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TAXONOMICAL, ZOOGEOGRAPHICAL AND PHYLOGENETICAL RELATIONS AMONG INDO-PACIFIC *DICERCA* ESCH. AND *POECILONOTA* ESCH. (COLEOPTERA: BUPRESTIDAE)

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ABSTRACT: The paper gives the taxonomical, zoogeographical and phylogenetical review of East Asian representatives of the genera *Dicerca* Esch. and *Poecilonota* Esch. 16 [incl. one new] subspecies in 12 species have been keyed and described, their distribution mapped and phylogenetic relationships tentatively reconstructed. Besides, several extralimital taxa have been remarked upon, and new name proposed for the preoccupied *Tristria* Hoł.

KEY WORDS: Coleoptera, Buprestidae, Dicercina, new taxa, synonymy, phylogeny, distribution, East Asia, MICSEQ.

CONTENTS

INTRODUCTION

In the frame of my long-term project "A review of the Indo-Pacific **Buprestidae Leach (Coleoptera)**" I (Hołyński, 1999) presented a comprehensive taxonomical, zoogeographical and phylogenetical review of the South- and East-Asian representatives of the "**Psilopterina Lac." [=Dicercina Gistl]** as my doctor's dissertation which, however, has not been published as a whole [the paper on *Ovalisia* Kerr. (Hołyński, 2000), as well as some other descriptive (Hołyński, 2001a,b) and "theoretical" (Hołyński, 2001d,e) contributions, are parts of this]. The aim of the present paper is to recapitulate the current state of knowledge, clarify some hitherto unresolved taxonomic questions, and propose a preliminary outline of hypothetical reconstruction of phylogeny of two closely [contra Volkovitsh, 2001) related genera *Dicerca* Esch. and *Poecilonota* Esch., only marginally entering the Indo-Pacific Region but significantly represented in its border-areas in China and Japan. I also use this occasion to propose a replacement name for the preoccupied *Tristria* Hoł.

The understanding of the taxonomic relations within the **Buprestidae Leach** remains still "*in statu nascendi*"; I follow here the most recent comprehensive, critical reassessment of the suprageneric subdivisions of the family proposed by me (Hołyński, 1993) – Volkovitsh's (2001) classification **of antennal structures** was admittedly not intended as that of the **Buprestidae Leach** in general, while Kolibáč's (2000) as fiercely "promoted" as deplorably "substantiated" (Hołyński, 2002) proposals are difficult to discuss and

seriously consider at all. At the infrasubgeneric levels I apply the concept of "circle" (Hołyński, 1992a), the "morphoevolutionary" criterion of species-status (Hołyński, 1977 and 1992b), and Amadon's (1949) "75% rule" for subspecies.

Phylogenetic reconstructions have been done with a new (Hołyński, 2001c) distance-method, MICSEQ, supplemented by parallel (though – due to some restrictions imposed by the program – applying slightly different coding and weighting of traits [=character-states]) overall-parsimony analysis by Hennig86 [mhennig* bb*]. The results of the two reconstructions markedly differ in several points, the cause being apparently not so much the above-mentioned difference in coding and weighting but rather the two kinds of "bias" shown by the parsimony program. On the one hand, there is a strong tendency towards "pectinate", asymmetrical shape of the cladogram: this appears in "absolute" form in the case of *Poecilonota* Esch., but is quite evident also in that of *Dicerca* Esch. On the other, Hennig86 seems to pair longest terminal branches (most differentiated taxa) together and preferentially place them on the "top" of clades: a striking example of this phenomenon is the position of *Touzalinia* Thy. – *Dicerca nishidai* Tma. pair on the parsimony-cladogram, but suggested relationships within the outgroup-clade (*Ovalisia* Kerr. s.l.) are at least as instructive.

In the systematic part all (except evidently accidental "import", *Dicerca sexualis* Crotch – see below under **General characteristics** of the genus) species known to me as certainly or reportedly occurring in East Asia have been keyed and described (keys for subspecies include all – also extralimital – races of East Asian species); the phylogenetic reconstructions include also some Western Palaearctic and Nearctic taxa (selected from among the representatives of possibly all main morphological tendencies)

Particular statements concerning the respective form have not always been checked against all the "material examined": e.g. identification keys were primarily constructed on the basis of all the accessible representatives of the taxon, but if the process of verification eventually revealed the necessity of making some improvements, the final version may be partly or totally based on only those specimens available to me thereafter; measurements are almost invariably taken from only a part of the determined individuals, and this is especially true of descriptions, made typically with only my own collection and actually borrowed material before me. The measurements given are as a rule based exclusively on specimens measured by myself (with their number in square brackets); if they are exceptionally taken from other sources, then the relevant literature is quoted. Length of the body is measured from the anteriormost point of eyes to the tips of elytra; width measurements were taken always just behind humeral protuberances, even if this was not the widest part of the body. Geographical distribution is presented according to both literature and collections, but maps include exclusively the data from the specimens

examined by me (and from holotypes, which "by definition" surely belong to the taxon in question).

The "ideal" key to East Asian **Dicercina Gistl** should include all (i.e. also those **not** known to occur in the Region) genera, all subgenera of East Asian genera, all species of Indo-Pacific subgenera, and all subspecies of East Asian species; this would enable any representative of an unexpected taxon (like the above-mentioned *Dicerca sexualis* Crotch) to be recognized as such and put aside for special treatment. I usually try to follow this principle whenever extralimital subunits [their names are put in square brackets] are not too numerous; otherwise – as in the case of predominantly Nearctic genera treated in this paper – for obvious practical reasons only the species known or likely to occur in the study area could be included. For the same purpose of minimizing the probability of misinterpretations, I try to avoid characters applying only to the keyed taxa; that is to say, if e.g. the scutellum is characterized as "small, not wider than 2. interstria", this is intended to mean (unless the contrary is explicitly stated) that in all – East Asian and extralimital, included in the key or not – known species of the respective group of taxa scutellum is small.

In the "material examined" – unless specifically stated otherwise – only specimens from the area under study are included, what in case of common but predominantly extralimital species may lead to seemingly contradictory statements (like "*material examined: none*", followed by remarks evidently referring to specimens seen by me).

As in my other recent works, in the enumeration of the type-material the individual labels are cited in quotation mark.

Collection names have been abbreviated as follows:
BMNH= Natural History Museum, London, ENGLAND;
KBIN= Koninklijk Belgisch Instituut voor Natuurwetenschappen, Bruxelles, BELGIUM;
RBH= Roman B. Hołyński, Milanówek, POLAND;
SB= Svatopluk Bílý, Prague, BOHEMIA;
USNM= Smithsonian Institution: National Museum of Natural History, Washington, USA

Besides, the following abbreviations are used in morphological descriptions:
dfp = "dense-and-fine punctulation" or "densely-and-finely punctulate"; refers to the type of sculpture, especially characteristic of representatives of some subtribes (**Chrysochroina Cast.**, **Chalcophorina Lac.**, **Lampropeplina Hoł.**, **Hypoprasina Hoł.**, **Dicercina Gistl**, &c.) of the **Buprestini Leach**, occurring mainly in depressed areas (foveae, sulci), and consisting of fine, dense, regular punctulation on usually distinctly microsculptured background, often covered with dense pubescence and frequently pulverulent.
L = length
W = width
BW = basal width
AW = apical width
MW= maximum width
V = width of vertex between eyes
H = width of head with eyes
i.l. = (in litteris): unpublished (collection-, manuscript-, &c.) name
issp. = infrasubspecific, unavailable name

SQ = "support quotient"; SQ=**x/y** [where **x** is the "corrected distance" (at the relevant stage of analysis, i.e. when the particular pairing is being performed) between the paired taxa, and y – the shortest distance between any of them and any of those remaining "in game"; of course the interpretation of the "quotient" should not be "overmathematized": SQ=1/2 is evidently ***not*** equivalent to 15/30!]
pu. = phenun ("phenetic unit"): unit of distance shown in distance-matrix; 1 pu. = distance between two neighbour traits ["character states"] in transformation chain, if the weight is settled as 1

SYSTEMATIC REVIEW

D i c e r c i n a G i s t l

Dicercaeidae Gistl, 1848b: [cover] 3
= Psilopterites Lacordaire, 1857: 26
= Poecilonotina Jakobson, 1913: 773
= Capnodina Jakobson, 1913: 779

General characteristics:

Large, nearly (except Oceania) cosmopolitan subtribe, variously interpreted by previous authors. In the traditional scheme, proposed by Lacordaire (1857) and accepted with little modifications by virtually all subsequent students, it was divided (on sole grounds of different distribution of antennal sensory pores) as two separate tribes between two subfamilies: the **Chalcophorinae Lac.** ("**Psilopterini Lac.**") and **Buprestinae Leach** ("**Dicercini Kerr.**"); it was Richter (1949, 1952) who pointed out to the untenability of such classification and merged the "**Dicercini Kerr.**" with **Psilopterini Lac.** (and, by the way, **Chalcophorinae Lac.** with **Buprestinae Leach**), but his arguments were totally neglected – the adherence of buprestidologists to the traditional arrangement and to the single-feature VIC [Very Important Character]-taxonomy was too strong. Almost half a century later Tôyama (1987) removed *Pseudoperotis* Obb. to newly erected **Pseudoperotini Tma.**, and I (Hołyński 1993) – in the framework of general rearrangement of buprestid classification – ranked the above-mentioned "tribes" and "subfamilies" as subtribes of the large tribe **Buprestini Leach**, confirmed the merger of the "**Dicercini Kerr.**" into, and removal of the **Pseudoperotina Tma.** (to which I added also *Chalcopoecila* Ths.) from, the "**Psilopterina Lac.**", and separated some other groups (**Phrixiina Cob.**, **Haplotrinchina Hoł.**) traditionally included (at least in part) in this group. At last Bílý (1997) has shown, that *Pagdeniella* Thy., considered hitherto as a close relative of *Philanthaxia* Deyr. (**Anthaxiini C.G.**: **Bubastina Obb.**), is in fact inseparable from *Ovalisia* Kerr. So understood, the **Dicercina Gistl** [according to Bellamy (2003) the family-level name based on *Dicerca* Esch. has been first proposed by Gistl (1848b) rather than – as traditionally quoted – by Kerremans (1893a), and so has priority over **Psilopterides Lacordaire 1857**; I have been unable to check Gistl's publication personally, but see no reason to disbelieve my colleague's conclusion] include some 600 or 700 species in ca. 15 genera, of which

9 (*Cyphonota* Dej., *Capnodis* Esch., *Dicercomorpha* Deyr., *Zoolrecordia* n.n., *Touzalinia* Thy., *Psiloptera* Dej., *Dicerca* Esch., *Poecilonota* Esch. and *Ovalisia* Kerr.), with ca. 100 species, occur in the Indo-Pacific Region or its vicinities.

Key to Palaearctic and Indo-Pacific genera of the subtribe Dicercina Gistl

1 (2) Body very short: L:W<2.25.....***Cyphonota* Dej.**

2 (1) Body [except in some extralimital *Psiloptera* Dej. (*Polybothris* Spin.)] more elongated: L:W>2.35

3 (4) Body totally glabrous, even ventral side without pubescence *Capnodis* Esch.

4 (3) At least some parts of underside pubescent

5 (6) Inner surface of femora deeply longitudinally furrowed (to receive tibiae in repose) between pair of smooth carinae extending from tip to near base ....***Dicercomorpha* Deyr.**

6 (5) Femora without distinct furrows, at most with slight poorly delimited depression on apical half

7 (12) Medial parts of prosternal process separated from lateral rims by deep striae; scutellum small, not wider than 2. interstria, or elytra with 13 striae

8 (9) Elytra with 13 striae; 1., 3., 6., 9., and 12 interstria elevated as costae. Pronotum regularly narrowly sulcate along midline .....***Zoolrecordia* n.n.**

9 (8) Elytra with 10 striae (scutellar not counted); all interstriae equally elevated and/or pronotum without median sulcus

10 (11) 11. interstria smooth, clearly delimited from epipleura, so elytral margin not crenulate .....***Psiloptera* Dej.**

11 (10) 11. interstria interrupted – like others – by coarse foveolate punctures and not clearly delimited from epipleura, so elytral margin (especially in apical part) distinctly crenulate .....***Touzalinia* Thy.**

12 (7) Prosternal process without lateral striae and/or scutellum rather large, much (usually two times or more) wider than 2. interstria; elytra with 10 striae

13 (14) Scutellum small, about as long as wide, not wider than 2. interstria (fig. 1) ....***Dicerca* Esch.**

14 (13) Scutellum large and/or much wider than long and than 2. interstria (fig. 2)

15 (16) Body black or dark-brown with more metallic (cupreous or greenish) dfp depressions. Pronotum with very conspicuous, elevated, lustrous median carina. Elytra in Indopacific species distinctly caudate [in extralimital races of *P. variolosa* (Pk.) not or but inconspicuously so, but then width of body above 6 mm.]. .....***Poecilonota* Esch.**

16 (15) Body bright green to cupreous; or – if black or dark-brown – width of body less than 4.5 mm., elytra not caudate, and median line of pronotum undifferentiated or with not elevated, mat, dark spot[-s] .....***Ovalisia* Kerr.**

Zoolrecordia **nom. nov.**
Tristria Hołyński, 2001a: 132-133 nec Stål 1873: 40 (Orthoptera)
[type-sp.: *Dicercomorpha cupreomaculata* Saunders, 1867]

Remarks:
Dr. John K. Page, Production Manager of the Zoological Record, has kindly drawn my attention to the homonymy between the name *Tristria* Hoł. proposed by me (Hołyński, 2001a) some years ago for *Dicercomorpha cupreomaculata* Snd., and *Tristria* Stål, 1873 applied to the simultaneously described Chinese orthopteran *Tristria lacerta* Stål, 1873. I have the great pleasure to substitute my preoccupied name with *Zoolrecordia* n.n., in recognition of the formidable work of the compilers of Zoological Record and their invaluable service for all biologists in general and zoological taxonomists in particular.

Dicerca **Esch.**
Dicerea [err.] Eschscholtz, 1829: 9 [type-sp.: *Buprestis aenea* Linnaeus, 1761]

General characteristics:
Large genus, widely distributed (**map 1**) throughout northern Eurasia (16 spp.) and N-America (27 spp. – Nelson, 1975); 9 species have been reported from the area under study [in USNM I saw also a specimen of Nearctic *D. sexualis* Crotch collected in Japan, 23 VIII 1968; the label-remark "*in aircraft*", and the fact that this species has – to my knowledge – never been reported from Asia, make it justified to disregard it herein]. A combination of bronzed to black colouration, small scutellum, "caudate" elytra with more or less clearly developed rows of small smooth elevated "mirrors" on densely punctured background, longitudinally depressed prosternal process without marginal stria, &c., make the genus rather distinctive. The systematic relations are poorly understood; in Eurasia three subgenera have been described, of which only the nominotypic *Dicerca* Esch. s.str. certainly occurs within the study area: "sg. *Argante* Gistl" was traditionally considered to contain two very rare, relict species in Europe (one of which has been once recorded from China: prov. Shantung), but recently extended by Nelson (1998) to include his Nearctic "*tenebrosa*-group", and only in radically extended interpretation (see **Phylogenetic relations** below) includes undoubtedly East-Asian taxa; the distribution of the monotypic "sg. *Hemidicerca* Richt." is restricted to areas around the southern end of the Caspian Sea. Beyond serious doubt, these groupings as hitherto defined – based on evident overestimation of the importance of few characters in few species of somewhat aberrant morphology – do ***not*** warrant taxonomic recognition: the "diagnostic" (mostly sexual, so notoriously irreliable as evidence of evolutionary relationship – see Hołyński, 1999 and [in press] for discussion of the point) features of *Argante* Gistl or *Hemidicerca* Richt. are but extremal "states" of highly variable characters, whose development in particular species shows no apparent

correlation either to one another or to anything else. Recently Hattori (2004) separated *D. nishidai* Tma. into a new genus *Tokaranodicerca* Hri.; the species evidently shows some distinctive characteristics which, however, do not seem sufficient to warrant the generic or probably even subgeneric rank, so I tentatively treat that species as the sole representative of a monotypic circle within the nominotypical subgenus – but the question remains unsolved until examination of actual specimens.

Phylogenetic relations:

[I have never seen either *D. latouchei* Frm. or *D. nishidai* Tma. in nature, and *D. kurosawai* H.A. was also not available to me at the time of the analysis, so the features attributed to these species in the phylogenetic reconstruction have been quoted partly (*D. kurosawai* H.A.) or exclusively from the literature]

As mentioned in the INTRODUCTION, results of reconstruction with Hennig86 (**fig. 3**) markedly differ from those done with MICSEQ (**fig. 4**), what I attribute mainly to the former's bias towards producing "pectinate" cladograms and placing the most distinctive taxa on top of clades rather than at their bottom (a manifestation of the "long branch effect"?). Neither of these tendencies seems easily derivable from known evolutionary mechanisms, and this – besides my general disbelief towards the "overall parsimony" (see Hołyński, 2001c for justification) – is one of the reasons of my greater trust in more "directly cladistic" algorithm of MICSEQ, which is also more flexible (and, consequently, allows more precision) in coding and weighting (linear, branching, circular transformation-series are equally admissible, as well as differential weighting of various "steps" within them).

In case of *Dicerca* Esch. the difference in "symmetry" of the cladograms is less apparent, but the appearance of the *Touzalinia* Thy. – *Dicerca nishidai* Tma. pair as the uppermost twig of one of the two major clades is not easily explainable without adducing "long branch attraction" or similar effect. *Touzalinia* Thy. is probably relict genus, markedly different from *Dicerca* Esch., containing two or three subspecies in one or two species known from five widely scattered localities in southern China, Burma and Siam; very distinctive – Hattori (2004) proposed to separate it into a monotypic genus – and apparently relictuous (restricted to one small islet) *Dicerca nishidai* Tma. shows indeed some similarities to *Touzalinia* Thy. and their phylogenetic affinity (suggested also by MICSEQ) may be true, but the position of the resulting clade near the root of the MICSEQ-cladogram – as the "sister" to all the remaining *Dicerca* Esch. – looks much more plausible than as the "youngest twin-daughters" (or, rather, great-granddaughters...) of the "family" consisting of such, widely distributed over three continents but nevertheless much less differentiated, common species as Nearctic *Dicerca lurida* (F.) and *D. pugionata* (Grm.), mainly or exclusively European *D. alni* (F.-W.), *D. berolinensis*

(Hbst.) and *D. aenea* (L.), followed by morphologically somewhat discrepant and geographically more restricted (around southern parts of Caspian Sea) *D. fritillum* Mén. and then again very distinctive Formosan endemic *D. unokichii* Hri.; apparently in the analysis by Hennig86 some inversion of polarity has occurred.

The group traditionally distinguished as a genus or subgenus *Argante* Gistl has not been recovered either in its original [Palaearctic *D. moesta* (F.) + *D. herbsti* (Ksw.)] or extended by Nelson (1998) [+ Nearctic *Tenebrosa*-circle] shape, but appears on both cladograms as including East Asian *D. tibialis* Lew., *D. corrugata* Frm. and *D. kurosawai* H.A.; the most striking difference is that Hennig86 places two quite unexpected species, American *D. horni* Crotch and Palaearctic *D. amphibia* Mars., in midst of the clade [near its top: as consecutive sister-taxa of the *D. moesta* (F.) – *D. sexualis* Crotch – *D. punctulata* (Schh.) group], while the *D. herbsti* (Ksw.) – *D. tenebrosa* (Kby.) sister-pair, apparently the most "typical" representatives of the group, make the basalmost branch – here also the arrangement suggested by MICSEQ looks much more natural and closer to the truth.

Already my previous (Hołyński, 1999) analysis indicated that "*the leitmotiv of the distributional evolution of Dicerca Esch. seems to be the recurrent cycle of separation and reunion between Palaearctic and Nearctic part of its vast area*", and the present reconstruction fully confirmed this conclusion: not only the genus as a whole but all its major – and several minor – clades contain both Palaearctic and Nearctic taxa; moreover, its morphoevolutionary history – most traits appearing convergently here and there on distant branches of the cladogram – looks equally complex. If we accept – and I do – that *D. nishidai* Tma. represents the basal (as in MICSEQ) rather than terminal (suggested by Hennig86) branch, and that *Touzalinia* Thy. is the sister-group of either *D. nishidai* Tma. (as in both cladograms) or – what I consider more probable – of the whole *Dicerca* Esch., then the genus should have evolved in East Asia; if, however, its closest relative is (as traditionally believed and reflected in most classifications) *Poecilonota* Esch., then North American origin seems more likely. The general picture of further history is rather obscure: the species seem to have dispersed chaotically from East to West and from West to East, with no clear pattern discernible; this lack of clarity may, however, be partly due to the fact, that I concentrated on Asian species and included in the analysis only relatively few of numerous American representatives of the genus; as Palaearctic/Oriental species make a highly polyphyletic assemblage, such bias must have negatively influenced the clarity of the obtained results, and the clarification of the dispersal history of *Dicerca* Esch. must wait until all (or at least the majority of) representatives of this predominantly Nearctic group are included in the analysis.

Sg. *Dicerca* Esch. s. str.

Dicerea [erratim] Eschscholtz, 1829: 9 [type-sp.: *Buprestis aenea* Linnaeus, 1761]
= *Argante* Gistl, 1834: 10 [type-sp.: *Buprestis moesta* Fabricius, 1792]
= *Stenuris* Kirby, 1837: 154-156 [type-sp.: *Buprestis lurida* Fabricius, 1775]
= *Hemidicerca* Richter, 1952: 132-133 [type-sp.: *Dicerca fritillum* Ménétriés, 1832]
= *Tokaranodicerca* Hattori, 2004: 140-144 [type-sp.: *Dicerca nishidai* Tôyama, 1986]

Remarks:

Until the status of *Tokaranodicerca* Hri. has been fully clarified, I tentatively consider *Dicerca* Esch. as consisting of the nominotypical subgenus only; also its subdivision into circles is but provisionally proposed herein, pending more extensive study of extralimital taxa.

Key to the Indo-Pacific species of the subgenus *Dicerca* Esch. s. str.

1 (18) Elytra glabrous

2 (7) Outer denticle on elytral apex totally obliterated (**fig. 5**)

3 (4) Pronotum cordiform: at deepest prebasal sinuation narrower or at least subequal to ca. 0.90 of maximum width. Apex of anal sternite in female simply rounded; male mesotibiae simple (**fig. 7**) .....***D.* (s.str.) *moesta* (F.)**

4 (3) Pronotal sides subparallel (nowhere less than 0.95 of maximum width) in basal half. Anal sternite in female with two deep apical notches (**fig. 10**) or broadly, more or less bisinuately truncated; male mesotibiae with long inwardly directed spine at proximal third

5 (6) Body slender (L:W>2.9). Front almost flat. Punctures in elytral striae fine, much narrower than interstriae .....***D.* (s.str.) *furcata* (Thb.)**

6 (5) Body broad (L:W<2.7). Anterior part of front rather deeply depressed. Punctures in striae coarse, subequal in width to interstriae .....***D.* (s.str.) *amphibia* Mars.**

7 (2) Elytral apex distinctly emarginate and bidenticulate (**fig. 6**)

8 (15) Pronotum with 4 or 5 smooth stripes or elevated carinae; elytra costate

9 (14) Pronotum glabrous

10 (13) Median line of pronotum carinate; posterior angles acute

11 (12) Each side of sternites 2.-4. with deep foveola densely covered with white toment. Male mesotibiae unarmed .....***D.* (s.str.) *kurosawai* H.A.**

12 (11) Sternites without distinct foveolae on sides. Male mesotibiae with long "spur" (**fig. 9**) .....***D.* (s.str.) *corrugata* Frm.**

13 (10) Median line of pronotum sulcate without carina; basal angles right .....
.....***D.* (s.str.) *latouchei* Frm.**

14 (9) Pronotum with long erect pubescence .....***D.* (s.str.) *tibialis* Lew.**

15 (8) Pronotum without smooth stripes or carinae; elytral interstriae equally elevated

16 (17) Body slender (L:W>2.9). Elytral interstriae distinctly convex, reliefs (“mirrors”) elevated .....***D.* (s.str.) *unokichii* Hri.**

17 (16) Body robust (L:W<2.8). Elytral interstriae, including “mirrors”, flat ....***D.* (s.str.) *aenea* (L.)**

18 (1) Elytra with sparse and irregular but distinct, erect pubescence ....***D.* (s.str.) *nishidai* Tma.**

Nishidai-circle

Dicerca (s.str.) *nishidai* Tma.

Dicerca nishidai Tôyama, 1986: 18-19

Material examined:

None

Characters:

“Body relatively large and robust, strongly attenuate posteriorly; head and pronotum black distinctly tinged aeneo-aureous; elytra black, very sparsely and not uniformly inlaid with inconspicuous aeneo-aureous spots, each with two aeneo-aureous markings, the small one near the side at the anterior third, and the large and transverse one between the fourth costa and the side at the posterior third; ventral surface entirely black with aeneo-aureous tinge; antennae and legs black.

Head distinctly narrower than the base of pronotum; frons distinctly narrowed by antennal cavities anteriorly, coarsely and strongly rugose, sparsely clothed with long, inconspicuous, silver-whitish hairs; eyes with the internal rims arcuately produced, and distinctly converging above in frontal aspect; clypeal suture absent; clypeus with the internal and ventral margin arcuately emarginate; antennal cavities large and subtriangular, with the internal and ventral margins distinctly raised; antennae slender, lax, eleven-segmented and serrate from the fourth segment, with the first segment the stoutest and about twice as long as the second, which is globular, the third less stout, slightly shorter than the second, the fourth subtriangular, about as long as the first.

Pronotum transverse, about 1.5 times as wide as long, widest at base; sides arcuately expanded from anterior to posterior margin, but they are very slightly sinuate near all the angles; anterior margin broadly and arcuately emarginate, about 1.5 times as wide as the posterior; posterior margin bisinuate, with median lobe arcuately produced; anterior angles subrectangular and produced in dorsal aspect; posterior angles slightly acute in dorsal aspect; marginal carinae absent; disc convex, with three, very shallow and longitudinal depressions at middle, two small and profound pores just before scutellum; surface rather densely punctate in the depressions, sparsely punctate in the areas along depressions, densely and coarsely

punctate in the broad areas along the sides. Scutellum very small, elliptical, slightly depressed at middle.

Elytra about 2.2 times as long as wide, about 4.0 times as long as pronotum, widest just behind humeri; sides expanded behind humeri, very slightly convergent to the middle, then sinuously and strongly convergent to the tips; apices slightly separated, each with an arcuate emargination between short spines; basal margins broadly and arcuately produced at middle; suturel margin slightly elevated in posterior two thirds; lateral margin unarmed and broadly trisinuate in lateral aspect; disc densely, strongly and longitudinally punctate, the punctures becoming denser towards the sides, and forming nine distinct longitudinal rows, longitudinally costate between the rows, the costae becoming more inconspicuous towards the sides, very sparsely clothed with fine silver-whitish hairs.

Ventral surface evenly and coarsely punctate, and rather sparsely clothed with fine, silver-whitish hairs. Prosternum convex, with the anterior margin arcuately emarginate throughout; prosternal process constricted between anterior coxal cavities, roundly expanded just behind anterior coxal cavities, then emarginately attenuate to the tip, which is rounded, longitudinally depressed at middle. Metasternum with a distinct median groove. Abdomen with the first visible ventral segment shallowly depressed at middle, the anal one roundly emarginate at apex.

Legs punctate, and clothed with fine silver-whitish hairs; middle tibia with a distinct tooth at the basal third; posterior tarsi with the first segment about as long as the second.

Length: 21.0 mm; width: 7.5 mm.

Holotype: ♂, Kusuki, Nakanoshima Is., Tokara, Kagoshima Pref., 24. VII. 1986, N. Nishida lgt.

Remarks. *The present species is easily distinguished from the other congeners by the remarkable elytral markings. The holotype is deposited in the National Science Museum (Nat. Hist.), Tokyo.*" (Tôyama 1986).

Geographical distribution (map 2):

Known only from the holotype and two specimens (♂ and ♀) collected by T. Hattori in the type-locality. Develops probably on *Morus* sp. (Hattori, 2004).

Remarks:

The species is remarkable by its pilose elytra with two golden-cupreous markings on each; Hattori (2004) emphasizes also the maximum height of body at the elytral base, flat tetragonal distal (6.–10.) antennal joints with more scattered sensory pores, lack of laterobasal depressions on pronotum, flat and smooth prosternal process with lateral groove, wider tarsal pads, and differences in wing venation.

Unokichii-circle
Dicerca (s.str.) *unokichii* Hri.

Dicerca unokichii Hattori, 1991: 57-60

Material examined:

Paratypes: „Kukuang (1300 m), Taichung-hsien, TAIWAN, 7 V 1990, leg. Luo Chinchi" „PARATYPE" „*Dicerca unokichii* T. Hattori, 1991, Det. T. Hattori, 1992" [1 ♂ (SB)]; "Kukuang (1300 m.), Taichung-hsuen, (TAIWAN), 9. Sep. 1989., T. Hattori leg." "*Dicerca unokichii* Hattori, 1991, Det. K. Akiyama, 1993" "PARATYPE" [1 ♂ (RBH: BPfik)]

Additional material: 1 ♂, 1 ♀

Characters:

Male [3] 15.5×5.5–19×7, female [1] 15.5×5.5 mm. [13.8–19.0×5.0–7.0 and 16.0–19.0×5.7–7.0 respectively according to Hattori (1991)]. Body very slender, brownish- or greenish-black on reliefed parts, brassy-green (dorsally) or cupreous (on head and underside) in punctures. White soft, semierect to erect pubescence appreciable only on ventral side. Front flat or very shallowly depressed from side to side, covered with reticulate jumble of dense ocellate punctures and narrow anastomosing reliefs separating them; vertex occupying more than half of total width of head, with traces of median sulcus; eyes very prominent. Pronotum as wide at middle as at sharply acute hind angles, sides deeply sinuate in basal half and roundedly narrowed to distinctly bisinuate apex; pronotal punctures very coarse: on disc sparse and elongated, laterally very dense, confluent into groups, with network of irregular ridges between them; oblique laterobasal depression very irregular but rather deep and distinct; two dense rows of coarse elongated punctures, representing pair of perimedian sulci and separating traces of smooth median relief from pair of broad but very indistinct and irregular longitudinal discal ridges, merge at basal (prescutellar fovea) and apical third; prescutellar pits well developed, narrowly separated; lateral carina, except at basal fifth, totally obliterated by coarse and dense puncturation. Six discal striae on elytra very coarse and prominent, lateral ones barely traceable; interstriae evenly convex; interstrial smooth "mirrors" less distinct medially (due to coarser and sparser surrounding puncturation) than on sides (where punctures are finer but very dense); costa separating disk from epipleura sparsely interrupted by very distinct dfp foveae, which makes lateral margin (especially on apical half) prominently denticulate; apices distinctly caudate, tips emarginate between two denticles. Anterior margin of prosternum straight or very shallowly emarginate; prosternal process at middle coarsely and densely punctured, lateral rims wide, impunctate; proepisterna covered with coarse ocellate punctures within network of narrow smooth ridges; prosternum, metasternum and (in male) 1. sternite deeply sulcate along midline; metacoxal dent almost rectangled but blunt, separated by deep incision from more medial part; median parts of metasternum finely and

sparsely punctulated, punctures of abdomen coarse and much denser, sides covered with very densely arranged dfp foveolae encircled by anastomosing network of narrow elevated ridges; sternites with very irregular smooth lateral reliefs; anal segment in male broadly and deeply emarginate, in female bi-notched at apex. Male mesotibia (**fig. 8**) with obtuse dentiform protuberance at basal 2/5.

Geographical distribution (map 2):

D. unokichii Hri. is an inhabitant of Formosa; both specimens seen by me, as well as all those mentioned in the original description, have been collected in the same locality. Hattori (1991) suggests *Carpinus* as host-plant.

Remarks:

Narrow (narrower than in any other species of *Dicerca* Esch. known to me) body with slightly caudate elytra, very coarse (but in quite different way than in e.g. *D. corrugata* Frm.) sculpture, brassy-green colouration, &c. make *D. unokichii* Hri. one of the most distinctive representatives of the genus. Phylogenetically it seems to be an offshoot of the lineage that eventually gave rise to the Palaearctic *D. alni* (F.-W.) – group, but morphologically it does not closely resemble any Eurasian species.

***Aenea*-circle**

***Dicerca* (s.str.) *aenea* (L.)**

Buprestis aenea Linnaeus, 1761: 213

This species – characterized by evenly sculptured (without distinct longitudinal bands or sulci) pronotum, short but distinctly caudate elytra, flat interstriae with but very inconspicuous "mirrors" &c. – is besides *D. furcata* (Thb.) the widest distributed representative of the genus, reaching from Morocco and Portugal to the Sea of Japan (apparently with disjunction in Middle Siberia – **map 3**). On this vast area it shows some geographic variability: four subspecies of rather doubtful validity (none of the distinguishing characters quoted in the literature seems really diagnostic even at the subspecies – 75% – level) have been distinguished.

Key to subspecies of *D.* (s.str.) *aenea* (L.)

a (d) Metacoxal denticle rather sharp but definitely obtuse. Abdomen very sparsely and inconspicuously pubescent

b (c) Pronotum relatively narrow (W:L<1.45). Colouration bright cupreous ....**[*D.* (s.str.) *a. bella* Ab.]**

c (b) Pronotum wider (W:L>1.55). Colouration dull brown or brownish-black ....**[*D.* (s.str.) *aenea* (L.) s.str.]**

d (a) Metacoxal denticle nearly rectangled but rounded at tip. Abdomen very distinctly and rather densely pubescent

e (f) Pronotum narrower (W:L<1.65) .....**[*D.* (s.str.) *a. validiuscula* Sem.]**

f (e) Pronotum wider (W:L>1.65) .....***D.* (s.str.) *a. chinensis* Obb.**

[*Dicerca* (s. str.) *aenea bella* Ab.]
Dicerca aenea bella Abeille de Perrin, 1891: 259

Poorly known race occupying a restricted area in Syria and South Turkey.

[*Dicerca* (s. str.) *aenea* (L.) s.str.]
Buprestis aenea Linnaeus, 1761:213
Mordella cuprea Scopoli, 1763: 62
Buprestis austriaca Schrank, 1781: 195
Buprestis oxyptera Pallas, 1781: 70
Buprestis reticulata Fabricius, 1794: 451
Buprestis subrugosa Payküll, 1799: 218
Buprestis carniolica Fabricius, 1801: 189
Dicerca scabrosa Mannerheim, 1837: 54
Dicerca aenea ab. *Santanellae* Obenberger, 1917: 38 [issp.]

Western Palaearctic subspecies, distributed from Morocco to Altai.

[*Dicerca* (s. str.) *aenea validiuscula* Sem.]
Dicerca validiuscula Semenov, 1895: 319
Dicerca validiuscula var. *Žicharevi* Obenberger, 1928: 17-18

Middle-Asian subspecies, occurring from Georgia and Armenia through North Persia, Turkmenia and Usbekistan, to Kirghizia.

***Dicerca* (s. str.) *aenea chinensis* Obb.**
Dicerca aenea chinensis Obenberger, 1929: 12

Material examined:
2 ♂

Characters:
Female [2] 19×7.5 mm. [length ♂♀ 17-22 mm. (Richter 1952)]. Brown to brownish-black, ventral surface cupreous. White soft pubescence semirecumbent and very conspicuous on head and undersurface, recumbent and shorter but still distinct on pronotum and elytra. Front shallowly and indistinctly depressed along midline, covered with coarse and very dense confluent punctures. Pronotum widest at middle, hind angles sharply acute, sides conspicuously sinuate in basal half and roundedly narrowed to distinctly bisinuate apex; oblique laterobasal depression very broad, deep and distinct; no or slight traces of longitudinal smooth bands or depressed sulci; prescutellar pits transverse, deep, very narrowly separated; pronotal

punctures coarse, moderately dense on disc, very dense and confluent at sides; lateral carina entire but densely punctured and blunt. Elytral striae traceable throughout, but rather indistinct in coarse and dense puncturation of anterolateral parts; interstriae flat, with only a few and hardly discernible smooth "mirrors"; costa separating disk from epipleura totally obliterated, epipleura convex, with dense row of small dfp foveae, making lateroapical margin of elytra serrulate in dorsal aspect; apices distinctly caudate, tips sinuate between two denticles. Anterior margin of prosternum very shallowly, almost inappreciably emarginate; prosternal process coarsely and rather densely punctured at middle, lateral rims impunctate; proepisterna covered with coarse, very irregular, dense ocellate punctures within network of narrow smooth ridges; prosternum, metasternum and 1. sternite deeply sulcate along midline; median parts of metasternum finely, sides very densely and irregularly punctured; metacoxal dent nearly rectangled, but broadly rounded at tip; punctures of 1.–4. abdominal segments coarse, very dense and irregularly confluent on sides, sparser and elongated at middle; anal segment covered with dense, coarse, elongate punctures throughout, apex in male broadly and rather shallowly emarginate, in female truncate with pair of small but deep notches. Male mesotibia with very broad obtuse dent at basal third.

Geographical distribution (map 3):

This race occupies the eastern part (map 3) of the species area: southern part of East Siberia and North China (to the vicinities of Beijing); I have also a specimen collected on Formosa (Pingtung Co.: Kenting Nat. Park) – introduced?

Remarks:

Rather poorly differentiated race of doubtful taxonomic value – but my material is not sufficient to solve the problem.

***Amphibia*-circle**

***Dicerca* (s.str.) *amphibia* Mars.**

Dicerca amphibia Marseul, 1865: 145
= *Dicerca miranda* Reitter, 1904: 23-24
= *Dicerca amphibia* var. *Marseuli* Obenberger, 1940: 44

Material examined:

None

Characters:

Females [2] 17×6.5, 17.5×7 mm. [length ♂♀ 15–20 mm. (Richter, 1952)]. Body broad, rather flat. Dorsally brownish-black, ventrally dull cupreous, bottoms of punctures in both cases cupreous or plumbeous-green. Pubescence on pronotum and elytra practically lacking, on head and ventral side appreciable but short and sparse, erect or (on sides of sternum and abdomen in female) recumbent, white ["*die Rinne beim* ♂

sehr dicht und fein greis tomentiert" ("median sulcus of sternum with very dense and fine greyish pubescence" – Reitter, 1904)]. Front broadly longitudinally depressed, covered with dense, coarse, longitudinally confluent punctures. Pronotum widest at middle, sinuately narrowed to base, roundedly so to apex; apical margin shallowly bisinuate between prominent anterior angles; base bisinuate, prescutellar lobe produced slightly further back than distinctly acute hind angles; median pair of longitudinal ridges entire, broad, coarsely but sparsely punctured; midlateral and especially lateral pair very irregular and inconspicuous; surface otherwise with fine but very dense puncturation approaching "dfp" - condition; oblique laterobasal depression conspicuous; punctiform pits broadly separated, placed on bottom of fine transverse prescutellar sulcus marking anterior margin of impunctate but distinctly microsculptured prescutellar lobe; lateral carina entire, at base sharp and smooth, anteriorly duller and punctured. Elytra markedly but rather shortly caudate, apices somewhat obliquely (inwards) truncated or broadly rounded, lateroapical angle rounded or at least blunt, sutural with sharp but very small denticle; striae distinct coarsely punctured, lateral more or less confused; interstriae narrow, subcarinulate, "mirrors" poorly differentiated, surface otherwise covered with quasi-dfp dense but rather fine puncturation, more extensive towards sides. Anterior margin of prosternum distinctly arcuately emarginate; prosternal process longitudinally depressed, rather coarsely and densely punctured, between narrow smooth lateral rims; proepisterna with dense ocellate sculpture; metasternum deeply sulcate, 1. sternite shallowly depressed along midline; metasternal punctulation fine and sparse medially, coarsely and densely ocellate at sides; abdomen covered with coarse and dense punctures longitudinally confluent on median parts, irregularly reticulate laterally, inermixed with "quasi-dfp" sculpture; anal sternite broadly sub-bisinuately truncated at apex (female). "*Mittelschienen vor der Mitte innen beim ♂ mit einem großen winkeligen Zahne*" ["mesotibiae before middle inside in male with large angular dent" – Reitter, 1904].

Geographical distribution:

Very rare, apparently relict species, known from widely scattered localities between Herzegovina, Ukraine and Belorussia, through Kazakhstan and Siberia, to the Maritime Province.

Remarks:

Rather distinctive species, not particularly similar to any of its Eurasian congeners but deceptively so to – especially eastern Siberian race, ssp. *dicercoides* Rtt., of – *Poecilonota variolosa* (Pk.); perhaps not by mere accident (Müllerian mimicry?) the type-specimen of *D. miranda* Rtt. was collected "*auf einem Espenstämme in Gesellschaft*

von ['on aspen trunk in company of'] Poecilonota variolosa" – Reitter, 1904.

Furcata-circle

Dicerca (s.str.) *furcata* (Thb.)

Buprestis furcata Thunberg, 1787: 52
= *Buprestis acuminata* Pallas, 1781: 69 [nec DeGeer 1774: 133 (*Melanophila*)]
= *Buprestis calcarata* Fabricius, 1801: 188
= *Dicerca furcata* v. *opaca* Schilsky, 1888: 186 [issp.]
= *Dicerca aino* Lewis, 1893: 328

Material examined:

Syn[?]type (of *D. aino* Lew.): "Type" "Japan, G. Lewis, 1910-320" "Yezo, Tujer [?], 1883" "*Dicerca aino* Lewis, Type" [1 ø (BMNH)]
Additional material: 8 ♂, 5 ♀, 1 ø,

Characters:

Males [8] 15.5×5.5–20.5×7, females [5] 17.5×6–19.5×6.5 mm. Body elongated, convex. Elevated reliefs [bluish-]black, dfp areas and bottoms of punctures cupreous. Pubescence in female practically lacking, in male on ventral side appreciable but short and sparse, erect. Front flat, covered with dense, longitudinally confluent punctures. Pronotum widest at middle, slightly sinuately narrowed to base, more abruptly roundedly or almost straightly so to apex; apical margin shallowly arcuately or somewhat bisinuately emarginate between prominent anterior angles, basal bisinuate, prescutellar lobe produced slightly further back than distinctly acute hind angles; three pairs of longitudinal elevations, progressively more disrupted and irregular towards sides, sparsely but coarse punctured; otherwise pronotal puncturation very dense, confluent; oblique laterobasal depression broad, distinct; punctiform pits on bottom of inconspicuous prescutellar fovea rather broadly separated; lateral carina only just at base distinct, otherwise almost totally obliterated. Elytral apices (**fig. 5**) narrow, elongated, strongly "caudate", lateroapical angle broadly rounded; striae distinct though fine in sutural part, becoming very inconspicuous or totally disappear towards sides; all interstriae flat, uniformly and very densely punctured, with rows of dark smooth "mirrors". Anterior margin of prosternum very shallowly but perceptibly arcuately emarginate; prosternal process longitudinally depressed and densely punctured between almost smooth lateral rims; proepisterna with dense ocellate sculpture; metasternum deeply, 1. sternite rather shallowly sulcate along midline; metasternal punctulation fine and sparse medially, coarse and very dense at sides; punctures on median parts of abdomen rather sparse and confluent into longitudinal strigae, laterally very dense and mostly simple; anterior angles of sternites usually with indistinct elevated reliefs, anal segment with pair of smooth carinae bordering shallow median sulcus; apex of anal sternite in both sexes trilobate: in male incisions

separating lobes broad and median lobe wide and short (more than twice shorter than lateral pair), in female (**fig. 10**) incisions narrow and median lobe as long as laterals. Inner margin of male mesotibia at basal third with long, thin spine, almost isodiametric in section, directed obliquely backwards.

Geographical distribution (map 4):

D. furcata (Thb.) is the widest distributed species of *Dicerca* Esch.: its geographical area extends from France to Japan (Hokkaido); in China it reaches as far south as the vicinities of Beijing.

Remarks:

This species is distinctive among the Eurasiatic representatives of the genus [resembling rather the American *D. tenebrica* (Kby.) – group] by its remarkably long, narrow, divergent elytral apices with fully roundedly obliterated external angle. *D. aino* Lew. was described as distinct species, then (Kurosawa, 1946, 1970; Akiyama & Ohmomo, 1997) treated it as subspecies of *D. furcata* (Thb.), but the alleged distinguishing characters (shorter elytra with laterally obliterated striae and less divaricate apices) are well within the range of individual variability of the continental populations, and as I have not been successful in finding any other differences, I consider the two names as synonymous. The status of the "type" examined by me in London is uncertain: I found only one so labelled specimen in the BMNH, but Lewis (1893) mentioned "*two examples from the Ishikari River*"; so I treat it provisionally as a syntype.

***Moesta*-circle**

Dicerca (s.str.) moesta (F.)

Buprestis moesta Fabricius, 1792: 206
= *Buprestis quadrilineata* Herbst, 1801: 104
= *Dicerca moesta* ab. *funeraria* Obenberger, 1921: 91 [issp.]

Material examined:

None

Characters:

Male [1]: 15×6 mm. [length 12-17 mm. (Richter, 1952)]. Dorsally brownish-black with cupreous bottoms of punctures, ventral side cupreous. Front depressed, divided at middle into two parts by very irregular transverse elevation; surface very densely punctured, with pair of small smooth tubercles at vertex. Pronotum widest at middle, sides deeply sinuate towards base, roundedly narrowed to apex; apical margin shallowly bisinuate, anterior angles but slightly produced, base bisinuate, prescutellar lobe produced slightly further back than distinctly acute hind angles; four longitudinal ridges (and sometimes more or less distinct traces of mediaal carina) irregular, smooth, convergent apically; remaining surface very densely, confluently

punctured; oblique laterobasal depression well defined but short; prescutellar pits shallow, widely separated; lateral carina entire but densely punctured throughout. Elytral striae distinct except lateral 3 or 4, which are only apically traceable; interstriae flat, uniformly and very densely punctured, with sparse smooth, elongated, somewhat more convex "mirrors". Anterior margin of prosternum shallowly emarginate; prosternal process densely uniformly punctured; proepisterna with very irregular rugose-reticulate sculpture; sternum and 1. sternite broadly depressed along midline; metasternum rather densely punctured even at middle; metacoxal dent obtuse but distinct; puncturation of abdomen dense on sides, somewhat sparser medially; no distinct smooth reliefs on sternites; apex of anal segment broadly emarginate in male, rounded in female. Mesotibiae simple even in male (**fig. 7**).

Geographical distribution:

Kurosawa (1954) reported to have examined "*a couple of specimens of this species from Laoshan, Shantung, Eastern China, captured by Y. Yano on June 26th, 1937*"; otherwise *D. moesta* (F.) is known to occur only in Middle and Eastern Europe and West Siberia.

Remarks:

To some degree this species resembles a small and short *D. furcata* (Thb.), differing however at glance in basally much more deeply sinuate pronotal sides, more prominent pronotal reliefs, shorter and less divaricate tips of elytra, lack of smooth lateral rims on prosternal process, and external sexual characters: simply rounded apex of anal sternite in female and simple mesotibiae in male.

***Corrugata*-circle**

***Dicerca* (s. str.) *kurosawai* H.A.**

Dicerca kurosawai Hattori et Akiyama, 1999

Material examined:

1 ex.

Characters:

Male [1] 12×4.5 mm. [males 12.5–15.0×4.8–6.0; females 15.6–16.6×6.3–6.6 mm. (Hattori et Akiyama, 1999)]. Dorsally black with dull cupreous bottoms of punctures, ventrally cupreous; pronotum and elytra glabrous, head and undersurface with rather long, erect, white pubescence. Front flat; punctures irregular, coarse and dense; median carina and reliefs on vertex inconspicuous. Pronotum wide; widest at acute basal angles and apical 2/5, sides distinctly sinuate in between, roundedly convergent apically; surface not coarsely but very densely punctured, with 7 smooth longitudinal reliefs: very narrow median carina along basal 2/3, pair of rather broad entire ridges parallel to it, narrow and usually disrupted pair placed at equal distance from

midline and lateral margins, and more or less distinct traces of outermost row of callosities; oblique laterobasal depression rather deep, running from anterior third of lateral margins to base of median pair of ridges; prescutellar pits deep, punctiform, narrowly separated; lateral carina entire but very irregular, densely punctured. Elytra conspicuously "caudate", covered with very dense puncturation and rows of coarse foveolae on intercostal interstriae; costae (especially on sides) disrupted into sections. Anterior margin of prosternum very shallowly emarginated; puncturation of median part of prosternal process coarse and dense, lateral rim rather broad; proepisterna finely but very densely punctured, with densely intermixed elevated tubercles; median line of prosternum, metasternum and 1. sternite broadly and rather deeply longitudinally depressed; no discernible metacoxal dent; smooth median reliefs at base of sternites rather inconspicuous; longitudinal reliefs and median depression of anal sternite also poorly developed; ventral side covered with dense jumble of small callosities and coarse ocellate punctures; anal sternite in female rounded with pair of small but deep notches, in male broadly emarginated between two minute notches inside of lateral angles. Mesotibiae unarmed. Parameres obliquely, somewhat emarginately truncated at apices, with sharp "sutural" angle; penis lanceolate.

Geographical distribution (map 2):
Formosan representative of the superspecies.

Remarks:
Deceptively similar to *D. corrugata* Frm., differing only in male sexual characters (lack of mesotibial spur, lateral notches in apical emargination of anal sternite, structure of genitalia) and in some trifling details of which the most reliable are shorter antennae (esp. 4.–6. joints) and abdominal tomented foveolae.

***Dicerca* (s.str.) *corrugata* Frm.**
Dicerca corrugata Fairmaire, 1902: 268

With its heavy sculpture [resembling European *D. herbsti* (Ksw.) or – especially – American *D. tenebrosa* (Kby.)] this species is unmistakable among East-Asian representatives of the genus (except for its allospecies *D. kurosawai* Hri. and perhaps – if indeed specifically distinct – *D. latouchei* Frm.). Inhabiting the extensive area between Tibet and Laos, it is also distinguished geographically, reaching further South than any other *Dicerca* Esch. Two taxa described as separate species are probably but geographic races; also Tibetan population is subspecifically distinct (**map 2**).

Key to subspecies of *D.* (s.str.) *corrugata* Frm.

a (d) Pronotum about as wide at middle as at base

b (c) Median pair of pronotal reliefs less regular, narrower, apically almost linear .... ***D.* (s.str.) *c. thibetana* ssp.n.**

c (b) Median pair of pronotal reliefs rather broad even apically .... ***D.* (s.str.) *corrugata* Frm. s.str.**

d (a) Pronotum distinctly narrower at middle than at base .... ***D.* (s.str.) *c. vitalisi* D.V.**

Dicerca (s. str.) *corrugata thibetana* ssp. n.

Material examined:

Holotype: "Thibet, Nuanatong" "R. Mus. Hist. Nat. Belg. I. G. 12.595" [♂ (KBIN)]
Paratypes: "Thibet, Nuanatong" [1 ♂ (RBH: BPgjc), 1 ♀ (RBH: BPdst)]; "THIBET, Coll. Le Moult" "Le Moult vend., *Dicerca corrugata* Fairm." "R. Mus. Hist. Nat. Belg. I. G. 12.595" [1 ♂, 2 ♀ (KBIN)]
Additional material: 2 ♂, 4 ♀

Characters:

Males [3] 15.5×6–18×7 mm., females [4] 15.5×6–18.5×7. Differs from the nominotypic race in the development of longitudinal smooth ridges on pronotum: the inner (immediately neighbouring the median carina) pair is much narrower and less regular, touching anterior margin at very narrow point; the external (usually disrupted into several fragments, sometimes present only as traces) pair does not reach the anterior margin at all.

Geographical distribution (map 2):

The geographical distribution of this race remains unclear: it inhabits (probably eastern part of) Tibet, but I have not been successful in finding the only specifically named locality (Nuanatong) on maps.

Remarks:

Differences from the nominotypical race are almost, but not quite, absolutely consistent, thence the Tibetan population must be considered a subspecies of widely distributed *D. corrugata* Frm.

Dicerca (s. str.) *corrugata* Frm. s.str.

Dicerca corrugata Fairmaire 1902: 268

Material examined:

21 ♂, 30 ♀, 4 ø

Characters:

Males [20] 15×5.5–20.5×8 mm., females [30] 14.5×5.5–22×8.5. Dorsal side black with dull cupreous bottoms of punctures, ventral

cupreous; pronotum and elytra glabrous, head and undersurface with rather long, erect pubescence. Front irregularly, coarsely and densely punctured, with usually more or less distinct narrow median carina and pair of longitudinal smooth reliefs on vertex. Pronotal sides subparallel, more or less distinctly sinuate in basal half (basal angles acute), roundedly convergent apically; surface overall very densely though not coarsely punctured, with 5 or 7 smooth longitudinal reliefs: very narrow but usually entire median carina, pair of rather broad ridges parallel to it, another narrow and less regular pair placed more externally, and sometimes traces of prehumeral carina visible (if at all) only in basal half; oblique depression deep, running from anterior third of lateral margins to base of median pair of ridges; prescutellar pits deep, punctiform, narrowly separated, placed in broader depression making proximal end of median sulcus; lateral carina entire but very irregular, densely punctured. Elytra definitely "caudate" (**fig. 6**), covered with very dense puncturation similar to that on pronotum and rows of foveolae along elevated fragments of costae; these disrupted into sections (long and close to one another near suture, short and widely spaced on sides); intercostal interstriae flat to very slightly convex, here and there with small anastomosing callosities. Anterior margin of prosternum straight, without any trace of lateral tubercles; puncturation of median part of prosternal process coarse and rather dense, lateral rim broad; proepisterna with dense irregular network of elevated callosities, densely punctured in between; broad and rather deep longitudinal depression runs along median line of prosternum, metasternum and 1. sternite; no trace of metacoxal dent; base of each sternite with smooth relief at middle; anal sternite medially sulcate between pair of indistinct smooth longitudinal elevations; otherwise ventral side covered with dense jumble of small callosities and coarse ocellate punctures; anal sternite rounded with pair of small but deep notches in female, broadly emarginate between two denticles in male. Mesotibiae in male (**fig. 9**) with long spine at upper third, strongly flattened frontocaudally, directed inwards and somewhat upwards. Parameres narrowly rounded at apices; apex of penis prolonged into subuliform spine.

Geographical distribution (map 2):

I have seen specimens from several localities in NW-, E-, SE-, and S-Yunnan; it has been reported also from Szechuan (Descarpentries & Villiers, 1963); the record from Tonkin (Obenberger, 1930) may refer in fact to *D. c. vitalisi* D.V. (if the latter is indeed taxonomically distinguishable). In the collection of S. Bílý I saw a specimen allegedly from Kuei-Chou, determined as *Dicerca vitalisi* D.V. but beyond reasonable doubt also belonging to the nominotypical subspecies (see below).

Remarks:
This is the best-known form, occupying central position between the remaining two races. Reported also from Formosa (Miwa & Chûjô, 1940), but this record was evidently based on misidentification of (by then not yet described) *D. kurosawai* H.A.

***Dicerca* (s. str.) *corrugata vitalisi* D.V.**
Dicerca vitalisi Descarpentries et Villiers, 1963

Material examined:
None

Characters:
"*– Long. 16 mm. – Très proche de précédent [D. corrugata Frm.], en diffère, outre les charactères indiqués au tableau, par sa coloration plus cuivreuse, sa sculpture générale plus effacée, les bandes longitudinales lisses du pronotum moins saillantes, les interstries élytraux non caréniformes, moins grossièrement ponctués, cette sculpture effacée latéralement, les interstries caréniformes interrompus et ne formant, en arrière, que de petits reliefs isolés, les apex plus étroitement et plus profondément échancrés, la dent latérale plus aiguë.*
Laos: Xieng-Khouang (Vitalis), holotype au Muséum de Paris." (Descarpentries & Villiers, 1963).

Geographical distribution (map 2):
Described apparently from unique holotype; Baudon (1966) reports two other specimens, collected also in Laos (Muong Panh) on *Pinus khasya* Royle. Like the remaining races, it occupies mountainous areas: Xieng-Khouang lies at 1000 m., Muong Panh at 1200 m. a.s.l. (Baudon, 1966).

Remarks:
This form is not known to me in nature: my attempts to borrow material from MNHN, or even to arrange my visit to this museum, remained totally unsuccessful, while my very brief notes made years ago (when I had not even planned the present work) from the rather superficial, routine examination of so identified specimen in the collection of S. Bílý ("*16×5.5 mm.; elytra distinctly caudate; lateral margin very coarsely, irregularly crenulated; apices emarginate; dorsal side rather brightly cupreous; head with median carina; pronotum narrower and elytral tips longer [than in Yunnanese specimens of D. corrugata Frm.]*") – though partly (more cupreous colouration, narrower pronotum) in agreement with the original description – are rather inconclusive. Now again I have before me an example borrowed later from S. Bílý and marked as compared by him to type: it is a female of 16×6 mm., showing all the characteristics

mentioned in the quotation above – despite label discrepancies it is probably the same individual [in both cases labels are in Chinese, but in my earlier notes there is the explanation "*SOUTH CHINA: prov. Kuei-Chou, V. 1925, from Pinus*", whereas on what I see now the year is given as 1980 and there is nothing like either V or 1925 – however, the translation has been evidently added later (different ink) and I do not remember from what source, so its reliability is questionable]. Anyway, besides the brighter colouration (what may be an artifact of preservation: all the remaining specimens of *D. corrugata* Frm. examined by me are apparently very old) I am unable to find any character falling out of the range of variability of the Yunnanese beetles – indeed some of the latter approach the description of the Laotian form more closely than does the specimen in question; as the Chinese locality also suggests, it certainly belongs to *D. corrugata* Frm. s.str. Descarpentries & Villiers (1963) distinguish *D. vitalisi* D. V. mainly by the shape of pronotum, but their drawing looks somewhat "idealized", and this character (like colouration and details of sculpture, also mentioned in the original description) is highly variable in both the Yunnanese and Tibetan races of *D. corrugata* Frm., so I prefer to treat the Laotian form as at most another subspecies of the latter.

***Dicerca* (s.str.) *latouchei* Frm.**
Dicerca Latouchei Fairmaire, 1899: 622

Material examined:
None

Characters:
"*Long. 12 mill. – Oblonga, parum convexa, postice attenuata, tota aeneo-metallica, cupreo-mixta, sat nitida, glabra; capite brevi, densissime subtiliter ruguloso-punctulata, cupreo-micans, inter oculos plagulis 2 leviter convexis, minus rugosis et obscuro-aeneis, clypeo profunde et arcuatim emarginata, labro rugoso, cupreo; prothorace transverso, longitudine duplo latiore, antice a medio paulo angustato, fortiter punctato-rugoso, inaequali, medio canaliculato et cupreo, utrinque vitta convexa fusco-metallica, fere polita, lateribus late impressis et plagula polita fusco-metallica signatis, extus magis rugatis, margine postico medio reflexo, polito, utrinque minus, angulis rectis; scutello minuto, rotundato, medio impresso, obscuro; elytris oblongo-ovatis, ad humeros obtusis, postice vix sensim ampliatis, apice angustatis et subproductis, apice ipso truncato, leviter bispinoso, spina interna minutissima, sutura anguste elevata, utrinque costulis aliquot sat irregularibus, 1 fere integra sed post medium obliterata, 2a basi et post medium distincta, ceteris valde interruptis, intervallis valde punctato-rugosis, plagulis leviter virescentibus impressiusculis; subtus cum pedibus cuprea, nitida, rugosa, prosterno lato, cum meso-*

et metasterno medio paulo concavo et virescente, tarsis coeruleis." (Fairmaire, 1899).

Geographical distribution (map 2):

Described from probably unique specimen of unknown sex, collected in south-eastern China: Amoy.

Remarks:

Unknown to me in nature, and difficult to interpret from the description: it can as well be a close relative (or even a subspecies – perhaps identical to *D. c. vitalisi* D.V.) of *D. corrugata* Frm. [in describing the latter, Fairmaire (1902) compared it just to "*D. Delatouchii* F a i r m."] or *D. tibialis* Lew., as a completely different species of no apparent affinities.

***Tibialis*-circle**

***Dicerca* (s.str.) *tibialis* Lew.**

Dicerca tibialis Lewis, 1893: 328-329

Material examined:

Holotype: "Type" "Japan, G.Lewis, 1910-320" "Kashiwagi, 15.VI.-24.VI.81" "*Dicerca tibialis* Lewis Type" [♂ (BMNH)]

Additional material: 1 ♂, 3 ♀

Characters:

Males [2] 12×4.5, 12.5×5, females [3] 12×4.5–14.5×5.5 mm. Body rather short, flattened. Depressed parts cupreous or green, reliefs bronzed-black. Head, pronotum and ventral side with rather sparse but long, erect pubescence; elytra glabrous. Front shallowly depressed along midline, covered with dense, longitudinally confluent punctures. Pronotum as wide at middle as at base, sides distinctly sinuate in basal half, then roundedly narrowed to prominent anterior angles; apical margin rather deeply, basal shallowly bisinuate, prescutellar lobe produced further back than acute hind angles; rather inconspicuous longitudinal median relief, pair of very prominent smooth elevations to both sides of it, pair of interrupted and less regular ridges still further outwards, and traces of yet another pair close to lateral margin, emerge from almost uniformly, coarsely and very densely punctured surface; oblique laterobasal depression deep and broad; prescutellar fovea deep, with pair of punctiform, narrowly separated pits on bottom; lateral carina entire, strongly S-shaped, smooth in basal half but progressively less distinct before middle and almost obliterated anteriorly. Elytral costae smooth, disrupted into long sections, wide and convex suturally, very narrow and sharply carinate on sides; intercostal interstriae broad, flat, covered with coarse and very dense puncturation similar to that on pronotum. Anterior margin of prosternum straight or very shallowly sinuate; puncturation of prosternal process coarse but rather sparse, lateral rim smooth; proepisterna covered with dense ocellate punctures;

prosternum, metasternum and 1. sternite distinctly, rather narrowly sulcate along midline; metacoxae not dentate; median parts of metasternum very finely and sparsely, sides and abdomen coarsely and rather densely punctured; no distinct smooth reliefs on sternites; anal sternite emarginate at apex in male, rounded with minute denticle between pair of equally minute incisions in female. Male mesotibia with long spur at middle.

Geographical distribution (map 2) :

The area of distribution includes Japan (Honshu, Shikoku, Kyushu); the species has also been recorded from "China" (Akiyama & Ohmomo, 1997). Develops on *Abies firma*.

Remarks:

Small size, short and flat form, and long pronotal pilosity, make this species easily distinguishable from its East-Asiatic congeners. Contrasting dorsal sculpture, straight anterior margin of prosternum, and coniferous host-plant suggest the affinity to *D. corrugata* Frm..

***Poecilonota* Esch.**

Poecilonota Eschscholtz, 1829: 9 [type-sp.: *Buprestis conspersa* Gyllenhal, 1808 (= *Buprestis variolosa* Paykull, 1799)]

General characteristics:

Mostly holarctic genus (**map 5**), including eight (Evans, 1957; Bright, 1987) species in North America and two (one of them highly polytypic) in Eurasia – both occurring in the study area. In the general appearance (colouration, sculpture, shape of pronotum and elytra, &c.) the representatives of this genus resemble species of *Dicerca* Esch., differing from them principally in transverse scutellum, well developed smooth median ridge on pronotum, simple median incision of anal sternite in female, and lack of mesotibial modifications in male; from *Ovalisia* Kerr. they can be distinguished by the combination of distinctly caudate elytra, sharply defined smooth median carina on pronotum, very wide scutellum, and – at least in the area of sympatry – colouration (all species of the latter genus occurring North of the Isthmus of Kra are bright green or – rarely – cupreous).

Phylogenetic relations:

In good agreement with current concepts and intuitive assessment, on the cladograms resulting from my previous (Hołyński, 1999) analyses *Poecilonota* Esch. consistently appeared as close relative of *Dicerca* Esch. and *Scintillatrix* Obb. General distribution of the genus is similar to that of *Dicerca* Esch., but history of its dispersal seems different: while various lineages of the latter crossed the Bering Strait several times in both directions, making the picture rather obscure and the sequence of events very difficult to disentangle, the evolution of

Poecilonota Esch. (**fig. 11**) has apparently been centered throughout in Nearctis, with Palaearctic members making only one well defined, holophyletic group of close relatives: a single superspecies. The analysis of the American branches is beyond the scope of this paper, thence only few species representing various morphological tendencies were considered, and I will not discuss this matter any further. There is also not very much to say about the Eurasian lineage: its ancestor [shared, as it seems, with the Nearctic *P. thureura* (Say) – *P. salicis* Chamb. – *cyanipes* (Say) clade] has probably crossed Beringia at the beginning (when the "bridge" was already sufficiently warm but yet subaerial) of the last-but-one interglaciation (Mindel-Riss – the timing is of course only tentative, the more so that according to the present knowledge the "traditional" four glacials and interglacials were in fact further subdivided into up to 30 alternate cold and warm phases), dispersed over East Siberia, and then displaced by advancing glaciation southwards, where it survived in two [Sinotibetan and Mandjurian according to de Lattin's (1967) scheme] refugia and there differentiated into – respectively – *P. semenovi* Obb. and *P. variolosa* (Pk.); the former remained "stationary", but *P. variolosa* (Pk.) used the opportunities of the next interglacial to expand all-over the Eurasian temperate forest zone; the last glacial pushed it again southwards, where the isolated populations further differentiated to become the modern *P. v. populialbae* Rich. (Atlantomediterranean refugium), *P. variolosa* (Pk.) s.str. (Pontomediterranean), *P. v. dicercoides* Rtt. (?Mongolian?), *P. v. chinensis* Thy. (Mandjurian) and *P. v. yanoi* Kur. (Japanese); postglacial dispersal has led to the presently observed distribution.

Sg. *Poecilonota* Esch. s. str.

Poecilonota Eschscholtz, 1829: 9 [type-sp.: *Buprestis conspersa* Gyllenhal, 1808 (= *Buprestis variolosa* Payküll, 1799)]
= *Polydora* Gistl, 1848a: xi [non Bosc, 1801 (teste Leraut, 1983), nec Gistl, 1834] [type-sp.: *Buprestis conspersa* Gyllenhal, 1808 (= *Buprestis variolosa* Payküll, 1799)]
= *Descarpentriesina* Leraut, 1983: 6 [type-sp.: *Buprestis conspersa* Gyllenhal, 1808 (= *Buprestis variolosa* Payküll, 1799)]

Key to the Indo-Pacific species of the subgenus *Poecilonota* Esch.

1 (2) Elytral side margins glabrous or with very short (less than ¼ of width of tibia) pubescence .....***P. variolosa* (Pk.)**

2 (1) Lateral margins of elytra with sparse but rather long (comparable to tibial width), white pilosity .....***P. semenovi* Obb.**

Variolosa-circle

Poecilonota variolosa (Pk.)

Buprestis variolosa Payküll, 1799: 219

Very widely – from Morocco and France, through Europe and Siberia, to Japan and Southern China (**map 6**) – distributed species: five subspecies have been traditionally distinguished, two of them occurring in the area under study.

Key to subspecies of *Poecilonota variolosa* (Pk.)

a (f) Sides of pronotum broadly rounded at middle, roundedly convergent in anterior half. 2. interstria flat or almost so; smooth reliefs in anterior angles of sternites indistinct

b (e) Elytral spots confluent into large patches; elytral apices not or but very inconspicuously caudate

c (d) Apical denticles on elytra longer, sharp; body more lustrous; dorsal dfp areas bright cupreous .....**[*P. v. populialbae* Rich.]**

d (c) Denticles of elytral apex very short, indistinct; body less shining; dfp areas on dorsal side duller, cupreous-bronzed .....**[*P. v. variolosa* (Pk.) s.str.]**

e (b) Elytral dfp spots uniformly distributed, not confluent into patches; elytral apices distincly caudate .....**[*P. v. dicercoides* Rtt.]**

f (a) Sides of pronotum angular, almost straightly or even somewhat sinuately convergent towards apex and towards base. All interstriae strongly convex; abdominal reliefs prominent

g (h) Sides of pronotum sharply angular; basal angles not produced backwards, obtuse. Lateroapical margin of elytra indistinctly serrulate .....***P. v. chinensis* Thy.**

h (g) Inflexion of lateral margin of pronotum rounded; basal angles slightly produced backwards, right or slightly acute. Denticulation of lateroapical elytral margin conspicuous .....***P. v. yanoi* Kur.**

[*Poecilonota variolosa populialbae* Rich.]

Poecilonota Conspersa var. *P. albae* Richard, 1889: 6

African (Morocco, Algeria, Tunisia) race inhabiting also southern Spain (Cobos, 1986).

[*Poecilonota variolosa* (Pk.) s.str.]

Buprestis variolosa Payküll, 1799: 219
= *Buprestis plebeia* Herbst, 1801: 153
= *Buprestis conspersa* Gyllenhal, 1808:441
= *Poecilonota aspersa* Rosenhauer, 1856: 135
= *Poecilonota variolosa* v. *lugdunensis* Rey, 1890: 172
= *Poecilonota variolosa* var. *tremulae* Abeille de Perrin, 1896: 275
= *Poecilonota setulosa* Fleischer, 1896: 31
= *Poecilonota variolosa* ab. *Fagniezi* Schaefer, 1949: 163 [issp.]

The nominotypical race occupies the greatest part of the species area, from northern Spain to East Siberia (Yakoutia).

[*Poecilonota variolosa dicercoides* Rtt.]
Poecilonota dicercoides Reitter, 1888: 426

Material examined:
2 ♀ (one with some characters of *P.v.chinensis* Thy. (see Remarks).

Characters:
Females [2] 15.5×5.5–19×7.5 mm. [length male/female 10.5–17 mm. (Richter, 1952), 18–19 mm. (Reitter, 1888)]. Pronotum widest at middle, almost regularly (stronger in anterior half) rounded; basal angles very slightly produced backwards, nearly right; median carina almost regular, rather broad; sides of disk almost regularly, densely punctured. Internal (1.–3.) interstriae almost flat; elytral apices slightly but distinctly caudate. Otherwise like *P. v. chinensis* Thy.

Geographical distribution (map 6):
Southern part of East Siberia, Manchouria; as a result of poor morphological differentiation from the nominotypic race, western limits of the distribution of this subspecies remain unclear: e.g. Obenberger (1930) includes here all the southern-Siberian and even Transcaucasian populations, while Richter (1952) leaves only those from the easternmost area (Amur distr., southern part of Chabarovsk distr., Maritime Prov.).

Remarks:
Specimen (determined by Richter as *P. v. dicercoides* Rtt. but by Zykov as *P. v. chinensis* Thy.) from southern Maritime Province (Lake Chanka: Kamen Rybolov – coll. S. Bílý] with convex internal interstriae but almost regularly rounded sides of pronotum strongly suggests that "diagnostic" characters are not fully correlated, there exists a gene-flow between these forms, i.e. they are indeed conspecific.

***Poecilonota variolosa chinensis* Thy.**
Poecilonota chinensis Théry, 1926: 155-156

Material examined:
1 ♂

Characters:
Male [1] 13.5×5.5 mm. (male/female 15×6.5 mm. – Théry, 1926). Brownish-black with cupreous punctures and most part of undersurface. Soft whitish pubescence distinct on head and ventral side (very long and dense on median parts of sternum in male), inconspicuous on pronotum and elytra. Front broadly depressed along midline, coarsely and densely punctured, with some small elevated smooth reliefs. Pronotum widest at middle, where straight posterior and anterior sections of lateral margin meet at obtuse (ca 1300) but very well marked angle; apical margin very shallowly emarginate, apical

angles not prominent; base bisinuate, prescutellar lobe produced further back than slightly obtuse hind angles; oblique depression directed from middle of base to anterior third of sides (but not reaching either of them) shallow, inconspicuous; median carina smooth, narrow, somewhat ill-defined; some irregular, slightly elevated and sparser punctured spaces and narrow anastomosing ridges on sides of disc; otherwise puncturation coarse and very dense; lateral carina entire, apical section densely punctured, basal sharp and smooth. Elytral striae rather coarse, distinct throughout; interstriae convex, disrupted with numerous dfp spots which frequently join together to form irregular transverse patches; costa separating disc from epipleura with very small dfp foveae, thence lateroapical margin of elytra finely but appreciably serrulate; apices distinctly caudate, tips truncate with barely discernible sutural and lateral denticles. Anterior margin of prosternum very shallowly emarginate; smooth lateral rims of prosternal process very narrow, separated from coarsely and rather densely punctured middle with distinct stria; proepisterna covered with coarse and dense ocellate punctures; prosternum and metasternum broadly and deeply depressed along midline, depression on 1. sternite only anteriorly marked; puncturation of ventral side rather dense on sides, less so on median parts; metacoxal dent small, obtuse, blunt, inconspicuous; apex of anal segment in male broadly arcuately emarginate, in female "*échancrure du dernier segment abdominal ... faible*" (Théry, 1926).

Geographical distribution (map 6):

Described from "*Nord de Pekin*", is said to occur in N-China, Korea, and "*Far East of Russia*" (Akiyama & Ohmomo, 1997 – but neither Richter, 1952 nor Alexeev, 1989 mention its occurrence in the former Soviet Union).

Remarks:

As noticed by Théry (1926), 3. antennomere (**fig. 12**) in *P. v. chinensis* Thy. is but slightly longer than 2. (and much shorter than 4.), while it is usually ca. twice longer than 2. and subequal to 4. in Eurosiberian races; having but one specimen in the disposition it is difficult to say whether this is stable character of the Chinese subspecies or merely an aspect of individual variability.

***Poecilonota variolosa yanoi* Kur.**

Poecilonota yanoi Kurosawa, 1963: 90
?= *Poecilonota cupreomaculata* Miwa et Chûjô, 1935: 271

Material examined:

1 ♂, 1 ♀

Characters:

Male [1] 13.5×5 mm. (holotype: 12.8×6 mm. – Kurosawa, 1963); female [1] 17.5×6.5. Brownish-black with undersurface and depressed, densely punctured areas on dorsal side bright cupreous. Pubescence whitish, sparse on head, long and very dense on prosternal process, virtually none otherwise. Front shallowly depressed, very densely punctured with some irregular narrow reliefs, vertex with distinct medial carina. 3. antennomere (**fig. 13**) 1.5× longer than 2, slightly shorter than 4. Pronotum widest at middle, sides slightly roundedly convergent to base and almost straightly so to apex; apical margin very shallowly bisinuate, apical angles not prominent; oblique lateromedian depression hardly appreciable; median carina smooth, well defined, slightly widened at middle; sides of disk with some irregular, slightly elevated and sparser punctured spaces; otherwise puncturation coarse and very dense (leaving but very narrow carinulae to separate punctures from one another); lateral carina entire, basally smooth, increasingly punctured towards apex. Elytral striae very coarse, continuous, distinct throughout; interstriae convex, in male [sexual or individual character?) uneven: 2., 4., 6., and 10. very narrow, remaining at least twice wider; dfp spaces developed almost only on wide intervals; lateroapical margin very conspicuously serrulate; apices distinctly caudate, tips shallowly and somewhat obliquely emarginate between obtuse lateral and acute sutural angles. Anterior margin of prosternum straight; prosternal process flat, rather densely punctured; smooth lateral rims narrow, sharply delimited but without distinct bordering stria; proepisterna covered with coarse irregular ocellate punctures; metasternum medially sulcate, 1. sternite regularly convex (male) or narrowly sulcate (female); abdominal puncturation coarse and moderately dense, elongate medially, denser and isodiametric on sides; metacoxa with no appreciable dent; apical emargination of anal segment deeply arcuate (narrower in female).

Geographical distribution (map 6):

Known from SW-Honshu: the type-locality is Mie Pref., both specimens studied by me come from Okayama Pref.; *P. cupreomaculata* M.C. was described from Hokkaido (Sapporo), and then reported from northern Honshu; according to S. Ohmomo (pers. inf. 2005) "*some specimens are collected on the areas between west Honshu and north Honshu such as Fukushima Prefecture, Nagano Prefecture, Aichi Prefecture and so on. These specimens can not be identified as yanoi or cupreomarculata*".

Remarks:

P. yanoi Kur. was described as distinct species, but later (Kurosawa, 1970) considered by its author a subspecies of *P. chinensis* Thy. *P. cupreomaculata* M.C. remains unknown to me; it was described as separate species and then variously treated as a subspecies (Kurosawa,

1970; Akiyama & Ohmomo, 1997) or synonym (Kurosawa, 1963; also A. Descarpentries determined the type-specimen as "*P. chinensis Thery = cupreomaculata Miwa et Chûjô*" – Chûjô & Chûjô, 1998) of *P. v. chinensis* Thy. [traditionally considered by these authors to be specifically different from *P. variolosa* (Pk.)], while S. Ohmomo (pers. inf. 2005) writes: "*I understand yanoi Kurosawa, 1963 should be synonimized under cupreomaculata Miwa et Chujo, 1935*". Having never seen any specimen attributable to *cupreomaculata* M.C., I am of course unable to solve this question.

***Poecilonota semenovi* Obb.**

Poecilonota semenovi Obenberger, 1934: 148

Material examined:

1 ♂, 2 ♀, 2 ø

Characters:

Male [1] 13×5.5 mm.; females [2] 12.5×5, 16.5×5.5, unsexed [2] 11.5×4.5, 14×5.5 mm. Black with cupreous ventral side and bottoms of punctures on dorsal. Pubescence of front, antennae, legs, elytral margins, and ventral side long and semierect; that of pronotum and elytral surface short, inconspicuous, recumbent. Front covered with conspicuous, elevated, mostly longitudinal rugae. Pronotum widest at anterior third, sides angular (straightly convergent towards base and apex) but inflexion rounded; median carina wide, regular, finely furrowed along midline; anterior margin shallowly emarginate, with slightly protruding apical angles; basal angles not produced backwards, sharply rectangled. Scutellum trapezoidal, ca. 2.5× wider than long (**fig. 2**). Elytra strongly caudate; interstriae very convex, cariniform; dfp spots confluent to form large patches; lateral margins adorned with conspicuous, sparse but long, semierect white setulae,serrulation of apical half very fine. Anterior margin of prosternum very shallowly arcuately emarginate between somewhat protruding tubercles; prosternal process flat, coarsely and not very densely punctured between narrow, smooth, sharply delimited lateral rims, white erect pubescence long and dense in female, still more so in male. 3. antennomere, like in *P. v. chinensis* Thy., relatively short (esp. in male). Incision of anal sternite broad semicircular in male, narrower subtriangular in female.

Geographical distribution (map 6) :

P. semenovi Obb. was described from apparently unique holotype collected in southern China (prov. Fukien: Kiulung), and I am not aware of any other published record; all specimens studied by me have been collected in Yunnan (in fact, I am unable to locate "Chiquan", a locality given on two labels [written by the same hand!] once as "Yunnan, Chiquan" and then as "S'ichuan, Chiquan"!).

Remarks:

The most striking character of this species is long pilosity on antennae, legs, and especially on elytral margin – other [sub]species of *Poecilonota* Esch. available to me for study show there at most very short, hardly appreciable setulae.

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APPENDIX

Characters used in phylogenetic analyses

Upper line – codes of character-states; ***[bold italics]*** – terminal automorphies
Lower line – weights (costs of transformation) [0↔1↔2=2: additively equidistant (distance between 0 and 1 the same (=2) as between 1 to 2, that between 0 and 2 = 2+2 = 4); abc↔de=1: equidistant between groups (a↔d=a↔e=b↔d=b↔e=c↔d=c↔e=1); (bcd) = 1: equidistant within group (b↔c = c↔d = b↔d = 1)]

1. Body size – [***0***] <10; [1] 10-15; [2] 15-25; [***3***] >25
   0↔1↔2↔3=1
2. Body proportions (L:W) – [***0***] <2.4; [1] 2.4-2.7; [2] 2.7-3.0; [***3***] >3.0
   0↔1↔2↔3=1
3. Colour (basic dorsal) – [***0***] black; [1] bronzed; [2] cupreous; [***3***] green; [***v***] violet
   0↔1↔2↔3=1; 012↔v=2
4. Colour: spots – [***a***] Scintillatrix-type; [k] Poecilisia-type; [***m***] Palmar-type; [***h***] none; [***x***] Ovalisia-type
   a↔k↔m=2; amx↔h=2;
5. Pubescence: dorsal – [***p***] Erialata-type; [***a***] inconspicuous; [b] front; [c] pronotum; [***d***] elytra; [***x***] long pilosity on el. margins
   p↔a=2; a↔b↔c↔d=1; b↔x=1
6. Labrum shape – [***0***] deeply emarginate, no transverse carina; [1] quadrangular, no transverse carina; [***2***] semicircular, transversely carinate
   0↔1=1; 1↔2=3
7. Epistome shape – [***0***] sides subparallel; [***1***] expanded before antennal grooves
   0↔1=2
8. Front: supraantennal carinae – [***0***] normal, short; [***1***] prolonged upwards
   0↔1=3
9. Front: transverse ridge – [***0***] none; [1] weak, irregular; [***2***] prominent
   0↔1↔2=1
10. Front proportions (BW:AW) – [***0***] 0.5-0.7; [1] 0.7-0.9; [***2***] 0.9-1.1
    0↔1↔2=1
11. Vertex width (V:H) – [***0***] 0.2-0.3; [1] 0.3-0.4; [2] 0.4-0.5; [3] 0.5-0.6; [***4***] 0.6-0.7
    0↔1↔2↔3↔4=1
12. Pronotal proportions (MW:BW): [***0***] 0.85-0.95; (1) 0.95-1.05; [***2***] 1.05-1.15
    0↔1↔2=2
13. Pronotum: sides basally – [***0***] deeply sinuate; [1] shallowly sinuate; [2] straight; [***3***] rounded
    0↔1↔2↔3=1
14. Pronotum: oblique depressions – [***0***] none; [***1***] distinct
    0↔1=2
15. Pronotum: median relief or dark stripe – [***0***] undifferentiated or traces; [1] regular reduced; [***2***] regular entire
    0↔1↔2=2
16. Pronotum: median relief or dark stripe – [***0***] undifferentiated or very narrow; [1] narrow; [2] broad; [***3***] very broad
    0↔1↔2↔3=1
17. Pronotum – midlateral spots/ridges: [***0***] none; [1] reduced; [***2***] prominent
    0↔1↔2=1
18. Number of pronotal additional dark spots/ridges: [***0***] none; [1] 1; [***2***] 2
    0↔1↔2=1
19. Pronotum: lateral carina (sharp to) – [***0***] <<midlength; [1] *ca.* midlength; [***2***] >>midlength
    0↔1↔2=1
20. Pronotum: lateral carina (shape) – [***0***] regularly curved downwards; [***1***] S-shaped: sinuate at or somewhat before base, then curved upwards
    0↔1=2

21. Pronotum: lateral carina (structure anteriorly) – [***0***] punctate; [***1***] crenulate
    0↔1=2
22. Scutellum: proportions – [***0***] small; [1] large, slightly transverse; **[*2*]** large, strongly transverse
    0↔1↔2=2
23. Elytra: lateroapical margin (shape) – [***0***] rounded; [1] straight; [2] slightly sinuate; [***3***] strongly caudate
    0↔1↔2↔3=1
24. Elytra: lateroapical margin (structure) – [***0***] smooth; [1] serrulate; [***2***] denticulate/crenulate
    0↔1↔2=1
25. Elytra: apex – [***r***] rounded; [k] multidenticulate; [***b***] bidentate; [***z***] tridentate
    r↔k↔b=2; k↔z=2
26. Elytra: striae structure – [***0***] puncture rows; [***1***] continuous
    0↔1=1
27. Elytra: punctures in striae – [***0***] none or very fine; [1] fine; [2] moderate; [3] coarse; [***4***] very coarse
    0↔1↔2↔3↔4=1
28. Elytra: sculpture – [***0***] [rugoso-]punctate; [***1***] granulate
    0↔1=1
29. Elytral interstriae – elevation: [***0***] equal; [1] alternately unequal; [***2***] strikingly disparate
    0↔1↔2=2
30. Elytral intercostate interstriae – convexity: [**o**] flat/depressed; [1] slightly convex; [***2***] subcareniform
    0↔1↔2=1
31. Elytral dfp – type: [***0***] none; [1] interstrial foveae; [***2***] extensive patches
    0↔1↔2=2
32. Epipleura: length – [***0***] reaching to apex; [1] ending far before apex; [***2***] none behind metacoxae
    0↔1↔2=1
33. Prosternal apex – [***0***] straight; [1] emarginate; [***2***] bituberculate
    0↔1↔2=1
34. Prosternal process: sculpture medially (♀) – [***0***] smooth; [1] sparsely punctured; [***2***] densely punctured
    0↔1↔2=2
35. Prosternal process: border structure – [***0***] none; [1] lateral rim; [***2***] stria
    0↔1↔2=2
36. Prosternal proces: border position – [***0***] none or marginal; [***1***] sublateral
    0↔1=1
37. Proepisterna: sculpture – [***0***] dense punctures; [1] isolated ocelli; [***2***] reticulate
    0↔1↔2=1
38. Metasternum: [***0***] flat/depressed; [***1***] sulcate
    0↔1=2
39. Metacoxal denticle: [***0***] none; [1] broadly obliterated; [***2***] well marked
    0↔1↔2=2
40. 1. sternite – [***0***] regularly convex; [1] flat/inconspicuously depressed; [***2***] sulcate
    0↔1↔2=1
41. Abdomen: lateral reliefs – [***0***] none; [***1***] distinct
    0↔1=2
42. Mandible – [***0***] laterally rounded; [***1***] laterally blade-like expanded
    0↔1=3
43. Antennae: width – [***0***] thin; [1] rather thick; [***2***] strikingly widened
    0↔1=1; 1↔2=2
44. Antennae: 3. joint – [***0***] ≈ 2.; [***1***] ≈ 4.
    0↔1=1
45. 1. metatarsomere: proportions – [***0***] robust, L:W<3; [***1***] slender, L:W.4
    0↔1=1

46. 1. metatarsomere: relative length – [***0***] ≈ 2.; [***1***] ≈ 2.+3.
    0↔1=1
47. Male mesotibia: [***0***] simple; [1] angular protrusion; [***2***] long spine
    0↔1=2
48. Anal sternite: perimedian ridges – [***0***] none; [1] inconspicuous; [2] conspicuous; [***3***] prominent
    0↔1↔2↔3=1
49. Anal sternite (male): apex – [***0***] rounded; [1] truncate; [2] emarginate; [3] bidenticulate; [4] bispinose; [***5***] carinately bispinose
    0↔1↔2↔3↔4↔5=1
50. Anal sternite (female): apex – [***a***] rounded or truncated; [***e***] like in male; [***n***] notched; [***x***] binotched
    anx↔e=1

Initial character-matrix

Bold – taxon codes used in Hennig86 cladograms; CAPITALS – outgroups

		1		2		3		4		5	
		12345	67890	12345	67890	12345	67890	12345	67890	12345	67890
ZLR	ZOOLRECORDIA	223aa	00101	21200	01110	0020b	02020	10202	11011	10010	0002a
TZL	TOUZALINIA	313ad	10001	31310	01001	1022b	14001	11212	12122	10010	0023a
Dni	D.nishidai	220ad	10001	31200	01101	1032b	14001	20112	12122	00010	0203a
Dae	D.a.chinensis	210ab	10001	31210	00011	1021b	11000	20121	12121	00000	0113x
Dfr	D.fritillum	210ab	10001	31210	01011	1021b	11001	20021	12112	00010	0212a
Dob	D.obscura	220aa	10000	20310	01021	0021b	02000	20021	12112	10100	0013x
Dlu	D.lurida	220aa	10001	31110	01021	0021b	01000	20021	12112	00000	0013x
Dpg	D.pugionata	220ab	10001	31100	01021	0021b	01000	20021	12112	00000	0013x
Dbe	D.berolinensis	211aa	10001	31110	00011	0021b	01000	20121	12122	00000	0113x
Dal	D.alni	211aa	10001	31110	01011	0021b	10000	20121	12122	00000	0113x
Dun	D.unokichii	220aa	00001	31110	01001	0022b	13001	20021	12122	00010	0113x
Dti	D.tibialis	110ac	10001	31110	02121	0020b	01020	20021	11102	00010	0203x
Dct	D.c.thibetana	210ab	10001	31112	12121	1022b	03020	20021	12102	00000	0213x
Dcc	D.c.corrugata	210ab	10001	31112	12121	1022b	03020	20021	12102	00010	0213x
Dku	D.kurosawai	210ab	10001	31211	12121	1022b	03020	20021	12102	00010	0003x
Dhe	D.herbsti	211aa	10001	32010	02121	1022b	01020	20121	12011	10010	0122x
Dts	D.tenebrosa	210aa	10001	32010	02121	1020b	02020	20121	12111	10010	0113x
Dse	D.sexualis	210aa	10021	32010	02121	0021r	02020	20021	12122	00010	1013a
Dpt	D.punctulata	111aa	10021	31110	02121	0020r	02010	20021	12122	00010	1001e
Dmo	D.moesta	110aa	10011	32010	02121	0021r	02010	20021	12121	00010	1003a
Dam	D.amphibia	210ab	10001	31110	02121	1020r	03002	20121	12101	00010	0212a
Dho	D.horni	210ad	10001	31100	02121	0020r	11010	20021	12112	00110	0212a
Dfu	D.furcata	220aa	10001	31110	01101	1030r	11010	20021	12111	10110	0233x
Ddi	D.divaricata	230ab	10001	31110	00121	1030r	11010	20121	12112	10100	0133x
Dtc	D.tenebrica	230ab	10001	31110	00121	1030r	11010	20021	12102	10000	0133x
Pse	P.semenovi	110ax	01001	32102	21021	0231b	10002	22022	02111	10001	1002n
Pvc	P.v.chinensis	110ab	01000	32212	10021	0221b	10002	22022	02111	10001	1002n
Pvy	P.v.yanoi	210ab	01001	32212	21021	0221b	10002	22022	02112	10011	1002n
Pvd	P.v.dicercoides	210ab	01001	32312	21021	0221b	10001	22012	01112	00011	1002n
Pth	P.thureura	210aa	01001	21202	21021	0221b	10000	22012	01111	10011	1002n
Psa	P.salicis	120aa	01001	21202	20011	0221b	10000	22012	01111	00000	0002n
Pcy	P.cyanipes	120aa	01001	30202	10021	0231b	10000	22012	01112	00001	1002n
Pbr	P.bridwelli	120aa	01001	31212	11021	0220b	10002	22012	01101	10011	0002n
SCI	SCINTILLATRIX	123aa	11001	11212	11010	1201z	10000	02012	10000	00010	1003e
PCL	POECILISIA	131ka	11011	21100	11010	1221z	10000	02222	01011	10010	0003e
CIN	CINYRISIA	221ka	11111	11200	00020	1112z	11000	02210	01000	00000	0005e
MAB	MABOMISIA	222mp	11101	11100	00020	1122z	11000	02112	11000	00000	0003e
Eri	ERIALATA	122mp	11000	01100	02120	1112z	10000	02121	01000	00210	0003e
PAL	PALMAR	123ma	11011	11211	22110	1211k	11000	02012	11000	00110	0003e
ZYK	ZYKOVISIA	022ma	21111	11311	22210	1112r	11100	02010	01000	01000	0004e
OVA	OVALISIA	00vxa	21111	11302	30020	1222r	11100	02110	01001	01000	0003e
PHI	PHILANTHAXIA	013ha	11002	40300	00020	1121r	11000	01020	02000	00001	1000e

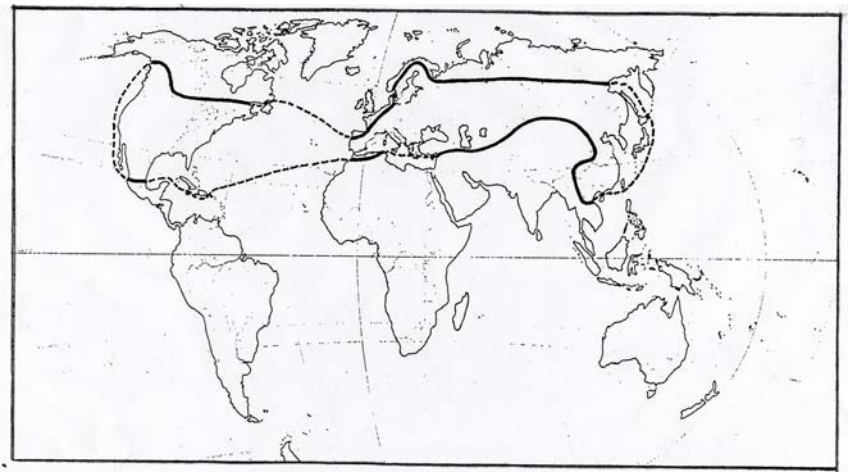
Character-matrix resulting from MICSEQ analysis (outgroups omitted)

Bold underlined italics – apomorphies

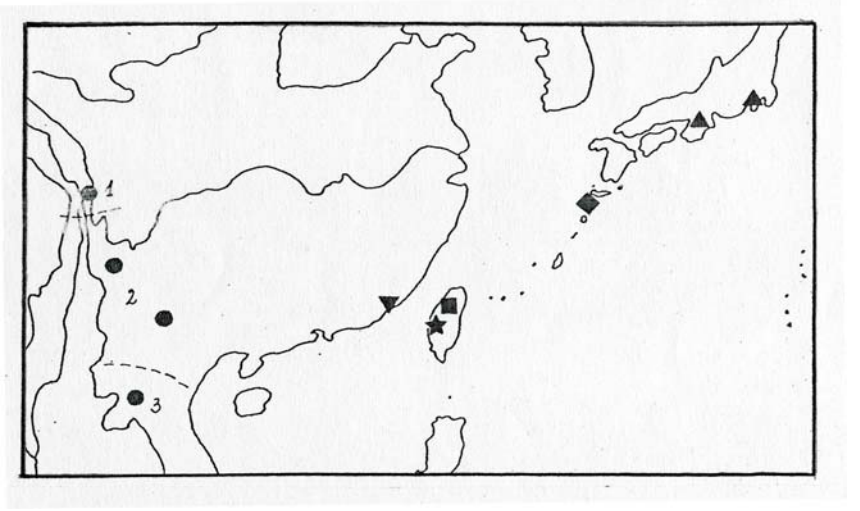
Number after equation mark: phenetic distance [in phenuns] from immediate ancestor

In square brackets: support quotient (SQ)

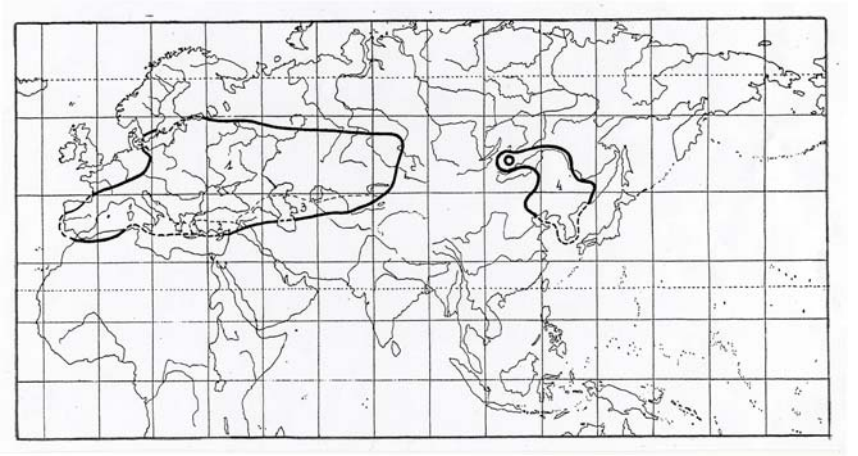
	12345	67890	12345	67890	12345	67890	12345	67890	12345	67890			
TZL	3**1**3ad	10001	31**3**10	01**0**01	1022b	14001	**11**212	12122	**1**0010	00**2**3a	=	16	
Dni	2**2**0ad	10001	312**0**0	01101	10**3**2b	14001	20112	12122	00010	0203a	=	4	
Dfr	210ab	10001	31**2**10	01011	1021b	1**1**001	20021	12112	00010	0212a	=	2	
Dob	220aa	1000**0**	**20**310	01021	0021b	02000	20021	12112	**1**0**1**00	0013x	=	9	
Dlu	220aa	10001	31110	01021	0021b	01000	20021	12112	00000	0013x	=	0	
Dpg	220a**b**	10001	311**0**0	01021	0021b	01000	20021	12112	00000	0013x	=	3	
Dae	210a**b**	10001	31**2**10	00011	**1**021b	11000	20121	1212**1**	00000	0113x	=	5	
Dbe	211aa	10001	31110	00011	0021b	**0**1000	20121	12122	00000	0113x	=	1	
Dal	211aa	10001	31110	0**1**011	0021b	1**0**000	20121	12122	00000	0113x	=	2	
Dun	220aa	**0**0001	31110	010**0**1	0022**b**	1**3**001	20021	121**2**2	00010	0113x	=	6	
Dam	210ab	10001	31110	02121	1020r	**03002**	20**1**21	121**0**1	00010	0212a	=	6	
Dho	210a**d**	10001	311**0**0	02121	**0**020r	11010	20021	12112	00110	0212a	=	6	
Dfu	220aa	10001	31110	011**0**1	1030r	11010	20021	12111	10110	0233x	=	2	
Ddi	230ab	10001	31110	00121	1030r	11010	20**1**21	12112	10100	0133x	=	1	
Dtc	230ab	10001	31110	00121	1030r	11010	20021	121**0**2	10**0**00	0133x	=	3	
Dti	**1**10a**c**	10001	31110	02121	**0**020**b**	0**1**020	20021	1**1**102	00010	0203x	=	7	
Dct	210ab	10001	31112	12121	1022b	03020	20021	12102	000**0**0	0213x	=	1	
Dcc	210ab	10001	31112	12121	1022b	03020	20021	12102	00010	0213x	=	0	
Dku	210ab	10001	31211	12121	1022b	03020	20021	12102	00010	0**0**03x	=	2	
Dhe	21**1**aa	10001	32010	02121	1022**b**	0**1**020	20121	12**0**11	10010	01**22**x	=	7	
Dts	210aa	10001	32010	02121	1020**b**	02020	20121	12111	10010	0113x	=	1	
Dse	210aa	10021	32010	02121	0021r	02020	20021	12122	00010	1013a	=	0	
Dpt	11**1**aa	10021	3**11**10	02121	002**0**r	02010	20021	12122	00010	100**1e**	=	7	
Dmo	110aa	100**1**1	32010	02121	0021r	02010	20021	1212**1**	00010	1003a	=	2	
Pse	110a**x**	01001	32**10**2	21021	02**3**1b	10002	22022	02111	10001	1002n	=	6	
Pvc	110ab	0100**0**	32212	**10**021	0221b	10002	22022	02111	10001	1002n	=	3	
Pvy	**2**10ab	01001	32212	21021	0221b	10002	22022	0211**2**	100**1**1	1002n	=	3	
Pvd	**2**10ab	01001	32**3**12	21021	0221b	10001	22012	0111**2**	000**1**1	1002n	=	4	
Pth	**21**0aa	01001	21202	2**1**021	0221b	10000	22012	01111	**1**00**1**1	1002n	=	6	
Psa	120aa	01001	21202	200**1**1	0221b	10000	22012	01111	0000**0**	**0**002n	=	3	
Pcy	120aa	01001	3**0**202	**1**0021	02**3**1b	10000	22012	0111**2**	00001	1002n	=	5	
Pbr	120aa	01001	31212	11021	022**0**b	1000**2**	22012	011**0**1	**1**0011	0002n	=	6	
A	210ab	10001	31**1**1**2**	12121	1022b	03020	20021	12102	00010	021**3**x	=	4	[1/6]
B	220aa	10001	31110	01021	0021b	01000	20021	12112	00000	0013x	=	0	[3/8]
C	21**1**aa	10001	31110	00011	0021b	11000	20121	12122	00000	0113x	=	1	[3/7]
D	2**3**0a**b**	10001	31110	0**0**121	1030r	11010	20021	1211**2**	101**0**0	0**1**33x	=	6	[4/9]
E	210ab	10001	31**2**1**1**	**1**2121	1022**b**	0**3**020	20021	12102	00010	0203x	=	6	[6/15]
F	**1**10aa	10021	32010	02121	0021r	020**1**0	20021	12122	00010	10**0**3a	=	4	[6/10]
G	210aa	100**2**1	32010	02121	**0**021r	02020	20021	121**2**2	00010	**10**13a	=	8	[5/18]
H	110ab	01001	32212	21021	0221b	10002	22022	02111	10001	1002n	=	0	[6/7]
I	2**1**0aa	10001	31110	0**0**0**1**1	0021b	**1**1000	20**1**21	121**2**2	00000	0**1**13x	=	8	[7/8]
J	110ab	01001	32212	21021	0221b	1000**2**	220**2**2	0**2**111	**1**0001	1002n	=	6	[7/7]
K	210aa	10001	32010	02121	1021b	02020	20**1**21	1211**1**	**1**0010	0113x	=	4	[8/18]
L	2**2**0aa	10001	31110	0**1**121	10**3**0r	11010	20021	1211**1**	**1**0110	02**33x**	=	10	[9/20]
M	220aa	10001	31110	01021	0021b	0**1**000	20021	12112	00000	0013x	=	1	[9/10]
N	120aa	01001	**2**1202	20021	0221b	10000	22012	01111	00001	1002n	=	1	[9/9]
O	120aa	01001	3**1**20**2**	20021	0221b	1000**0**	22012	01111	00001	1002n	=	5	[9/15]
P	1**1**0a**b**	01001	3**2**212	21021	0221b	10001	22012	01111	00001	1002n	=	4	[10/13]
Q	220aa	10001	31110	010**2**1	0021b	**0**200**0**	20021	12112	000**0**0	0**0**13x	=	5	[10/12]
R	2**2**0a**a**	10001	31110	01011	**0**021b	12001	20021	12112	00010	0**1**13**x**	=	8	[12/14]
S	120aa	01001	31212	**2**1021	0221b	10001	22012	01111	000**0**1	**1**002n	=	3	[13/14]
T	120aa	01001	3121**2**	11021	0**2**21b	1**0**00**1**	22012	01111	00011	0002**n**	=	9	[13/33] **[basal ancestor]**
V	210a**b**	10001	3**11**10	02121	1021b	02020	20021	121**0**2	00010	0**2**03x	=	8	[15/18]
W	210ab	10001	31110	0**1**0**1**1	102**1b**	12001	20021	12112	00010	0212a	=	7	[17/18]
Z	210aa	10001	32010	02121	1021b	02020	20021	12112	00010	0113**x**	=	2	[17/18]
AA	210ab	10001	31110	02121	1020r	1**2**0**01**	20021	12112	00**0**10	0212a	=	7	[17/18]
BB	210a**b**	10001	31110	02121	1020r	11010	20021	12112	00110	021**2**a	=	2	[17/19]
DD	210aa	10001	3**20**10	02121	1021r	0**2**0**2**0	20021	12112	00010	0113a	=	6	[18/20]
EE	210a**d**	10001	31210	011**0**1	1022**b**	1**4**0**01**	20112	121**2**2	00010	0203a	=	12	[19/30]
FF	210aa	10001	31110	02121	1020r	1**1**010	20021	12112	00**1**10	0**2**13a	=	4	[19/20]
GG	210aa	10001	31**1**10	0**2**1**2**1	1021**r**	12010	20**021**	12112	00010	01**1**3a	=	13	[17/26]
LL	2**1**0aa	**1**0001	31210	01111	**1**021b	12010	20112	1**2**11**2**	00010	0**2**0**3**a	=	7	[20/24]
MM	**2**20aa	0**0**001	31210	**0**1**1**11	0**0**21b	1**2**0**1**0	2**0**112	**1**1111	0001**0**	0**1**02**a**	=	17	[17/27]
NN	120aa	01001	31210	11021	0121b	11000	22012	01111	00011	0002e			**[basal ancestor]**
	-----	-----	-----	---1-	-----	-----	-11--	-----	----0	-----			



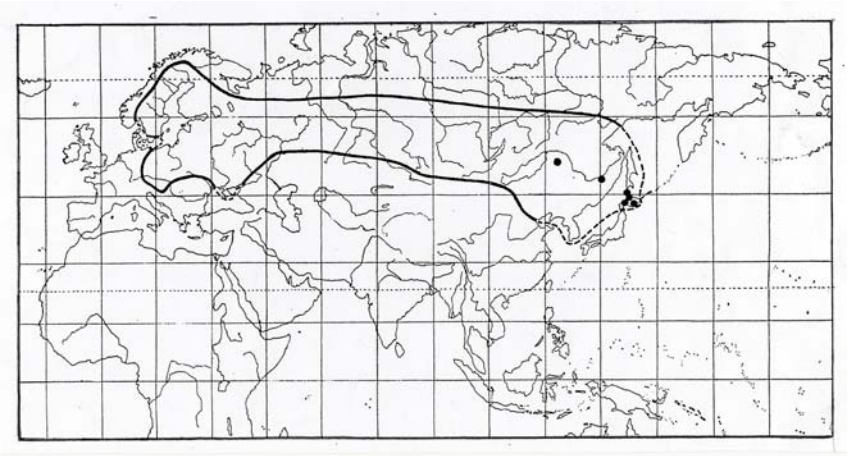
Map 1. Distribution of the genus *Dicerca* Esch.



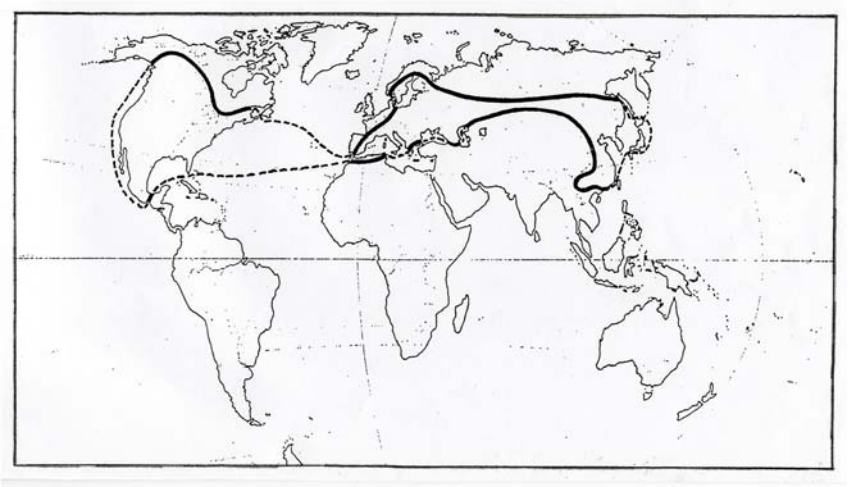
Map 2. Distribution of: ★ *Dicerca kurosawai* H.A.; ● *D. corrugata* Frm. [1 – ssp. *thibetana* ssp.n.; 2 – ssp. c*orrugata* s.str.; 3 – ssp. *vitalisi* D.V.]; ▼ *D. latouchei* Frm.; ▲ *D. tibialis* Lew.; ■ *D. unokichii* Hri.; ◆ *D. nishidai* Tma.



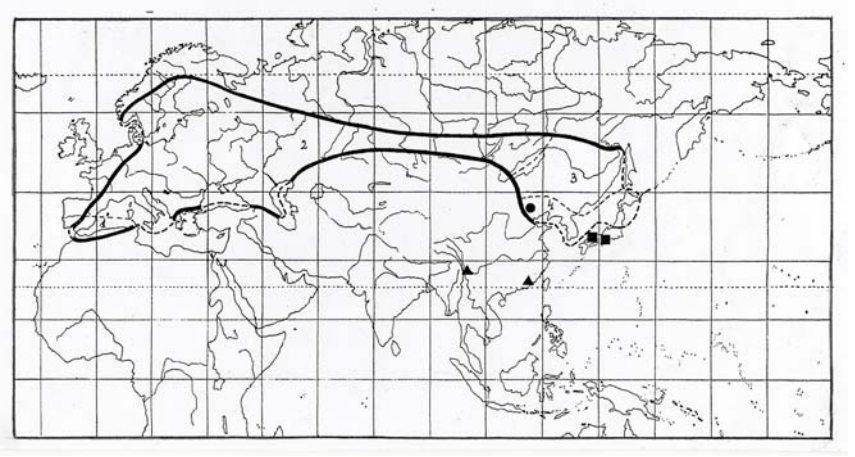
Map 3. Distribution of *Dicerca aenea* (L.) 1 – ssp. *aenea* s.str.; 2 – ssp. *bella* Ab.; 3 – ssp. *validiuscula* Sem.; 4 – ssp. *chinensis* Obb.



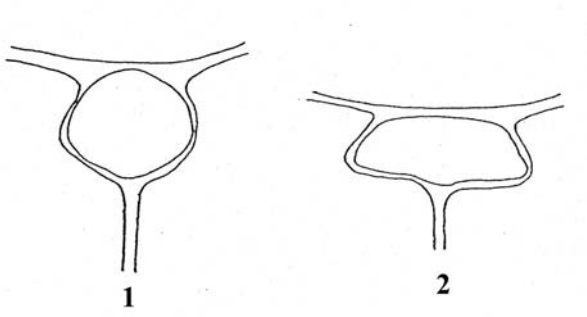
Map 4. Distribution of *Dicerca furcata* (Thb.)



Map 5. Distribution of the genus *Poecilonota* Esch.



Map 6. Distribution of: ● *Poecilonota variolosa* (Pk.) [1 – ssp. *populialbae* Rich.; 2 – ssp. *variolosa* s.str.; 3 – ssp. *dicercoides* Rtt.; 4 – ssp. *chinensis* Thy.]; ▲ *P. semenovi* Obb.; ■ *P. yanoi* Kur.



Figs. 1-2. Shape of scutellum
Fig. 1. *Dicerca corrugata* Frm.; Fig. 2. *Poecilonota semenovi* Obb.

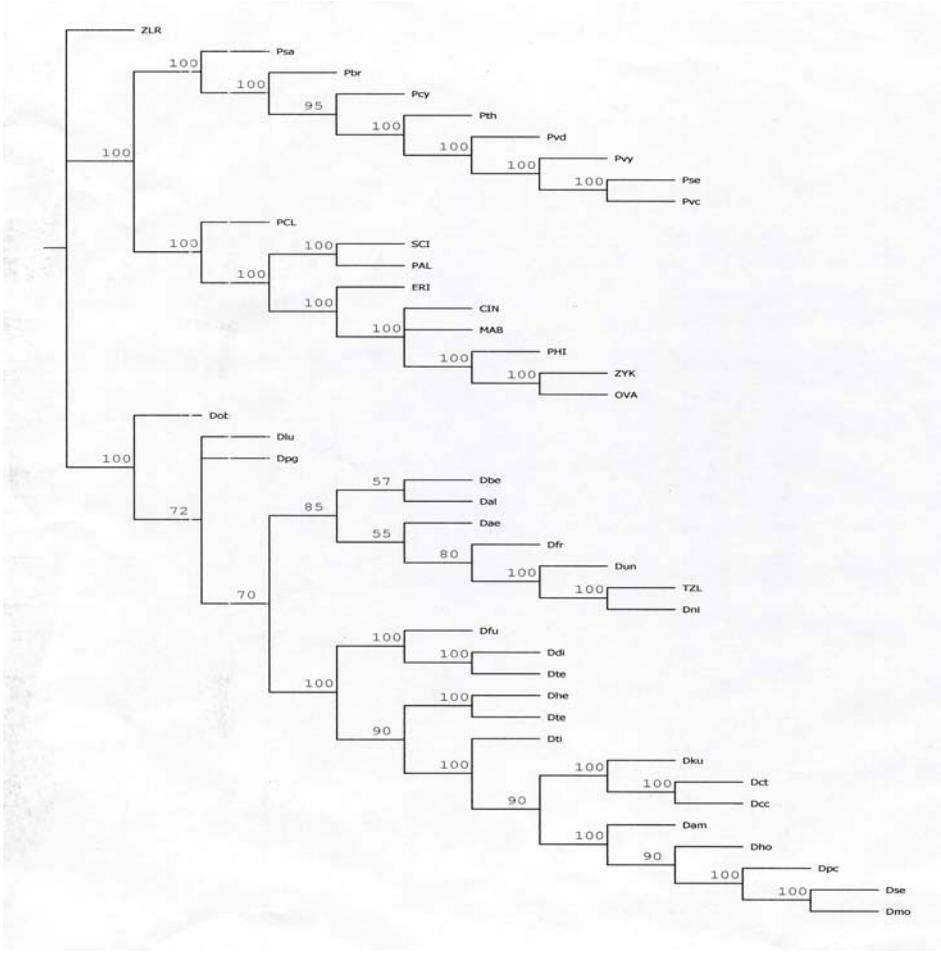


Fig. 3. Cladogram (Hennig86) of *Dicerca* Esch.+*Poecilonota* Esch.

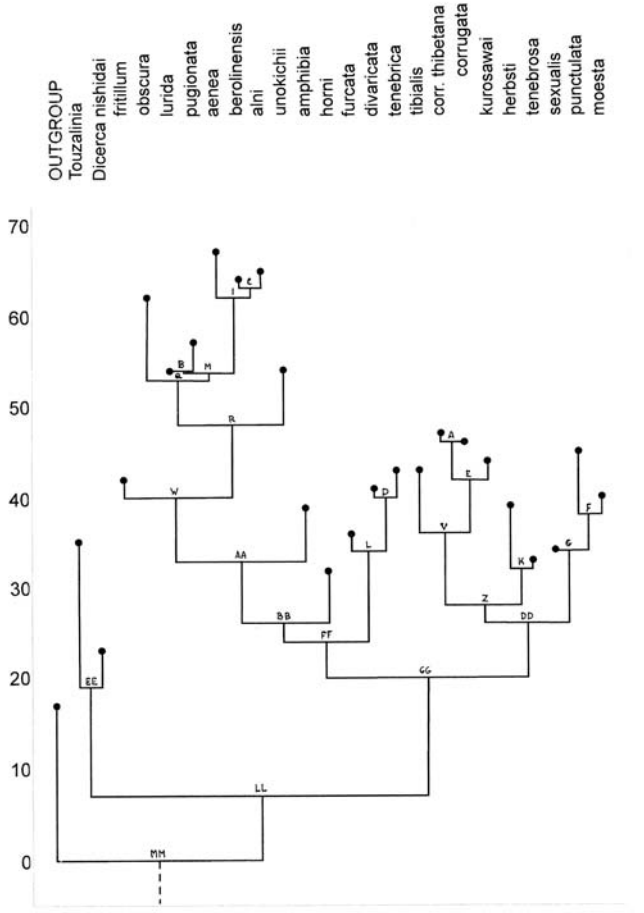
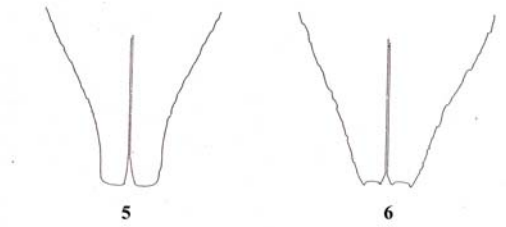
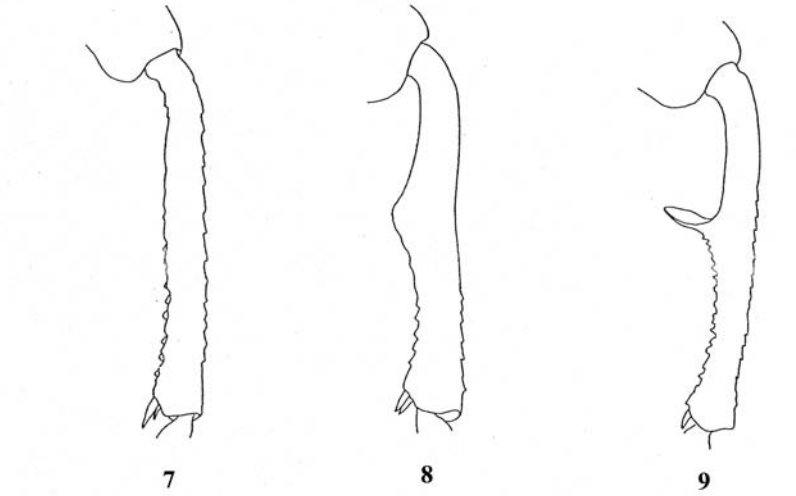


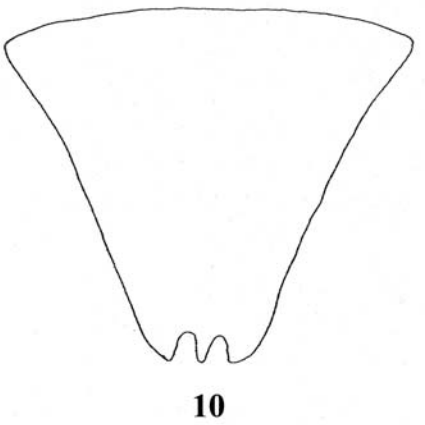
Fig. 4. Cladogram (MICSEQ) of *Dicerca* Esch. [relations among outgroups not shown]



Figs. 5-6. Elytral apices
Fig. 5. *Dicerca furcata* (Thb.);. Fig. 6. *D. corrugata* Frm.



Figs. 7-9. Male mesotibiae
Fig. 7 *Dicerca* (*Argante*) *moesta* (F.); Fig. 8. *Dicerca* (s.str.) *unokichii* Hri.; Fig. 9. *Dicerca corrugata* Frm.



Figs. 10. *Dicerca furcata* (Thb.): female – anal sternite

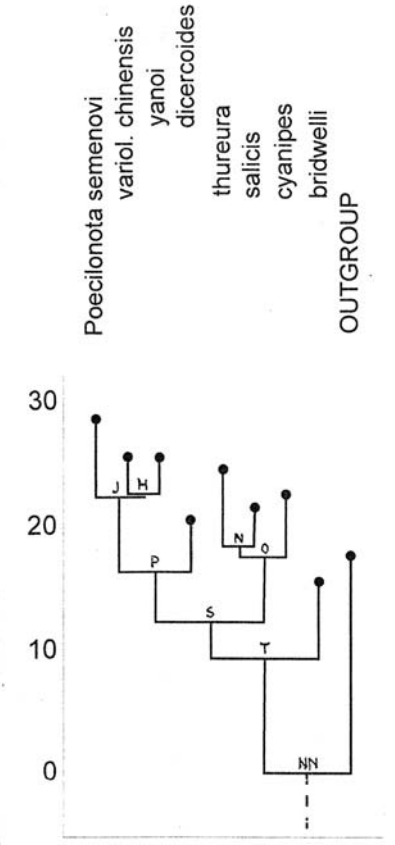
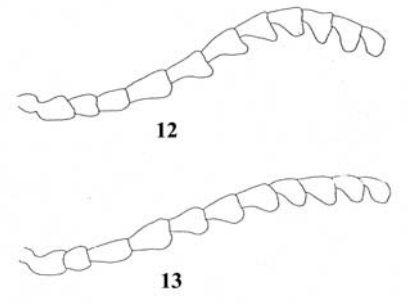


Fig. 11. Cladogram (MICSEQ) of *Poecilonota* Esch. [relations among outgroups not shown]



Figs. 12-13. Antennae
12. *Poecilonota variolosa chinensis* Thy.; 13. *Poecilonota yanoi* Kur.