

Notes on the Coprophagous Scarab-beetles (Coleoptera, Scarabaeidae) from Southeast Asia

XXXI. Five New Species of the Genus *Onthophagus* from Myanmar

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Abstract Five new species of the genus *Onthophagus* are described from Myanmar: *O. (Macronthophagus) shinichii* sp. nov.; *O. (Micronthophagus) chinvigilans* sp. nov.; *O. (Indachorius) pseudoarai* sp. nov.; *O. (I.) chinbucephalus* sp. nov.; *O. (Paraphanaeomorphus) hiranoyasutoshii* sp. nov.

BALTHASAR (1963 a, b, 1964) published tremendous and comprehensive taxonomic monographs on the Scarabaeidae and Aphodiidae from the Palaearctic and Oriental Regions. Thereafter, for the genus *Onthophagus*, one of the most species-rich genera in Scarabaeinae, relatively few species have been added to the fauna of Myanmar (MOXEY, 1963; SCHEUERN, 1996; KABAKOV, 2006; OCHI & KON, 2015). In recent years, we have been studying the taxonomy of dung beetles (Scarabaeinae and Aphodiinae) from Myanmar (OCHI *et al.*, 2005, 2008, 2014; OCHI & KON, 2015). In the present paper, we describe five new species of *Onthophagus* from Myanmar based on the specimens in our collections.

For the terminology of prothorax and male genitalia, we follow OCHI and KON (2017). The abbreviations for measurements (in mm) are as follows: Pl — pronotal length along midline; Pw — pronotal width at the widest place; El — elytral length from the middle of posterior margin of pronotum to the apices of elytra; Ew — elytral width at the widest place; Phl — phallobase length in dorsal view; Phw — phallobase width at the distal end in dorsal view; Prl — parameres length in dorsal view. Epipharynx and the internal sac of male genitalia were mounted with the Euparal mounting medium on small glass plates and observed.

Onthophagus (Macronthophagus) shinichii sp. nov.

(Figs. 1, 6, 7 & 12)

Description of holotype. Length: 22.0 mm.

M a l e. Body noticeably large-sized for this genus, somewhat broadly oblong-oval, strongly convex dorsally. Dorsal side shining and glabrous; ventral side also shining and distinctly clothed with blackish hairs. Color monochromatically black, without metallic luster; mouth parts and palpi blackish brown; legs black, partly slightly brownish; antennae with basal three segments blackish brown, the remaining segments including club segments yellowish brown.

Head large and broad, polygonal in outline; clypeus strongly produced forward as upturned and triangular lobe at middle, with sides almost straight and briefly curved near each clypeo-genal junction, broadly bordered; genae broadly produced laterad, with margin straight in basal half and rounded in apical half, finely bordered; genal sutures sharply carinate and gradually reduced a little before the level of eyes; frontoclypeal suture fairly strongly raised as a sharp transverse broad carina on summit which is briefly interrupted near each genal suture; posterior-most portion of head backward as lengthened lamina in middle, which is sigmoidally inclined in lateral view, slightly convex at middle,

parallel-sided in basal half and toothed latero-distally, with median distal portion bearing an elongate cylindrical vertical process; upper surface of head scarcely micro-granulose, with clypeus transversely and rather roughly rugose in apical 3/4, non-rugose in basal 1/4, sparsely and finely punctate all over, genae vaguely punctate and granulate, posterior portion including vertexal lamina strongly shining, smooth, sparsely and finely punctate in middle, and weakly micro-granulose laterally. Antennae with scape roughly denticulate in apical half on anterior edge.

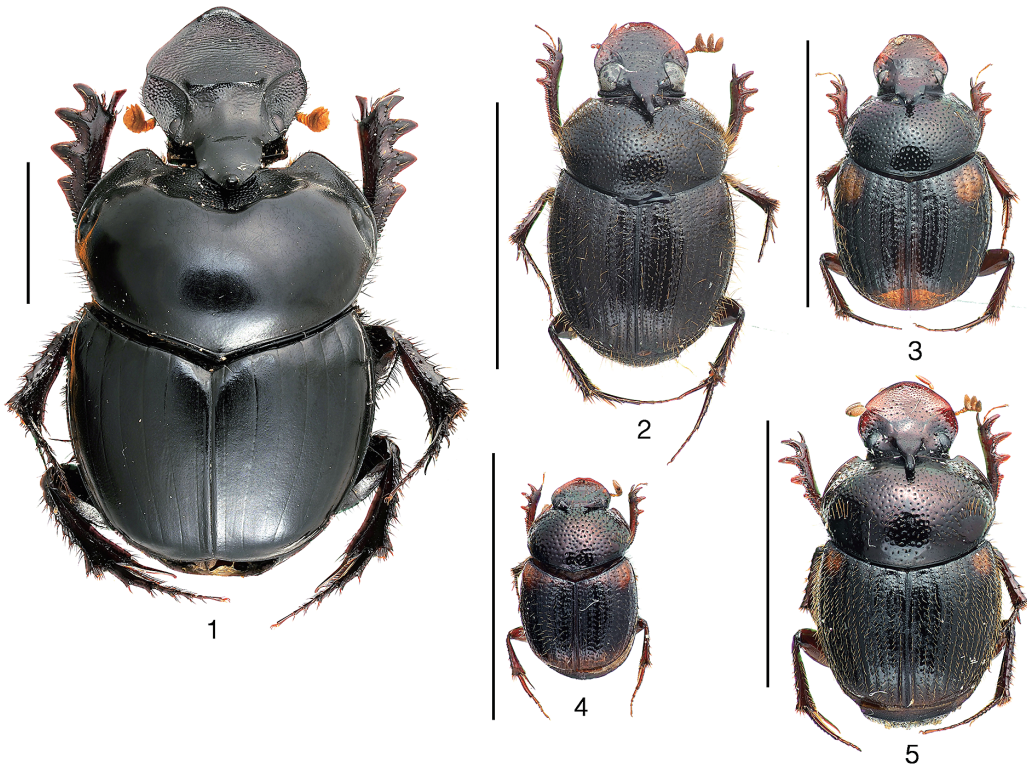
Pronotum fairly strongly convex above, ca. 1.4 times as wide as long (Pl : Pw = 8.0 : 11.1), with a median longitudinal groove obtuse and traceable; anterior margin briefly emarginate and membranous in middle, distinctly bordered, but marginal line becoming much widened at middle; lateral margins rounded in middle, almost straight in front and sinuate behind, with marginal line distinct; base strongly and triangularly produced backward and obtusely angled at middle, with marginal line finely bordered throughout; anterior angles strongly produced forward, rounded at apex, posterior ones very obtuse; disc semi-circularly and rather deeply excavated in apical 1/3, for receiving the cephalic lamina, with a pair of obtuse prominences on each side of the upper edge of excavation; surface shining and smooth, impunctate at a glance, though in reality broadly puncticulate in middle under high magnification (X 20), somewhat densely covered with small and shallow punctures which become denser, coarser and asperate toward anterior excavation.

Elytra fairly strongly convex, ca. 1.7 times as wide as long (El : Ew = 6.7 : 11.3), slightly wider than pronotum, and widest at basal 1/3; striae weakly and finely grooved, with strial punctures sparse, fine and indefinite, scarcely notching either margin of intervals; intervals entirely flat, distinctly micro-granulose and puncticulate all over; suture very weakly raised in inner half along inner margin and shining, micro-granulose in outer half along 1st stria.

Pygidium weakly convex in middle, carinate at base, distinctly micro-granulose, weakly rugose, rather densely and evenly punctate, the punctures shallow and transversely ocellate. Metaventrite shining, smooth and puncticulate in middle and roughly punctate on each side, gently sloping downward in apical 1/3, where is rather densely and roughly punctate, the punctures asperate, each with long hair; median longitudinal line vague in basal half, and then briefly and obtusely keeled apicad. Protibiae broad and stout, weakly incurved, with four strong external teeth; 1st tooth sharp, 2nd larger than 1st, 3rd slightly shorter, 4th broadest at base, the remaining external margin denticulate, with six small denticles; inner distal end slightly produced as a short spine; terminal spurs strong, rather short, somewhat spatulate and obliquely truncated distally. Meso- and metatibiae short and stout; mesotibia slightly produced as four short lobes at outer distal end; metatibia also slightly produced as three lobes at outer distal end; mesotarsi with 1st segment noticeably broad, short and flattened, ca. 2.4 times as long as wide; metatarsi with 1st segment also noticeably broad, ca. 2.5 times as long as wide.

Epipharynx; anterior margin emarginate in middle, and distinctly produced forward on either distal side as a rounded lobe; acropariae rather densely clothed with noticeably long bristles; postero-lateral corner rounded; chaetopariae with bristles short at base, and gradually becoming longer toward apex; prophobae evenly covered with moderately long bristles; corypha swollen, slightly exceeding anterior margin and very densely clothed with stout bristles.

Aedeagus moderate-sized. Phallobase elongate in lateral view, ca. 2.5 mm in length and ca. 1.0 mm in apical width in dorsal view. Parameres quadrate and ca. 1.5 mm in dorsal view; baso-lateral elevation elongate and terminated apically as small tooth which is well developed and triangular in lateral view, and well visible in dorsal view; medio-lateral notch a little spaced in lateral view; apico-lateral tooth very small and unnoticeable in lateral view, barely visible in dorsal view; apical tooth strongly produced and well developed in lateral and dorsal views. Internal sac with three lamellae, a largest one roughly C-shaped, with one arm which is prolonged and incurved; 2nd large lamella intri-



Figs. 1–5. Habitus of *Onthophagus* spp., dorsal view. — 1, *Onthophagus (Macronthophagus) shinichii* sp. nov., male (holotype); 2, *O. (Micronthophagus) chinvigilans* sp. nov., male (holotype); 3, *O. (Indachorius) pseudoarai* sp. nov., male (holotype); 4, *O. (I.) chinbucepalus* sp. nov., male (holotype); 5, *O. (Paraphanaeomorphus) hiranoyasutoshii* sp. nov., male (holotype). Scale, 5 mm.

cately formed; smallest lamella also intricately formed, with sharp tooth distally.

F e m a l e. Body distinctly widely oval. Head with frontoclypeal carina more strongly elevated though distinctly narrower, summit of carina slightly toothed on each side; cephalic lamina simply formed than in male, almost vertically elevated, parallel-sided with summit simply and deeply emarginate in middle; surface more strongly rugose on clypeus. Pronotum with anterior semi-circular excavation becoming obviously narrower, a pair of obtuse prominences developed as strong tubercles; surface more strongly and more densely punctate in front, asperate punctures on anterior excavation in male changing into strong asperate granules. Protibiae broader with four external teeth more obtuse and broader, with distal inner end produced as very short tooth; terminal spur slightly longer than in male and narrower. Meo- and metatibiae more strongly dilated apicad; upper terminal spur of mesotibia slightly stouter; mesotarsi with 1st segment distinctly broader than that of male, very flattened, ca. 1.5 times as long as wide; metatarsi with 1st segment also broad, ca. 1.4 times as long as wide.

Variation. Length: 21.1–23.0 mm in length ($n = 9$). Male. In smaller individuals, cephalic lamina slightly reduced, with latero-distal tooth becoming obtuse and cylindrical vertical process shortened. Pronotum with anterior excavation becoming narrower in smaller males.

Type series. Holotype: ♂, Myanmar, Chin State, Chin Hills, N. W. Falam, VI.1990. Paratypes: 2 ♂♂, 3 ♀♀, same data as the holotype.

Type depository. The holotype will be deposited in the collection of the National Museum of Nature and Science, Tsukuba.

Etymology. The present species is dedicated to Mr. Shinichi OCHI, who is a medical doctor and the son of the first author.

Distribution. Myanmar (Chin).

Notes. The present new species is closely related to *Onthophagus (Macronthophagus) rubricollis* HOPE, 1831 from India and Nepal, but can be distinguished from the latter by the following characteristics: 1) body distinctly larger, about 21.1–23.0 mm in length, whereas in *O. rubricollis*, it is smaller and about 12.0–18.0 mm in length; 2) color monochromatically black, whereas in *O. rubricollis*, bicolored, head and elytra black, pronotum usually red (rarely brown); 3) pronotum with median portion broadly almost impunctate at a glance, and at most punctulate all over, whereas in *O. rubricollis*, it is broadly and strongly punctate in front and at most finely and sparsely punctate on either side of basal portions; 4) paramere with a small tooth well developed and triangular in lateral view, medio-lateral notch a little spaced in lateral view, whereas in *O. rubricollis*, the former is less developed and distinctly smaller and the latter is very narrow in lateral view; 5) internal sac with the largest lamella differently shaped, prolonged and with incurved arm slender, whereas in *O. rubricollis*, it is distinctly short and stout.

Onthophagus (Micronthophagus) chinvigilans sp. nov.

(Figs. 2, 8 & 13)

Description of holotype. Length: 6.7 mm.

Male. Body large-sized for the subgenus, oblong-oval, strongly convex dorsally. Dorsal side moderately shining, sparsely and distinctly clothed with long erect yellowish hairs; ventral side also moderately shining and distinctly clothed with similar hairs as those on dorsum. Color uniformly brownish black, without metallic luster; mouth parts and palpi dark brown; legs brown, partly paler; antennae with foot-stalks pale brown, club segments slightly darker.

Head fairly large, polygonal in outline; clypeus strongly produced forward, very weakly emarginate at apex and gently rounded on either side, with marginal line broad and slightly upturned distally and fine laterad; frontoclypeal suture straight, weakly and a little vaguely carinate; genal sutures finely carinate and effaced a little before the level of eyes; genae obviously weakly produced laterad, with margin gently rounded near middle; posterior portion of head strongly produced as a laminal horn at middle, which is weakly sigmoidally inclined backward in lateral view, parallel-sided in basal 1/4, and gradually narrowed toward basal 2/4, and then developed apicad as a cylindrical slender horn at middle in apical 2/4; surface weakly and transversely wrinkled on marginal portions of clypeus, sparsely and strongly punctate in median portions of clypeus, frons and genae, the punctures becoming denser and indefinite toward marginal portions of clypeus and also fine toward laminal horn. Eyes noticeably large, ca. 0.4 mm in width, interspace between them ca. 0.8 mm in width, and about 2.0 times as wide as an eye.

Pronotum fairly strongly convex above, ca. 1.5 times as wide as long (Pl : Pw = 2.2 : 3.2); median longitudinal groove effaced; anterior margin emarginate, distinctly bordered, the marginal line slightly broad at middle; lateral margins rounded in middle, almost straight in front and behind though the posterior portion weakly sinuate in lateral view, with marginal line fine; base gently rounded, with marginal line finely bordered in middle and indistinct or very fine laterally; anterior angles strongly produced forward, sharp at apex which is slightly swollen at distal side, posterior ones very obtuse; disc slightly and shallowly depressed at antero-median portion for receiving the cephalic lamina; surface evenly, rather densely and strongly punctate, the punctures becoming a little denser toward sides, the interspaces between punctures shining and smooth.

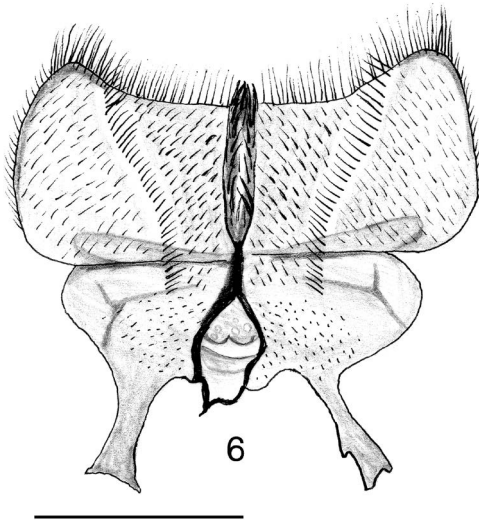


Fig. 6. Epipharynx of *Onthophagus* (*Macronthophagus*) *shinichii* sp. nov., female (paratype). Scale, 1 mm.

Elytra strongly convex, ca. 1.2 times as wide as long (El : Ew = 2.9 : 3.5), somewhat narrower than pronotum at base, and widest at basal 1/3; striae shallowly and rather broadly grooved, with stria punctures sparse, small, weakly notching either margin of intervals; intervals almost flat, at most very slightly convex on 5th to 8th interval, and shining; each upper surface of 2nd to 7th intervals arranged with a pair of longitudinal rows of rather fine asperate punctures or granules, suture and 8th interval also scattered with similar ornaments as those on 2nd to 7th ones, but the former is arranged with a single longitudinal row and the latter is irregularly scattered and not forming distinct longitudinal rows.

Pygidium evenly convex, carinate at base, rather densely punctate, the punctures shallow and ocellate. Prothoracic fovea distinctly and broadly excavated, with external suture carinate throughout. Metaventricle with a median longitudinal groove in basal half; surface sparsely punctate in middle, the punctures becoming slightly denser laterad. Protibiae fairly slender and weakly incurved, with three distinct but small external teeth, and interspaces between three teeth and the remaining external margin evenly denticulate; terminal spurs strong, de-curved. Meso- and metatibiae slender; 1st segment of the latter noticeably elongate, ca. 0.9 mm in length, slightly shorter than metatibia, ca. 4.5 times as the 2nd segment.

Aedeagus. Phallobase stout, ca. 1.1 mm in length and ca. 0.5 mm in apical width in dorsal view. Parameres strongly de-curved with ventral distal end sharply projected in lateral view, ca. 0.7 mm in length and short, beak-like shaped in dorsal view. Internal sac with an intricately formed lamella which is branched into two parts, one with sharp tooth, another with two obtuse apices.

F e m a l e. Head fairly large, slightly larger than that of male; clypeal margin more distinctly emarginate at apex than in male; frontoclypeal suture strongly carinate and weakly procurved; vertex with a rather wide transverse carina which is somewhat strongly elevated and weakly post-curved at middle; clypeal surface transversely and roughly wrinkled, coarsely and irregularly punctate. Pronotum almost simply formed. Protibiae slenderer, with three external teeth distinctly larger and longer; terminal spur longer and thinner than in male.

Variation. Length: 4.9–6.9 mm. Male. In smaller individuals, head with vertexal laminal horn reduced to a short triangular process; pronotum with antero-median depression reduced to a small flat depression.

Type series. Holotype: ♂, Myanmar, Chin State, Chin Hills, NW. Falam, VI.1990. Paratypes: 4 ♂♂, 4 ♀♀, same data as the holotype.

Type depository. The holotype will be deposited in the collection of the National Museum of Nature and Science, Tsukuba.

Etymology. The specific name means 'vigilans of Chin'.

Distribution. Myanmar (Chin).

Notes. The present new species is closely related to *Onthophagus (Micronthophagus) vigilans* BOUCOMONT in BOUCOMONT & GILLET (1921), from India, but can be distinguished from the latter by the following characteristics: 1) body distinctly larger, 4.9–6.9 mm in length (n = 9), whereas in *O. vigilans*, it is smaller, 4.5–5.5 mm; 2) head with frontoclypeal carina straight in male and weakly pro-curved in female, whereas in *O. vigilans*, it is distinctly pro-curved in both sexes; 3) in large male, cephalic laminal horn broad and parallel-sided in basal 1/3, whereas in large male of *O. vigilans*, it is obviously narrow and briefly parallel-sided in basal 1/4; 4) aedeagus much larger than those of the latter, with parameres ca. 0.7 mm (n = 1), elongate, strongly produced ventrally and very sharply pointed in lateral view, whereas in *O. vigilans*, they are smaller, with parameres ca. 0.5 mm (n = 1), short, moderately produced ventrally and sharply pointed.

***Onthophagus (Indachorius) pseudoarai* sp. nov.**

(Figs. 3, 9 & 14)

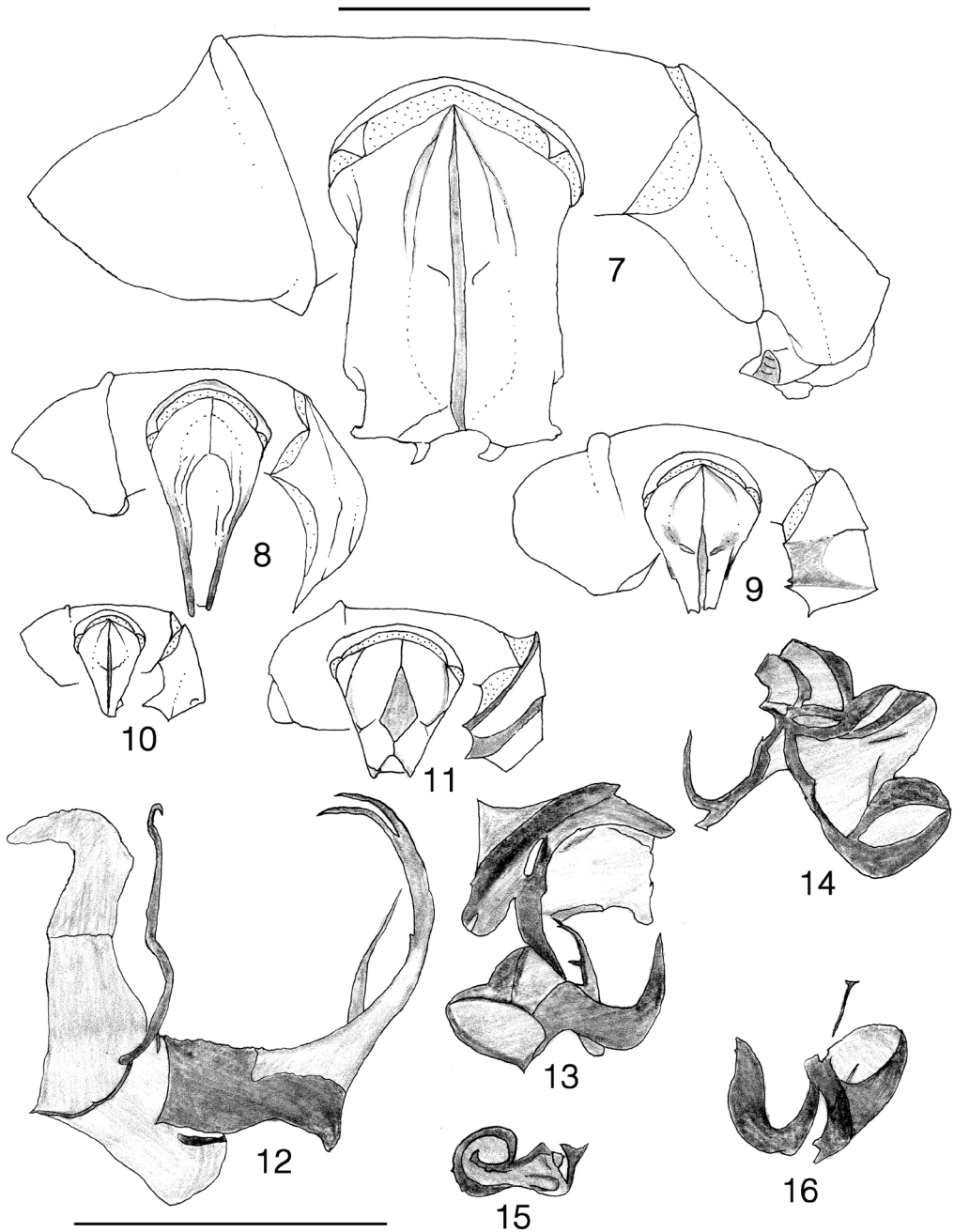
Description of holotype. Length: 5.3 mm.

M a l e. Body moderate-sized for the subgenus, oblong-oval, strongly convex above. Dorsal side moderately shining, sparsely and distinctly clothed with long erect yellowish hairs; ventral side also moderately shining and distinctly clothed with long erect yellowish hairs. Color black, tinged with fairly weak cupreous luster on head and pronotum; elytra black, each with a round orange humeral patch on 5th to 7th intervals and apical portion slightly paler; mouth parts and palpi brown; legs brown, partly paler; antennae with foot-stalks pale brown, club segments yellowish brown.

Head narrow, strongly produced forward; clypeus trapezoidal in outline, truncated apically, with marginal line broad and slightly upturned at apex and fine on sides; frontoclypeal suture weakly pro-curved and distinctly carinate; genal sutures finely carinate and effaced at the level of eyes; genae weakly produced laterad, with margin gently rounded at middle and straight in front and behind; posterior-most portion of head strongly produced as a laminal horn at middle, which is strongly inclined backward in lateral view, parallel-sided in basal 1/3 and toothed on both distal sides, and briefly narrowed anteriorly, and then developed as a cylindrical slender horn apically at middle in apical 2/3; surface with clypeus weakly and transversely wrinkled and sparsely scattered with two kinds of punctation strong and very fine, frons and genae also with similar punctures but not wrinkled.

Pronotum strongly convex above, ca. 1.4 times as wide as long (Pl : Pw = 1.8 : 2.5); median longitudinal groove effaced; anterior margin emarginate, distinctly bordered; lateral margins rounded in middle, almost straight in front and behind though the posterior portion slightly sinuate in lateral view, with marginal line fine; base gently rounded, finely bordered in middle though marginal line indistinct or very fine laterally; anterior angles strongly produced forward, sharp at apex, posterior ones very obtuse; disc slightly and shallowly depressed at antero-median portion for receiving the cephalic lamina; surface evenly, somewhat densely and strongly punctate, the interspaces between punctures shining and very smooth.

Elytra strongly convex, ca. 1.3 times as wide as long (El : Ew = 2.4 : 3.0), widest near middle; striae shallowly and rather broadly grooved, with striae punctures sparse, small, slightly notching both



Figs. 7–16. Male genitalia of *Onthophagus* spp. — 7 & 12, *Onthophagus (Macronthophagus) shinichii* sp. nov., male (holotype); 8 & 13, *O. (Micronthophagus) chinvigilans* sp. nov., male (holotype); 9 & 14, *O. (Indachorius) pseudoarai* sp. nov., male (holotype); 10 & 15, *O. (I.) chinbucepalus* sp. nov., male (holotype); 11 & 16, *O. (Paraphanaeomorphus.) hiranoyasutoshii* sp. nov., male (holotype). — 7–11, Phallobase and parameres, left lateral and dorsal views; 12–16, copulatory lamella of internal sac. Scale: 1 mm for Figs. 7–11; 0.5 mm for Figs. 12–16.

margins of intervals; intervals almost flat, at most very weakly convex on 6th to 8th intervals, shining and partly very slightly uneven; upper surface of 2nd to 7th intervals arranged with a pair of longitudinal rows of rather fine granules, suture and 8th interval also scattered with similar granules as those on 2nd to 7th ones, but the former is arranged with a single longitudinal row and the latter is irregularly scattered and not forming distinct longitudinal rows.

Pygidium weakly convex, carinate at base, rather densely punctate, the punctures coarse, shallow and ocellate. Prothoracic fovea distinctly and fairly broadly excavated along inner margin for receiving antennal club segments, with external suture sharply carinate throughout. Metaventrite without a median longitudinal groove; surface sparsely and strongly punctate in middle except for smooth impunctate area along midline. Protibiae slender and weakly incurved, with three distinct external teeth, and interspaces between three teeth and the remaining external margin evenly denticulate; terminal spurs strong, de-curved. Meso- and metatibiae slender; 1st segment of metatibia noticeably elongate, ca. 0.8 mm in length, slightly shorter than metatibia, ca. 3.2 times as 2nd segment.

Aedeagus. Phallobase stout at base and narrowed anteriorly in lateral view, ca. 1.1 mm in length and ca. 0.5 mm in apical width in dorsal view. Parameres relatively large, fairly short in lateral view, ca. 0.6 mm in length, strongly narrowed apically and beak-shaped in dorsal view, each with ventral side sharply projected as distinct tooth at apex. Internal sac with two intricately formed lamellae, the larger one constricted at middle and bearing two thin branches, the smaller one almost rounded.

F e m a l e. Head with frontoclypeal suture more strongly carinate than in male; vertex with a rather short transverse carina at middle, which is distinctly raised and almost straight; clypeal surface transversely and roughly wrinkled, irregularly punctate. Pronotum almost simply formed. Protibiae slenderer, with four external teeth which are distinctly larger and longer than in male; terminal spur sharply pointed.

Variation. Length: 4.0–5.5 mm. Color slightly variable, sometimes with distinct greenish luster on head and pronotum; elytral orange patch usually stable, rarely slightly developed. Male. In smaller individuals, head with vertexal laminal horn reduced to a short tubercle; pronotum with antero-median depression scarcely developed and almost simply formed.

Type series. Holotype: ♂, Myanmar, Chin State, Chin Hills, NW. Falam, VI.1990. Paratypes: 11 ♂♂, 15 ♀♀, same data as the holotype.

Type depository. The holotype will be deposited in the collection of the National Museum of Nature and Science, Tsukuba.

Etymology. The specific name means 'resembling *arai*'.

Distribution. Myanmar (Chin).

Notes. The present new species is closely related to *Onthophagus (Indachorius) arai* MASUMOTO, 1989, from Thailand, but can be distinguished from the latter by the following characteristics: 1) head with clypeus a little strongly produced forward, whereas in *O. arai*, it is shorter; 2) head with clypeal margin truncated at apex in both sexes, whereas in *O. arai*, it is weakly but distinctly emarginate at apex in both sexes; 3) head and pronotum black, tinged with weak greenish or cupreous luster instead of being strongly reddish cupreous; 4) in male, cephalic laminal horn broad and quadrate in basal half and strongly toothed on either distal side, whereas in *O. arai*, it is almost simply formed; 5) in female, head with vertexal carina strongly raised with summit straight, whereas in *O. arai*, it is short and obviously notched in widely V-shaped on the summit.

***Onthophagus (Indachorius) chinbucephalus* sp. nov.**

(Figs. 4, 10 & 15)

Description of holotype. Length: 4.0 mm.

M a l e. Body small-sized for the subgenus, oblong-oval, strongly convex dorsally. Dorsal side shining, sparsely clothed with somewhat long, erect and yellowish hairs; ventral side also shining and distinctly clothed with long erect yellowish hairs. Color brownish black, tinged with distinct cupreous luster on head and pronotum; elytra black, each with a transverse orange humeral band extending from 2nd interval to 8th which is gradually broadened laterad; mouth parts and palpi brown; legs brown, partly paler; antennae with foot-stalks pale brown, club segments yellowish brown.

Head obviously narrow; clypeus strongly produced forward, weakly emarginate apically, gently rounded laterally, with marginal line broad and slightly upturned at apex and fine on both sides; frontoclypeal suture weak, straight and very obtusely carinate; genal sutures weakly defined, finely carinate in front; genae weakly produced outward, with margin gently rounded in basal 1/3, and then straight anteriorly; posterior portion of head suddenly and strongly produced as a pair of incurved horns at middle, which is strongly inclined backward in lateral view; surface sparsely and strongly punctate, the interspaces between the strong punctures sparsely and very finely punctate.

Pronotum rather evenly convex above, ca. 1.5 times as wide as long (Pl : Pw = 1.3 : 1.9); median longitudinal groove completely effaced; anterior margin emarginate, distinctly bordered; lateral margins rounded in middle, almost straight in front and behind though the posterior portion distinctly sinuate in lateral view, with marginal line fine; base obtusely angled at middle, finely bordered in middle though marginal line indistinct or very fine laterally; anterior angles fairly strongly produced forward, sharp at apex, posterior ones very obtuse; disc slightly and shallowly depressed at antero-median portion for receiving the cephalic horns; surface evenly, a little densely and strongly punctate, the punctures becoming partly ocellate, and the interspaces between punctures shining and entirely smooth.

Elytra strongly convex, ca. 1.4 times as wide as long (El : Ew = 1.6 : 2.2), widest near middle; striae shallowly and broadly grooved, with sparse strial punctures which form partly noticeably transverse fovea and very strongly invading either margin of intervals, especially on 3rd to 7th striae; intervals flat, shining and partly slightly uneven; upper surface of 2nd to 7th intervals arranged with a pair of longitudinal rows of somewhat strong asperate punctures which become gradually larger toward outer intervals, 8th interval scattered with fairly strong simple punctures, suture smooth along inner margin and arranged with a single longitudinal row of fairly fine granules.

Pygidium slightly convex, carinate at base, densely punctate, the punctures fairly coarse, shallow and ocellate. Prothoracic fovea distinctly and broadly excavated for receiving antennal club segments, with external suture sharply carinate throughout. Metaventricle with a median longitudinal groove scarcely developed; surface sparsely and strongly punctate in middle except for smooth impunctate area along midline. Protibiae slender and slightly incurved, with four external teeth, 3rd tooth fairly small and interspaces between four teeth and the remaining external margin evenly denticulate; terminal spurs rather short and de-curved. Meso- and metatibiae slender; 1st segment of metatibia elongate, ca. 0.5 mm in length, ca. 2.5 times as 2nd segment.

Aedeagus somewhat large-sized. Phallobase stout in lateral view, 0.63 mm in length and 0.25 mm in apical width in dorsal view. Parameres relatively small, 0.41 mm in length, simply formed and beak-like shaped in dorsal view; each paramere strongly de-curved in lateral view, with ventral distal end strongly produced downward as rather sharp tooth which is invisible in dorsal view. Internal sac with lamella intricately formed and seemingly composed of two parts, the largest one with two long arms and the fairly smaller one Y-shaped.

F e m a l e. Head with frontoclypeal carina more strongly raised than in male, weakly pro-curved; vertex with a pair of short strong transverse carinae which are located in widely opened V-shape; surface transversely and densely wrinkled and densely punctate on clypeus. Pronotum simply formed. Protibiae with four external teeth, anterior three ones noticeably strong and basal one fairly small but well perceptible.

Variation. Length: 3.8–4.3 mm (n = 5). **M a l e.** In larger individuals, a pair of cephalic horns well developed and fairly prolonged backward, and pronotum more distinctly concaved at antero-median portion for receiving the horns; in smaller individuals, cephalic horns reduced to a pair of short prominences and pronotum reduced to entirely simple form.

Type series. Holotype: ♂, Myanmar, Chin State, Chin Hills, NW. Falam, VI.1990. Paratypes: 2 ♂♂, 2 ♀♀, same data as the holotype.

Type depository. The holotype will be deposited in the collection of the National Museum of Nature and Science, Tsukuba.

Etymology. The specific name means ‘bull-headed from Chin’.

Distribution. Myanmar (Chin).

Notes. The present new species is unique for the subgenus by the male having a pair of curved cephalic horns as often observed in some species of the subgenus *Gibbonthophagus*; this character state is observed for the first time for this subgenus. The present new species is somewhat similar to *Onthophagus (Indachorius) heterorrhinus* LANSBERGE, 1885 from Myanmar, but can be distinguished from the latter by the following characteristics; 1) elytron black, with dark reddish transverse band at base, whereas in *O. heterorrhinus*, it is black, with three bright orange patches; 2) clypeal surface evenly and a little densely punctate, the punctures strong but relatively small, whereas in *O. heterorrhinus*, it is scattered with several large punctures; 3) head with frontoclypeal suture weakly carinate and almost straight in male, and strongly carinate and long in female, whereas in *O. heterorrhinus*, it is distinctly pro-curved in both sexes; 4) vertex of head with a pair of curved cephalic horns in male, a pair of tubercles in female, whereas in *O. heterorrhinus*, it bears a pair of tubercles in male and short straight carina in female.

***Onthophagus (Paraphanaeomorphus) hiranoyasutoshii* sp. nov.**

(Figs. 5 & 11–16)

Description of holotype. Length: 6.5 mm.

M a l e. Body small-sized, oblong-oval, very strongly convex dorsally. Dorsal side strongly shining, sparsely clothed with short sub-recumbent yellowish hairs; ventral side also moderately shining and distinctly clothed with short, partly long, erect yellowish hairs. Color black, tinged with weak cupreous luster on head and pronotum; elytra black, each with a round orange humeral patch on 6th to 7th intervals; mouth parts and palpi brown; legs brown, partly dark reddish brown, especially so on ventral side of femora; antennae with foot-stalks pale brown, club segments dirty yellowish brown.

Head transverse, sub-heptagonal in outline; clypeus moderately produced forward, rounded at apex, with marginal line broad and slightly upturned; frontoclypeal suture almost reduced and traceable; genal sutures finely defined, scarcely carinate; genae moderately produced laterad, with margin gently rounded at middle and straight in front and behind; posterior portion of head strongly produced as a laminal horn at middle between eyes, which is strongly inclined backward in lateral view, parallel-sided in basal 1/4, and gradually narrowed toward basal 2/4, and then developed as a cylindrical slender horn apicad in apical 2/4; surface with clypeus transversely wrinkled along margin, sparsely and strongly punctate, intermixed with fine punctures, genae sparsely and strongly punctate, frons sparsely and finely so.

Pronotum fairly strongly convex above, nearly simply formed, ca. 1.4 times as wide as long (Pl : Pw = 2.3 : 3.3), with median longitudinal line weakly depressed in basal half; anterior margin emarginate, distinctly bordered; lateral margins rounded in apical 2/3, weakly sinuate in basal 1/3; base almost rounded, finely bordered in middle, the marginal line indistinct or very fine laterally; anterior angles strongly produced forward, sharp at apex, posterior ones very obtuse; disc declivous in apical 1/3, with antero-median portion slightly depressed for receiving the cephalic lamina; surface evenly, somewhat sparsely and strongly punctate, the interspaces between punctures shining and entirely smooth.

Elytra strongly convex dorsally, ca. 1.3 times as wide as long (El : Ew = 2.6 : 3.5), widest near middle; striae shallowly and a little broadly grooved, with strial punctures sparse, slightly transverse, weakly notching either margin of intervals; intervals feebly convex, shining and partly slightly uneven; surface of intervals arranged with a pair of longitudinal rows of rather fine asperate punctures or granules, 8th interval scattered with strong asperate punctures, suture arranged with a single longitudinal row of similar punctures as those on 2nd to 7th intervals. Pygidium only slightly convex, carinate at base, densely punctate, the punctures coarse, shallow and partly ocellate. Prothoracic fovea flat, scarcely excavated, with external suture imperfectly carinate and effaced a little before lateral margin. Metaventricle with a median longitudinal line fairly weakly grooved in basal 2/3; surface sparsely, somewhat irregularly and strongly punctate in middle. Protibiae slender and weakly incurved, with four external teeth which are well separated mutually, interspaces between four teeth and the remaining external margin evenly denticulate; terminal spurs sharp and de-curved. Meso- and metatibiae slender; 1st segment of metatibia elongate, ca. 0.9 mm in length, slightly shorter than metatibia, ca. 3.3 times as 2nd segment.

Aedeagus. Phallobase relatively long, stout at base and strongly constricted apicad, ca. 0.9 mm in length and ca. 0.4 mm in apical width in dorsal view. Parameres relatively large and short in lateral view, ca. 0.5 mm in length, almost simply formed and beak-like shaped in dorsal view; each paramere briefly de-curved on ventral side in lateral view, with a distinctly darkened broad line arising from median portion and terminated as a sharp tooth at ventral distal portion. Internal sac with a lamella which looks like roughly W-shaped, as usually observed in most species of this subgenus, with one side rather thin and strongly curved, another fairly widely lobed.

F e m a l e. Head with clypeal margin more strongly rounded than in male, frontoclypeal suture strongly carinate and obviously pro-curved, vertex with a short transverse carina which is distinctly shorter than frontoclypeal carina and a little more highly raised, surface transversely and densely wrinkled on clypeus; pronotum less strongly convex than in male; protibiae slightly broader with four external teeth stronger.

Variation. 4.3–6.6 mm (n = 54). Color: elytra with humeral orange patch usually stable as well as the holotype specimen; dorsal side usually black, tinged with weak cupreous luster on head and pronotum, sometimes with weak greenish or reddish cupreous tinge. Male. In large individuals, cephalic horn well developed and distinctly elongate, pronotum usually fairly strongly convex; in smaller individuals, cephalic horn reduced to a short triangular process and pronotum becoming weakly convex.

Type series. Holotype: ♂, Myanmar, Chin State, Chin Hills, NW. Falam, VI.1990. Paratypes: 35 ♂♂, 18 ♀♀, same data as the holotype.

Type depository. The holotype will be deposited in the collection of the National Museum of Nature and Science, Tsukuba.

Etymology. The present new species is dedicated to Mr. Yasutoshi HIRANO, who is one of the good friends of the first author and has continuously encouraged the first author.

Distribution. Myanmar (Chin).

Notes. The present new species is somewhat related to *Onthophagus phukhieoensis* MASUMOTO, OCHI et HANBOONSONG 2007, from Thailand, but can be distinguished from the latter by the following characteristics: 1) eyes distinctly larger, semicircular in shape and the interspace between them about 4.8 times as wide as diameter of an eye, whereas in *O. phukhieoensis*, it is small, crescent-shaped and the interspace between them is about 9.0 times as wide as diameter of an eye; 2) head with clypeal surface punctulate, sparsely and rather coarsely punctate at basal half, intermixed with fine but distinct punctures which are a little dense in apical half and sparse in basal half, whereas in *O. phukhieoensis*, it is rather sparsely covered with scattered microscopic punctures, which are sparsely intermixed with minute punctures; 3) in large male, pronotum weakly and narrowly depressed and scarcely hollowed at antero-median portion, whereas in *O. phukhieoensis*, it is shallowly and widely excavated at antero-median portion; 4) elytron black, with a small round orange patch, which is stable in all the specimens examined herein, whereas in *O. phukhieoensis*, it bears two distinct dark reddish patches at humeral and apical parts.

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要 約

越智輝雄・近 雅博：ミャンマー，チン州産エンマコガネ属 *Onthophagus* (鞘翅目コガネムシ科) 5新種の記載。——エンマコガネ属の5新種をミャンマーのチン州から記載し，それらを *Onthophagus (Macroronthophagus) shinichii* sp. nov., *O. (Microronthophagus) chinvigilans* sp. nov., *O. (Indachorius) pseudoarai* sp. nov., *O. (I.) chinbucephalus* sp. nov., *O. (Paraphanaeomorphus) hiranoyasutoshii* sp. nov. と名付けた。

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