Genus	Vol. 13 (2): 203-210	Wrocław, 30 VI 2002

Two new species of *Cyclotoma* MULSANT from India and Burma (Coleoptera: Endomychidae)

K. WIOLETTA TOMASZEWSKA
Muzeum i Instytut Zoologii PAN; Wilcza 64, 00-679 Warszawa, Poland
E-mail: wiolkat@robal.miiz.waw.pl

ABSTRACT. *Cyclotoma nigra*, new species from India (Sikkim) and *C. octomaculata*, new species from Burma are described and illustrated. Key to the world species of *Cyclotoma* is updated.

Key words: entomology, taxonomy, new species, *Cucujoidea*, *Endomychinae*, *Cyclotoma*.

INTRODUCTION

The genus *Cyclotoma* MULSANT (1851) belongs to the subfamily Endomychinae sensu STROHECKER (1953), as indicated in the recent review of this genus (TOMASZEWSKA 2000 b). The monophyly of the group, including the genera: *Cyclotoma* MULSANT, *Bolbomorphus* GORHAM, *Endomychus* PANZER, *Eucteanus* GERSTAECKER and *Meilichius* GERSTAECKER, was confirmed by the phylogenetic analysis of the family Endomychidae (TOMASZEWSKA 2000 a). The postulated synapomorphies of Endomychinae are listed by TOMASZEWSKA (2000 a, 2000 b).

In the review of *Cyclotoma* (TOMASZEWSKA 2000 b) a detailed description of the genus was provided and a diagnosis was presented, based on the following characters: body almost circular in outline, highly convex - almost hemispherical; antenna with a narrow, but not flattened club which is almost as long as the remaining antennomeres combined, or sometimes longer; basal and lateral sulci on the pronotum absent; elytra with epipleura very wide, complete.

During my recent visit to the Muséum National d'Histoire Naturelle (Paris, France), studying the collection of Coccinellidae, two new species of *Cyclotoma* were recognized and are described here. At present *Cyclotoma* includes 15 species distributed in the Oriental Region.

METHODS

The measurements were made using a filar micrometer as follows: body length, from apical margin of clypeus to apex of elytra; width, across both elytra at widest part; pronotal length, from the middle of anterior margin to margin of basal foramen; pronotal width at widest part; elytral length along suture, excluding scutellum. External feature figures (made from dry preserved specimen), and the internal structures – female genitalia (preserved in glycerine), were drawn using a camera lucida attached to an Olympus dissecting microscope.

TAXONOMY

Cyclotoma nigra n. sp.

(figs 1-8)

ETYMOLOGY

The name *nigra* refers to the black body.

DIAGNOSIS

This species seems to be closely related to *C. cingalensis* in having 10-segmented antenna. *C. nigra* however is the only species of *Cyclotoma* which has the body uniformly coloured, almost black.

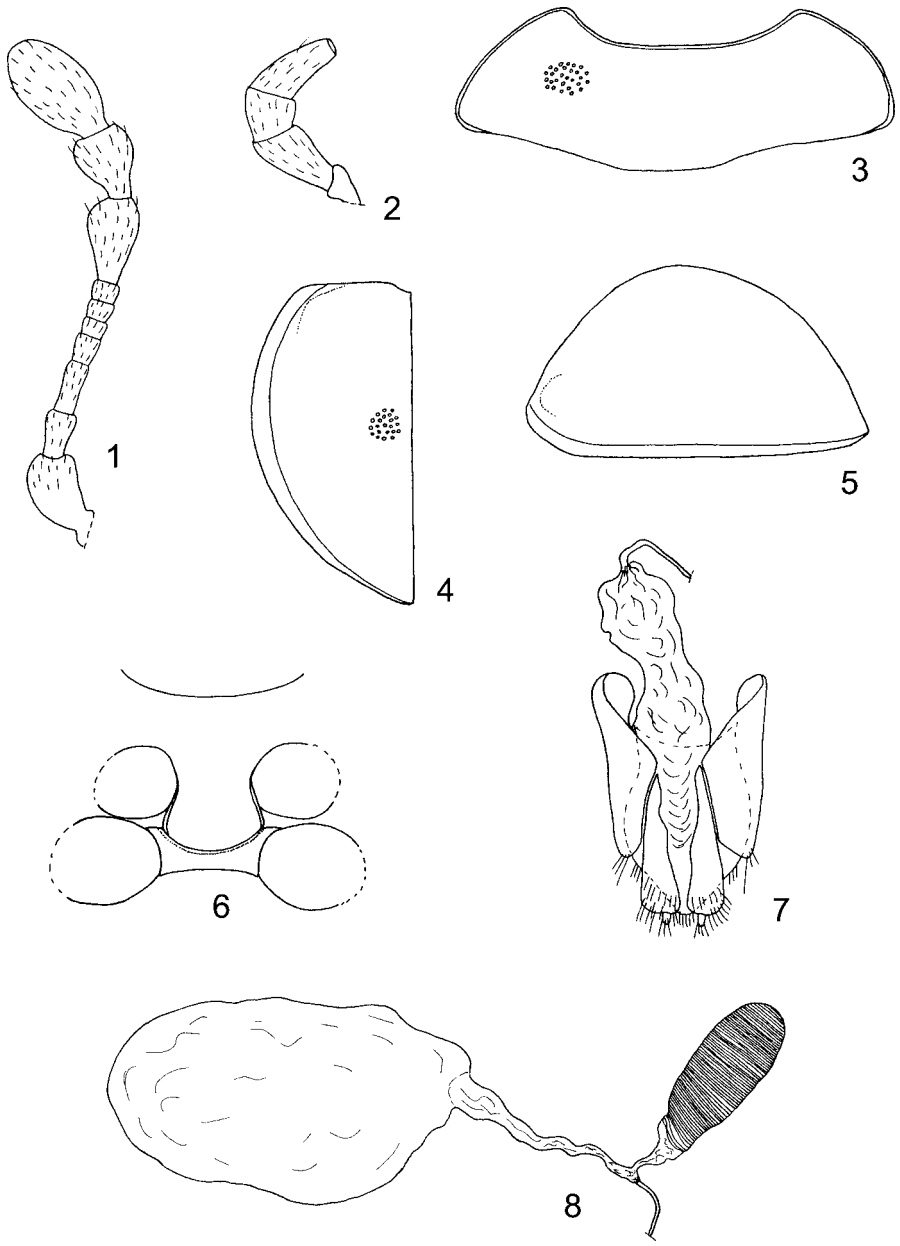
DESCRIPTION

Length 4.60 mm; body 1.12 x as long as wide; strongly convex, about 0.56 x as high as long, very smooth, shiny, densely, deeply and coarsely punctate. Whole body brownish-black with antenna dark brown.

Antenna (fig. 1) 10-segmented with antennomere 3 elongate, distinctly longer than pedicel and almost 2 x as long as antennomere 4, which is subquadrate; antennomeres 5-7 very short; club as long as remaining antennomeres combined with all segments longer than wide. Maxilla with terminal palpomere elongate, weakly tapering towards apex, subcylindrical, weakly rounded apically (fig. 2). Pronotum (fig. 3) 0.75 mm long, 2.30 mm wide; about 0.33 x as long as wide; anterior and lateral edges narrowly bordered; disc weakly convex. Prosternal process (fig. 6) widely separates fore coxae, about 1.3 x as wide as coxal diameter and slightly narrower than mesosternal process, distinctly enlarged behind fore coxae and weakly rounded apically. Elytra (figs 4, 5) 3.80 mm long, 4.10 mm wide; 0.93 x as long as wide; 5.07 x as long as pronotum, 1.78 x as wide as pronotum; humeri prominent. Female genitalia (figs 7, 8) with ovipositor unusually long and narrow, and coxites with very distinct styli.

TYPE MATERIAL

Holotype female: India "Sikkim/ Muséum Paris, 1930, coll. Sicard/ *Cyclotoma* sp. nov., det. K.W. Tomaszewska 2001/ one more, hand-written label, partially illegible with notes on the metasternum" (MNHN).



1-8. *Cyclotoma nigra*: 1 - antenna, right, dorsal, 2 - maxillary palp, left, ventral; 3 - outline of pronotum; 4 - left elytron, dorsal, 5 - left elytron, lateral, 6 - pro- and mesosternum, 7, 8 - female genitalia

DISTRIBUTION
India (Sikkim).

Cyclotoma octomaculata n. sp.
(figs 9-17)

ETYMOLOGY
The Latin name *octomaculata* means eight-spotted and refers to eight spots on each elytron.

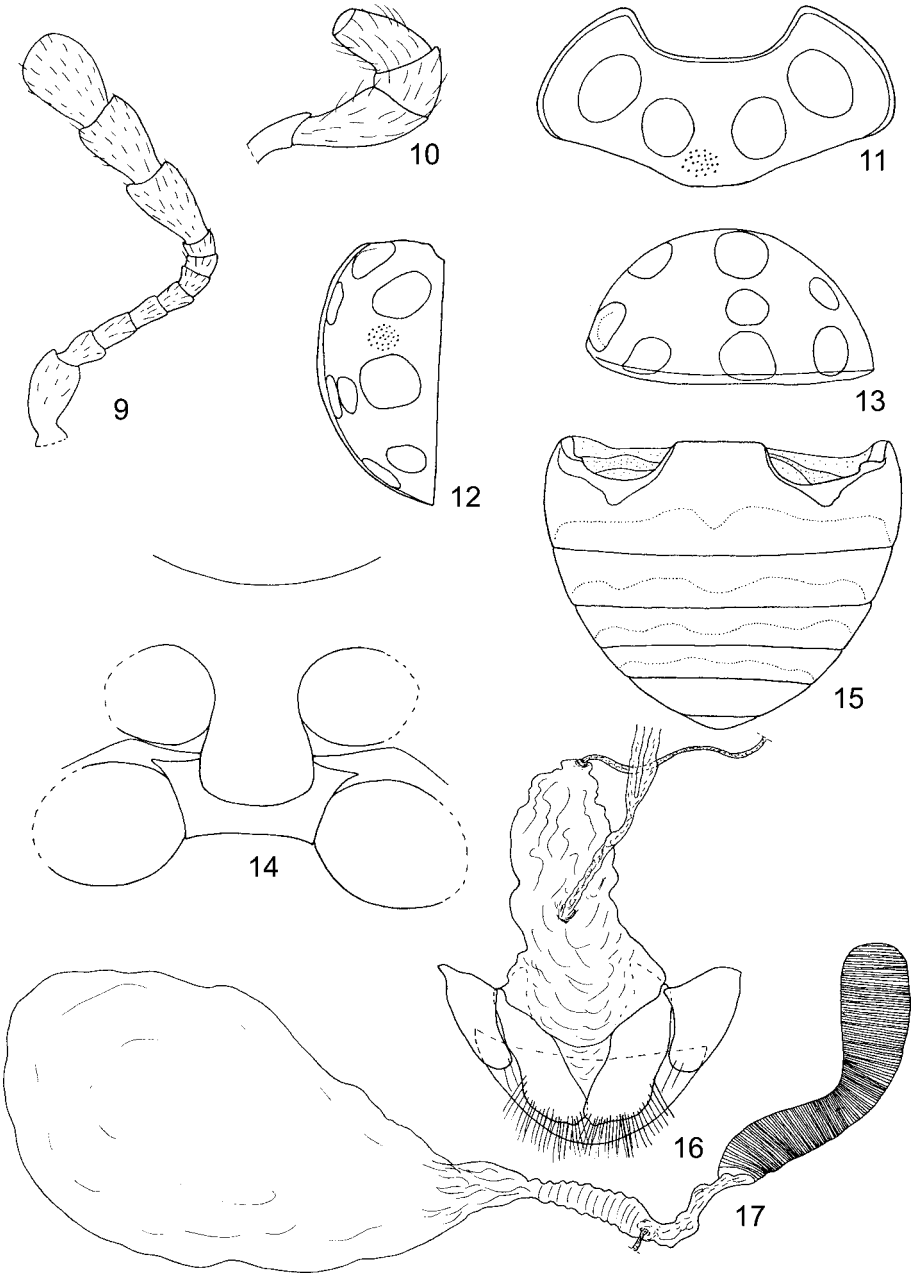
DIAGNOSIS
This species is similar to *C. nicoleae* in having eight spots on each elytron, but can easily be separated by having these spots more or less regularly shaped (rounded), less elongate body, antennomere 3 slightly longer than 4 and femoral lines on abdominal ventrite 1.

DESCRIPTION
Length 8.00 mm; body 1.14 x as long as wide; convex, about 0.49 x as high as long, very smooth, shiny, rather densely, moderately deeply and finely punctate. Colour yellowish-brown with elytra along suture and pronotal disc red; antennal club, spots on pronotum and elytra, large part of metasternum (except intercoxal process) and basal parts of ventrites 1-4 black.

Antenna (fig. 9) 11-segmented with antennomere 3 elongate, slightly longer than pedicel and antennomere 4; antennomere 5 subquadrate, slightly shorter than 4; antennomeres 6-8 very short; club almost as long as remaining antennomeres combined with all segments longer than wide. Maxilla with terminal palpomere slightly longer than wide, weakly tapering towards apex, subcylindrical, weakly rounded apically (fig. 10). Pronotum (fig. 11) with four, large, rounded, black spots placed transversely; 1.40 mm long, 3.85 mm wide; about 0.36 x as long as wide; anterior and lateral edges moderately widely bordered; disc weakly convex. Prosternal process (fig. 14) widely separates fore coxae, about as wide as coxal diameter, weakly enlarged behind fore coxae and weakly rounded apically. Elytra (figs 12, 13) 6.70 mm long, 7.00 mm wide; 0.96 x as long as wide; 4.78 x as long as pronotum, 1.82 x as wide as pronotum; each elytron with eight, large, rounded or oval, black spots; humeri weakly prominent. Ventrite 1 with femoral lines (fig. 15). Female genitalia as in figs 16, 17.

TYPE MATERIAL
Holotype female: Burma "Hte. Birmanie, Mines des Rubis, 1200 m - 2300 m, Doherty 1890/ Muséum Paris, 1952, coll. Oberthür" (MNHN).

DISTRIBUTION
Burma.



9-17. *Cyclotoma octomaculata*: 9 - antenna, right, dorsal, 10 - maxillary palp, left, ventral, 11 - outline of pronotum, 12 - left elytron, dorsal, 13 - left elytron, lateral, 14 - pro- and mesosternum, 15 - abdomen, ventral, 16, 17 - female genitalia

KEY TO THE WORLD SPECIES OF *CYCLOTOMA*

Note. Numbers in brackets [ ] refer to figures in the review of *Cyclotoma* (TOMASZEWSKA 2000 b). All the remaining numbers refer to the present paper.

1. Antenna 10-segmented [fig. 16] ……..……. 2.

-. Antenna 11-segmented ……..……... 3.

2. Dorsal surface yellow or yellowish brown; each elytron with five, large - subequal in size, black spots; Ceylon ……... *C. cingalensis* (GORHAM)

-. Dorsal surface almost black; elytra without maculae; India (Sikkim)…..…..… ..... *C. nigra* n. sp.

3. Elytra uniformly coloured, without contrasting markings; [prevailing body colour black or brownish black with only elytra and sides of pronotum brown]; Sumatra .....…..... *C. sumatrensis* (GORHAM)

-. Elytra with contrasting markings .....…..……. 4.

4. Elytral markings of irregular shapes [figs 34, 35]; epipleura enormously wide; body somewhat conical; Taiwan .....… *C. conica* TOMASZEWSKA

-. Elytral markings more or less regular (round, oval or transverse); epipleura moderately wide; body almost hemispherical in shape .....…..……5.

5. Elytra with five large spots [fig. 41] (two spots on each elytron and one, largest common for both elytra, in middle); antenna with segments 4-8 very short, transverse [fig. 38]; Laos .....….....*C. quinquepunctata* ARROW

-. Each elytron with at least five spots; at most antennomeres 6-8 short, transverse ..... 6.

6. Each elytron with five, six or eight black spots .....……. 7.

-. Each elytron with seven, black spots .....……. 10.

7. Elytron with eight spots; pronotum with four oval, black spots placed transversely; antennal club black ……..……... 8.

- Elytron with five or six oval or weakly transverse, large spots; pronotum with one, transverse, basal spot; antenna brown; ……..……. 9.

8. Spots on elytra of different size and shape (second sutural largest, irregularly triangular) [fig. 48]; two middle spots on pronotum sometimes connected basally; antennomere 3 almost twice as long as 4; abdominal ventrite 1 without femoral lines; Vietnam ……..……*C. nicoleae* TOMASZEWSKA

- Spots on elytra more regular in size and shape (large and very large, rounded or oval) (figs 12, 13); spots on pronotum widely separated (fig. 11); antennomere

3 slightly longer than 4; abdominal ventrite 1 with femoral lines (fig. 15); Burma …..... *C. octomaculata* n. sp.

9. Six spots on each elytron [figs 55, 56] (although two posterior may sometimes be partially connected); antennomere 3 distinctly elongate [fig. 52], almost 2 x as long as antennomere 4; at least middle part of scutellum black or brownish black; abdominal ventrite 1 with two transverse, black spots in middle (sometimes fused); Borneo …..... *C. borneensis* (GORHAM)

-. Five spots on each elytron [figs 61, 62]; antennomere 3 subquadrate, as long as 4; scutellum brown, abdominal ventrites without black spots; Borneo …..... ..... *C. undecimnotata* (FRIVALDSZKY)

10. Pronotum with four, large, black spots transversely .....…..……11.

-. Pronotum with at most two oval spots at base .....……12.

11. Antennomere 4 elongate, hardly shorter than antennomere 3 and distinctly longer than 5 [fig. 65]; ventral surface of body yellow or brown most often with black, transverse spots on abdominal ventrite 1 and sometimes on sides of metasternum; legs uniformly brown; Northeastern India, Burma, Vietnam, Taiwan .....…..... *C. indiana* (GORHAM)

-. Antennomere 4 subquadrate, equal in length to antennomere 5 and almost 2 x shorter than 3 [fig. 73]; ventral surface of body dark reddish brown, abdominal ventrites 1-4 with black, transverse spots; femora with black and brown elongate stripes; Laos …..… *C. merkli* TOMASZEWSKA

12. Mesosternal process very wide, 1.46 x wider than prosternal process (fig. 62); antennomeres 3 and 4 distinctly elongate [fig. 79]; body colour dark reddish brown; ventral surface with metasternum and abdominal ventrite 1 blackish brown; pronotum without contrasting markings, 0.55-0.57 x as wide as elytra; South India .....…… *C. monticola* ARROW

-. Mesosternal process moderately wide, 1.22-1.28 x as wide as prosternal process [figs 91, 99, 105]; antennomeres 3 and 4 at most weakly elongate [figs 86, 94, 100]; body colour yellow to dark brown; ventral surface uniformly coloured, although sometimes with small, black spots on ventrite 1; pronotum most often with black spots at base, 0.49-0.53 x as wide as elytra; Java, Philippines .....… 13.

13. Antennomeres 3 and 4 weakly elongate [fig. 94, 100]; elytral spots smaller [figs 95, 96, 103, 104]; pronotum often without contrasting markings; Philippines .....… 14.

-. Antennomere 3 elongate, antennomere 4 as long as wide [fig. 86]; elytral spots larger [figs 89, 90] pronotum with one transverse [fig. 88] or two oval, connected basally, black spots; Java .....…..... *C. testudinaria* MULSANT

14. Antennomeres 3 and 4 subequal in length [fig. 94]; elytral margins narrower [fig. 96]; elytra 0.81-0.85 x as long as wide and 4.01-4.28 x as long as pronotum; aedeagus rather stout and almost straight [fig. 98]; Philippines .... *C. coccinellina* (GERSTAECKER)

- Antennomere 3 longer than 4 [fig. 100]; elytral margins distinctly broader [fig. 103]; elytra 0.89 x as long as wide and 4.82-4.87 x as long as pronotum; aedeagus thin and curved in about 1/3 of its basal length [fig. 106]; Philippines ..... *C. acleta* STROHECKER

ACKNOWLEDGMENTS

I express my sincere thanks to Nicole BERTI (MNHN) for the help and warm hospitality during my last visit to her laboratory.

REFERENCES

STROHECKER, H.F., 1953. Coleoptera Fam. Endomychidae. In: WYTSMAN P. (ed.), Genera Insectorum. Desmet-Verneuil, Bruxelles, 140 pp., 5 pls.

TOMASZEWSKA, K.W., 2000a. Morphology, phylogeny and classification of adult Endomychidae (Coleoptera: Cucujoidea). Ann. Zool. Warszawa, **50**(4): 449-558.

—, 2000b. A review of the genus *Cyclotoma* MULSANT (Coleoptera: Endomychidae) with descriptions of three new species. Ann. Soc. Entomol. Fr., **36**(4): 345-369.