec. nov. ♂ genitalia. Scale: 0.5 mm.

Description

Measurements. Length: 12.4 mm; width: 4.5 mm. Ratios. Width/length of pronotum: 1.61; width base/apex of pronotum: 1.39; width pronotum/head: 1.89; width elytra/pronotum: 1.72; length/width of elytra: 1.10.

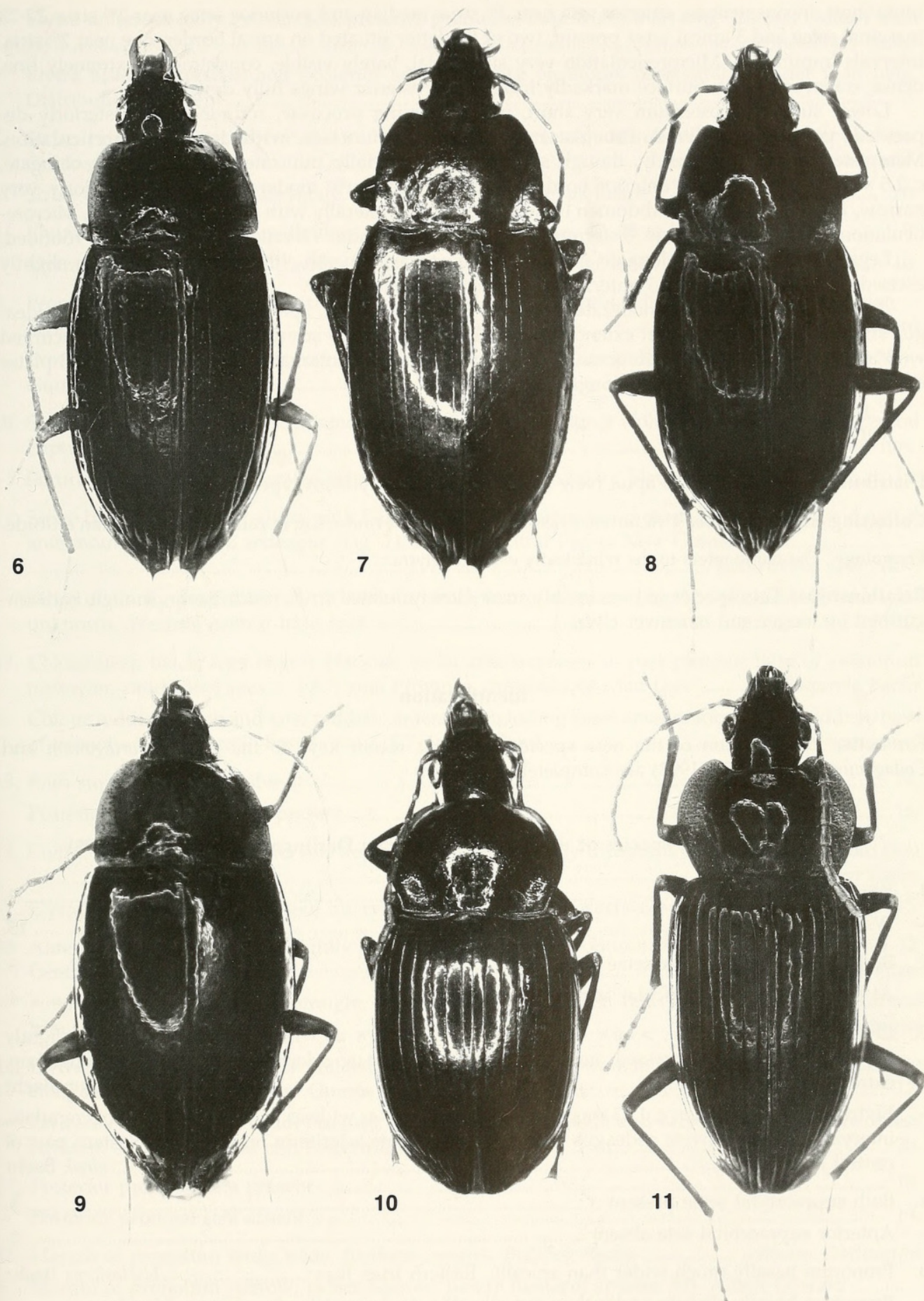
Wing-and-seta formula: + w; - -; - +; + + +.

Colour. The slightly immature holotype has black head and pronotum, and wide, reddish-piceous margins of pronotum and reddish-piceous elytra. Under the naked eye the elytra bear slight purplish lustre which vanishes when seen under the microscope. Labrum, mouth parts, antenna, and tarsi reddish. 1st-3rd antennomeres, femora, and tibiae slightly infuscate. Lower surface piceous.

Head. Narrow compared with prothorax. Neck rather narrow, elongate behind eyes. Eyes rather large, though but moderately protruding, orbits almost absent. Clypeal suture distinct. Labrum moderately elongate, apex straight. Mandibles moderately elongate, straight. Antenna moderately elongate, surpassing base of pronotum by slightly > two antennomeres, median antennomeres < 3 × as long as wide. Both palpi elongate, basal maxillary palpomere thickened. Furrow above antennal base and encircling the eye deep, conspicuous. Both supraocular setae absent. Frons rather evenly convex, impunctate, laterally with a shallow groove that is crossed by some oblique wrinkles. Microreticulation extremely fine, very superficial, isodiametric. Surface glossy.

Prothorax. Very wide, laterally very broadly deplanate, evenly curved, slightly more evenly narrowed to apex than to base. Widest diameter about in middle. Anterior angles remarkably projecting, at apex widely rounded off. Apex deeply excised, excision almost straight. Lateral margin convex to basal angles which bear a very small denticle. Base laterally straight, in middle feebly produced. Disk fairly convex, lateral parts broadly deplanate, slightly upturned. In anterior third with a shallow, slightly v-shaped depression, median line distinct, attaining neither apex nor base, base with a shallow transverse depression. Basal grooves deep, large, about circular. Apex bordered, lateral margins not bordered, base bordered in middle. Anterior marginal seta absent, posterior marginal seta broken, though puncture visible, situated right on posterior angle. Lateral channel and basal grooves coarsely and irregularly punctate-vermiculate, though punctures rather superficial. Disk impunctate, almost smooth. Microreticulation near apex and base about isodiametric, in middle extremely superficial, barely visible, consisting of extremely fine transverse lines. Surface on disk highly glossy.

Elytra. Elongate, comparatively narrow, parallel, dorsal surface convex, lateral borders almost straight in anterior $\frac{3}{5}$, towards apex evenly rounded. Widest diameter about in middle. Preapical sinuosity rather shallow. Humeri wide, rounded. Apex with a short, rounded projection opposite 3rd interval. Sutural angle with a very small denticle. Striae deep, impunctate, intervals convex. Discal



Figs 6-11. Habitus. 6. *Fortagonum insulare*, spec. nov. 7. *F. substriatum*, spec. nov. 8. *F. hornabrookianum*, spec. nov. 9. *F. laevissimum*, spec. nov. 10. *Collagonum* (*Procollagonum*) *thoracicum*, spec. nov. 11. *Collagonum* (s. str.) *longipenne*, spec. nov. Lengths: 10.4 mm; 11.0 mm; 11.1 mm; 11.1 mm; 8.7 mm; 12.4 mm.

setae short, inconspicuous, anterior seta near 3rd stria, median and posterior setae near 2nd stria. 22-23 marginal setae and 3 apical setae present, two of the latter situated on apical border, one near 7th stria. Intervals impunctate. Microreticulation very superficial, barely visible, consisting of extremely fine, dense, transverse lines. Surface markedly iridescent. Posterior wings fully developed.

Lower surface. Prosternum very short, not surpassing procoxae, rounded off, posteriorly depressed, ventrally bordered. Proepisternum almost impunctate, with dense microreticulation. Mesepisternum rather densely, though somewhat superficially punctate. Metepisternum elongate, c. 2.5 × as long as wide at anterior border. Epipleura anteriorly moderately wide, posteriorly very narrow, moderately rugose. Abdomen impunctate, though laterally with some fine wrinkles. Microreticulation distinct, isodiametric. ♂ sternum VII bisetose, ♀ sternum VII unknown, apex evenly rounded.

Legs. Rather thin and elongate. 5th tarsomere asetose beneath. 4th tarsomere medially slightly excised. 1st-3rd tarsomeres of ♂ anterior tarsus biseriately squamose.

♂ genitalia. Genital ring moderately narrow, fairly symmetric, apex narrow, rather short. Aedeagus slightly curved, apical part extended to an elongate, strongly sclerotized rod that is downcurved with a distinct angle. Apex with acute, faintly downcurved tip. Internal sac without sclerotized plates or teeth. Both parameres rather elongate.

♀ genitalia. Unknown.

Variation. Unknown.

Distribution. Westernmost Papua New Guinea. Known only from type locality.

Collecting circumstances. Unknown. Presumably collected under log in rain forest at median altitude.

Etymology. The name refers to the remarkedly elongate elytra.

Relationships. This species is presumably most closely related to *F. riedeli* Baehr, though is distinguished by longer and narrower elytra.

Identification

For better identification of the new species the most recent keys to the genera *Fortagonum* and *Collagonum* (Baehr 1995, 1998) are completely updated.

Updated key to the species of the genus *Fortagonum* Darlington (sensu Baehr 1995)

- 1. Wings present 2.
- Wings absent 13.
- 2. Both pairs of supraocular setae absent 3.
- At least posterior supraocular seta present 4.
- 3. Elytra bisetose, elongate, >1.6 × as long as wide, <1.33 × as wide as pronotum, striae slightly crenulate, intervals depressed; aedeagus with two dentate sclerites in internal sac. Vogelkop, extreme western Irian Jaya *depressum* Baehr
- Elytra unisetose, shorter, c. 1.33 × as long as wide, c. 1.5 × as wide as pronotum, striae not crenulate, intervals slightly convex; aedeagus with a single dentate sclerite in internal sac. Western part of central Irian Jaya *sinak* Baehr
- 4. Both supraorbital setae present 5.
- Anterior supraorbital seta absent 6.
- 5. Pronotum basally much wider than apically. Eastern Irian Jaya *bisetosiceps* Baehr
- Pronotum basally slightly wider than apically (Fig. 6). Japen Island, weastern Irian Jaya *insulare*, spec. nov.

6. Elytra unisetose (only median seta present); prothorax little wider than long. Central eastern Irian Jaya *denticulatum* Baehr
- Elytra bisetose (median and posterior setae present); prothorax considerably wider than long. Distribution different 7.
7. Striae extremely fine, elytra almost laevigate, with greenish lustre. Westernmost Papua New Guinea *laevissimum*, spec. nov.
- Striae distinct, elytra not laevigate, with bluish or violaceous lustre 8.
8. Elytra wider and shorter, with short sutural spines (see figs 47, 48 in Darlington 1971) 9.
- Elytra narrow and elongate, with elongate sutural spines (Figs 6-8) 10.
9. Pronotum wider, sides more straight, anterior angles more protruding. Extreme western Irian Jaya *subconicollae* (Darlington)
- Pronotum narrower, sides more convex, anterior angles less protruding. Central Papua New Guinea *bigenum* (Darlington)
10. Sutural spines less widely separated (Fig. 8); elytra with distinct violaceous lustre. Eastern central Papua New Guinea *hornabrookianum*, spec. nov.
- Sutural spines widely separated (Figs 6, 7); elytra with bluish or blackish lustre 11.
11. Striae barely punctulate; elytra with faint bluish lustre; antennae piceous, only median and apical antennomeres reddish; aedeagus (Fig. 1). Eastern central Papua New Guinea *substriaum*, spec. nov.
- Striae distinctly punctulate; elytra without bluish lustre; antennae largely light reddish; aedeagus unknown. Western central Irian Jaya 12.
12. Colour deep black, legs largely blackish, basal antennomeres in part piceous; base of pronotum narrower, ratio base/apex c. 1.6. Panai Province, mainland of Irian Jaya *spinipenne* Baehr
- Colour reddish, tibiae and tarsi reddish, antennae including basal antennomeres light reddish; base of pronotum wider, ratio base/apex c. 1.7. Japen Island *insulare*, spec. nov.
13. Both supraocular setae absent 14.
- Posterior supraocular seta present 16.
14. Elytral striae superficial, intervals depressed, surface slightly iridescent. Western central Irian Jaya *laevigatum* Baehr
- Elytral striae deeply impressed, intervals markedly convex, surface not iridescent 15.
15. Anterior angle of pronotum slightly produced laterally, apex obtuse; elytra longer, ratio l/w > 1.32. Central Irian Jaya *bufo* Darlington
- Anterior angle of pronotum straight, apex acute; elytra shorter, ratio l/w < 1.28. Western central Irian Jaya *globulipenne* Baehr
16. Elytra usually trisetose, rarely unilaterally unisetose or bisetose; mandibles never straight and very elongate. Central Papua New Guinea 17.
- Elytra asetose, or unisetose, or bisetose; either mandibles straight and very elongate, **or** more or less fusiform species. Central and eastern Irian Jaya 20.
17. Posterior pronotal seta present 18.
- Posterior pronotal seta absent 19.
18. Margin of pronotum wide; wide, fusiform species. Bulldog Range *oodinum* Darlington
- Margin of pronotum narrow; rather narrow, barely fusiform species. Mt. Albert Edward *antecessor* Darlington

19. Pronotum wider, but less conical; elytra weakly iridescent. Mt. Wilhelm *fortellum* Darlington
- Pronotum narrower, but rather conical; elytra markedly iridescent. Okapa *okapa* Darlington
20. Posterior pronotal seta present; elytra unisetose or bisetose 21.
- Posterior pronotal seta absent; elytra asetose 23.
21. Pronotum laterally regularly convex, base as wide as apex, basal angles rounded off, apex very protruding; elytra bisetose, anterior seta absent. Eastern central Irian Jaya *acuticollae* Baehr
- Pronotum laterally feebly convex, base much wider than apex, basal angles rectangular and obtuse, apex less protruding; elytra unisetose, only median seta present. Eastern Irian Jaya 22.
22. Apex of elytra not spinose, though sutural angle faintly denticulate, elytra slightly wider; pronotum barely narrowed towards base (Fig. 9). Area east of mountain range to the west of valley of Borne River *unipunctatum* Baehr
- Apex of elytra elongately spinose opposite 3rd interval, sutural angle not denticulate, elytra slightly narrower; pronotum distinctly narrowed towards base (Fig. 10). Area west of mountain range to the west of valley of Borne River *spinosum* Baehr
23. Mandibles not unusually elongate; apex of elytra distinctly spinose opposite 3rd interval; short and wide, markedly fusiform species. Central Irian Jaya *curtum* Baehr
- Mandibles straight and markedly elongate; apex of elytra not spinose; either rather elongate, not markedly fusiform species, or short and wide species with almost parallel lateral borders of pronotum 24.
24. Basal margin of elytra not interrupted at 3rd interval; prothorax $< 1.8 \times$ as wide as head 25.
- Basal margin of elytra interrupted at 3rd interval; prothorax $> 2 \times$ as wide as head 26.
25. Rather wide, almost parallel species; pronotum $> 1.25 \times$ as wide as long. Central Irian Jaya *forceps* Darlington
- Narrow, fusiform species with evenly rounded lateral margins of pronotum; pronotum c. $1.1 \times$ as wide as long. Central Irian Jaya *formiceps* Darlington
26. Pronotum wider at base, ratio width of base/width of apex c. 1.8, sides more curved; elytra rather elongate. Central Irian Jaya *cychriceps* Darlington
- Pronotum narrower at base, ratio width of base/width of apex c. 1.65, sides more parallel; elytra rather short. Central eastern Irian Jaya *latum* Baehr

Updated key to the species of the genus *Collagonum* Baehr

1. Prothorax wide, though not distorted (Fig. 10). Eastern central Papua New Guinea (*Procollagonum*) *thoracicum*, spec. nov.
- Prothorax remarkably distorted (Fig. 11) 2.
2. Wings absent 3.
- Wings present (*Collagonum* s. str.) 6.
3. Eyes laterally abruptly produced; elytra asetose, or (rarely) unilaterally unisetose (*Paracollagonum*) 4.
- Eyes laterally not as abruptly produced; elytra trisetose (*Collagonum* s. str.) 5.
4. Both supraocular setae present; posterior pronotal seta present; frons conspicuously swollen. Central Papua New Guinea *distortum* (Darlington)
- Anterior supraocular seta absent; posterior pronotal seta absent; frons not swollen. Central Papua New Guinea *limum* (Darlington)

- 5. Both supraocular setae present; prothorax narrower, <1.5 × as wide as long. Central eastern Irian Jaya *convexum* Baehr
- Anterior supraocular seta absent; prothorax wider, c. 1.7 × as wide as long. Central Papua New Guinea *hornabrooki* (Darlington)
- 6. Both pairs of supraocular setae absent 7.
- At least posterior supraocular seta present 10.
- 7. Eyes laterally abruptly produced; pronotum at apex much narrower than at base. Central Irian Jaya *ophthalmicum* (Baehr)
- Eyes laterally not as abruptly produced; pronotum at apex only slightly narrower than at base 8.
- 8. Both pronotal setae absent. Eastern Irian Jaya *robustum* Baehr
- Posterior pronotal seta present 9.
- 9. Elytra longer and narrower, ratio length/width 1.73; prothorax slightly wider, anterior angles less acute and less protruding (Fig. 11). Westernmost Papua New Guinea *longipenne*, spec. nov.
- Elytra shorter and wider, ratio length/width 1.60-1.63; prothorax slightly narrower, anterior angles acute and more protruding. Eastern Irian Jaya *riedeli* Baehr
- 10. Wider species; pronotum wider, laterally more rounded, with shorter, more convex anterior angles. Central Papua New Guinea *violaceum* Baehr
- Narrower species; pronotum narrower, laterally less rounded, with longer, more acute anterior angles. Central and eastern Irian Jaya *laticolle* (Baehr) 11.
- 11. Eyes smaller, laterally more abruptly protruding, almost devoid of distinct orbits. Area west of mountain range to the west of valley of Borne River *laticolle laticolle* (Baehr)
- Eyes larger, laterally less abruptly protruding, with distinct, oblique orbits. Area east of mountain range to the west of valley of Borne River *laticolle macrops* Baehr

Remarks

Even with the six species described as new in this present paper the number of species of the genera *Fortagonum* and *Collagonum* actually existing in New Guinea probably is not even approximately known. Apparently almost all mountain ranges have their own species, or even more than one, and very unusual species appear as the central ranges of New Guinea are more extensively sampled. Thus, it becomes more and more difficult to arrange the many differently shaped and structured species, if we are not willing to erect many new genera to master the high structural diversity.

In trying a proper arrangement, the wing-and-setae-formulas that were firstly used by Darlington (1952) have proved increasingly useful. Hence, an attempt has been made in appendix 2 to arrange all species according to their wing-and-setae-formula. In addition to the development of wings and to chetotaxy, for the arrangement some additional character states were included, e.g. presence/absence of elytral spines, shape of mandibles, structure of aedeagus, shape of elytra and of pronotum.

Evidently these formulas are quite helpful in dividing the genera into (hopefully) natural groups that in the genus *Fortagonum* provisionally are called “species-groups”, in the genus *Collagonum* are called subgenera. Apparently, in the latter genus the structural differences between the species of the subgenera *Procollagonum* and *Paracollagonum* are much greater than they are between the species-groups of the genus *Fortagonum*. But even in *Fortagonum*, the species-groups are believed to form monophyletic units, some of which could be raised to subgenera or even to genera when more evidence, or perhaps, additional species are at hand, that might clear up better the relationships within the genus.

References

- Baehr, M. 1992. On some agonine beetles of the genus *Fortagonum* Darlington from New Guinea (Coleoptera, Carabidae, Agoninae). – Mitt. Münch. Ent. Ges. **82**: 73-81
- 1995. New species and new records of the genera *Fortagonum* Darlington and *Collagonum*, gen. nov. from New Guinea (Insecta, Coleoptera, Carabidae, Agoninae). – Spixiana **18**: 15-43
- 1998. New species of the genus *Fortagonum* Darlington from western New Guinea (Insecta, Coleoptera, Carabidae, Agoninae). – Spixiana **21**: 11-20
- Darlington, P. J. Jr. 1952. The carabid beetles of New Guinea. Part 2. The Agonini. – Bull. Mus. comp. Zool. **107**: 89-252
- 1968. The Carabid Beetles of New Guinea. Part III. Harpalinae (Continued): Perigonini to Pseudomorphini. – Bull. Mus. comp. Zool. **137**: 1-253
- 1971. The carabid beetles of New Guinea. Part IV. General considerations; analysis and history of fauna; taxonomic supplement. – Bull. Mus. comp. Zool. **142**: 129-337
- Mateu, J. 1977. A propos du *Fortagonum distortum* Darlington de la Nouvelle Guinée. (Carabidae Agonini). – Nouv. Rev. Ent. **7**: 21-22

Appendix 1

Alphabetical checklist of the species of the genus *Fortagonum* Darlington

<i>acuticolle</i> Baehr, 1995	e. Irian Jaya
<i>antecessor</i> Darlington, 1971	c. Papua New Guinea
<i>bigemum</i> (Darlington, 1971)	c. Papua New Guinea
<i>bisetosiceps</i> Baehr, 1995	e. Irian Jaya
<i>bufo</i> Darlington, 1952	c. Irian Jaya
<i>curtum</i> Baehr, 1992	c. Irian Jaya
<i>cychriceps</i> Darlington, 1952	e. Irian Jaya
<i>denticulatum</i> Baehr, 1995	e. Irian Jaya
<i>depressum</i> Baehr, 1995	w. Irian Jaya
<i>forceps</i> Darlington, 1952	e. Irian Jaya
<i>formiceps</i> Darlington, 1971	e. Irian Jaya
<i>fortellum</i> Darlington, 1951	c. Papua New Guinea
<i>globulipenne</i> Baehr, 1998	w. Irian Jaya
<i>hornabrookianum</i> , spec. nov.	c. Papua New Guinea
<i>insulare</i> , spec. nov.	Japen I., w. Irian Jaya
<i>laevigatum</i> Baehr, 1998	w. Irian Jaya
<i>laevissimum</i> , spec. nov.	w. Papua New Guinea
<i>latum</i> Baehr, 1995	e. Irian Jaya
<i>okapa</i> Darlington, 1971	c. Papua New Guinea
<i>oodinum</i> Darlington, 1971	c. Papua New Guinea
<i>sinak</i> Baehr, 1998	w. Irian Jaya
<i>spinipenne</i> Baehr, 1998	w. Irian Jaya
<i>spinosum</i> Baehr, 1995	e. Irian Jaya
<i>subconicollae</i> (Darlington, 1971)	w. Irian Jaya
<i>substriatum</i> , spec. nov.	c. Papua New Guinea
<i>unipunctatum</i> Baehr, 1995	e. Irian Jaya

Alphabetical checklist of the species of the genus *Collagonum* Baehr

<i>convexum</i> Baehr, 1995	e. Irian Jaya
<i>distortum</i> (Darlington, 1971)	c. Papua New Guinea
<i>hornabrooki</i> (Darlington, 1971)	c. Papua New Guinea
<i>laticolle laticolle</i> (Baehr, 1992)	e. Irian Jaya
<i>laticolle macrops</i> Baehr, 1995	e. Irian Jaya

<i>limum</i> (Darlington, 1952)	c. Papua New Guinea
<i>longipenne</i> , spec. nov.	w. Papua New Guinea
<i>ophthalmicum</i> (Baehr, 1992)	c. Irian Jaya
<i>riedeli</i> Baehr, 1995	e. Irian Jaya
<i>robustum</i> Baehr, 1995	e. Irian Jaya
<i>thoracicum</i> , spec. nov.	c. Papua New Guinea
<i>violaceum</i> Baehr, 1995	c. Papua New Guinea

Appendix 2

Compiled wing-and-setae-fomulas of the species of the genera *Fortagonum* Darlington and *Collagonum* Baehr

(+: present; -: absent; - +: variable, or very small)

	posterior wings	elytral spines	suborbital setae	pronotal setae	elytral setae
Genus <i>Fortagonum</i> Darlington					
<i>acuticolle</i> -group					
<i>acuticolle</i> Baehr	-	-	- +	- +	+ + +
<i>antecessor</i> Darlington	-	-	- +	- +	+ + +
<i>oodinum</i> Darlington	-	-	- +	- +	+ + +
<i>okapa</i> Darlington	-	-	- +	- -	+ + +
<i>fortellum</i> Darlington	-	-	- -	- -	+ + +
<i>bisetosiceps</i> -group					
<i>bisetosiceps</i> Baehr	+	+	+ +	- -	- + +
<i>insulare</i> , spec. nov.	+	+	-+ +	- -	- + +
<i>spinipenne</i> Baehr	+	+	- +	- -	- + +
<i>substriatum</i> , spec. nov.	+	+	- +	- -	- + +
<i>subconicolle</i> (Darlington)	+	+	- +	- -	- + +
<i>hornabrookianum</i> , spec. nov.	+	+	- +	- -	- + +
<i>laevissimum</i> , spec. nov.	+	+	- +	- -	- + +
<i>bigemum</i> (Darlington)	+	+	- +	- -	- + +
<i>denticulatum</i> Baehr	+	+	- +	- -	- + -
<i>depressum</i> Baehr	+	+	- -	- -	- + +
<i>sinak</i> Baehr	+	+	- -	- -	- + -
<i>unipunctatum</i> -group					
<i>unipunctatum</i> Baehr	-	-+	- +	- +	- + -
<i>spinosum</i> Baehr	-	+	- +	- +	- + -
<i>bufo</i> -group					
<i>curtum</i> Baehr	-	+	- +	- -	- - -
<i>formiceps</i> Darlington	-	-	- +	- -	- - -
<i>latum</i> Baehr	-	-	- +	- -	- - -
<i>bufo</i> Darlington	-	-	- -	- -	- - -
<i>cychriceps</i> Darlington	-	-	- -	- -	- - -
<i>forceps</i> Darlington	-	-	- -	- -	- - -
<i>globulipenne</i> Baehr	-	-	- -	- -	- - -
<i>laevigatum</i> Baehr	-	-	- -	- -	- - -

Genus <i>Collagonum</i> Baehr									
Subgenus <i>Procollagonum</i>									
<i>thoracicum</i> , spec. nov.	-	-	-	-	-	-	-	-	-
Subgenus <i>Paracollagonum</i>									
<i>distortum</i> (Darlington)	-	-	+	+	-	+	-	-	-
<i>limum</i> (Darlington)	-	-	-	-	-	-	-	-+	-
Subgenus <i>Collagonum</i> s. str.									
<i>convexum</i> Baehr	-	-	+	+	-	+	+	+	+
<i>laticolle laticolle</i> (Baehr)	+	-	-	+	-	+	+	+	+
<i>laticolle macrops</i> Baehr	+	-	-	+	-	+	+	+	+
<i>violaceum</i> Baehr	+	-	-	+	-	+	+	+	+
<i>hornabrooki</i> (Darlington)	(?)-	-	-	+	-	-	+	+	+
<i>longipenne</i> , spec. nov.	+	-	-	-	-	+	+	+	+
<i>riedeli</i> Baehr	+	-	-	-	-	+	+	+	+
<i>ophthalmicum</i> (Baehr)	+	-	-	-	-	+	+	+	+
<i>robustum</i> Baehr	+	-	-	-	-	-	+	+	+



Baehr, Martin. 2001. "Further new and rare species of the genera Fortagonum Darlington and Collagonum Baehr from New Guinea (Insecta, Coleoptera, Carabidae, Agoninae)." *Spixiana* 24, 53–72.

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