

On some agonine beetles of the genus *Fortagonum* DARLINGTON from New Guinea

(Coleoptera, Carabidae, Agoninae) *

By Martin BAEHR

Abstract

Three new species of mountain-living agonine carabid beetles from the western part of New Guinea (Irian Jaya) are described: *Fortagonum curtum*, sp. n., *F. laticolle*, sp. n., and *F. ophthalmicum*, sp. n. Genus *Fortagonum* in the sense of DARLINGTON is distinguished from genus *Altagonum* DARLINGTON mainly by absence of wings. The new species, however, as well as the known species of *Fortagonum* and some species of *Altagonum* show such mosaic distribution of technical characters, that a new arrangement of both genera is needed. On these reasons *Altagonum bigemum* DARLINGTON and *A. subconicolle* DARLINGTON are transferred to *Fortagonum*. For all known species a key is provided.

Introduction

The mountains of New Guinea house a surprisingly rich fauna of very unusual agonine Carabidae. In his famous work on the Carabidae of New Guinea DARLINGTON (1952) described many species and erected several genera for these mountain-living species. Some of the most unusual species were classed in the genera *Altagonum* DARLINGTON and *Fortagonum* DARLINGTON. Later, DARLINGTON (1971) described additional species and partly revised both genera.

Most species of both genera are thus far rare and/or very locally distributed. Hence I was surprised to receive no less than four species from two localities in Irian Jaya, including three new species. They were kindly submitted by the collector A. RIEDEL.

It is rather difficult to find out the generic limits used by DARLINGTON (1952, 1971), partly because both genera combine species of very different habitus and technical characters. DARLINGTON used mainly the following characters states combined in a wing-and-seta formula: presence/absence of wings (+w/-w), supraorbital setae, pronotal setae, and dorsal elytral setae. Combined from both monographs the genera show following formulas, in which () means that the usual state is sometimes varied:

<i>Altagonum</i>	+w	(+) +	- (+)	(+)(+)(+) = 2- 3
<i>Fortagonum</i>	-w	(-)(+)	- (-)	(-)(-)(-) = 0-(3)

Considering all exceptions from this formula, there is only one substantial differentiating character in DARLINGTON's arrangement: presence of wings in all species of *Altagonum* and their absence in *Fortagonum*. All other characters expressed in the formula show a highly mosaic distribution in *Fortagonum* as well as in some species of *Altagonum*. Examination of both DARLINGTON's papers further demonstrates that the differences between both genera become weaker according to the increasing number of species included in the latter paper (1971). This is mainly due to the discovery of two species that DARLINGTON included in *Altagonum* by virtue of the presence of wings. Both species, however, lack the anterior supraocular seta present in all other species of *Altagonum* and differ also in body shape which is similar to that of certain

* Results of the entomological explorations of A. RIEDEL in New Guinea in 1990.

The sample of species described in the present paper complicates the problem once more. It includes two fully winged species that possess the full set of dorsal elytral setae. At the same time they lack the anterior or even both supraorbital seta(e) and show a body proportion, especially in shape of pronotum, that is present only in some highly evolved *Fortagonum*. So the new species are described as species of the genus *Fortagonum*. On the reasons mentioned above, presence or absence of wings cannot longer serve as differentiating character for the genera *Altagonum* and *Fortagonum*. Therefore, genus *Fortagonum* is herewith enlarged to include two species formerly classed in *Altagonum* (*A. bigenum* DARLINGTON and *A. subconicolle* DARLINGTON).

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.

Characters

Main differentiating characters are in chetotaxy that is expressed in a wing-and-seta formula similar to that used by DARLINGTON (1952, 1971), in body shape, and in structure and shape of ♂ aedeagus when this is known. This, as well as presence and number of sclerotized teeth inside of the internal sac, seem to yield very useful differentiating characters. Because DARLINGTON in most species did not dissect ♂ genitalia, however, comparison is at present difficult.

Deposition of types

The holotypes of the new species are presented to the Zoologische Staatssammlung München (ZSM), but some are deposited as permanent loan in the collection of the author (ZSM-CBM).

Genus *Fortagonum* DARLINGTON

DARLINGTON, 1952, p. 247, figs 14, 64-66.

DARLINGTON 1971, p. 316, figs 70-76.

Key to the species of genus *Fortagonum* DARLINGTON (partly adapted from DARLINGTON 1971)

- 1 Wings present 2
- Wings absent 5
- 2 Both pairs of supraocular setae absent; eyes laterally abruptly produced. Central Irian Jaya *ophthalmicum*, sp. n.
- Posterior supraocular seta present; eyes laterally not abruptly produced 3
- 3 Posterior pronotal seta present; elytra trisetose; pronotum wide, laterally markedly convex, margin wide. Central Irian Jaya *laticolle*, sp. n.
- Posterior pronotal seta absent; elytra bisetose; pronotum conical, margin not as wide 4
- 4 Pronotum wider, sides more straight, anterior angles more protruding. Extreme western Irian Jaya *subconicolle* (DARLINGTON)
- Pronotum narrower, sides more convex, anterior angles less protruding. Central Papua New Guinea . *bigenum* (DARLINGTON)

5	Pronotum wide, laterally markedly convex, margin wide	6
–	Pronotum conical or feebly convex, margin not as wide	8
6	Eyes laterally abruptly produced; elytra asetose, or (rarely) unisetose on odd elytron	7
–	Eyes laterally not abruptly produced; elytra trisetose. Central Papua New Guinea	<i>hornabrooki</i> DARLINGTON
7	Both supraocular setae present; posterior pronotal seta present; frons conspicuously swollen. Central Papua New Guinea	<i>distortum</i> DARLINGTON
–	Anterior supraocular seta absent; posterior pronotal seta absent; frons not swollen. Central Papua New Guinea	<i>limum</i> DARLINGTON
8	Both supraocular setae absent; anterior angle of pronotum laterally slightly produced. Short, wide, convex species. Central Irian Jaya	<i>bufo</i> DARLINGTON
–	Posterior supraocular seta present; anterior angles of pronotum different. Various shaped species	9
9	Elytra usually trisetose, rarely uni- or bisetose on odd elytron; mandibles never straight and very elongate. Species from central Papua New Guinea	10
–	Elytra asetose; mandibles straight and very elongate, or short and wide, markedly fusiform species with slightly spined apex of elytra. Species from central Irian Jaya	13
10	Posterior pronotal seta present	11
–	Posterior pronotal seta absent	12
11	Margin of pronotum wide; wide, fusiform species.	<i>oodinum</i> DARLINGTON
–	Margin of pronotum narrow; rather narrow, barely fusiform species	<i>antecessor</i> DARLINGTON
12	Pronotum wider, but less conical; elytra weakly iridescent	<i>fortellum</i> DARLINGTON
–	Pronotum narrower, but rather conical; elytra markedly iridescent	<i>okapa</i> DARLINGTON
13	Mandibles not unusually elongate; apex of elytra slightly spined; short and wide, markedly fusiform species	<i>curtum</i> , sp. n.
–	Mandibles straight and markedly elongate; apex of elytra not spined; rather elongate, not markedly fusiform species	14
14	Rather wide, almost parallel species	<i>forceps</i> DARLINGTON
–	Narrower, more or less fusiform species	15
15	Pronotum wider, ratio width/length c. 1.27; rather fusiform species	<i>cychriceps</i> DARLINGTON
–	Pronotum narrower, ratio width/length c. 1.11; less fusiform species	<i>formiceps</i> DARLINGTON

The species

Fortagonum bufo DARLINGTON

DARLINGTON, 1952, p. 252, fig. 66; 1971, p. 317, fig. 70.

This species has been recorded from two localities between 1800 and 2000 m in the Snow Mts., Western New Guinea (now Irian Jaya) (DARLINGTON 1952, 1971). In some respects, viz. total reduction of supraocular, pronotal, and dorsal elytral setae, it is most apomorphic within the whole genus *Fortagonum*.

The laterally slightly produced anterior angles of pronotum with a short sinuosity behind, together with the reduced wing-and-seta formula (–w – – – –) characterize this species sufficiently. The ♂ aedeagus has a tiny knob at the apex, as shown in DARLINGTON's (1952) figure, it is further characterized by two sclerotized teeth in the bottom of the internal sac. The left paramere is by far wider and more rounded than shown in DARLINGTON's figure. The right paramere is also very convex at apex. The ♂ genital ring is highly asymmetric and has a widely rounded apex.

New record: 2 ♂, 1 ♀, Irian Jaya, Wamena, Ilugwa, 2000-2300 m, 9.9.1990, leg. A. RIEDEL (CBM). This locality is in the Baliem district, not far from DARLINGTON's localities.

Figs 1, 4

Types. Holotype: ♂, Irian Jaya, Baliem-Distr. Pass-Valley, 1900 m, 16.9.1990, leg. A. RIEDEL (ZSM). - Paratype: 1 ♂, same data (CBM).

Diagnosis. Short and wide, wingless species with posterior supraocular seta present, but pronotal and dorsal elytral setae absent. Closely related to *F. bufo* DARLINGTON, though distinguished by presence of the posterior supraocular seta, regularly shaped anterior angles of pronotum, presence of a short spine at apex of elytra, and ♂ aedeagus with three sclerotized teeth at bottom and c. 5 teeth at top of internal sac.

Description

Measurements. Length: 10.8-11.5 mm; width: 4.8-5.2 mm. Ratios. Width/length of pronotum: 1.50-1.55; width base/apex of pronotum: 1.65-1.70; width pronotum/head: 1.93-2.0; width elytra/pronotum: 1.20-1.24; length/width of elytra: 1.38-1.40.

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

Colour. Black. Borders of pronotum, labrum, mouth parts, antenna, and tarsi dark reddish-piceous. Lower surface black.

Head. Narrow compared with prothorax. Neck wide, short behind eyes and deeply imbedded in prothorax. Eyes fairly large, rather projecting, but orbits distinct. Clypeal suture distinct. Labrum rather elongate, apex feebly concave. Mandibles elongate, straight. Antenna elongate, surpassing base of pronotum by about three segments. Both palpi elongate, basal segment of maxillary palpus thickened. Furrow above antennal base and inside of eyes very shallow, inconspicuous. Posterior supraocular seta well removed from eye. Frons evenly convex, absolutely smooth. Microreticulation isodiametric, rather distinct. Surface fairly glossy.

Prothorax. Wide, laterally broadly deplanate, strongly narrowed to apex, slightly narrowed to base. Widest diameter in posterior third. Anterior angles remarkably projecting, almost attaining posterior border of eyes, at apex slightly rounded off. Apex deeply excised. Lateral margin convex throughout, or at most straight near apex, but not concave. Basal angles almost rectangular, at apex obtuse. Base laterally straight, in middle slightly produced. Disk slightly convex, median line distinct, attaining neither apex nor base. Apex bordered, base not bordered. Both marginal setae absent. Disk impunctate, with some very inconspicuous wrinkles. Microreticulation near apex and base isodiametric and more conspicuous than on disk, laterally consisting of very fine longitudinal meshes, on disk extremely fine, consisting of irregular transverse lines. Surface on disk somewhat iridescent.

Elytra. Wide, rather short, dorsal surface rather convex, lateral borders evenly rounded. Preapical sinuosity very shallow. Widest diameter well in front of middle. Apex with short spine opposite 3rd interval. Striae deep, impunctate, intervals slightly convex. Dorsal setae absent. 16 marginal setae and 1 apical seta at 7th stria present. Intervals impunctate. Microreticulation consisting of extremely fine, dense, transverse lines. Surface rather iridescent. Wings absent.

Lower surface. Prosternum with short, acute, somewhat hooked, posteriorly depressed and laterally bordered process. Proepisternum smooth. Mesepisternum densely and coarsely punctate. Metepisternum shortened, c. 1.5 x as long as wide at anterior border. Abdomen impunctate, though laterally with numerous shallow wrinkles. Microreticulation dense, isodiametric. ♂ sternum VII bisetose, apex medially slightly excised.

Legs. Thin and elongate. 4th tarsal segment medially fairly excised. 1st-3rd segments of ♂ anterior tarsus slightly expanded and biserially squamose.

♂ genitalia (Fig. 4). Aedeagus slightly curved, apex short, with very small terminal hook. Internal sac at bottom with 3, at top with c. 5 sclerotized teeth. Left paramere very wide, almost circular. Genital ring asymmetric, apex convex, widely sclerotized.

♀ genitalia. Unknown.

Variation. Minor variation noted in shape of ♂ genital ring.

Distribution. Central Irian Jaya, known only from type locality.

Habits. Collected in montane rain forest in median altitude under logs, according to the collector under rather

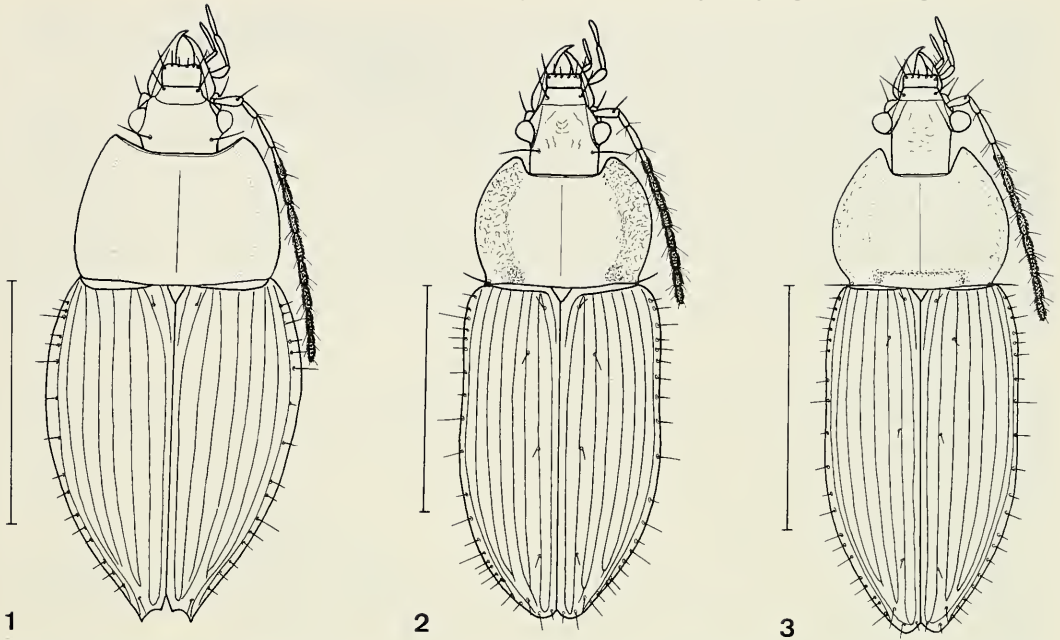


Fig. 1-3: 1. *Fortagonum curtum*, sp. n. ♂ holotype. Scale: 5 mm. 2. *Fortagonum laticolle*, sp. n. ♀ holotype. Scale: 5 mm. 3. *Fortagonum ophthalmicum*, sp. n. ♂ holotype. Scale: 5 mm.

wet circumstances. Occurs together with *Fortagonum ophthalmicum*, sp. n.

Relationships. This species is certainly closely related to *Fortagonum bufo* DARLINGTON, mainly on account of body shape, loss of pronotal and dorsal elytral setae, similar number of marginal and apical elytral setae, and structure of ♂ genitalia. It is more apomorphic in the presence of spinose elytra and of sclerotized teeth also at top of internal sac of ♂ aedeagus. It is more plesiomorphic, however, in the presence of the posterior supraocular seta and the regularly shaped anterior angles of pronotum.

Fortagonum laticolle, sp. n.

Figs 2, 5

Types. Holotype: ♀, Irian Jaya, Wamena, Ilugwa, 1900-2200 m, 11.9.1990, leg. A. RIEDEL (ZSM-CBM).

Diagnosis. Elongate, winged species with wide, laterally rounded, distorted pronotum. Distinguished from similarly shaped species by presence of wings and presence of posterior supraocular seta.

Description

Measurements. Length: 12.1 mm; width: 4.7 mm. Ratios. Width/length of pronotum: 1.57; width base/apex of pronotum: 1.55; width pronotum/head: 1.83; width elytra/pronotum: 1.19; length/width of elytra: 1.62.

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

Colour. Black with a faint violet-blue iridescence on elytra. Lateral borders of pronotum, labrum, mouth parts, antenna, and tarsi dark piceous. Lower surface black.

Head. Narrow compared with prothorax. Neck rather narrow, elongate behind eyes. Eyes almost semicircular, strongly, though not abruptly protruding, orbits absent. Clypeal suture distinct. Labrum moderately elongate, apex almost straight. Mandibles moderately elongate, straight. Antennae moderately elongate, surpassing base of pronotum by about one segment. Both palpi elongate, basal segment of

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maxillary palpus thickened. Furrow above antennal base and inside of eyes deep, conspicuous. Posterior supraocular seta far removed from eye. Frons evenly convex, impunctate, laterally with some shallow, oblique wrinkles. Microreticulation isodiametric, very fine. Surface glossy.

Prothorax. Wide, laterally broadly deplanate, evenly curved laterally, almost evenly narrowed to apex and to base. Widest diameter about in middle. Anterior angles remarkably projecting, at apex 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, though somewhat upturned. Median line distinct, attaining neither apex nor base. Basal grooves deep, large, about circular. Apex bordered, base bordered in middle. Posterior marginal seta 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 consisting of extremely fine, superficial, transverse lines. Surface on disk glossy, rather iridescent.

Elytra. Elongate, moderately wide, almost parallel, dorsal surface convex, lateral borders almost straight in anterior 3/5, behind shoulders even faintly concave, towards apex evenly rounded. Preapical sinuosity very shallow. Widest diameter well behind middle. Striae deep, impunctate, intervals slightly convex. Dorsal elytral setae short, inconspicuous, anterior seta near 3rd stria, median and posterior setae near 2nd stria. 20 marginal setae and 3 apical setae present, two of the latter situated on apical border, one near 7th stria. Intervals impunctate. Microreticulation consisting of extremely fine, dense, transverse lines. Surface markedly iridescent. Fully winged.

Lower surface. Prosternum posteriorly rounded off, without process. Proepisternum with fairly dense, though very superficial punctures. Mesepisternum densely and rather coarsely punctate. Metepisternum elongate, c. 2.5 x as long as wide at anterior border. Abdomen impunctate, though laterally with some fine wrinkles. Microreticulation very distinct, isodiametric. ♀ sternum VII quadrisetose.

Legs. Thin and rather elongate. 4th tarsal segment medially fairly excised. Vestiture of ♂ anterior tarsus unknown.

♂ genitalia. Unknown.

♀ genitalia (Fig. 5). Stylomere 2 moderately acute at apex, with 3 ventral ensiform setae and one nematiform seta in a deep furrow. Stylomere 1 with a row of c. 4 setae near base of stylomere 2, medially with some additional setae.

Variation. Unknown.

Distribution. Central Irian Jaya, known only from type locality.

Habits. Collected in montane rain forest in median altitude under logs, according to the collector under rather wet circumstances. Occurs together with *Fortagonum bufu* DARLINGTON.

Relationships. See following species.

Fortagonum ophthalmicum, sp. n.

Figs 3, 6

Types. Holotype: ♂, Irian Jaya, Baliem-Distr. Pass-Valley, 1900 m, 16.9.1990, leg. A. Riedel (ZSM-CBM).

Diagnosis. Narrow, elongate, winged species with wide, distorted pronotum. Distinguished from similarly shaped species by presence of wings, absence of both supraocular setae, and abruptly projecting eyes.

Description

Measurements. Length: 11.6 mm; width: 4.25 mm. Ratios. Width/length of pronotum: 1.55; width base/apex of pronotum: 1.86; width pronotum/head: 1.93; width elytra/pronotum: 1.14; length/width of elytra: 1.72.

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

Colour. Black. Labrum, mandibles, and tarsi dark piceous, palpi and antenna reddish-piceous. Lower surface black.

Head. Very narrow compared with prothorax. Neck narrow, behind eyes remarkably elongate. Eyes

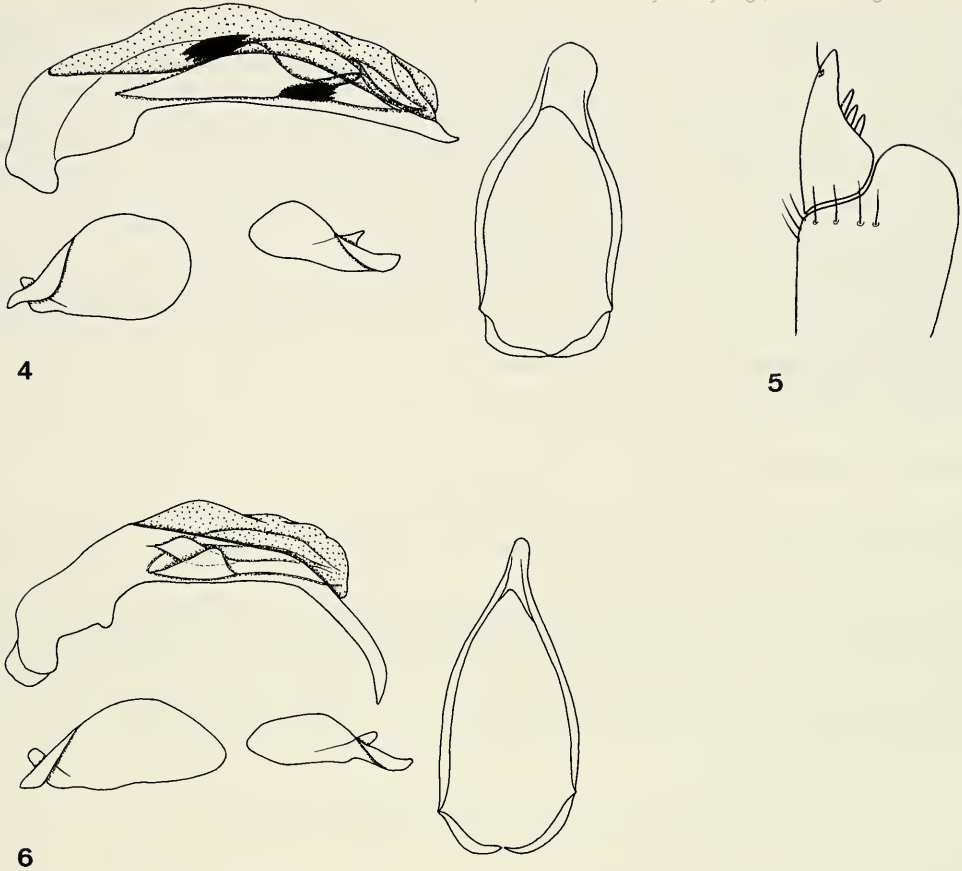


Fig. 4-6: 4. *Fortagonum curtum*, sp. n. ♂ aedeagus, parameres, and genital ring; 5. *Fortagonum laticolle*, sp. n. ♀ stylomeres; 6. *Fortagonum ophthalmicum*, sp. n. ♂ aedeagus, parameres, and genital ring.

semicircular, abruptly protruding, orbits absent. Clypeal suture distinct. Labrum moderately elongate, apex feebly concave. Mandibles moderately elongate, straight. Antenna moderately elongate, surpassing base of pronotum by about 1.5 segments. Both palpi elongate, basal segment of maxillary palpus thickened. Furrow above antennal base and inside of eyes very deep and conspicuous, deeply separating the eyes from head. Frons evenly convex, impunctate, laterally with some shallow, oblique wrinkles. Microreticulation isodiametric, very fine. Surface glossy.

Prothorax. Wide, laterally broadly deplanate, evenly curved laterally, remarkably narrowed to apex, far less so to base. Widest diameter about in posterior third. Anterior angles extremely projecting, at apex shortly rounded off. Apex very deeply excised, excision narrow, almost straight. Lateral margin convex to basal angles which bear a very small denticle. Base laterally straight, in middle feebly produced. Disk rather convex, lateral parts broadly deplanate, lateral border rather upturned. Median line distinct, attaining neither apex nor base. Basal grooves deep, large, about circular. In front of base with a shallow, transverse prebasal sulcus. Apex bordered, base not bordered. Posterior marginal seta situated right on posterior angle. Lateral channel and basal grooves with scattered, very superficial, rugose punctures. Disk impunctate, with some fine, transverse wrinkles. Microreticulation near apex and base almost isodiametric, far more conspicuous than on disk, on lateral explanation isodiametric to somewhat longitudinal and fairly distinct, in middle consisting of extremely fine, superficial transverse lines. Surface laterally rather dull, on disk highly glossy, iridescent.

Elytra. Elongate, rather narrow, parallel, dorsal surface convex, lateral borders almost straight in anterior

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2/3, behind shoulders even faintly concave, towards apex evenly rounded. Preapical sinuosity very shallow. Widest diameter about in middle. Striae deep, impunctate, intervals slightly convex. Dorsal elytral setae short, inconspicuous, anterior seta near 3rd stria, median and posterior setae near 2nd stria. 20 marginal setae and 3 apical setae present, two of the latter situated on apical border, one near 7th stria. Intervals impunctate. Microreticulation consisting of extremely fine, dense transverse lines. Surface iridescent. Fully winged.

Lower surface. Prosternum posteriorly rounded off, without process. Proepisternum impunctate. Mesepisternum almost impunctate. Metepisternum elongate, almost 2.5 x as long as wide at anterior border. Abdomen impunctate, though laterally with some deep, irregular, longitudinally furrowed wrinkles. Microreticulation distinct, isodiametric. ♂ sternum VII bisetose.

Legs. Thin and rather elongate. 4th tarsal segment medially fairly excised. 1st-3rd segments of ♂ anterior tarsus slightly expanded and biserially squamose.

♂ genitalia (Fig. 6). Aedeagus slightly curved, apex extended to a strongly sclerotized, elongate, downturned rod ending in a somewhat lancet-shaped tip. Internal sac without sclerotized teeth. Left paramere rather narrow. Genital ring symmetric, base convex.

♀ genitalia. Unknown.

Variation. Unknown.

Distribution. Central Irian Jaya. Known only from type locality.

Habits. Collected in montane rain forest in median altitude under logs, according to the collector under rather wet circumstances. Occurs together with *Fortagonum curtum*, sp. n.

Relationships. This species is certainly related to *Fortagonum laticolle*, sp. n. It is more apomorphic in the slender shape, narrower and more elongate, more cychriform head, and far more protruding eyes. Because the ♂ of *F. laticolle* is yet unknown, comparison with the highly apomorphic ♂ aedeagus of *F. ophthalmicum* is still impossible. The relationships of both new species to the other species with distorted prothorax (*F. hornabrooki* DARLINGTON, *F. limum* DARLINGTON, and *F. distortum* DARLINGTON) are unknown, since the ♂ genitalia of these species, as well as some other character states, are unknown.

Fortagonum bigemum DARLINGTON (comb. n.)

DARLINGTON, 1971, p. 299, fig. 47 (*Altagonum*).

This species was originally described in *Altagonum* DARLINGTON, but is herewith transferred to *Fortagonum* on behalf of its broad, fusiform shape and the absence of the anterior supraocular seta. It has following wing-and-seta formula: +w -+ -- -+-. It has been so far recorded from some localities in the eastern highlands of Papua New Guinea.

Fortagonum subconicolle DARLINGTON (comb. n.)

DARLINGTON, 1971, p. 300, fig. 48 (*Altagonum*).

This species was also originally described in *Altagonum* DARLINGTON, but is rather similar to *F. bigemum* and is also herewith transferred to *Fortagonum* on behalf of the wide, fusiform shape and the absence of the anterior supraocular seta. It has the same wing-and-seta formula as *F. limum*. It was recorded from Vogelkop, extreme western part of West New Guinea (Irian Jaya) at rather low altitude.

Discussion

The present descriptions of three remarkable new species of genus *Fortagonum* DARLINGTON demonstrate that the agonine fauna of the mountains of New Guinea is certainly not yet adequately known. This extremely montane island is apparently inhabited by a large number of locally distributed, partly wingless species of the highly evolved genus *Fortagonum* which presumably populate montane forests in median altitude

The genus *Fortagonum* seems to split into two groups of highly characteristic shape: viz. a short, rather fusiform one, and a more elongate one characterized by the wide, laterally convex, distorted pronotum. Whether both types of body shape represent also different ecotypes is unknown. The present sample, however, which includes a fusiform and a distorted species each collected together in either locality, apparently demonstrates different ecological requirements to such extent that syntopical occurrence of species of both groups is possible.

The hitherto known species of *Fortagonum* concentrate in two areas in eastern and western New Guinea, respectively. This is presumably due to better exploration of those areas compared with extreme eastern and western, or central New Guinea near the border of Irian Jaya and Papua New Guinea. In spite of the insufficient knowledge it appears that sister species occur in western and eastern New Guinea within several species groups.

Due to the highly apomorphic structure of the genus its origin is obscure. Nevertheless, in view of presence of wings, shape, and the rather full set of dorsal setae of *F. bigemum* and *F. subconicolle* DARLINGTON's statement that these two species might be "the ancestors from which *Fortagonum* has derived" may be correct.

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Zeitschrift/Journal: [Mitteilungen der Münchner Entomologischen Gesellschaft](#)

Jahr/Year: 1992

Band/Volume: [082](#)

Autor(en)/Author(s): Baehr Martin

Artikel/Article: [On some agonine beetles of the genus Fortagonum Darlington from New Guinea \(Col. Carabidae, Agoninae\). 73-81](#)