

Procrustomachia

Occasional Papers of the Uncensored Scientists Group

7, 1: 1-38

Milanówek

15 III 2022

ISSN 2543-7747

Review of the [*Cyphogastra* DEYR.]-supergenus (Coleoptera: Buprestidae) VI. The *Modesta*-, *Obloquens*-, *Ventricosa*- and *Pistor*-circles

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Introduction

The sixth (see HOŁYŃSKI 2016, 2020a,b,c, 2021 for the first five) part of the Review was initially aimed at the clarification of taxonomic, phylogenetic, biogeographical relations within what seemed to be a single well delimited circle, characterized mainly by roughly unicolorous (no sharp contrast between pronotum and elytra) dorsal side in combination with conspicuous dfp sulci on elytra, but in course of the work inclusion of previously not intended species and subdivision of the resulting assemblage into four circles became necessary. Moreover, the disentangling of the relationships within the “core” of the *Ventricosa*-circle proved so difficult [available material so scarce and/or unreliable (*e.g.* of the 125 examined specimens belonging to the *Pistor*-circle only 28 have – not always reliably... – indicated concrete locality!), relation between individual variability and inter-sub]specific differences so confusing] that the highly dissatisfying results of my analysis forced me to resign from formal differentiating between suspected ranks, and to present all possibly valid taxa as “full” species (with my, more or less intuitive, opinion signalized and, as far as possible, argued in **Remarks**). As repeatedly pointed out by many taxonomists (including me) serious study of biodiversity needs first of all abundant, morphologically, geographically and ecologically representative, reliably and exactly labelled material – unfortunately, multiplication of national and international (*e.g.* the ill-famed Nagoya protocol) restrictions on collecting biological specimens makes the efforts to fill the depressing gaps practically hopeless...

Conventions

Like in my other publications (unless “corrected” by editors...), I follow the very useful conventions of applying (of course, except wordly citations, where the original form must be retained) SMALL CAPS to *all* [irrespective of context and full vs. abbreviated version: inconsistent use deprives the display of any sense!] personal FAMILY- (*not* given-) names, *italicizing* species- and genus-group names (as well as citations and words in languages different from that of the main text), and writing the suprageneric taxon-names in **Bold** [the latter is not a generally accepted custom, but is often important, as

some of such names (e.g. of the subtribes **Buprestina LEACH**, **Melobasina BÍLÝ** or **Coraebina BED.**) are (or may easily become) “homonymous” (but valid!) with [sub-]generic ones (*Buprestina OBB.*, *Melobasina KERR.*, *Coraebina KERR.*)

Labels of type-specimens are quoted as exactly as possible, including *italics* and *handwriting* (both represented in my text by *italics*), CAPITAL LETTERS, SMALLCAPS, framing, colour of text and approximate colour of the label. Individual labels are cited in quotation marks “”, a label glued on another label (frequent e.g. in KBIN) in \uparrow \downarrow , a label glued on another label on which still another has been glued in \uparrow \downarrow (so, some may look like “abc \uparrow def \downarrow ghi \uparrow \downarrow ”). Determination (white, in the form like “*Cyphogastra esignata* HOL., det. R. HOLYŃSKI” with year of determination written vertically on the left side) and type-designation [red for primary types, e.g. “*Cyphogastra aureoatra* HOLYŃSKI, HOLOTYPE”, green for paratypes, e.g. “*Cyphogastra obloquens* HOLYŃSKI, PARATYPE”] labels added by me are not cited.

New species will be described in detail, other descriptions restricted to traits potentially helpful in identification.

Except in citations and synonymies, quoted as in the respective original publications, I apply the term “*morpha*” [“*m.*”] for discrete variants (where intermediates are absent or very rare) and “*forma*” [“*f.*”] for sections of continuous spectrum; „variety” – “*varietas*” [“*v.*” or “*var.*”] is used as a neutral word of no specific connotation].

Length of body measured from anterior margins of eyes to elytral apices; length of elytra from anterior margin of scutellum; width of pronotum where it is the widest, width of elytra just behind subhumeral protuberances; width of head with eyes, in dorsal aspect; width of vertex between internal margins of eyes.

As usual, my phylogenetic reconstruction has been performed with MICSEQ – see HOLYŃSKI (2001) for the general outline of the algorithm with presentation and justification of basic assumptions, and HOLYŃSKI (2016) for the present state of its development and discussion of some aspects of the procedure.

Explanation of terms (used generally in my publications, but not necessarily all of them in any particular paper)

Convergent/divergent: Unless specially stated otherwise, always from base to apex

Epistomal ridge: Arcuate or biarcuate keel running from one anterolateral angle of epistome to another behind its emarginated anterior margin at the supraepistomal border

Supraepistomal carina: transverse ridge above the frontoepistomal border

Anterior cavity of front: deeper anterior part of frontal depression, more or less distinctly separated from the rest by oblique elevations

Collar: apical, constricted part of pronotum before truncation

Anterolateral angle of pronotum: angular bend between subparallel basal and abruptly oblique apical portion of sides

Anterior foveolae of pronotum: anterolateral and anteromedian

Anterolateral foveola of pronotum: small, often indistinct fovea near apical angle

Anteromedian foveola of pronotum: small, often indistinct fovea placed midlaterally at apical margin

Fossae: laterobasal depressions of pronotum

Prehumeral relief: elevated fragment of pronotal surface at basal angles, surrounded anteromedially by fossae

Subhumeral protrusion/denticle: moderately salient/prominent angularly protruding epipleural margin at humeri

Caudate elytra: of concave lateroapical margins and dorsal profile

Perihumeral dfp areas: usually not depressed stripes of dfp along lateral half of elytral base, sometimes extending around humeri to basalmost part of lateral margins

Elytral dfp sulci: 1-3 pairs of longitudinal depressed dfp furrows extending over entire elytral length or only part of it

Subhumeral dfp hollow/sulcus: dfp depression placed at lateral margin of elytra behind humeri

Perisutural elytral dfp sulci: innermost pair between 1. (sutural) and 2. costae

Midiscal elytral dfp sulci: middle pair between 2. and 3. costae

Perimarginal elytral dfp sulci: outermost pair between 4. costa and lateral margin of elytra

Abdominal plaque: elevated surface of 1. sternite, posteriorly delimited by more or less vertical step separating it from the rest of abdominal surface

Midlateral: lying at *ca.* mid-distance between median line and side margins

Phenun (pu): unit of the “cost of transformation” between character states, *i.e.* of phenetic distance between analysed taxa: **1 pu** = distance between two neighbour traits in the transformation chain if the weight has been settled as 1

Support quotient [SQ= x/y (in phenuns)]: rough estimator of “robustness” of particular pairing, where **x** is the “corrected distance” (at the relevant stage of analysis, *i.e.* when the pairing is being performed) between the paired taxa, and **y** – the shortest distance between any of them and any other remaining “in game”.

Abbreviations:

L	=	length
W	=	width
BW	=	basal width
AW	=	apical width
H	=	width of head with eyes
V	=	width of vertex between eyes
ø	=	sex unknown
HT	=	holotype
LT	=	lectotype

- ST = syntype
 PT = paratype
 BP*** = (e.g. BPeip): specimen-identifying signature in my collection
 ≈ = approximately equal
 [⊙],[⊙] = round type-label with coloured frame in BMNH
 [abc] – in square brackets (without quotation marks) data not specified on labels

Collection acronyms:

- BMNH = Natural History Museum, London, ENGLAND
 BPBM = Bernice P. Bishop Museum, Honolulu, USA
 CLB = Charles L. BELLAMY, Sacramento, USA
 DEI = Deutsche Entomologische Institut, Eberswalde, GERMANY
 DF = David FRANK, Praha, CZECHIA
 EONMP = Entomologické Oddelení Národního Musea, Praha, CZECHIA
 IZW = Instytut Zoologii PAN, Warszawa, POLAND
 KBIN = Koninklijk Belgisch Instituut voor Natuurwetenschappen, Brussels, BELGIUM
 MCGD = Museo Civico di Storia Naturale „Giacomo Doria”, Genova, ITALY
 MNHN = Muséum National d’Histoire Naturelle, Paris, FRANCE
 MV = Victoria Museum, Melbourne, AUSTRALIA
 NNHM = Nationaal Natuurhistorisch Museum, Leiden, HOLLAND
 RBH = Roman B. HOLYŃSKI, Milanówek, POLAND
 USNM = Smithsonian Institution: National Museum of Natural History, Washington, USA
 ZMK = Zoologisches Museum, Kiel, GERMANY

Systematic review

BUPRESTIDAE LEACH
BUPRESTINAE LEACH
BUPRESTINI LEACH
CHRYSOCHROINA CAST.
Cyphogastra **DEYR.**

Cyphogastra **DEYR. s. str.**

Cyphogastra DEYROLLE 1864: 36-37

[type-species: *Buprestis foveicollis* BOISDUVAL 1835]

Abbreviated key to the identification of circles of the sg. *Cyphogastra* DEYR. s.str.

- 1 (2) No subhumeral and perimarginal dfp sulci on elytra; or, if perisutural present, then elytral disk (at least suturobasal part) black but ventral side and epipleura metallic, and/or fossae irregular with dfp bottoms entirely reduced or almost so
Tinianica-, *Uxorismea*-, *Bruyni*-, *Armata*-, *Flavimana*-, *Tuberculata*-, *Satrapa*-,
 *Collarti*-, *Gestroi*-, *Javanica*-, *Albertisi*-, *Caudata*- and *Gloriosa*-circles
- 2 (1) Subhumeral and/or perimarginal sulci present; or, if only perisutural is developed then pronotal fossae in form of upturned L-square or very large, occupying $\frac{2}{3}$ or more of the lateral third of pronotum, with bottoms extensively dfp; if perisutural sulcus present and elytral disk black then ventral side and epipleura also black
- 3 (6) Head and pronotum black, elytra and/or ventral side partly or entirely metallic; or perisutural sulcus more or less distinct and/or elytra caudate
- 4 (5) Body uniformly black, with or without some brassy lustre. Perisutural and perimarginal dfp sulcus more or less markedly developed all along or, if perimarginal discernible only apically, middiscal conspicuous ... *Canaliculata*-circle
- 5 (4) Head and pronotum [brownish-]black, elytra and ventral side partly or entirely contrasting metallic; if uniformly black then perisutural and/or perimarginal sulci developed only apically or subdivided into shorter anterior and longer posterior parts. If elytra black, then no middiscal sulcus *Farinosa*-circle

- 6 (3) Entirely metallic or, if pronotum blackish, then elytra non caudate and/or perisutural sulci absent
- 7(10) Elytra not caudate. Perihumeral (inside of humeri) dfp spot absent
- 8 (9) Abdominal plaque barely noticeable *Modesta-circle*
- 9 (8) Abdominal plaque prominent..... *Obloquens-circle*
- 10 (7) Elytra distinctly caudate or perihumeral dfp foveae conspicuous
- 11(12) Abdominal plaque well developed *Ventricosa-circle*
- 12(11) Abdominal plaque at most rudimental *Pistor-circle*

Modesta-circle

Remarks: A group of uncertain validity and placement, characterized here (elytra not distinctly caudate, apical half with dfp sulci, pronotal fossae very extensive, their inner margins sinuate, abdominal plaque practically non-existent) based on original diagnoses and my preliminary redescriptions (copied – in blue – below) of the two included species made many years ago [2000]: none has been actually available to me for re-examination.



Map 1

Geographical distribution of the *Modesta-circle*
 ● – *C. modesta* GESTRO.; ● – *C. lorai* THY.

***Cyphogastra (s.str.) lorai* THY.**

Cyphogastra Lorai THÉRY 1923a: 109-111

Material examined:

Holotype: „N.Guinea S.E., Fiume Purari, Loria. I. 1894.” “Typus” “*Cyphogastra lorai* Thery, *Type*, Théry det.” “Museo Civico di Genova” [♀ (MCGD)]

Additional material: None

Holotype: “Female 26.5×9 mm. Body remarkably broad and flat. Brownish-black with bronzed (head and pronotum) or greenish (elytra and ventral side) shine; dfp cupreous; antennae and tarsi piceous-black. Pubescence whitish, short, on dfp areas dense and recumbent, otherwise on ventral side somewhat erect and very sparse, on head somewhat denser; no meso- or metafemoral brushes; dorsal surface glabrous.

Only traces of epistomal ridge and no appreciable supraepistomal carina; frontal depression shallow, broadly triangular, without clearly defined anterior cavity, very coarsely but not very densely punctured (punctures – especially on upper part – distinctly separated from one another, becoming definitely sparse on somewhat paraboloidal space between frontal depression and vertex); median furrow deep, not very strong, progressively widened downwards; puncturation of vertex itself rather fine and moderately dense; oculo-frontal grooves relatively deep but narrow. 1. antennal joint club-shaped, rather short (*ca.* 2.5× longer than thick); 2. subcylindrical, *ca.* 3.5× times shorter and much thinner than 1.; 3. markedly thickened towards apex (there as thick as 2.), subequal in length to 1.; 4. rhomboidally-triangular, nearly as long as 3. and as wide as 1.; 5.–10. progressively narrower and shorter; 11. again longer (subequal to 5.), fusiform.

Pronotum *ca.* 1.4× wider than long; base rather deeply angularly bisinuate with broadly arcuate (subtruncated at middle) prescutellar lobe; basal angles not prominent but distinctly acute; lateral margins straight, almost imperceptibly divergent to rather broadly rounded anterolateral angles; truncation shallowly arcuate, smoothly sinuately transgressing into very well marked collar; apical margin rather deeply sinuate on each side of broadly truncated median lobe. Median sulcus moderately broad, distinctly striate but impunctate in basal third, otherwise moderately (similar to disk) punctured along midline but without stria. Dfp fossae very long and broad, separated only by narrow carinae from basal, lateral and apical margins, with deeply bisinuate inner border; low, broad, regularly rounded off transverse elevation running between anterolateral angle and outward produced lobe of inner margin separates its smaller anterior part from twice longer and deeper ovate basal portion. Prehumeral reliefs elongate, [somewhat rhomboidally] triangular, virtually impunctate; punctulation of disk irregular, sparse, moderately coarse.

Elytra broad (L:W≈2.15). Humeral angles obtuse but sharp, shoulders not marked, sides slightly arcuate in basal tenth (no trace of subhumeral protrusion), then shortly and shallowly sinuate, almost imperceptibly rectilinearly divergent to *ca.* basal third, regularly arcuate to apical sixth and very slightly sinuate to apices; apically sinuate part adorned with some (8-9 on each elytron) prominent denticles. Two dfp sulci – narrow suturo- and broader lateroapical – well developed on each elytron, no trace of subhumeral dfp; otherwise elytral puncturation rather coarse, with relatively slight (though conspicuous) difference between basal and apical parts, arranged into irregular but perceptible rows.

Proepisterna, lateral parts of meso- and metasternum and metacoxae almost entirely dfp; sulcus of prosternal process dfp, anteriorly parallelsided (as wide as each – very sparsely but rather coarsely punctured – lateral rim), narrowly lanceolate apically; disk of metasternum narrowly grooved along middle, sparsely irregularly covered with moderately coarse puncturation to both sides of groove. Abdominal plaque very low, almost non-existent: in profile seen as hardly more than obtuse and broadly rounded off bend between 1. sternite and rest of abdomen, slightly elongated punctures on plaque somewhat coarser but more regularly distributed than on metasternal disk; suture between 1. and 2. sternite strongly sinuate at middle (so that 2. segment almost twice shorter there than laterally), running very close to, but definitely behind, slightly swollen apical margin of abdominal plaque. Wedge-shaped (basally as wide as abdominal plaque, tapering to point at apical margin) median stripe of abdomen coarsely but sparsely punctured (narrowly smooth and slightly carinate towards apex of anal sternite), row of similarly sculptured irregular “mirrors” runs along each lateral margin, otherwise abdomen dfp. Apex of anal sternite regularly narrowly paraboloidally rounded, piceous terminal sclerite finely and not very densely punctured, rather sparsely pubescent”.

Geographical distribution [Map 1]: Known only from the holotype: river Purari flows into the Gulf of Papua at *ca.* 145⁰E.

Remarks: “With its flattened body, inappreciably caudate elytra, shallow frontal depression without individualized anterior cavity, very extensive pronotal dfp fossae with deeply sinuate inner margin, almost non-existent abdominal plaque, &c., this species seems comparable only to (also poorly known) *C. modesta* GESTRO which, however, is easily distinguishable by greenish-blue colouration, denser (esp. on elytra) puncturation, less extensive ventral dfp areas, almost totally arcuate pronotal truncation (collar very narrow), elytral dfp sulci reduced to traces, and some other details. *C. collarti* DESC. is also similar in shape of body, structure of frontal depression and form of pronotal fossae, but sharply differs in elytral colouration (green [disk] through cupreous to purplish-black [lateroapically]), much more prominent (acute-angled in profile) abdominal plaque and less deeply sinuate, running across apical wall of the plaque, suture between 1. and 2. sternites”.

***Cyphogastra (s.str.) modesta* GESTRO**

Cyphogastra modesta GESTRO 1876: 518-519

Material examined:

Lectotype [hereby designated]: „N.Guinea, Mafor, V 1875., Beccari” “**Typus**” “*modesta Gestro*”
“**SYNTYPUS, *Cyphogastra modesta* Gestro, 1876**” “Museo Civico di Genova” [1♀ (MCGD)]

Paralectotype:

„N.Guinea, Mafor, V 1875., Beccari” “**SYNTYPUS, *Cyphogastra modesta* Gestro, 1876**” “Museo Civico di Genova” [1♀ (MCGD)]

Additional material: None

Characters: “Females 27.5×9, 28×9 mm. Body dorsoventrally flattened. Head and pronotum brownish-black, elytra dark bluish-green with contrastingly cupreous epipleura, pronotal fossae and ventral side green (dfp more golden-green to partly cupreous), tarsi blackish-green, antennae black. Pubescence whitish, short, dense and recumbent on dfp areas, sparse and somewhat erect on head and ventral side, none on pronotum and elytra; meso- and metafemora with more or less appreciable brushes on proximal half.

Epistomal ridge trapezoidal, poorly developed; no appreciable supraepistomal carina; frontal depression shallow, in fact almost flat, broadly triangular; punctures in (hardly discernible as such) anterior cavity very coarse, moderately dense, conspicuously elongated; those in triangular upper part somewhat sparser and nearly isodiametric; median furrow deep, relatively (equally throughout) narrow; vertex finely and sparsely punctured; oculo-frontal grooves moderately deep, narrow, not conspicuous. 1. antennal joint club-shaped, rather short (*ca.* 3× longer than thick); 2. subcylindrical, *ca.* 4× times shorter and much thinner than 1.; 3. markedly thickened towards apex (as thick as, and 3× longer than, 2.); 4. subrhomboidal, nearly as long as 3. and as wide as 1.; 5.–8. progressively narrower and shorter (distal 3-5 in both specimens missing).

Pronotum *ca.* 1.3× wider than long; base rather deeply angularly bisinuate, prescutellar lobe broadly arcuate (subtruncated at middle); basal angles not prominent but distinctly acute; lateral margins straight or very shallowly (somewhat irregularly) sinuate, subparallel to very slightly convergent, smoothly (without distinct anterolateral angles) turning into almost regularly arcuate truncation; collar very narrow; apical margin deeply sinuate on each side of broadly truncated median lobe. Median sulcus moderately broad, slightly widened anterad, striate along midline in basal half; fossae very large (extending from basal to apical narrow marginal carinae and from somewhat thicker but still narrow and sharp lateral margin to deeply bisinuate inner border at *ca.* midlateral line) but not evenly dfp: rather

coarse and dense irregular reliefs on outer parts and – especially – broad and very low elevation at anterior third reduce dfp to small linear or punctiform spaces between them; prehumeral reliefs elongately triangular, finely and very sparsely punctured; punctulation of disk unevenly distributed, sparse, moderately fine.

Elytra broad (L:W \approx 2.17). Humeral angles obtuse but sharp, shoulders poorly marked, more or less distinctly rounded, (no trace of subhumeral protrusion), sides shortly (to *ca.* basal eighth) subparallel, then almost regularly rounded (very slightly divergent to midlength, arcuately narrowed behind) to apical sixth and rectilinearly or subsinuately to apices (there adorned with 6-12 sharp denticles). Surface rather densely covered with coarse (somewhat – though not very markedly – less so towards apices) punctures arranged into irregular rows; very narrow, almost imperceptible rudiments of golden suturo- and lateroapical dfp sulci can be found between 2. and 3. inner and between 2. and 3. outer row.

Proepisterna dfp with (especially along outer margins) some indefinite low elevated areas covered with coarse punctures and/or longitudinal rugosity; sulcus of prosternal process dfp or finely and irregularly rugosopunctate, slightly wider than finely and very sparsely punctured lateral rims; disk of metasternum flat, not grooved along midline, sparsely irregularly punctured; sides of meso- and metasternum dfp with some rugosoreticulate (laterally) or coarser punctured (towards disk and especially on inner half of metacoxae) areas. Abdominal plaque very poorly developed, in profile shallowly convex and meeting 2. sternite at very obtuse angle without distinct swelling or protrusion; stria contouring very low, hardly perceptible apical slope almost touching deeply sinuate suture between 1. and 2. sternite; punctures on plaque slightly elongated, somewhat coarser but more regularly distributed than on metasternal disk. Wedge-shaped (basally as wide as abdominal plaque, narrowing towards apex) median stripe of abdomen coarsely but sparsely punctured (almost totally smooth along midline); row of rather indefinite, similarly but somewhat finer sculptured “mirrors” runs along each lateral margin; marginal and midlateral bands dfp. Apex of anal sternite narrowly paraboloidally rounded, terminal sclerite piceous”.

Geographical distribution [Map 1]: Known only from the type-series collected on Mafor [=Numfoor] I. in the Geelvink Bay.

Remarks: “Flat body, inappreciably caudate elytra, shallow frontal depression without individualized frontoepistomal carina or anterior cavity, very extensive pronotal dfp fossae with deeply sinuate inner margin, almost non-existent abdominal plaque, &c., make this species similar to *C. loriai* THY. (see under that species for differences), whereas green colouration causes superficial resemblance to some representatives of the *C. pisciformis*- or *C. gloriosa*-superspecies (which, however, differ in at least frontal and pronotal characters and totally lacking dfp sulci on elytra)”.

***Obloquens*-circle**

Remarks: A small – two apparently closely related, allo- or parapatric species – but well defined, apparently endemic to New Ireland, group of unclear external relationships.

Key to the identification of species of the *Obloquens*-circle

[only females known, so the characters may not reliably apply to males!]

- 1 (2) Perimarginal sulcus lacking. Elytra blackish-green, mat. Tarsi yellow *C. (s.str.) obloquens sp.n.*
- 2 (1) Perimarginal sulcus well developed. Elytra pure black, lustrous. Tarsi black *C. (s.str.) melaneza sp.n.*



Map 2

Geographical distribution of the *Obloquens*-circle

● – *C. obloquens* sp.n.; ● – *C. melaneza* sp.n.

***Cyphogastra (s.str.) obloquens* sp.n.**

Material examined:

Holotype: “NEW IRELAND, Schleinitz Mts., Lelet Plateau, Oct. 1959” “W.W.Brandt, Collector, BISHOP” [♀ (BPBM)]

Paratype: “LEMKAMIN, LELET PLATEAU, NEW IRELAND PROVINCE PNG, ALT: C 1100 METERS LB 8030, 26-XI-86, COLL: T. MALA & P.LAMBLEY” [♀ (RBH: BPeip)]

Additional material: None

Holotype [Fig. 1]: Female 31.5×10 mm. Head and pronotum black with very slight purplish shine, elytra rather dark velvety-green, ventral side black with bluish-green lustre, labrum and antennae coal-black, tarsi yellow; dfp depressions cupreous- or greenish-golden, covered with dense orange pulverulence. Pilosity of prosternal sulcus short and dense, erect; pubescence of dfp areas very short, recumbent white; elevated areas of sternum and abdomen with longer, sparse, semierect setae; otherwise body glabrous.

Epistome broadly emarginate, with low tubercle at middle; frontoepistomal border marked by very deep transverse groove and prominent smooth biarcuate carina. Front somewhat wider than long, sides distinctly divergent; frontal depression deep, broadly paraboloidal, reaching distinctly behind upper margins of eyes, coarsely but not densely punctured; semicircular anterior cavity shallow, inconspicuous; lateral ridges practically absent; periocular sulci very deep; V:H≈0.5.

Pronotum parallelsided, anterolateral angles well marked but not protruding, truncation obliquely straight, no distinct collar; basal angles acute, slightly protruding outwards, base shallowly angularly sinuate to both sides of broadly arcuate prescutellar lobe; anterior margin rather deeply bisinuate; median sulcus somewhat irregularly dfp, middiscal elevations finely and sparsely punctulate, sculpture of elevated parts of sides coarse, dense, almost regular; fossa broad, shallow, dfp; laterobasal reliefs elongately triangular, their anteromedian angles not accentuated; anteromedian foveola conspicuous, rounded; anterolateral reduced to very narrow, non-dfp stria connecting anterior angles to fossa. Scutellum somewhat elongately trapezoidal, smooth.

Elytra 2.25× longer than wide. No subhumeral protrusion; sides obliquely truncated at humeri, slightly divergent to *ca.* midlength, and cuneately tapering to jointly rounded apices; lateroapical margin with 10-12 sharp, apicalwards progressively denser denticles. Punctuation rather fine, moderately dense, becoming somewhat finer and irregularly confluent lateroapicalwards; subhumeral dfp sulcus narrowly prolonged to anterior angles, otherwise elytral surface regularly convex.

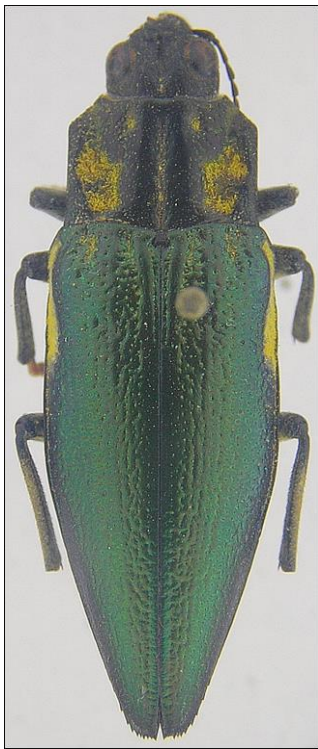


Fig. 1

Cyphogastra obloquens HOL.
♀ HT [BPBM], N.Ireland: Lelet Pl.



Fig. 2

Cyphogastra melaneza HOL.
♀ HT [BPein], N. Ireland: H.Meyer Rge.

Proepisterna dfp with irregularly elongated smooth, coarsely punctured elevation at middle; sulcus of prosternal process densely irregularly sculptured at bottom, as wide as impunctate lateral rims; median parts of metasternum deeply sulcate; sides of meso- and metasternum extensively dfp. Abdominal plaque rather high, nearly right-angled in profile, covered with relatively coarse and moderately dense elongate punctures; perimarginal and midlateral dfp stripes of abdomen rather narrow but well developed; apex of anal sternite broadly rounded.

Variability: Paratype somewhat smaller (30×9,5 mm.), of darker greenish-black elytra and almost pure black (with some greenish lustre) ventral side, slightly divergent pronotal sides and posterolaterally more regular and sparser elytral puncturation, but otherwise practically identical to the holotype.

Geographical distribution [Map 2]: Middle New Ireland: Lelet Plateau.

Remarks: With its pale ferruginous tarsi, shallow pronotal fossae, rather fine sculpture of non-caudate elytra it superficially resembles species of the *Flavimana*-circle, but dfp sculpture of the fossae, well developed subhumeral elytral dfp sulci, evident affinity to *C. melaneza sp.n.*, together with geographical distribution, support rather the placement suggested here.

Cyphogastra (s.str.) melaneza sp.n.

Material examined:

Holotype: "PULPULO 2ND LOGGING AREA, MA: 84 FOOT HILLS OF THE HANS MEYER RANGE, ALT: C 1000 METERS, 1-12-86, COLL: T. MALA" [♀ (RBH: BPein)]

Additional material: none

Holotype [Fig. 2]: Female 30.5×10 mm. Entirely – including labrum, antennae and legs – coal-black, only dorsal dfp depressions pale golden. Body, except for dfp areas, glabrous.

Epistome subtrapezoidally emarginate, no distinct epistomal ridge; frontoepistomal border marked by very deep transverse groove and sharp shallowly biarcuate carina. Front wider than long, sides distinctly divergent; frontal depression deep, paraboloidal, extending distinctly beyond upper margins of eyes, sparsely punctulate; anterior cavity poorly delimited, its punctulation denser; lateral ridges low, very broad, almost smooth; perioocular sulci very deep; V:H≈0.50.

Pronotal sides somewhat sinuately subparallel, anterolateral angles very slightly protruding; truncation almost straight, no distinct collar; base shallowly bisinuate; anterior margin rather deeply trisinate; median furrow and middiscal elevations finely and sparsely, pronotal sides more coarsely and densely punctured; fossa broad, prehumeral relief narrowly triangular; anteromedian foveola sulciform but not connected to fossa, anterolateral indefinite. Scutellum very small, elongately trapezoidal, medially sulcate, smooth.

Elytra 2.3× longer than wide. Sides obliquely truncated at humeri, without subhumeral protrusion, subparallel in basal ²/₅, slightly widened to midlength and cuneately convergent to narrowly jointly rounded apices; lateroapical margin minutely sharply denticulate. Puncturation of lustrous surface moderately coarse, not very dense, almost regular; subhumeral and perilateral sulci well developed, perisutural lacking.

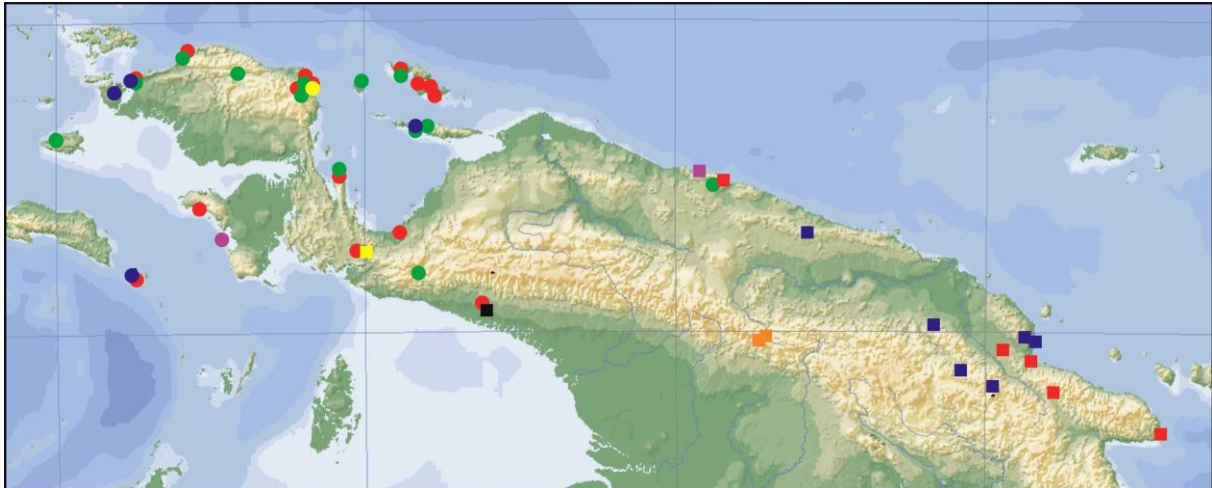
Proepisterna with some dfp spaces between irregular smooth elevations; sulcus of prosternal process somewhat broader than smooth lateral rims; sides of meso- and metasternum, metepisterna and metacoxae extensively dfp. Abdominal plaque high, right-angled in profile, rather sparsely elongately punctured; perimarginal and midlateral dfp stripes of abdomen well developed but narrow; apex of anal sternite rounded.

Geographical distribution [Map 2]: Southern part of New Ireland: Hans Meyer Range.

Remarks: Despite close relationship to *C. obloquens sp.n.*, uniformly black lustrous body, broad pronotal fossae, well developed subhumeral and perimarginal but lacking perisutural sulci on non-caudate elytra, &c., make *C. melaneza sp.n.* unmistakable.

Ventricosa-circle

Remarks: The most diversified of the herein elaborated circles, widely distributed over western and northern New Guinea, grouping impenetrable cluster of poorly distinguishable varieties of enigmatic taxonomic status, characterized by uniformly metallic or uniformly black dorsal colouration and distinct elytral dfp sulci of which perisutural, if present, is restricted to apical, and middiscal to basal part of elytra.



Map 3

Geographical distribution of the *Ventricosa*-circle

- – *C. aureoatra* sp.n.; ■ – *C. snowensis* THY.; ■ – *C. cyaniceps* KERR.; ■ – *C. bellamyi* sp.n.; ■ – *C. kampeni* THY.;
■ – *C. cupreofossa* KERR.; ● – *C. esignata* sp.n.; ● – *C. ventricosa* (OL.); ● – *C. sulcipennis* GESTRO;
● – *C. impressipennis* GESTRO; ● – *C. foveolata* DEYR.

Key to the identification of species of the *Ventricosa*-circle

[some species are known only from females, so the characters may not reliably apply to males!]

- 1 (4) Dorsal side lustrous black
- 2 (3) Perisutural sulcus well developed. Ventral surface green .. *C. (s.str.) aureoatra* sp.n.
- 3 (2) No trace of perisutural dfp sulcus. Ventral side black *C. (s.str.) snowensis* THY.
- 4 (1) Dorsal side metallic: cupreous, green or blue), if (rarely) almost black then mat
- 5(10) Pronotal fossa extensive, broad, connected to anteromedian foveola
- 6 (9) No trace of perisutural dfp sulcus
- 7 (8) No subhumeral hollow *C. (s.str.) cyaniceps* KERR.
- 8 (7) Subhumeral hollow clearly discernible *C. (s.str.) kampeni* THY.
- 9 (6) Perisutural sulcus well developed *C. (s.str.) bellamyi* sp.n.
- 10 (5) Pronotal fossa relatively narrowly axe- or c-shaped, separated from anterior foveolae
- 11(20) No dfp spots on anterior half of elytral disk
- 12(17) Perisutural elytral dfp sulcus narrow, weak, sometimes barely discernible
- 13(14) Ventral parts at least partly dark bluish-violaceous *C. (s.str.) cupreofossa* KERR.
- 14(13) Sternum and abdomen at most with pale bluish shine
- 15(16) Both perisutural and perimarginal sulci barely marked *C. (s.str.) esignata* sp.n.
- 16(15) At least one of elytral sulci distinct *C. (s.str.) ventricosa* (OL.)
- 17(12) Perisutural sulcus strongly marked, subequal in width to the space separating it from submarginal
- 18(19) Middiscal elytral sulcus lacking. No connecting dfp and/or distinctively coloured line between subhumeral and perimarginal sulci *C. (s.str.) impressipennis* GESTRO

- 19(18) Middiscal sulcus usually very weak but discernible. Subhumeral and perimarginal sulci connected along extreme lateral stria with very narrow golden dfp line
 *C. (s.str.) sulcipennis* **GESTRO**
- 20(11) Transverse row of 3 depressed dfp spots at *ca.* anterior $^{2/5}$ of elytral disk
 *C. (s.str.) foveolata* **DEYR.**

Cyphogastra (s.str.) aureoatra sp.n.

Material examined:

Holotype: “Indonesia, West Papua, AVONA LODGING [sic!] CAMP, env. of LAKE JAMUR, 400 m., 5. 2009, local collectors lgt.” “*Cyphogastra aterrima* Kerr., det. S. Gottwald 2015” “ex coll. S. Bílý, National Museum, Prague, Czech Republic” [♀ (EONMP)]

Additional material: none

Holotype [Fig. 3]: Female 26.5×8.5 mm. Dorsal side lustrous, deep black with bright cupreous dfp depressions, ventral surface and legs [golden-]green; labrum ferruginous. Body glabrous, except short, not dense, white erect pilosity of prosternal sulcus, and dense recumbent pubescence of dfp depressions.

Epistome deeply arcuately emarginate, epistomal ridge barely noticeable; frontoepistomal border marked by very deep transverse groove and prominent sharp }-shaped carina. Front much wider than long, sides sinuately divergent; frontal depression paraboloidal, extending distinctly beyond upper margins of eyes; anterior cavity rather deep, large (occupying almost entire depression), coarsely punctured; lateral ridges not individualized, smooth; periocular sulci deep; V:H≈0.50.

Pronotal sides slightly arcuately convergent; anterolateral angles poorly marked; truncation sinuate, no collar; base shallowly bisinuate; anterior margin rather deeply trisinuate; midline sharply cut, not distinctively punctulate, middiscal elevations very finely and sparsely, pronotal sides somewhat more coarsely punctured; fossa very large, dfp, joined to also very broad anteromedian and very small sulciform anterolateral foveolae; laterobasal relief quadrangular with obtuse anteromedian angle. Scutellum trapezoidal, medially sulcate.

Elytra definitely caudate, 2.2× longer than wide. No trace of subhumeral protrusion; sides obliquely truncated at humeri, subparallel to *ca.* midlength, and sinuately tapering to apices; lateroapical denticulation irregular, sparser on sides but much denser on narrowly truncated tips. Puncturation moderately coarse and dense, almost regular; perisutural and perilateral sulci short and broad, subhumeral totally lacking.

Proepisterna entirely dfp; sulcus of prosternal process *ca.* as wide as smooth lateral rims, densely irregularly sculptured at bottom; lateral parts of metasternum extensively dfp. Abdominal plaque moderately high, roundedly right-angled in profile, finely and very sparsely covered with somewhat elongate punctures; perimarginal and midlateral dfp stripes well developed but clearly separated with rows of elevated, almost impunctate spaces; anal sternite narrowly rounded with minute semicircular incision at tip.

Geographical distribution [Map 3]: Known only from the holotype, collected in western New Guinea near Jamur Lake (on the “neck” of the island, at *ca.* 400 m. a.s.l.).

Remarks: Unmistakable by its lustrous black dorsal side with bright cupreous dfp depressions, combined with bright golden-green ventral surface, lack of subhumeral dfp hollow, broad but short perisutural and perimarginal ones, &c. In colouration resembles *C. snowensis* Thy., but golden-green ventral side, very broad pronotal fossae, prominent perisutural but much shorter perimarginal dfp sulcus on elytra make it clearly distinctive.



Fig. 3

Cyphogastra aureoatra HOL.
♀ HT [EONMP], W-N.Guinea: ad Jamur L.



Fig. 4

Cyphogastra snowensis THY.
♀ [BPeio], W-N.Guinea: Utakwa R.

***Cyphogastra (s.str.) snowensis* THY.**

Cyphogastra snowensis THÉRY 1923b: 236-237

Material examined: 1 ♀

Characters [Fig. 4]: Female [1] 28.5×9. Body entirely black, only dfp depressions pale greenish-silvery covered with rusty pulverulence. Sulcus of prosternal process with sparse, rather long pilosity; pubescence of dfp areas very dense, recumbent, body otherwise practically glabrous. Pronotal sides subparallel; anterolateral angles rounded, collar not developed; fossae very broad, undivided, joining inconspicuous sulciform anteromedian fovea, anterolateral not discernible; laterobasal reliefs small, tetragonal; discal punctulation very fine and sparse, puncturation of lateral parts coarser and denser. Elytra markedly caudate; no subhumeral protrusions; sculpture basally rather coarse, gradually finer towards apices; perilateral sulcus broad and moderately long, otherwise elytral surface regularly convex. Proepisterna entirely dfp; puncturation of sulcus of prosternal process irregular, moderately coarse and dense; sides of sternum extensively dfp; marginal and midlateral abdominal stripes well developed, distinctly separated; abdominal plaque high, right-angled in profile, finely and sparsely punctulate; apex of anal sternite of female broadly roundedly subtruncated. Male unknown.

Geographical distribution [Map 3]: Western New Guinea: described from Snow Mts., my specimen collected at the mouth of Utakwa River having source near Mt. Carstens, the highest peak of that range and New Guinea in general.

Remarks: Often considered a subspecies or variety of *C. aterrima* KERR. which, however, clearly differs in definitely coarser sculpture, presence of perisutural sulcus, &c. (HOLYŃSKI 2021). Apparently related to *C. cyaniceps* KERR. despite of sharply different

colouration of the latter, much coarser puncturation and anteriorly subparallel sides of its elytra, proepisterna with only separated dfp spaces among smooth elevations, &c.

***Cyphogastra (s.str.) cyaniceps* KERR.**

Cyphogastra cyaniceps KERREMANS 1937: 181-182

Material examined:

Syntypes: „Coll. R. I. Sc. N. B., Nouvelle Guinée, = Koll. D^r A. Frh. v.Hoschek, - [Dtsch. N. Guinea] -“ - [“*Cyphogastra cyanipes* Kerr. n. sp. types] -], cf. *Mon. Bupr.* 1909.10, 4: 258,9, - [Syntype] -” “Kerr. 's original Etikette enthält den Schreibfehler, da es richtig *cyaniceps* u. nicht *cyanipes* heißen muß, Det. Hoschek 1926” [1♀ (KBIN)]; „N. Guin., Staud.” “*cyaniceps* Kerr., Type” [1♀ (MNHN)]; „Dtsch. N. Guinea” “Typus” “-type”, Mus. Leiden, Ex coll. G. van Roon” [1♀ (NNHM)]

Additional material: 18 ♀, 1 ♂

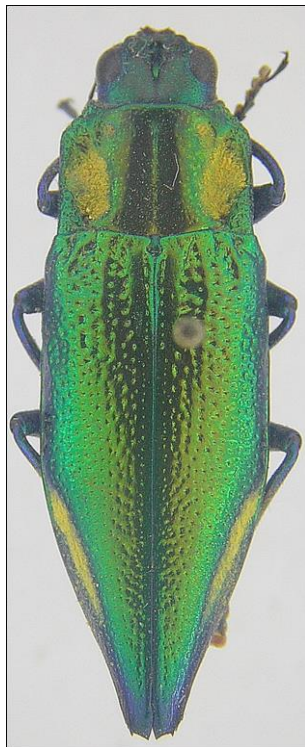


Fig. 5

Cyphogastra cyaniceps KERR.

♀ [BPeil], PNG: E-Sepik Pr.: Regenberg

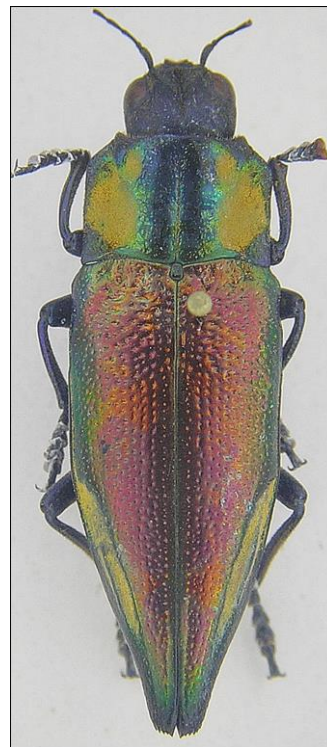


Fig. 6

Cyphogastra cyaniceps KERR.

♀ [EONMP], PNG

Characters [Figs. 5, 6]: Females [23] 24×7.5-29.5×9.5 (one specimen [Fig. 6] unusually big: 34×11) mm. Head and pronotum blackish-blue or green, ventral side bright dark violaceous or exceptionally also green; elytra green, bronzed or cupreous (the largest specimen even cupreous-red). Pubescence only on dfp-depressions and in prosternal sulcus distinct, otherwise body glabrous. Pronotal sides subparallel or very slightly convergent; anterolateral angles well marked but not protruding, collar not developed; fossae very broad, undivided, usually joining anteromedian foveola, anterolateral discernible at most as traces of sulciform rudiment; laterobasal reliefs small, their anteromedian angles more or less rounded or obliterated; median furrow not distinctively sculptured. Elytra markedly caudate; no subhumeral protrusions; sculpture basally rather coarse, gradually finer towards apices; perilateral sulcus broad and moderately long, otherwise elytral surface regularly convex.

Proepisterna uneven, with numerous dfp spaces among irregular smooth elevations; puncturation of sulcus of prosternal process irregular, moderately coarse and dense; sides of sternum with some dfp spots; marginal and midlateral abdominal stripes well developed, narrow; abdominal plaque high, more or less roundedly right-angled in profile, rather sparsely covered with elongated punctures; apex of anal sternite of female broadly rounded. Male unknown.

Geographical distribution [Map 3]: Highlands of NE-New Guinea: from Torricelli, through Adalbert, Bismarck, and Finisterre to Saruwaged Ranges on the Huon Peninsula.

Remarks: Well differentiated within the *Ventricosa*-circle by the combination of bright metallic colour with strongly developed perimarginal sulcus and lack of any other elytral dfp depressions; broad pronotal fossa and usually violaceous ventral side also contribute to its distinctiveness.

***Cyphogastra (s.str.) kampeni* THY.**
Cyphogastra Kampeni THÉRY 1937: 181-182

Material examined:

Holotype: „Museum Leiden, dr. P.N. van Kampen, Ned. Nw. Guinea exp. 1911” „Jaonabosch, Sept. 10. 19” „*Cyphogastra Kampeni* Thery TYPE” [1♀ (NNHM)]

Additional material: None

Characters: “♀ 29.5×9. Dull dark green, somewhat more lustrous below. Sculpture, shape like *bruyni*, pronotal foveae [=fossae] intermediate between “typical” *Cyphogastra* like *ventricosa* and those of *bruyni*: basal part anteriorly reduced from sides (does not reach lateral margin), connected (yes! the drawing in orig. descr. wrong!) to internal apical [=medioapical], lateral apical totally absent; pronotal sides almost regularly rounded like in some *bruyni* (esp. *dohertyi*) but pronotum shorter than on THÉRY’s drawing, and anterior margin broader (otherwise the drawing good). Description also good except that labrum is visible (though only the apex with long and dense ciliae); pronotum 8.0×5.7 mm.; anterior margin *ca.* 5.3; lateral margins very distinctly sinuate before base (like in *Chrysodema smaragdula*); elytral subhumeral denticle more apparent than on THÉRY’s drawing, (like – esp. on right elytron – that in *C. viridis*); apical denticles sharp and dense, 4-4 denticles on apical part of sides also sharp and conspicuous but widely spaced; punctation of sternites does not sensibly differ on sides from that at middle (throughout coarse but rather sparse).

Elytral punctures coarse up to apices (in all forms of *C. ventricosa* much finer apically); prosternal process narrowly sulcate, sides totally impunctate except few widely scattered fine punctures anteriorly; mesosternum at middle finely and very sparsely punctulate; plaque of I sternite [=abdominal plaque] almost smooth at middle, somewhat denser covered with elongate fine punctures on sides; anal sternite with roundedly truncate apex; posterior dfp patch on elytra distinctly more oblique than in *C. ventricosa* spp., posteriorly more medial, shorter. Proepisterna extensively dfp (except narrowly along middle), lateral halves of metacoxae totally dfp.”

Geographical distribution [Map 3]: Holotype collected – if, as it seems, “Jaonabosch” means “forest *ad* Yaona [2°25’S-140°23’E]” – on NW-slopes of Cyclops Mts. at Tanah Merah Bay (mid-northern New Guinea).

Remarks: “Colour and shape as *dohertyi*, pronotal fossae almost as *dohertyi/bruyni*, two foveae on elytral sides (one rounded behind humeri and one oblique at posterior third – also touching lateral margin) like *ventricosa*; no basohumeral foveae” [text in blue from my old notes: currently I have no access to the specimen].

Cyphogastra (s.str.) bellamyi sp.n.

Material examined:

Holotype: “NEW GUINEA: Tifalmin, IV 1969” [♂ (CLB)]

Paratypes: “NEW GUINEA: Tifalmin, IV 1969” [1♀ (CLB)]; “New Guinea; NE, Tifalmin, Telefomin Subd., W.Sepik, IV.11.1970” “A.B. Mirza Collector, BISHOP” [1♀ (BPBM)]; “NEW GUINEA: Tifalmin, MAY 1969” [1♀ (RBH: BPftu)]; “NOUVELLE GUINÉE: Mt. Hindenburg, 1969” “*Cyphogastra*” “coll. Podlussány A., “*CYPHOGASTRA sp., DET. BELLAMY 1986*” [1♀ (RBH: BPgne)]

Additional material: None

[I have discovered this species many years ago in the material sent to me for elaboration by my late Friend and Colleague Charles L. BELLAMY. Unfortunately, I had not described the holotype before having sent the loan back, and now have no access to it, so I can make only a general description based on very brief “original” comparative notes and the currently available specimens: the female paratype from BPBM and two from my collection].

Characters [Fig. 7]: Male [1] 24.5×8, females [4] 25.5×8 – 29.5×9.5 mm. Dorsal side rather mat, dull green with more or less discernible bronzy shine, dfp depressions golden-cupreous, ventral surface more lustrous [golden-]green. Pility of prosternal sulcus short and dense, erect, white; pubescence of dfp areas very short, recumbent; otherwise body glabrous.

Epistome broadly arcuately emarginate; epistomal ridge sharp, broadly and deeply arcuate; prominent smooth biarcuate frontoepistomal carina highly elevated above epistome. Front much wider than long, sides distinctly divergent; frontal depression deep, paraboloidal, reaching distinctly behind upper margins of eyes; anterior cavity deep but poorly delimited, rather densely punctured; lateral ridges roundedly elevated, smooth; pericocular sulci very deep; V:H≈0.55.

Pronotal sides more or less distinctly convergent from base to not protruding (sometimes distinctly rounded) anterolateral angles; no discernible collar; base shallowly subangulately sinuate to both sides of prescutellar lobe; anterior margin trisinuate but median sinus very shallow; middiscal elevations finely and sparsely punctulate, sculpture of elevated parts of pronotal sides coarser and denser, irregular; fossa very broad and long, connected to also prominent anteromedian foveola (anterolateral absent or rudimental). Scutellum minute, trapezoidal, smooth.

Elytra 2.25-2.3× longer than wide. Sides somewhat roundedly obliquely truncated at humeri, slightly sinuately divergent to just before midlength, and arcuately, then sinuately tapering to markedly caudate apices; lateroapical margin sharply denticulate. Puncturation rather fine, dense, almost regular, progressively finer backwards; subhumeral and perimarginal sulci broad, contrastingly cupreous, dfp; perisutural very narrow, sometimes barely discernible.

Proepisterna with dfp spaces between irregular smooth elevations; sulcus of prosternal process densely irregularly sculptured at bottom; median parts of metasternum deeply sulcate; sides of meso- and metasternum extensively dfp. Abdominal plaque rather high, roundedly right-angled in profile, covered with rather dense and coarse elongate punctures; perimarginal and midlateral dfp stripes narrow; apex of anal sternite rather deeply incised at tip.

Geographical distribution [Map 3]: Known only from Hindenburg Range, just SW from uppermost Sepik Valley.

Remarks: Differs from *C. cyaniceps* KERR. in duller colouration, less lustrous surface, finer punctulation of elytra and – especially – strong subhumeral dfp patch; green (in *C. cyaniceps* KERR. usually bluish-violaceous) ventral side and darker cupreous elytral sulci

may also help in identification. Combination of broad subhumeral and perimarginal elytral sulci with very broad fossa including anteromedian fovea into main depression distinguishes *C. bellamyi* sp.n. from other representatives of the *Ventricosa*-circle. Named in the memory of Charles BELLAMY, our untimely deceased Colleague and Friend, a leading personality among buprestid taxonomists.



Fig. 7

Cyphogastra bellamyi sp.n.
♀ PT [BPftu], PNG: Tifalmin



Fig. 8

Cyphogastra cupreofossa KERR.
♂ [DF], PNG: Madang Pr.: Wannang



Fig. 9

Cyphogastra esignata sp.n.
♂ HT [EONMP], W-N.Guinea: Antalisa

***Cyphogastra* (s.str.) *cupreofossa* KERR.**

Cyphogastra foveicollis (BDV.) v. *pygmaea* KERREMANS 1903: 88 [issp.]

Cyphogastra cupreofossa KERREMANS 1910: 260-261

Cyphogastra malayensis FISHER 1930: 30-32

Material examined

Holotype [of *C. malayensis* FISHER.]: “Malay Penin., Ex Coll. Agr. Dept Kuala Lumpur” “Type No. 57403 U.S.N.M.” “HOLOTYPE *CYPHOGASTRA malayensis* FISHER” ♂ [♀ (USNM)]

Paratype [of *C. malayensis* FISHER.]: “Paratype” ♂ “Malay Peninsula” “Paratype No., *malayensis* Fisher” “*Cyphogastra malayensis* Fisher” “Ex F.M.S.Museum, B.M. 1953-354” [1 ♀ (BMNH)]

Additional material: 3♂, 3♀, 3♂

Characters [Fig. 8]: Males [3] 21×6.5 – 23.5×7.5; females [4] 18×5.5 – 25.5×8.5 mm. Head and pronotum blackish, elytra golden-bronzed, dark dull bluish-green to piceous-black, dorsal dfp sulci golden, elevated parts of ventral surface blue or (rarely) green, dfp areas bright purplish (rarely ventral side uniformly green). Median sulcus of prosternal process with rather long erect (♂) or shorter semirecumbent (♀) pilosity, dfp areas densely covered with recumbent pubescence, otherwise body glabrous. Front much wider than long, sides distinctly divergent; frontal depression deep, triangular, reaching behind upper margins of eyes, very sparsely punctured; semicircular anterior cavity rather deep, its puncturation

coarser and dense; lateral ridges practically lacking; periocular sulci deep but barely reaching beyond upper margins of eyes; V:H≈0.53. Pronotal sides usually more or less convergent, rarely subparallel; anterolateral angles poorly marked. Fossae broad, connected to large anteromedian foveola. Elytra definitely caudate. Puncturation moderately fine; perimarginal sulcus rather broad, perisutural very fine, subhumeral at most rudimental. Sculpture of proepisterna variable: from entirely dfp to almost entirely glabrous and coarsely foveolate; sides of meso- and metasternum with extensive dfp spaces. Abdominal plaque high, roundedly obtuse-angled in profile, rather sparsely covered with moderately coarse elongate punctures; perimarginal and midlateral dfp stripes well marked but widely separated; apex of anal sternite broadly but not deeply, subtriangularly emarginated (♂), or rounded with small, rather shallow incision at tip.

Geographical distribution [Map 3]: Described from “Nouvelle-Guinée?”; specimens examined by me originate from widely (between Humboldt and Astrolabe Bays) disjunct localities on north coast of New Guinea; native occurrence on “Malay Penin.” or “Moluques” is hardly believable.

Remarks: Differs from *C. cyaniceps* KERR. in dull colouration and discernible perisutural elytral sulci, and from other related taxa in combination of broad pronotal fossa, practically lacking subhumeral but broad perimarginal sulci and more or less bluish-purplish ventral side. The taxonomic identity of *C. malayensis* FISH. with *C. cuprefossa* KERR. is not quite sure: I have seen the types of the former only long ago, and that of the latter remains unknown to me at all; at that, their localities are – respectively – highly suspect or highly uncertain, so the suggested synonymy is rather poorly supported!

Cyphogastra (s.str.) *esignata* sp.n.

Material examined:

Holotype: “INDONESIA, Irian, Jaya prov., KARAS isl. ANTALISA, Dec. 2001, native coll.” “ex coll. V. Kubáň, National Museum, Prague, Czech Republic” [♂ (EONMP)]

Paratypes: “INDONESIA, Irian, Jaya prov., KARAS isl. ANTALISA, Dec. 2001, native coll.” “ex coll. V. Kubáň, National Museum, Prague, Czech Republic” [1♀ (EONMP)]; “INDONESIEN, WESTIRIAN, INSEL ANTALISSA, DEZEMBER 2001” “ex coll. V. Kabourek, National Museum, Prague, Czech Republic” [1♂ (RBH: BPlwn)]

Additional material: 1♂, 3♀

Holotype [Fig. 9]: Male 28.5×9 mm. Dorsal side green with some golden tinge, ventral greenish-golden, dfp depressions and anterior part of elytral margins golden-cupreous, elytral apices bluish-black. Body glabrous, only median sulcus of pro- and metasternum with short, white, erect pilosity, and dfp areas densely recumbently pubescent.

Epistome broadly subtriangularly emarginate, epistomal ridge trapezoidal, frontoepistomal border marked by very deep transverse groove and prominent }-shaped carina. Front wider than long, subparallelsided; frontal depression deep, paraboloidal, reaching distinctly behind upper margins of eyes, shallowly and very sparsely punctured; semicircular anterior cavity deep, puncturation dense but not very coarse; lateral ridges low, very broad, almost smooth; periocular sulci very deep; V:H≈0.53.

Pronotal sides subsinuately parallel, anterolateral angles not protruding, rather broadly rounded; collar slightly marked; basal margin arcuately sinuate to both sides of relatively narrow angular prescutellar lobe; anterior margin bisinuate, median lobe rather prominent, subtruncated; middiscal elevations finely and sparsely punctulate, sculpture of elevated parts of pronotal sides slightly coarser and denser; fossa deeply falcate; anteromedian foveola

distinct, anterolateral lacking. Scutellum minute, trapezoidal, deeply sulcate along midlength, smooth.

Elytra definitely caudate, 2.3× longer than wide. Sides obliquely truncated at humeri, shortly but deeply sinuate just behind truncation, subparallel to near midlength, and sinuately convergent to subtruncate apices; lateroapical margin with 7-8 sharp denticles. Puncturation rather coarse and somewhat irregularly confluent at base, progressively finer backwards and sideways; subhumeral dfp patch not discernible, perisutural and perimarginal sulci barely indicated.

Proepisterna with multiple deep foveolate spaces between irregular smooth elevations, with but traces of dfp; sulcus of prosternal process densely irregularly sculptured at bottom; median parts of metasternum nearly smooth; metepisterna, metacoxae and sides of meso- and metasternum extensively dfp. Abdominal plaque rather high, roundedly obtuse-angled in profile, poorly delimited behind, sparsely covered with moderately coarse punctures; perimarginal and midlateral dfp stripes well developed, clearly separated; apex of anal sternite deeply triangularly emarginated.

Variability: Males 28×8.5-28.5×9.5; females 28.5×9-32.5×10. Pronotum in some specimens darker, elytra in one contrastingly golden-cupreous; otherwise variability barely noticeable.

Geographical distribution [Map 3]: Known only from Karas I. (off Bomberai Pen., westernmost New Guinea).

Remarks: Deceptively similar to *C. ventricosa s.str.*, but apparently distinguishable by practically lacking subhumeral and perimarginal, and barely discernible perisutural elytral dfp sulci; certainly, more material is needed to finally support (or reject) its taxonomic value and rank.

Cyphogastra (s.str.) ventricosa (OL.)

Buprestis ventricosa OLIVIER 1790: plate 6, Fig. 63

Buprestis foveicollis BOISDUVAL 1835: 73

Cyphogastra biimpresa OBENBERGER 1922:68

Cyphogastra bipartita THÉRY 1923: 248-249

Material examined:

[?Holo]type [of *B. ventricosa* OL.] [only photograph seen]: [?♀ (MNHN)]

[?Holo]type [of *C. biimpresa* OBB.]: „N.Guinea” „*Cyphogastra biimpresa* m. *Type*, Det D^f Obenberger” „**TYPUS**” „Mus. Nat. Pragae, Inv. 20 021” [orange label] [♀ (EONMP)]

Additional material: 19 ♂, 42 ♀, 90 ♂

Characters [Figs. 10-13]: Males [19] 20×6.5 – 27.5×8.5, females [43] 22.5×6.5 – 35×11 mm. Colouration variable: from cupreous-bronzed [Fig. 10] through (usually) green [Fig. 11] to dark blue [Fig. 12]; bottoms of punctures, dfp depressions and ventral side usually somewhat brighter and more golden. Body glabrous, only legs and dfp areas with short, white pubescence. Pronotal sides usually slightly convergent; anterolateral angles well marked but not protruding; fossa relatively narrow, c- or r-shaped; anteromedian foveola more or less conspicuous but separated from fossa; anterolateral usually rudimental but sometimes well developed, sulciform, often connected to fossa; elevated parts of pronotal sides coarsely and rather densely, irregularly punctured. Scutellum minute, trapezoidal, smooth. Elytral sides subparallel or slightly convergent in basal half, then cuneately tapering to distinctly caudate apices; no subhumeral protrusion; puncturation coarse basally, gradually diminishing towards apex. Perisutural sulci poorly developed (often barely appreciable), subhumeral and perimarginal ones variable, from practically absent to rather broad. Prosternal



Fig. 10
Cyphogastra ventricosa (OL.)
♂ [DF], W-N.Guinea: Arfak Mts.

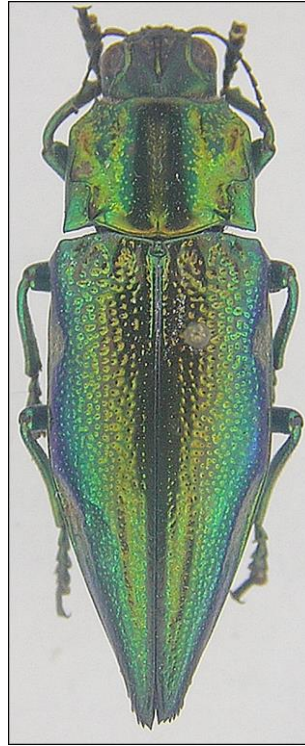


Fig. 11
Cyphogastra ventricosa (OL.)
♀ [DF], W-N.Guinea: Arfak Mts.



Fig. 12
Cyphogastra ventricosa (OL.)
♀ [BPeih], W-N.Guinea: Dorei

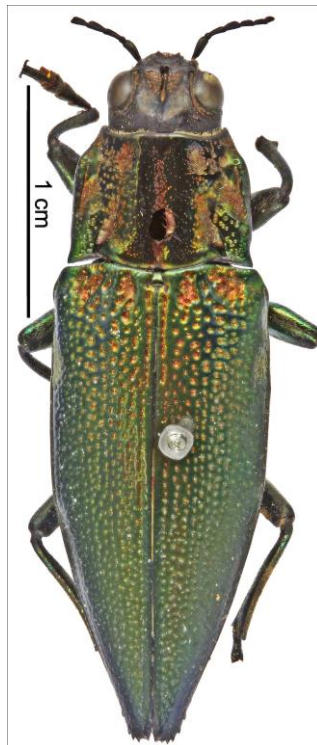


Fig. 13
Buprestis ventricosa OLIVIER
Type [MNHN], "Madagascar"
[phot. C. RIVIER (MNHN)]

process widely sulcate along midline, sulcus very densely irregularly sculptured, covered with dense but short white pubescence; abdominal plaque moderately prominent, covered with rather fine and sparse (coarser and denser in ♂) punctures; marginal and midlateral dfp stripes well developed, widely separated; apex of anal sternite subtriangularly emarginated [♂] or narrowly rounded with minute incision at tip [♀]; *aedoeagus* relatively long and narrow, yellow or testaceous with blackish (at least apically) sharply acute penis.

Geographical distribution [Map 3]]: Northwestern New Guinea: islands of Geelvink Bay, Vogelkop and Bomberai peninsulae, the “neck” of the main island; occurrence on Mysol cannot be fully excluded; “Bulolo” and “Biaru” – very far from the reliably known distribution area – are most likely dealer’s mislabellings; whereas Goram, Amboyne, to say nothing of Nias, New Hannover or Cape York are certainly not inhabited (unless artificially introduced) by *C. ventricosa* (OL.).

Remarks: The identity of *Buprestis ventricosa* OLIVIER has hitherto been a conundrum. According to the original description it seemed not to have very much in common with the species usually so identified – well, “Madagascar” as the type-locality would not rise serious doubts (in the XVIII century publications completely unreliable biogeographical data were by no means rare...), but especially “*thorace basique elytrorum maculis impressis aureis*”, repeated as “*elytra ... basi punctis maculisque impressis aureis*” [boldface mine – RBH] appeared to exclude members of the *Ventricosa*-circle, suggesting rather a representative of the *C. [pisciformis] DEYR.*-superspecies (*Albertisi*-circle): it did not seem likely that the Author, having noticed some punctiform foveolae that may, indeed, occur at elytral base of *C. ventricosa* (OL.), has overlooked much more conspicuous dfp sulci on **apical** half. So, many subsequent Authors preferred to use *C. foveicollis* (BDV.) as the valid name, and it was evident that the confusion cannot be clarified without examination of the type! According to BELLAMY (2008) the type of *Buprestis ventricosa* OLIVIER was preserved in the MNHN (Paris), and indeed on my request Dr. MANTILLERI has kindly sent me a picture [Fig. 13] which, it seems, has resolved the puzzle: despite the above-mentioned reservations the [?holo-]type evidently belongs to the group analysed herein, and – having excluded *C. aureoatra* sp.n. and *C. snowensis* THY. (green colouration), *C. cyaniceps* KERR. (presence of subhumeral dfp patch on elytra), *C. kampeni* THY., *C. bellamyi* sp.n. and *C. cupreofossa* KERR. (narrow perimarginal sulcus), *C. esignata* sp.n. (subhumeral and perimarginal sulci distinct), *C. impressipennis* GESTRO and *C. sulcipennis* GESTRO (no perisutural sulcus) and *C. foveolata* DEYR. (lack of dfp foveae in anterior part of elytral disk), we can reasonably conclude that the name *C. ventricosa* (OL.) refers indeed to the present taxon.

On the other hand, the taxonomical (and – consequently – geographical) extent (inclusiveness) of *C. ventricosa* (OL.) remains a mystery, the full species status, and even the very validity as a separate taxon, of *C. cyaniceps* KERR., *C. kampeni* THY., *C. bellamyi* sp.n., *C. cupreofossa* KERR., *C. esignata* sp.n., *C. impressipennis* GESTRO, *C. sulcipennis* GESTRO and *C. foveolata* DEYR. is uncertain (in some cases outright doubtful), and has been tentatively accepted here only as a suggestion of further investigations: some of them may prove to deserve subspecies status, whereas some others should, perhaps, be synonymized or accepted as infrasubspecific varieties. To resolve this (and many similar...) Gordian knot much more (both morphologically and geographically) representative, much more reliably and exactly labelled, material than is presently available would be needed what, in turn, demands drastical change in currently dominating policy of reducing funds available for taxonomic studies and multiplying restrictions on collecting biological specimens and publication of the results of their study!

***Cyphogastra (s.str.) impressipennis* GESTRO**

Cyphogastra impressipennis GESTRO 1877: 297

Cyphogastra aeneofoveata GESTRO 1877: 297

Cyphogastra ronensis LANSBERGE 1880: 132-133

Material examined:

Lectotype [of *C. impressipennis* GESTRO] [hereby designated]: „N. Guinea, *Ansus, IV 1875, Beccari*” ”SYNTYPUS, *Cyphogastra impressipennis* Gestro, 1877” ”Museo Civico di Genova” [♂ (MCGD)]

Paralectotypes [of *C. impressipennis* GESTRO]: „N. Guinea, *Ansus, IV 1875, Beccari*” ”SYNTYPUS, *Cyphogastra impressipennis* Gestro, 1877” ”Museo Civico di Genova” [1♀ (MCGD)]; „N. Guinea, *Ansus, IV 1875, Beccari*” ”TYPUS” ”*impressipennis* Gestro” [1♀ (MCGD)]

Holotype [of *C. aeneofoveata* GESTRO]: „N. Guinea, *Ansus, IV 1875, Beccari*” ”*aeneofoveata* Gestro” ”SYNTYPUS, *Cyphogastra aeneofoveata* Gestro, 1877” ”Museo Civico di Genova” [♀ (MCGD)]

“**Syntypes**” [of *C. aeneofoveata* GESTRO]: „N. Guinea, *Ansus, IV 1875, Beccari*” ”*aeneofoveata* Gestro” ”SYNTYPUS, *Cyphogastra aeneofoveata* Gestro, 1877” ”Museo Civico di Genova” [1♀ (MCGD)]; „N. Guinea, *Avek (Jobi), Coll. Bruijn 1875*” ”TYPUS” ”SYNTYPUS, *Cyphogastra aeneofoveata* Gestro, 1877” ”Museo Civico di Genova” [1♀ (MCGD)]

Additional material: 15 ♂, 87 ♀

Characters [Figs. 14, 16]: Males [16] 19.5×6 – 27.5×8.5, females [92] 23×7.5 – 32×11. Dorsal side dark (often almost black) green, bluish or (rarely) bronzed, ventral with usually strong golden or even cupreous shine. Dfp areas covered with short, dense, recumbent pubescence; median sulcus of prosternal process with (denser and longer in males, sparser and shorter in females) white erect pilosity; elevated surfaces of body practically glabrous. Pronotal sides subparallel or slightly convergent; anterolateral angles not protruding; fossae rather deep, c- or axe-shaped, usually broader in females; anterior foveolae usually deep and rather large, often connected to fossa. Elytra caudate; no subhumeral protrusion; dfp sulci strongly developed in females, weaker and narrower (subhumeral sometimes indiscernible) in males; puncturation finer towards apices but rather coarse throughout. Proepisterna with more or less extensive dfp depressions surrounded by smooth or also finely punctulated elevations; abdominal plaque right- or somewhat obtuse-angled in profile, neither very finely nor very sparsely covered with elongate punctures; marginal and midlateral dfp stripes well developed, widely separated; apex of anal sternite deeply angularly emarginated [♂]; roundedly subtruncate with minute shallow incision at tip [♀].

Geographical distribution [Map 3]: Vogelkop Peninsula and islands of Geelvink Bay; one ex. from Sentani and one from “PNG: Yacquias [??? – I am unable to find such locality] might have been misidentified (I cannot check it now), one from near Mapia looks rather unusual (robust lustrous body, broad contrasting elytral sulci) may represent separate subspecies, while Cochinchine, Vietnam, Java, Timor, Amboine, and Australia are certainly mislabellings.

Remarks: The lectotypification of *C. impressipennis* GESTRO has been done in, unfortunately, not quite orderly manner. During my short visit in 2000 I found in the MCGD collection several specimens collected by BECCARI in April 1875 at Ansus (Jobi I.) and fitting the original description, two of them (♂ and ♀) labelled as syntypes and one (♀) as “Typus”. *C. impressipennis* GESTRO being one of the most challenging taxa, I decided to select the lectotype and marked the male with respective label. However, for various reasons I have hitherto not managed to formally publish the designation, and now I have no access to the type-series, so am unable to specify the characteristics of the specimen selected as the

lectotype beyond content of my notes made in 2000: label data, sex and measurements (24.5×8 mm.). Nevertheless, to remove the current potentially confusing situation (existence of a specimen marked as, but formally not being, lectotype of the frequently used name), I decided to validate the designation hereby.

The status of the type of *C. aeneofoveata* GESTRO also deserves a comment: there are in the MCGD collection three specimens (Ansus 23.5×7.5, Avek 27.5×8.5, Ansus 30×9.5 mm.) marked as syntypes, but only the last of them fits the locality and measurements given in the original description: GESTRO (1877) mentions apparently only 1 ex. (“Long. 31, lat. 9½ millim.”) from Ansus; so it seems reasonably sure that the largest specimen is in fact the holotype, the other two being not types at all.

C. impressipennis GESTRO is almost certainly not a valid species, being rather a kind of “waste-basket” containing wide variety of specimens showing mixed or intermediate characters of *C. ventricosa* (OL.) and *C. sulcipennis* GESTRO; however, based on the available material I am unable to decide what – a subspecies of the former?, of the latter?, or but a variety of one of them?) – is its true status, so I choose the conservative solution and tentatively treat it as a separate taxon.

Cyphogastra (s.str.) *sulcipennis* GESTRO

Cyphogastra sulcipennis GESTRO 1877: 297

Material examined:

Holotype: „N. Guinea, *Ansus*, IV 1875, *Coll. Beccari*” „**TYPUS**” “*sulcipennis* Gestro”
”HOLOTYPUS, *Cyphogastra sulcipennis* Gestro, 1877” ”Museo Civico di Genova” [1 ♂
(MCGD)]

Additional material: 3 ♂, 8 ♀, 1 ♂

Characters [Fig. 15, 17]: Males [3] all 22.5×7; females [8] 26×8 – 32×10.5 mm. Dull dark green to blue; dfp depressions golden-green to cupreous. Body – except dfp areas, pro/metasternal median sulcus and legs – practically glabrous. Pronotal sides subparallel or slightly convergent; anterolateral angles well marked but not protruding; collar poorly indicated; fossa rather broadly r-shaped, usually not connected to anterior foveolae. Elytral sides subparallel in basal half, then sinuately tapering to caudate apices; no subhumeral protrusion. Puncturation coarse and irregularly confluent at base, gradually diminishing towards apex but distinct throughout. Subhumeral dfp spot broad, more or less elongated, narrowly connected with very narrow golden dfp line along extreme marginal stria to broadly cuneate perimarginal; middiscal very narrow but usually distinct in females, less so in males; perisutural in females posteriorly similarly developed to perimarginal (but often linearly extended to basal half), separated from it by space subequal in width to any of them, in males perisutural narrower. Proepisterna somewhat uneven, extensively but often not entirely dfp; prosternal process rather widely, deeply sulcate and irregularly sculptured along midline; abdominal plaque low, sparsely covered with rather fine punctures; abdomen otherwise sparsely, somewhat more coarsely punctured; marginal and midlateral dfp stripes broad but widely distinctly separated; apex of anal sternite rather shallowly and not very broadly emarginated in male, narrowly rounded (often with small shallow incision at tip) in female. Aedoeagus relatively long, thin, subparallelsided, testaceous, penis apically piceous black.

Geographical distribution [Map 3]: Described from Jobi I., but occurrence there or in any locality (single specimens labelled “Baie de Geelvink, Raffray & Maindron, 1878”, “Sorong, V 72, D’Albertis” and “Goram, marzo 72, D’Albertis”) other than Salwatti I. needs confirmation; “Selangor: Ulu Gomba” is evidently a mislabelling.



Fig. 14

Cyphogastra impressipennis GESTRO
♂ [BPeii], W-N.Guinea: Mansinam



Fig. 15

Cyphogastra sulcipennis GESTRO
♂ [EONMP], Salwatti I.

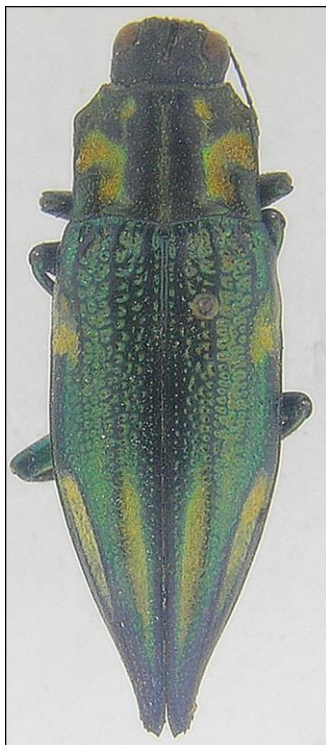


Fig. 16

Cyphogastra impressipennis GESTRO
♀ [BPeia], W-N.Guinea: Roon I.

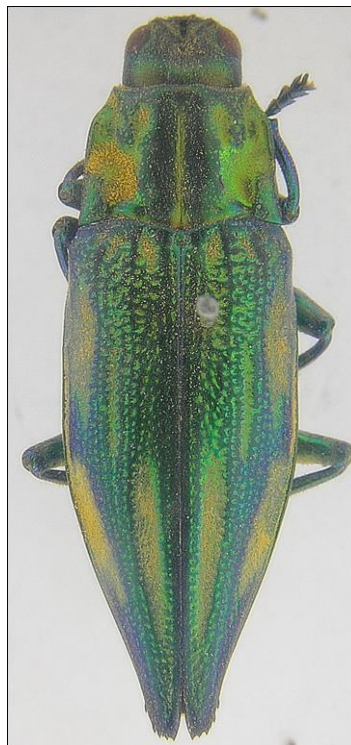


Fig. 17

Cyphogastra sulcipennis GESTRO
♀ [IZW], Salwatti I.



Fig. 18

Cyphogastra foveolata DEYR.
♀ [EONMP], PNG: Gulf Pr.: Biaru

Remarks: Deceptively similar to *C. impressipennis* GESTRO which, however, like all the remaining representatives of the circle, has no trace of middiscal sulcus, and subhumeral neither elongated nor connected by dfp stria to perimarginal; *C. foveicollis* (BDV.), differs also in finer elytral puncturation, narrow perisutural sulci, and in male shorter and relatively wider *aedoeagus*.

***Cyphogastra (s.str.) foveolata* DEYR.**

Cyphogastra foveolata DEYROLLE 1864: 46-47

Material examined: 1♂, 4♀

Characters [Fig. 18]: Male [1] 20 ×6.5, females [4] 24.5×8 – 27.5×9 mm. Bright dark-[somewhat bluish-]green with contrastingly cupreous-golden dfp; pronotum still darker, greenish-brown, ventral side golden-green. Pubescence only on dfp-depressions and in prosternal sulcus distinct, otherwise body glabrous. Pronotal sides slightly convergent; anterolateral angles well marked but not protruding, collar not developed; fossae rather large but not extended anterad and subdivided into two by narrow, carinately elevated smooth ridges between their anteromedian angles and prehumeral reliefs; anteromedian fovea conspicuous but widely separated, anterolateral linearly sulcate and joining fossa; anteromedian angles of prehumeral reliefs acute. Elytra distinctly, somewhat sinuately widened to midlength, then rather abruptly narrowed and shortly but strongly caudate; apices obliquely truncate, with 4-5 apical and 2 lateral denticles on each, sutural denticle by far the strongest; each elytron with two dfp foveolae in transverse row inwards of short but wide subhumeral hollow; perisutural and perimarginal sulci also short but broad; sculpture basally rather coarse, gradually finer towards apices. Proepisterna dfp with poorly defined irregular smooth elevations along middle; abdominal plaque high, rectangular in profile, sparsely covered with fine elongated puctures; apex of anal sternite of female broadly rounded. Male unknown.

Geographical distribution [Map 3]: Vogelkop Peninsula: Andai; the locality Biaru (PNG: Gulf Pr., very far – on the opposite side of New Guinea: 8°30'S-146°19'E, S-coast of the SE-peninsula! – from where all the other known specimens [including almost certainly the type: DEYROLLE described the species from the collection of WALLACE who had not reached on New Guinea beyond the north coast of the Vogelkop Peninsula!] originate from) looks evidently false (dealer's mislabelling – see also *C. ventricosa s.str.*)!

Remarks: Transverse row of dfp foveolae at basal fourth of elytral disk is itself sufficient to distinguish *C. foveolata* DEYR. from all known species of the genus. Its closest relative seems to be *C. impressipennis* GESTRO.

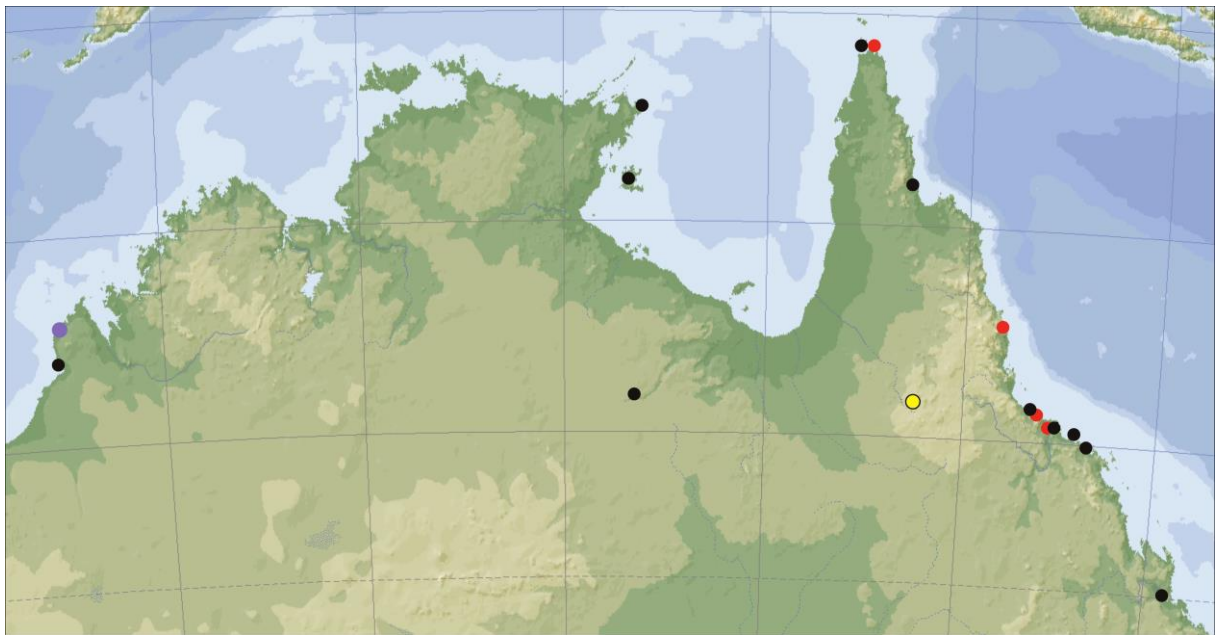
Pistor-circle

Remarks: A group of closely related species characterized by [almost] black body, very strong development of dfp depressions (exaggeration of the pattern typical of the *Ventricosa*-circle), non-caudate elytra, rudimental abdominal plaque &c. Exclusively Australian, but exact distribution areas of particular terminal taxa remain unknown – the majority of available specimens being inexactly (“Australia” or “Queensland”) or irreliably (“New Guinea”) labelled, or bearing no locality-labels whatsoever – what makes also their taxonomic interrelations difficult to disentangle, the more so that two of the four species-level taxa recognized herein are known only from holotypes (one of them not available to me in nature for study).

Key to the identification of species of the *Pistor*-circle

[some species are known only from females, so the characters may not reliably apply to males!]

- 1 (6) Middiscal elytral dfp sulci lacking or – exceptionally – barely discernible as short rudiment; dfp areas cover less than half of elytral surface
- 2 (3) Subhumeral and perimarginal sulci widely separated; anterior part of perisuturals marked (if at all) only as small rounded or elliptic foveolae . *C. (s.str.) pistor* (C.G.)
- 3 (2) Subhumeral and perimarginal sulci joined to form entire lateral dfp vitta; anterior part of perisuturals long, definitely sulciform, sometimes joined to apical parts
- 4 (5) Basal and apical portions of perisutural sulci widely separated *C. (s.str.) vulnerata* THY.
- 5 (4) Perisutural sulci entire *C. (s.str.) quadrivittata* CART.
- 6 (1) Middiscal sulci narrow but long, well developed; dfp areas occupy the majority of elytral surface *C. (s.str.) insolens* sp.n.



Map 4

Geographical distribution of the *Canaliculata*-group
 ● – *C. pistor* (C.G.); ● – *C. vulnerata* THY.; ● – *C. quadrivittata* CART.; ● – *C. insolens* sp.n.
 ○ (black framing) – general area: exact locality unknown

***Cyphogastra (s.str.) pistor* (C.G.)**

Chrysodema pistor CASTELNAU & GORY 1835: 25
Chrysodema saundersi MACLEAY 1888: 1227-1228
Cyphogastra browni CARTER 1921: 305-306

Material examined: 28 ♂, 33 ♀, 33 ♂

Characters [Fig. 19, 21]: Males [28] 20×6.5 – 28.5×9.5; females [33] 24.5×8 – 33×11 mm. Black lustrous above, [golden-]green below, dfp areas golden-green to cupreous; tarsi and antennae usually black, only in one ex. [allegedly from “New Guinea”...] 3.-11. antennomeres yellow. Body – except dfp areas, pro-metasternal median sulcus, and legs – practically glabrous. Pronotal sides subparallel or slightly convergent; anterolateral angles more or less well marked, not protruding; collar not or but slightly indicated; fossa broadly (often very broadly) r-shaped, usually not connected to anterior foveolae but sometimes practically including them. Elytral sides subparallel or slightly sinuately divergent in basal

half, then arcuately tapering to apices; subhumeral denticle distinct but not conspicuous. Punctuation moderately fine and dense, almost vanishing before apices. Suprahumeral, subhumeral, perimarginal and perisutural dfp depressions strongly marked, periscutellar part of the latter represented by rounded or but slightly elongated foveolae or totally lacking. Proepisterna entirely dfp; abdominal plaque very low or barely discernible, very sparsely finely punctulate; marginal and midlateral dfp stripes broad but distinctly separated; apex of anal sternite deeply angularly emarginated in male, narrowly rounded with small incision at tip in female.

Geographical distribution [Map 4]: Specimens examined by me indicate wide distribution area extending from Dampier Land (NW-Australia), through Northern Territories and York Peninsula to SE-Queensland, but only few of them have reliable and exact locality labels; “New Guinea” and “Amboina” are evidently erroneous.

Remarks: Short or entirely lacking dfp foveolae representing anterior part of perisutural sulci characterize this taxon within the circle.

***Cyphogastra (s.str.) vulnerata* THY.**

Cyphogastra vulnerata THÉRY 1908: 80

Holotype: “Australie” “*Cyphogastra vulnerata* m., Type” “VU PAR KERREMANS POUR SA MONOGRAPHIE” “MUSEUM PARIS, 19..[illegible], coll. A.THERY” [♀ (MNHN)]

Additional material: 21 ♂, 17 ♀, 1 ♂

Characters [Figs. 20, 22, 25]: Males [21] 21×6.5 – 29×10, females [18] 26×9 – 36×11.5 mm. Lustrous [somewhat bluish- or greenish-]black above with contrastingly greenish- or cupreous-golden dfp depressions; ventral side golden-green, antennae and tarsi black. Pubescence distinct only on dfp-depressions and in prosternal sulcus, otherwise body glabrous. Pronotum subparallelsided; anterolateral angles usually well marked but not protruding, collar poorly developed; fossae rather large, somewhat irregularly c-shaped, connected to narrowly sulciform anterolateral foveola; anteromedian variously developed, sometimes connected by transverse furrow to anterolateral; prehumeral reliefs often poorly delimited. Elytra subparallelsided or somewhat sinuately widened to midlength, then arcuately-cuneately tapering to jointly narrowly rounded apices; subhumeral and perimarginal sulci joined to form entire marginal dfp vitta, both anterior and posterior parts of perisutural long but distinctly separated, suprahumeral spot large and conspicuous, in one aberrant (possibly hybrid – see **Remarks**) specimen [Fig. 25] also rudiments of middiscal appear; sculpture rather fine, almost totally vanishing towards apices. Proepisterna extensively, sometimes entirely dfp; abdominal barely marked, finely and very sparsely punctulate; apex of anal sternite in male broadly and deeply angularly emarginate, in female narrowly regularly rounded.

Geographical distribution [Map 4]: All reliably labelled specimens examined by me came from NE-Queensland, where it seems to occur sympatrically with more frequently collected *C. pistora* (C.G.).

Remarks: On average larger and slenderer than *C. pistora* (C.G.), differs mainly in entire lateral elytral vitta and longer apical and (especially) basal part of perisutural sulcus. The large and strikingly robust female shown on Fig. 25 (from Mulgrave, 40 km SSE Cairns) shows rudiments of middiscal sulci, very broad marginal and perisutural, unusually coarse punctuation of elytral disk, &c., making it rather oddly looking – perhaps a hybrid (*vulnerata*×*insolens*?).

Cyphogastra (s.str.) quadrivittata CART.

Cyphogastra quadrivittata CARTER 1916: 143-144

Holotype: "Western Australia: Carnot Bay" (only picture [Fig. 23] seen) [♀ (MV)]

Additional material: None

Characters: Having never seen any specimen of this species I can only include a copy of the original description [CARTER 1916]:

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CYPHOGASTRA QUADRIVITTATA, n. sp.

Pl. ix., fig. 4.

Elongate-navicular. Upper-surface green, somewhat cyaneous on the raised parts, with lighter-coloured impressions, more or less filled with yellow flocculence; underside coppery on raised central part, green more or less obscured by yellow flocculence elsewhere; legs green (antennae and tarsi wanting).

Head triangularly excised, channelled at base, with a deep central fovea between the eyes, these bordered within by rugose-pustulose ridge; basal part sparsely punctate near middle, rugose-punctate behind eyes. *Prothorax* 8 × 11 mm., depressed, strongly bisinuate at apex and base, all angles produced and acute, base with widely-rounded central lobe, widest at base, sides sinuate near both angles; disc with wide deep medial sulcus, a wide irregular flocculent impression, trilobed externally, occupying the greater part of sides, the raised part near centre sparsely punctate, at sides rugose-punctate. *Scutellum* rounded and depressed in front, bilobed and convex behind, with four punctures on anterior half. *Elytra* slightly wider than prothorax at base, angularly widening at shoulders and tapering to an acuminate apex from the middle, each apex subrectangular at suture, with about four strong serrations on posterior margins, each elytron with two wide impressed vittae, golden-green with yellow flocculence (where not abraded), the first extending from base to near apex, near and more or less parallel to the suture, the second near the margin starting behind the shoulder and extending to the apex, a large floccose impression at base near the middle of each elytron, a narrow lateral sulcus exterior to the second vitta starting from the posthumeral sinuation, and gradually widening and obsolescent towards apex, the suture convex on anterior half, narrowing and carinate posteriorly, with fine sparse punctures, the raised surface between the vittae having larger and more regular punctures, these gradually becoming obsolete towards apex. *Prosternum*, mesosternum, and metasternum widely sulcate; first abdominal segment with the usual convex plate at centre, rounded behind, acuminate in front, the smooth middle parts of underside finely and sparsely punctate, the greater part of the under-surface covered with orange-yellow flocculence. *Dim.*, 40 × 12 mm.

Hab.—Western Australia: Carnot Bay.

A female specimen from the French Collection in the Melbourne Museum is the finest and most distinct species of the genus known to me. It may be at once differentiated

from the other described Australian species by (1) greater size, (2) by the four elytral vittae extending nearly the full length. Type in the National Museum, Melbourne.

Geographical distribution [Map]: Known only from the holotype collected at Carnot Bay [CARTER 1916].

Remarks: According to the measurements given in the description the type is larger than any *Cyphogastra* DEYR. known to me. The species seems closely related to *C. vulnerata* THY. and could be considered a variety of the latter if not for wide geographical disjunction, intermediate areas being apparently inhabited only by *C. pistora* (C.G.).

Cyphogastra (s.str.) *insolens* sp.n.

Material examined:

Holotype: “Queensland ?” “*Cyphogastra vulnerata* Thery, comp. au Type, Thery det.” “Comparé au Type, par Thery” “cum typo comp., Dr. Hoscheck” [♀ (RBH: BPeht)]

Additional material: None

Holotype [Fig. 24]: Female 33×11 mm. Dark blackish-brown, mat above (including dfp depressions), elytral apices chestnut-red; ventral side lustrous green. Median sulcus of prosternal process and metasternum with moderately long but dense erect pilosity, dfp areas very densely covered with short recumbent pubescence and dull grayish pulverulence, elevated parts of body glabrous.

Epistome deeply arcuately emarginate, epistomal ridge indistinct; supraepistomal carina low, indefinite, densely and very coarsely sculptured. Front wider than long, sides distinctly divergent; frontal depression deep, paraboloidal, reaching far beyond upper margins of eyes, practically impunctate above, coarsely almost confluent punctured in deep anterior cavity; lateral ridges short, inconspicuous; pericocular sulci very deep but also short.

Pronotum much wider than long (L:W≈1.5), looks almost semicircular due to completely obliterated anterolateral angles; no distinct collar; base shallowly, anterior margin deeply bisinuate; median lobe regularly rounded. Median depression moderately deep, at bottom finely and densely punctured; disk almost imperceptibly, very sparsely punctulate, sculpture of narrow lateral parts coarse and dense; fossae very broad, irregular, connected to transverse dfp furrow connecting both anterior foveolae. Scutellum minute, almost equilaterally trapezoidal, transversely and longitudinally sulcate, smooth.

Elytra almost regularly ovate, most of surface occupied by broad dfp sulci separated from each other only by narrow costiform smooth vittae. Sculpture rather fine except shortly behind base where transversely confluent rugose puncturation dominates; perihumeral dfp hollow very broad, round; subhumeral sulcus broad and long, separated from perimarginal; middiscal reaching to apical fourth; perisutural almost entire, narrow anteriorly, shortly and somewhat indefinitely broken at basal third, very broad behind.

Proepisterna entirely dfp, marginal and midlateral sides of meso- and metasternum almost so; perimarginal and midlateral stripes of abdomen very broad, separated only by narrow elevated line; median sulcus of prosternal process much narrower than finely and sparsely punctulate lateral rims; metasternum medially grooved; median parts finely and very

sparsely punctulate. Abdominal plaque barely indicated, sparsely covered with very fine, somewhat elongate punctures; apex of anal sternite very narrowly rounded.

Geographical distribution [Map 4]: Labelled imprecisely as “Queensland?”; if the specimen on Fig. 25, attributed to *C. vulnerata* THY., is indeed a hybrid, then both parent species must have occurred in the vicinities of Cairns.

Remarks: Superficially looks drastically dissimilar to any *Cyphogastra* DEYR., but closer inspection reveals its affinity to *C. vulnerata* THY.



Fig. 19

Cyphogastra pistor (C.G.)
♂ [BPehy], NW-Australia: Broome



Fig. 20

Cyphogastra vulnerata THY.
♂ [BPlwq], [locality?]

Phylogenetical reconstruction

Chalcomroczkowskia HOL., *Iridotaenia* DEYR. and *Guamia* THY. had been *a priori* fixed as distant outgroup, thus the relations among them have not been reconstructed herein. The remaining species[-groups] included in the present analysis form two [MM and OO] major clades, of which MM contains only non-target taxa [“5-JJ”, “5-K”, “5-D” &c. mean the ancestors of the respective – JJ, K, D – clades as reconstructed in the Part V (HOLYŃSKI 2021)], whose interrelationships have been reconstructed in the earlier parts of the Review and will not be commented here – the only fact worth mentioning is the confirmation of the polyphyletic nature of the *Javanica*-circle, with the “*Javanica*-group *s.str.*” being a descendant of paraphyletic *Satrapa*-circle, a sister- (or, rather, daughter-)group of *C. incolans* HOL. (the latter, according to the present analysis, does not differ in anything from their common ancestor).

The common ancestor [moderately elongated, dorsally bicolorous (pronotum blackish, elytra green with bluish-black extreme tips), ventral side green, tarsi dark; pronotum



Fig. 21
Cyphogastra pistor (C.G.)
 ♀ [EONMP], Queensland: Townsville



Fig. 22
Cyphogastra vulnerata THY.
 ♀ HT [MNHN], Australia



Fig. 23
Cyphogastra quadrivittata CART.
 ♀ ST [MV], W-Australia: Carnot Bay
 [phot. Mus. Victoria]



Fig. 24
Cyphogastra insolens HOL.
 ♀ HT [BPeht], ?Queensland

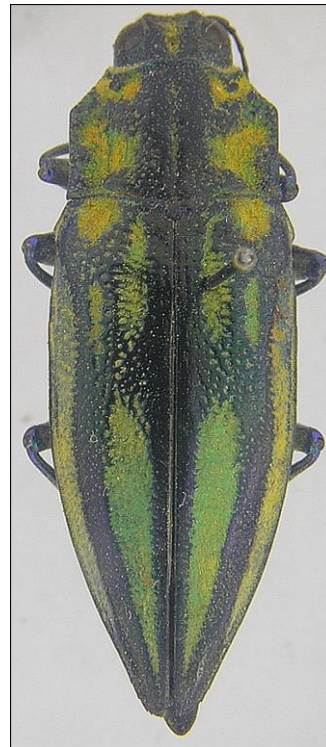


Fig. 25
Cyphogastra ?hybr.vulnerata/insolens
 ♀ [EONMP], Queensland: Mulgrave

subparallelsided with anterolateral angles well marked but not protruding outwards; anterolateral foveola inconspicuous, prominent anteromedian connected to contrastingly coloured broad, extensively dfp fossa; non-caudate elytra without subhumeral protrusion or dfp depressions except well developed perimarginal, its puncturation moderately coarse; proepisterna partly dfp, abdominal plaque low, marginal and midlateral dfp stripes of anal sternite moderately developed] of **OO** lived somewhere in New Guinea and gave rise to also New Guinean **T** (*Modesta*-circle: anterolateral foveola prominent, anterolateral angles poorly marked, elytral sculpture coarse, perisutural sulci weakly developed, no distinct abdominal plaque) and **NN** (anterolateral foveola inconspicuous, elytra slightly caudate, subhumeral and perimarginal discernible but weak, abdominal plaque prominent). The former has developed into *C. modesta* *GESTRO* (contrastingly coloured epipleura, weak perimarginal elytral dfp sulci) known from Mafor I. and *C. loraii* *THY.* (broader, uniformly blackish, proepisterna entirely dfp) described from Gulf Pr.: Purari Riv.; **NN** gave rise to still New Guinean **BB** (discernible subhumeral protrusion, no subhumeral dfp, entirely dfp proepisterna) and N-Melanesian (New Ireland) **JJ** (anteromedian foveola not conspicuous, fossa clearly axe-shaped, elytra non-caudate, subhumeral sulcus prolonged anterad). According to the present reconstruction **BB** was the paraphyletic ancestor of the non-target *Collarti*-circle (body broad, elytral suture bluish-black, sternum cupreous, no elytral sulci) and part (**AA**) of the *Ventricosa*-circle, and the comments below will tentatively follow the resulting – although almost certainly erroneous – pattern: in my opinion **AA** was in fact evidently the “sister” of **W**, with further connections as marked with broken lines on the cladogram [Fig. 26]; the question will be clarified in subsequent parts of the Review.

Back to the results of the present reconstruction. **AA** (elytra definitely caudate, perimarginal sulci prominent) seems to have inhabited north-central highlands of New Guinea where also its immediate descendant, *C. cyaniceps* *KERR.* (dorsal side green, ventral violaceous, proepisterna partly dfp, lateral dfp on abdomen rudimental) occurs. The sister-group of the latter, **X** (dorsally black, ventrally green, both anterior pronotal foveolae rather distinct, fossa concolorous, no subhumeral protrusion, perisutural sulcus weakly marked) occupied apparently more western area, near the “neck” of New Guinea, inhabited also by its descendants, *C. snowensis* *THY.* (ventral side black, anterolateral foveola lacking, fossa axe-shaped, no perisutural sulcus) and **P** (perisutural sulcus prominent), as well as one of the latter’s “daughters”: *C. aureoatra* *HOL.* (pronotal sides convergent with anterolateral angles poorly accentuated, both anterior foveolae prominent, abdominal plaque low). As the sister of *C. aureoatra* *HOL.* appears somewhat controversial (in HOLYŃSKI 2021 attributed – although with some hesitation: already then the *Ventricosa*-circle was suggested as no much less likely placement – to the *Farinosa*-circle), almost unchanged (concolorous elytral tips on entirely black beetle may easily be a misinterpretation) *C. aterrima* *KERR.* from the mountains of eastern New Guinea.

The two consecutive offshoots of **JJ** make the – well characterized although according to the present reconstruction paraphyletic – *Obloquens*-circle: *C. obloquens* *sp.n.* (yellow tarsi, concolorous fossae, fine sculpture, no perimarginal sulci) on the central New Ireland (Lelet Plateau) and *C. melaneza* *sp.n.* (indistinct anteromedian foveola) on the southeastern part of the island (H. Meyer Range). The immediate ancestor of the latter, **II** (entirely backish, prominent perimarginal sulci) colonized “mainland” New Guinea to develop into **HH** (prominent anteromedian and less distinct anterolateral foveola, distinct perisutural elytral sulcus, entirely dfp proepisterna, low abdominal plaque), the ancestor of the

of new Guinea. One of the descendants of **V** is *C. bellamyi* sp.n. (fossa very broad, proepisterna non-dfp) from the upper Sepik area, the other **U** (subparallelsided pronotum with distinct anterolateral foveola, no subhumeral protrusion and slightly developed subhumeral dfp on elytra) of uncertain distribution. **U** gave rise to *C. cuprefossa* KERR. (purplish-violaceous ventral side, no anterolateral foveola, barely marked anterolateral angles of pronotum, contrastingly coloured fossa) probably endemic to the Finisterre Mts. area, and western-New Guinean **K** (anteromedian foveola on pronotum and periarginal sulci on elytra distinct), itself the ancestor of practically unmodified (characterized only by more distinct marginal dfp stripe on abdomen) **G** and somewhat better defined (prominent subhumeral, perisutural and perimarginal sulci) **B** – both centered around Geelvink Bay and Vogelkop Peninsula. **G** gave rise to *C. esignata* sp.n. (characterized by barely noticeable elytral sulci and extensive marginal abdominal dfp) from Karas I. (off Bomberai Pen.) and almost unchanged (marginal dfp of abdomen poorly developed) *C. ventricosa* (OL.) more widely distributed over westernmost New Guinea; the descendants of **B** are *C. sulcipennis* GESTRO (distinct middiscal sulci) probably endemic to Salwatti I., and *C. impressipennis* GESTRO (low abdominal plaque) from islands of Geelvink Bay and nearby areas.

The sister clade of **FF** is **GG** [anterolateral foveola prominent, perihumeral (inside of humeri) area dfp, perilateral elytral sulcus entire (confluent with subhumeral)], the ancestor of the here targeted Australian *Pistor*-circle (**DD**) and earlier (HOLYŃSKI 2021) analyzed New Guinean/Melanesian *Canaliculata*-circle (**EE**). **DD** (ventral side green, anterolateral pronotal angles poorly marked, elytra non-caudate, perihumeral dfp fovea prominent, abdominal plaque practically non-existent) gave rise to **E** (distinct anterolateral foveola) and **N** (ferruginous elytral tips, pronotal sides convergent, anteromedianfoveola distinct, fossa very broad); the descendants of the former are *C. pistor* (C.G.) (subhumeral dfp separated from perimarginal, abdominal plaque low but more or less distinct) and still unmodified *C. vulnerata* THY.; **N** gave rise to superficially very distinctive (robust body, concolorous fossa, prominent middiscal sulcus) *C. insolens* sp.n., whereas far-western (Carnot Bay) *C. quadrivittata* CART. remained practically unmodified.

The relations within the non-target *Canaliculata*-circle (**EE**, including *C. petrillarum* HOL., originally included in the *Farinosa*-circle) appear identical as in the Part V of the Review (HOLYŃSKI 2021) and have been commented there.

Acknowledgements

It is my duty and great pleasure to express deep gratitude to my Czech Colleagues, Dr. Lukáš SEKERKA (EONMP) and David FRANK for the loan of the *Cyphogastras* from the collection under their care. Special thanks are due to Dr Antoine MANTILLERI (MNHN Paris) for the photo of the type of *C. ventricosa* (OL.).

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Appendix

Character definitions

Upper line – codes of traits [“character-states”]; [***bold italics***] – terminals of a transformation chain
Lower line – weights (costs of transformation) [$0 \leftrightarrow 1 \leftrightarrow 2 = 1$: additively equidistant (distance between 0 and 1 the same (=1) as between 1 to 2, that between 0 and 2 = 1+1 = 2); (***abc***)=1: equidistant [distance $a \leftrightarrow b = b \leftrightarrow c = c \leftrightarrow a = 1$]; $a \leftrightarrow (x/y) = 2$: alternatively equidistant [$a \leftrightarrow x = a \leftrightarrow y = 2$; $x \leftrightarrow y = (x \leftrightarrow a) + (a \leftrightarrow y) = 2 + 2 = 4$]

Proportions & colour

1. Body proportions (L:W): [***0***] <3.0; [1] ≈3.0-3.2; [***2***] >3.2
 $0 \leftrightarrow 1 \leftrightarrow 2 = 1$
2. Pronotum: [g] green or blue; [c] cupreous; [p] purplish; [b] black
 $g \leftrightarrow c \leftrightarrow p = 1$; $g \leftrightarrow b \leftrightarrow p = 2$
3. Elytra (disk): [e] concolorous; [a] contrasting blue; [g] contrasting green; [b] contrasting black
 $(a/g) \leftrightarrow e = 3$; $a \leftrightarrow g = 1$; $e \leftrightarrow b = 1$
4. Elytra (epipleura): [***0***] concolorous; [***1***] contrasting cupreous
 $0 \leftrightarrow 1 = 2$
5. Elytra (lateral streak): [***0***] none; [1] distinct; [***2***] very broad, contrastingly polychrome
 $0 \leftrightarrow 1 \leftrightarrow 2 = 2$
6. Elytra (lateral streak): [***0***] none; [1] midlateral; [***2***] lateroapical
 $0 \leftrightarrow 1 \leftrightarrow 2 = 1$
7. Elytral sutural interstria: [***0***] concolorous; [***1***] bluish-black
 $0 \leftrightarrow 1 = 1$
8. Elytral extreme tips: [f] ferruginous; [b] bluish-black; [c] concolorous
(fbc)=1
9. Sternum: [e] concolorous with pronotum; [g] green; [c] cupreous; [p] purplish or bluish-violaceous; [b] black
 $(g/c/p/b) \leftrightarrow e = 1$; $g \leftrightarrow c \leftrightarrow p \leftrightarrow b = 1$
10. Tarsi: [***0***] dark; [***1***] yellow
 $0 \leftrightarrow 1 = 3$

Pronotum

11. Side margins: [***0***] subparallel; [***1***] distinctly convergent
 $0 \leftrightarrow 1 = 2$
12. Anteromedian foveola: [***0***] none or inappreciable; [1] distinct; [***2***] prominent, joining fossae
 $0 \leftrightarrow 1 \leftrightarrow 2 = 1$
13. Anterolateral foveola: [***0***] none or inappreciable; [1] distinct; [***2***] prominent, joining fossae
 $0 \leftrightarrow 1 \leftrightarrow 2 = 1$
14. Anterolateral angles: [***0***] barely marked; [1] well developed; [***2***] projecting outwards
 $0 \leftrightarrow 1 \leftrightarrow 2 = 1$
15. Lateral fossae: [***n***] broad, indefinite, non-dfp; [f] deep furrow; [c] c-shaped; [a] axe-shaped; [s] very broad
 $n \leftrightarrow (f/c/a/s) = 2$; $f \leftrightarrow c \leftrightarrow a \leftrightarrow s = 1$
16. Lateral fossae: [***0***] not dfp; [1] slightly dfp; [***2***] extensively dfp
 $0 \leftrightarrow 1 \leftrightarrow 2 = 2$
17. Lateral fossae: [***0***] concolorous [***1***] contrastingly coloured
 $0 \leftrightarrow 1 = 1$

Elytra

18. Subhumeral protrusion: [***0***] none; [1] discernible; [***2***] prominent
 $0 \leftrightarrow 1 \leftrightarrow 2 = 1$
 19. Apical half: [***0***] not caudate; [1] moderately caudate; [***2***] strongly caudate
 $0 \leftrightarrow 1 = 2$; $1 \leftrightarrow 2 = 1$
 20. Sculpture: [***0***] very fine; [1] moderate; [***2***] relatively coarse
 $0 \leftrightarrow 1 \leftrightarrow 2 = 1$
 21. Dfp perihumeral: [***0***] none; [1] discernible; [***2***] prominent
 $0 \leftrightarrow 1 = 2$; $1 \leftrightarrow 2 = 1$
 22. Dfp subhumeral: [***0***] none; [1] discernible; [***2***] prominent; [***3***] prolonged to humeri
 $0 \leftrightarrow 1 = 2$; $1 \leftrightarrow 2 \leftrightarrow 3 = 1$
 23. Dfp sulci – perisutural: [***0***] none; [1] discernible; [***2***] prominent; [***3***] entire
 $0 \leftrightarrow 1 \leftrightarrow 2 = 2$; $(1/2) \leftrightarrow 3 = 2$
 24. Dfp sulci – middiscal: [***0***] none; [***1***] basal
 $0 \leftrightarrow 1 = 2$
 25. Dfp sulci – perimarginal: [***0***] none; [1] discernible; [***2***] prominent; [***3***] entire
 $0 \leftrightarrow 1 \leftrightarrow 2 = 2$; $(1/2) \leftrightarrow 3 = 2$
- #### Ventral side
26. Proepisterna: [***0***] entirely dfp; [1] partly dfp; [***2***] entirely lustrous & relieved
 $0 \leftrightarrow 1 \leftrightarrow 2 = 1$
 27. Abdominal plaque: [***0***] none; [1] low, posterior angle roundedly obtuse; [***2***] prominent, posterior angle right or acute
 $0 \leftrightarrow 1 = 2$; $1 \leftrightarrow 2 = 1$
 28. Midlateral dfp stripes on abdomen: [***0***] none/inconspicuous; [***1***] distinct at least on anal sternite (often confluent with lateral)
 $0 \leftrightarrow 1 = 2$
 29. Lateral dfp depressions on abdomen: [***0***] none or inconspicuous; [1] extensive; [***2***] almost entire sides
 $0 \leftrightarrow 1 \leftrightarrow 2 = 1$

Character matrix

red italics – apomorphies;

blue columns – distance from immediate ancestor and support quotient [S/Q]

	1		2			
	12345	67890	12345	67890	12345	6789
	2322	113	2	2	2	22222
	22					22
1. CHALCOMROCZKOWSKIA	0ge00	00be1	1000s	20001	02002	2001
2. IRIDOTAENIA	1be00	00ce0	1020f	21000	00000	0012
3. GUAMIA	1ce02	00be1	1001c	00010	00000	2010
4. Tuberculata-circle	1be00	00ce0	0022f	00011	00000	0211= 5
5. Armata-circle	1ce00	00ce0	1000n	00120	00000	1111=10
6. C. tinianica	1ge00	00ce1	0002c	10221	00000	1211= 4
7. K	1gb00	00be0	0001c	10000	00000	0211= 5
8. C. celebensis	0ge01	20be0	0101c	10000	00000	0211= 2
9. C. incolans	1ce01	11be0	0001c	00010	00000	0111= 0
10. Javanica-group	1ce01	10be0	0001c	00020	00000	0211= 3
11. D	1ge01	11be0	0001c	10011	00000	0111= 0
12. C. carbonaria	1be01	20be0	0001c	10011	00000	0211= 3
13. C. augustini	1ge01	20be0	0102c	10021	00000	1111= 3
14. Gestroi-circle	1pg02	20bb0	0121c	00021	00000	1111= 1
15. C. wetteriana	1pg02	20bb1	0101c	00021	00001	0111= 4
16. C. rothshildi	1pg02	20bb0	0101c	00021	00001	1111= 0
17. GG	1be02	10bg0	0121c	00021	00000	0211= 1
18. JJ	1ge00	00be0	1101f	20121	00000	1210= 9
19. Collarti-circle	0bg00	01bc0	0201s	21111	00000	0211= 5
20. L	1ge00	01be0	0101a	20011	00000	1111= 3
21. X	1be01	11be0	0101a	20021	00000	1111= 1
22. P	1be00	00ce0	0111a	10021	03313	1111= 1
23. V	2be00	00ce0	1110a	10011	03313	1111= 4
24. C. canaliculata	1be00	00ce0	0221s	21011	01313	1211= 3
25. C. aterrima	1be00	00cg0	0111s	20021	00202	0211= 1
26. C. petrillarum	1be00	00ce0	0221a	21010	00100	1111=10
27. EE	1be01	11be0	0101a	20011	00100	1111= 2
28. C. modesta	1bg10	00bg0	0220s	21002	00101	1011= 4
29. C. lorai	0bb00	00be0	0220s	21002	00102	0011= 7
30. C. obloquens	1bg00	00bg1	0101a	20000	03000	1211= 7
31. C. melaneza	1be00	00be0	0001a	21001	03002	1211= 1
32. C. aureoatra	1be00	00bg0	1220s	21021	00202	0111= 7
33. C. snowensis	1be00	00bb0	0101a	20021	00002	0211= 7
34. C. cyaniceps	1gg00	00bp0	0201s	21121	00002	1210= 6
35. C. kampeni	1ge00	00be0	1000a	20122	02002	1210= 4
36. C. bellamyi	1ge00	00be0	1201s	20111	02102	2210= 2
37. C. cupreofossa	1ge00	00bp0	0200a	21011	01102	1210= 4
38. C. esignata	1ge00	00be0	0111a	20011	01100	1212= 3
39. C. ventricosa	1ge00	00be0	0111a	20011	01101	1210= 1
40. C. impressipennis	1ge00	00be0	0111a	20011	02202	1110= 1
41. C. sulcipennis	1ge00	00be0	0111a	20011	02212	1210= 2
42. C. foveolata	1ge00	01bc0	0101a	20022	02222	0211= 6
43. C. pistor	1be00	00bg0	0210a	21001	22202	0111= 5
44. C. vulnerata	1be00	00bg0	0210a	21001	23203	0011= 0
45. C. quadrivittata	1be00	00fg0	1120s	21001	23303	0011= 0
46. C. insolens	0be00	00fg0	1120s	20001	23213	0011= 4
A	1pg02	20bb0	0101c	00021	00001	1111= 3 [1/ 7]
B	1ge00	00be0	0111a	20011	02202	1210= 5 [3/ 6]
C	1ce01	11be0	0001c	00010	00000	0111= 4 [3/ 4]
D	1be01	11be0	0101a	20011	00000	1111= 2 [5/ 7]
E	1be00	00bg0	0210a	21001	23203	0011= 3 [4/12]
F	1be00	00ce0	0111a	10011	03313	1111= 5 [4/10]
G	1ge00	00be0	0111a	20011	01101	1211= 1 [4/ 6]
H	1ge01	00be0	0000c	10011	00000	0111= 0 [4/ 4]
I	1ge01	20be0	0001c	10011	00000	0111= 1 [4/ 6]
J	1ge01	11be0	0101a	20011	00000	1111= 5 [5/ 7]
K	1ge00	00be0	0111a	20011	01101	1210= 3 [6/10]
L	1ge01	20be0	0101c	10011	00000	0111= 0 [6/ 6]
M	1ge01	10be0	0101c	10000	00000	0211= 5 [7/ 8]
N	1be00	00fg0	1120s	21001	23203	0011= 5 [7/12]
O	1pg02	20bb0	0111c	00021	00000	1111=10 [7/ 9]
P	1be00	00bg0	0111s	20021	00202	0211= 2 [8/ 9]
Q	1ge01	20be0	0101c	10011	00000	0111= 1 [8/ 8]
R	1ge01	10be0	0101c	10011	00000	0111= 3 [8/10]

S	1be02	10bg0	0121c	00021	00000	0111=	7	[	9/11]
T	1bg00	00bg0	0220s	21002	00102	1011=	7	[	8/14]
U	1ge00	00be0	0211a	20011	01102	1210=	5	[	8/ 9]
V	1ge00	00be0	1201a	20111	02102	1210=	3	[	8/ 9]
W	1ge00	00be0	1101a	20122	02102	1210=	7	[	9/12]
X	1be00	00bg0	0111s	20021	00102	0211=	9	[	9/10]
Y	1be00	00ce0	0221a	21011	02313	1111=	4	[	10/13]
Z	1be01	10be0	0111c	10011	00000	0111=	6	[	10/11]
AA	1bg00	00bg0	0201s	21121	00002	0211=	3	[	10/11]
BB	1bg00	00bg0	0201s	21111	00001	0211=	4	[	11/14]
CC	1be01	10ce0	0021c	00011	00000	0211=10		[	11/12]
DD	1be00	00bg0	0220a	21001	23203	0011=	7	[	12/16]
EE	1be00	00ce0	0221a	21011	02212	1111=11		[	9/10]
FF	1ge00	00be0	0101a	20022	02202	0211=10		[	10/12]
GG	1be00	00be0	0221a	21011	13103	0111=	5	[	11/12]
HH	1be00	00be0	0211a	21011	03102	0111=	6	[	10/12]
II	1be00	00be0	0101a	21001	03102	1211=	8	[	11/12]
JJ	1bg00	00bg0	0101a	21001	03001	1211=	6	[	12/14]
KK	1ge00	00ce0	0001c	10221	00000	1211=	3	[	11/13]
LL	1be00	00ce0	0011c	10221	00000	1211=	4	[	12/14]
MM	1be00	00ce0	0001c	00121	00000	1211=	8	[	10/12]
NN	1bg00	00bg0	0201s	21011	01001	1211=	8	[	13/14]
OO	1bg00	00bg0	0211s	21001	00002	1111=18		[	11/14]
PP	1be00	00be0	0001c	00011	00002	1211=	4		
QQ	1be00	00be0	0001c	00011	00000	1211			
	c	2	1	1	20	20	0		

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