

INSECTA : COLEOPTERA : SCARABAEIDAE : COPRINAE

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(With 7 Figures)

INTRODUCTION

The present paper deals with the material collected from Namdapha wild life sanctuary (at present Namdapha National Park and also a Tiger Reserve Forest), Tirap district, Arunachal Pradesh. The area includes varied ecological zones from the snow-capped nival areas in the top of the mountains, through alpine and subalpine area in the upper reaches of high lands down to thick-cover of tropical rain forest tract in the lower slopes and valleys extending into plains.

Species dealt with here are coprophagous in nature and have been collected from dung of various wild animals, such as elephant, gaur, different varieties of deer, tiger, leopard, bear, wild cats, domestic cattle and human faeces. A few specimens have been collected from decaying vegetable matters and moist fungusy dead tree trunk.

Altogether 55 species under 13 genera are included in this paper of which 7 species have been described as new to science and 48 species are recorded for the first time from Arunachal Pradesh, besides 3 species of *Onthophagus* which also probably belong to undescribed species but at present have not been named due to lack of more materials. Field observations on biological aspects of the individual species have been incorporated under relevant species wherever possible.

Illustrations and detail descriptions of the new species have been provided. Synonymies for the species have been cited wherever necessary. Types of the species described here have been deposited in the Zoological Survey of India, Calcutta.

SYSTEMATIC ACCOUNTS

Genus 1. *Gymnopleurus* Illiger 18031. *Gymnopleurus sinuatus* (Oliver)

1789. *Scarabaeus sinuatus* Oliver, *Entomologiae*, 1 : 3, pl. 10, fig. 93, pl. 21, fig. 189.
 1886. *Gymnopleurus morosus* Fairmaire, *Ann. Soc. ent. France*, (6)6 : 319.
 1890. *Gymnopleurus assamensis* Waterhouse, *Ann. Mag. nat. Hist.*, (6)5 : 411.
 1914. *Gymnopleurus (Paragymnopleurus) sinuatus*, Garreta, *Bull. Soc. ent. France.*, p. 52.
 1931. *Gymnopleurus sinuatus*, Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 62-63.
 1963. *Gymnopleurus (Paragymnopleurus) sinuatus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der palaearktischen und orientalischen Region (Coleoptera : Lamellicornia)* 1 : 218-220.

Material examined : 1 ex., Hornbill, 15.iv.1981, S. Biswas coll.

Distribution : Burma ; Nepal ; India : Tamil Nadu, Maharashtra (Kanara), United province, Sikkim, West Bengal (Darjeeling dist.), Nagaland, Arunachal (Pataki hills).

Genus 2. *Sisyphus* Latreille 18072. *Sisyphus indicus* Hope

1831. *Sisyphus indicus* Hope, *Gray's zool. Misc.*, p. 22.
 1848. *Sisyphus Kaschmirensis* Redtenbacher, *Hugel's Kaschmir*, 4(2) : 516.
 1927. *Sisyphus indicus*, Arrow, *Ann. Mag. nat. Hist.*, (9)19 : 456-465.
 1931. *Sisyphus indicus*, Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 75-76.

Material examined : 10 exs., (1 ex., Miao, 22.iv.1981 ; 4 exs., Deban, 7.iv.1981 ; 5 exs., Firmbase, 18.iv.1981), S. Biswas coll.

Distribution : Nepal, India : Orissa, Assam, Punjab, Kashmir and West Bengal, Arunachal Pradesh (Namdapha).

Genus 3. *Synapsis* Bates, 18683. *Synapsis birmanicus* Gillet

1907. *Synapsis birmanicus* Gillet, *Ann. Mus. Civ. Stor. Nat. Genova*, p. 600.
 1963. *Synapsis birmanicus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der palaearktischen und orientalischen Region (Coleoptera : Lamellicornia)* 1 : 293.

Material examined : 1 ex., Hornbill, 14.iv.1981, S. Biswas coll.

Distribution : Burma ; India : Arunachal (Namdapha).

Genus 4. **Catharsius** Hope 18374. **Catharsius molossus** (Linnaeus)

1758. *Scarabaeus molossus* Linnaeus, *Syst. Nat.*, edlo, p. : 347.
 1801. *Copris ursus* Fabricius, *Syst. Eleuth.*, 1 : 43.
 1931. *Catharsius molossus*, Arrow, *Fauna Brit. India* (Coleoptera : Lamellicornia), 3 : 94-95.
 1963. *Catharsius* (s. str.) *molossus*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und orientalischen Region* (Coleoptera : Lamellicornia), 1 : 307-309.

Material examined : 4 exs., Miao, 5.v.1981, S. Biswas, coll.

Distribution : Srilanka ; India : Assam, Bihar, Orissa, Uttar Pradesh, Maharastra, Himachal Pradesh, Karnataka, Kerala, West Bengal, Andaman Island & Arunachal Pradesh (Namdapha).

Remarks : It is a widely distributed species in India. Sexual dimorphism is very clear in both sexes.

Genus 5. **Copris** Geoffroy 17625. **Copris corpulentus** Gillet

1910. *Copris corpulentus* Gillet ; *Notes. Leyden Mus.*, 32 : 118.
 1931. *Copris corpulentus*, Arrow, *Fauna Brit. India* (Coleoptera : Lamellicornia), 3 : 118-119.
 1963. *Copris* (S. Str.) *Corpulentus*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia) 1 : 363-364.

Material examined : 3 exs., Hornbill, 15.iv.1981, S. Biswas coll.

Distribution : Burma ; Vietnam ; India : Assam, Arunachal Pradesh (Namdapha Wild Life Sanctuary).

6. **Copris siangensis** Biswas

1979. *Copris* (s. str.) *siangensis* Biswas, *J. Bombay nat. Hist. Soc. Bombay*, 76(1) : 339.

Material examined : 1., Firmbase, 19.iv.1981, S. Biswas coll.

Distribution : India : Arunachal Pradesh, Siang, Tirap (Namdapha Wild Life Sanctuary).

Remarks : The specimen under report is a male minor and except in the size of thoracic and cephalic horns agrees well with the original description of the species. The specimen was collected from elephant dung.

7. *Copris punctulatus* Wiedemann

1823. *Copris punctulatus* Wiedemann, *Zool. Mag.*, 2(1) : 11.
 1931. *Copris punctulatus*, Arrow, *Fauna Brit. India* (Coleoptera : Lamellicornia), 3 : 126-127.
 1963. *Copris* (*Paracopris*) *punctulatus*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 370.

Material examined : 1 ex., Namdapha, 21.iv.1981, S. Biswas coll.

Distribution : Burma ; Indochina ; Malay Peninsula ; Indonesia, Sulawesi (Celebes), India : Assam, Arunachal Pradesh (Namdapha).

8. *Copris furciceps* Felsche

1910. *Copris furciceps* Falsche, *Dt. ent. Z.*, p. 348.
 1931. *Copris furciceps*, Arrow, *Fauna Brit. India* (Coleoptera : Lamellicornia), 3 : 130-131.
 1963. *Copris* (*Paracopris*) *furciceps*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 372.

Material examined : 4 exs, (1 ex, Deban, 21.iv.1981, 3 exs., Hornbill, 16.iv.1981) S. Biswas coll.

Distribution : Burma ; India : Meghalaya, Arunachal Pradesh (Namdapha).

Genus 6. *Phacosoma* Boucomont 19149. *Phacosoma obscurum* Boucomont

1920. *Phacosoma obscurum* Boucomont, *Ann. Soc. ent. France*, 88 : 307.
 1931. *Phacosoma obscurum*, Arrow, *Fauna Brit. India* (Coleoptera : Lamellicornia), 3 : 354-355.
 1963. *Phacosoma obscurum*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 272-273.

Material examined : 1 ex., Hornbill, 16.4.1981, S. Biswas coll.

Distribution : Burma ; India : Arunachal Pradesh (Namdapha).

Remarks : The single specimen was collected from human faeces near a hill stream. The species was known from Burma. This is the first time the species is being recorded from India proper.

Genus 7. *Drepanocerus* Kirby 182810. *Drepanocerus striatulus* Paulian

1945. *Drepanocerus striatulus*, Paulian, *Col. Scarab. de l' indochine*, p. 140.
 1963. *Drepanocerus striatulus*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 69.

Material examined : 1 ex., North bank of Deban river, Deban, 7.iv.1981, S. Biswas coll.

Distribution : The species was described from N. Vietnam. Biswas (1978) recorded the species from Meghalaya, Manipur and Assam. This is the first time the species is being recorded from Arunachal Pradesh (Namdapha)

11. *Drepanocerus falsus* (Sharp)

1875. *Oniticellus falsus* Sharp, *Col. Hefte.*, 13 : 52.

1875. *Oniticellus exul* Sharp, *Col. Hefte.*, 13 : 53.

1931. *Drepanocerus exul*, Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 385-386.

1963. *Drepanocerus falsus*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 66.

Material examined : 3 exs ; Hornbill, 15.iv.1981, S. Biswas coll.

Distribution : Thailand ; Laos ; India : Assam, Arunachal Pradesh (Namdapha).

Remarks : The species is considered to be very rare. Specimens under report have been collected from human faeces at the base of a hill near a stream.

Genus 8. *Liatongus* Reitter 1893

12. *Liatongus phanaeoides* (Westwood)

1840. *Onthophagus phanaeoides* Westwood, *Royle's Himalaya, Entomology*, 55, pl. 9, fig. 3.

1848. *Onthophagus excavatus* Redtenbacher, *Hiigel's Kaschmir*, 4(2) : 523.

1860. *Phanaeus mlnutus* Motschulsky, *Etudes Entom.*, 9 : 13.

1931. *Liatongus phanaeoides*, Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 364-465.

1963. *Liatongus* (s. str.) *phanaeoides*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 92-93, fig. 45.

Material examined : 4 exs., (1 ex, Zero camp, 11.iv.1981, 3 ex, Hornbill, 14.iv.1981), S. Biswas coll.

Distribution : Pakistan ; Burma ; Indochina ; S. China ; Japan and India : In India the species was known from United province and West Bengal. This is the first time the species is recorded from Arunachal Pradesh (Namdapha Wild Life Sanctuary).

13. *Liatongus gagatinus* (Hope)

1831. *Liatongus gagatinus* Hope, Gray's Zool. Misc., 122.
 1848. *Onthophagus brama* Redtenbacher, Hiigel's Kashmir, 4(2) : 521.
 1931. *Liatongus gagatinus*, Arrow, Fauna Brit. India (Coleoptera : Lamellicornia), 3 : 365-366.
 1963. *Liatongus* (s. str.) *gagatinus*, Balthasar, Monographic der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia), 2 : 104.

Material examined : 2 exs, Deban, 7.iv.1981, S. Biswas coll.

Distribution : Burma ; Nepal India ; In India, the species is known from United Province, Sikkim, West Bengal, Assam, Meghalaya, Nagaland and Arunachal Pradesh (Namdapha).

Remarks : The species is a restricted to the hilly regions and found mainly in cattle dung. This is the first time the species is being recorded from Arunachal Pradesh.

14. *Liatongus mergacerus* (Hope)

1831. *Onthophagus mergacerus* Hope, Cray's Zool. Misc., 22.
 1874. *Oniticellus mergacerus* Harold, Col. Hefte, 12 : 94.
 1931. *Liatongus mergacerus*, Arrow, Fauna Brit. India (Coleoptera : Lamellicornia), 3 : 369-370.
 1963. *Liatongus* (s. str.) *mergacerus*, Balthasar, Monographic der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia), 2 : 96-97.

Material examined : 21 exs ; (11 exs, Deban, 7.iv.1981, 8 exs, Zerocamp, 13.iv.1981, 2 exs, Hornbill, 16.iv.1981), S. Biswas coll.

Distribution : Nepal ; Bhutan ; India : In India the species is recorded from Sikkim ; West Bengal, United Province and Arunachal Pradesh (Namdapha).

Genus 9. *Oniticellus* Serville 182515. *Oniticellus namdaphaensis* sp. nov.

(Fig. 1)

Female—length 14 mm ; breadth 5.5 mm ; Elongate oval, covered with uniformly minute pale setae above (except head) and irregularly below. Pale brown with head, a spear shaped marking on the antero-medial region of pronotum and four spots near apex of elytra and two patches on posterior end of metasternum dark.

Head : Clypeal margin almost straight in front, a little hollowed behind front margin, clypeal disc thickened and convex, front depressed

and flat, vertex with two strong triangular projections, clypeo-ocular meeting point marked with a short carina. Eyes narrow with a ridge on upper surface.

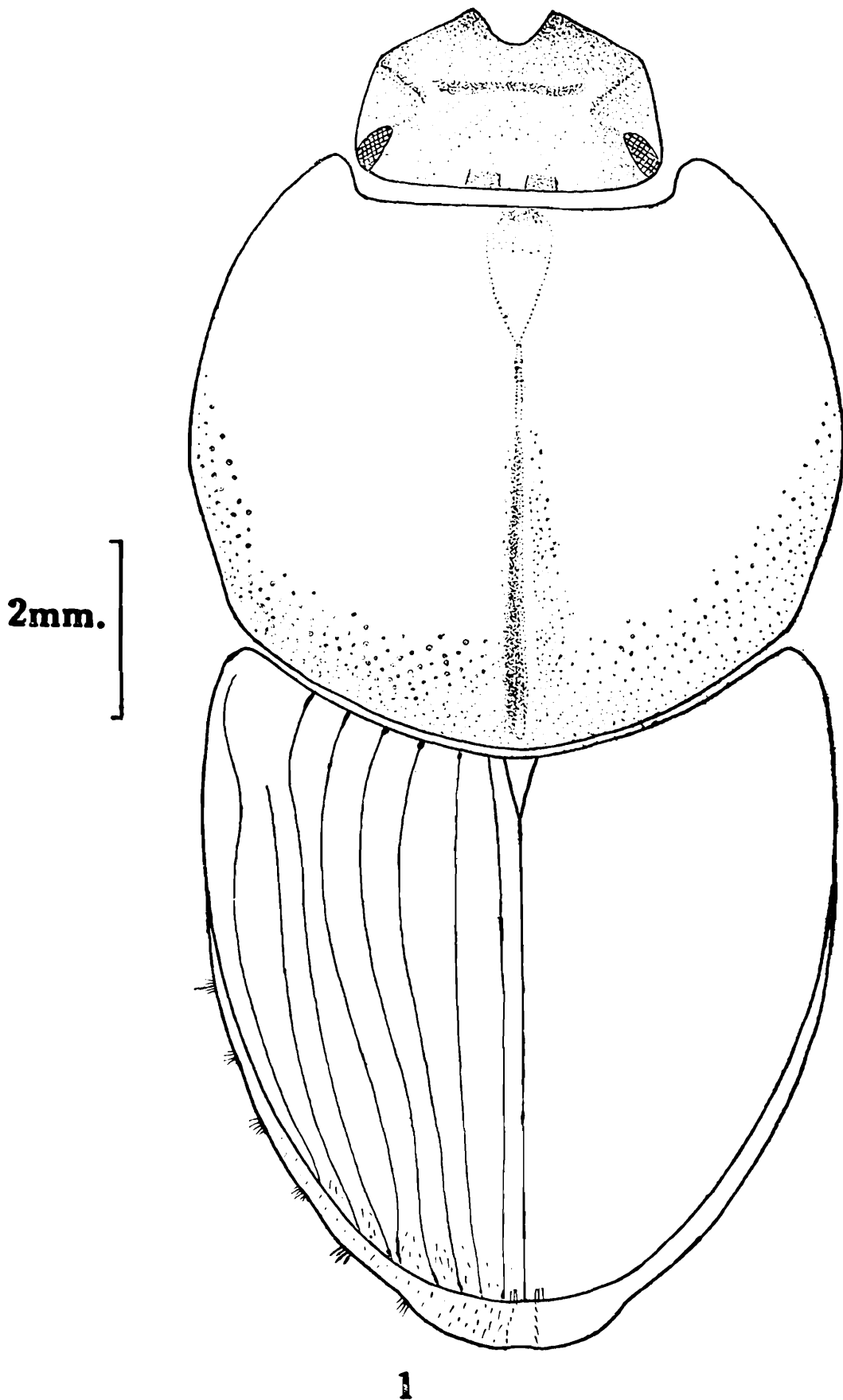


Fig. 1. *Oniticellus namdaphaensis* sp. nov., female.

Pronotum longer than broad, broadest beyond middle, margined

in front and at sides, a deep longitudinal groove in the middle, running beyond middle, covered with setigerous asperale punctures.

Elytral striae shallow, elytral intervals very convex behind, striae interval microscopically sculptured.

Pygidium covered with pale setigerous punctures, flat near apical margin, with two prominences in the middle separated by a broad shallow groove.

Front tibiae with four external teeth, middle and hind tibial spin long. Metasternum large with a fine groove in the middle, metasternal shield finely punctured in the middle, a little strongly at the sides. Abdominal sternite separated with fine suture, covered with microscopical sculpture.

Holotype : ♀ Namdapha, 21.iv.1981, S. Biswas collected from an elephant dung near a flat land near of Noadihing river.

Type deposited in Zoological Survey of India.

The present species resembles to *O. pallipes* and *O. pallens* by the presence of cephalic armature but can be separated by its large size and colouration.

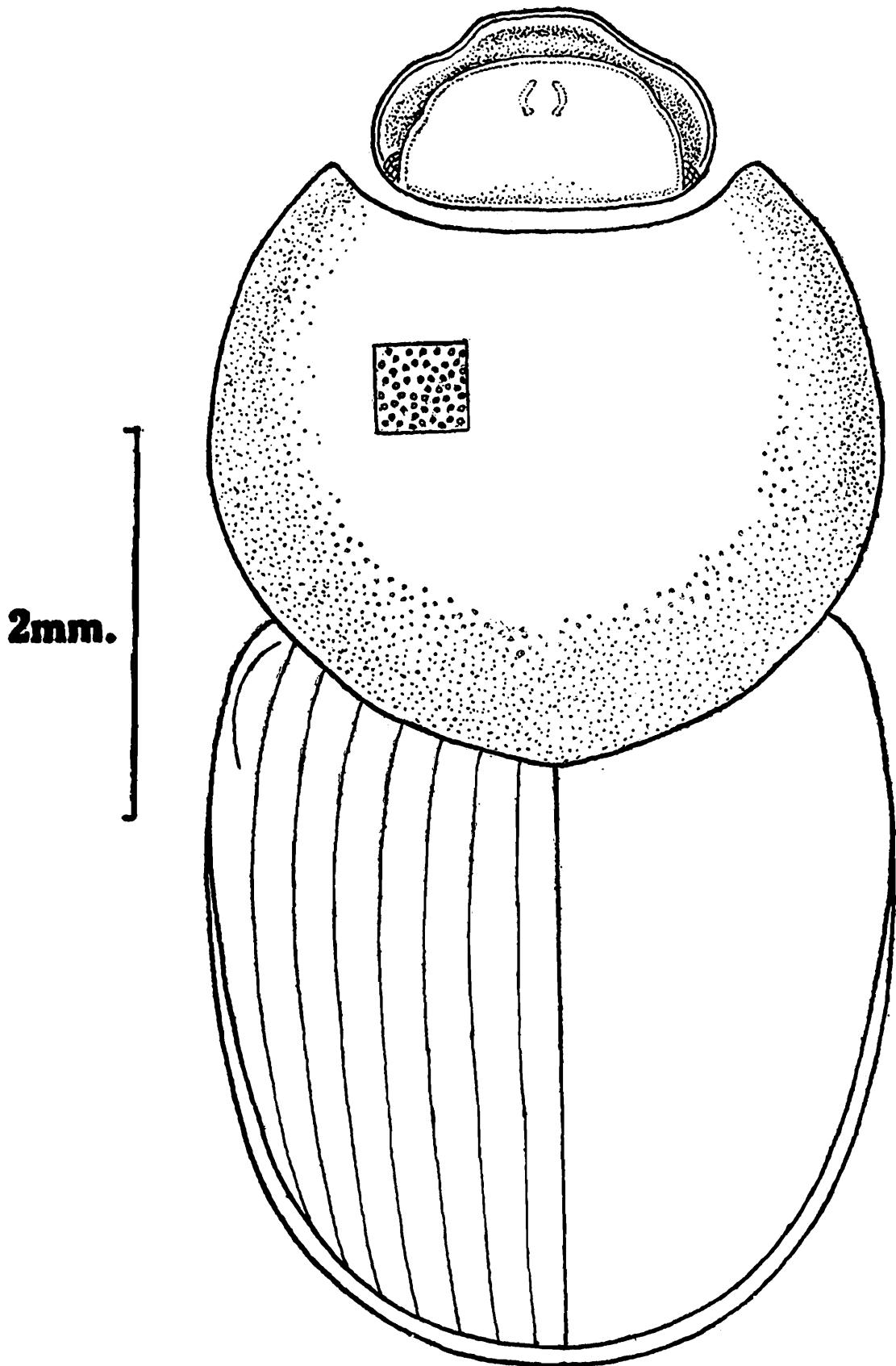
16. *Oniticellus subhendui* sp. nov.

(Fig. 2)

Male : Length 7 mm ; breadth 3 mm. Brown with anterior part and vertex of head, pro and mesosternum and a patch in the middle of pygidium black. Elongated oval shape.

Head narrowed in front, moderately strongly and uniformly clypeus margined in front and at sides, separated from frons by a strong curved carina, clypeal disc convex and flat and less strong punctured, frons depressed in the middle two small pea shaped prominene at the anterior end of depression. Vertex strongly raised. Pronotum with a groove in the middle near base, uniformly and moderately strongly punctured, margined laterally, front angle blunt, hind angle obtuse, lateral margin rounded in front, sinuate behind. Elytra very lightly striate, striae interval covered with minute setigerous punctures. Pygidium without margin at base, opaque, covered with fine setigerous punctures, punctures a little stronger near base. Metasternal shield smooth in the middle, finely and rogosely punctured at sides. Last ventral segment immerginate in the middle. Front tibia with four external teeth, basal one smallest.

Female without clypeo frontal carina and there is no pea shaped frontal prominence, last ventral segment uniformly broad.



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Fig. 2. *Oniticellus subhendui* sp. nov., male.

Holotype : ♂, collected elephant dung, Namdapha, 20.iv.1981, S. Biswas coll.

Paratypes : 9 exs., (4 ♂♂, 5 ♀♀, collection data and collector as holotype).

The species comes near to *Oniticellus pallens* but differ in colouration same and cephalic armatures in male.

17. **Oniticellus gayeni** sp. nov.

(Fig. 3)

Male : Length 7.5 mm ; breadth 3.5 mm. Uniformly black with a slight greenish tinge on head ; lateral margins of pronotum, apical margins of elytra, pygidium except basal part, major part of femur, metasternum and abdominal sternites pale. Antennal and mouth parts brownish. Elongate oval in shape.

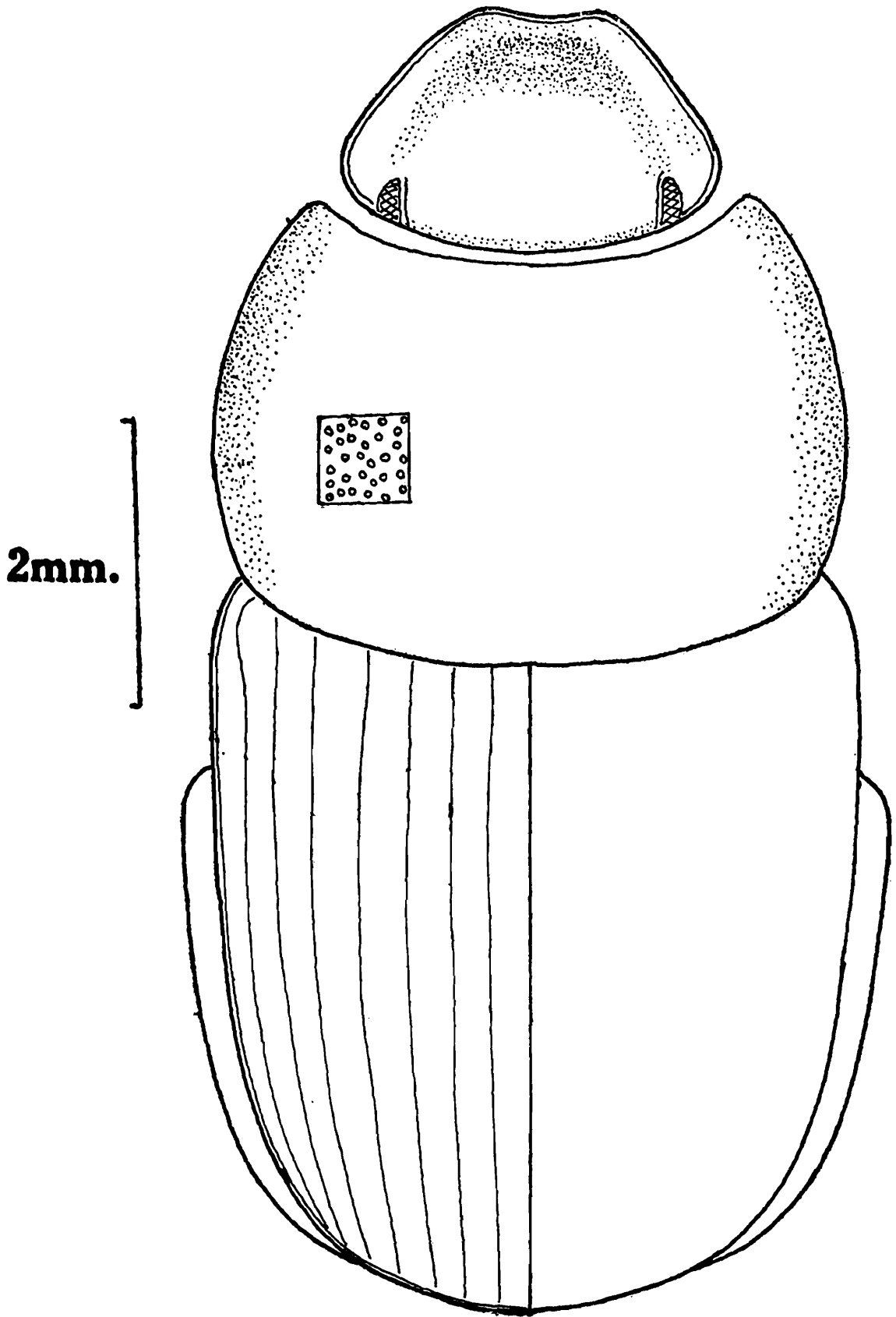
Head without any armature, clypeus almost uniform rounded, depressed in the middle near front margin and covered with a row of moderately strong punctures. Clypeal disc and frons very finely and almost imperceptibly and vertex sparsely punctured ocular lobe with few strong punctures. Pronotum moderately strongly punctured at the sides almost imperceptibly in the middle, with a longitudinal impressed line in the middle. Front angles rounded, hind angles obsolete, lateral margin feebly rounded. Elytra deeply striate, striae strongly punctured, intervals feebly convex and minutely punctured and tuberculate near lateral margins. Pygidium with a broad transverse prominence in the middle, covered with pale short setae and rugosely punctured except near base which is smooth. Metasternal shield with a median impressed line in the middle very minutely punctured. Sides of metasternum strongly rugosely punctured. Front tibia with four external teeth.

Female : Last abdominal sternite not emarginate in the middle.

Holotype : ♂, collected from elephant dung near bank of Noadihing river at Namdapha, 28.iv.1981, S. Biswas coll.

Paratypes : 9 exs., (5 ♂♂, 4 ♀♀, data same as holotype).

The species comes to *O. cinctus* (F.) but can be easily identified by the pronotal puncturation, lateral margins of elytra being tuberculate and the presence of prominence in the middle of pygidium.



3

Fig. 3. *Oniticellus gayeni* sp. nov., male.

18. *Oniticellus cinetus* (Fabricius)

1775. *Scarabaeus cinetus* Fabricius, *Syst. Ent.*, 30.
 1931. *Oniticellus cinetus*, Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 379-380.
 1963. *Oniticellus* (s. str.) *cinetus*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 77.

Material examined : 3 exs., (1 ex., Deban, 7.iv.1981, 2 exs., Namdapha, 19.iv.1981), S. Biswas coll.

Distribution : Burma ; Malay Peninsula ; Siam ; Annam ; S. China ; Bangladesh and India : In India the species is known from Uttar Pradesh, Madhya Pradesh, Maharashtra, Karnataka, Tamil Nadu, West Bengal, Assam and Arunachal Pradesh (Namdapha). The species is being recorded for the first time from Arunachal Pradesh.

Genus 10. *Onitis* Fabricius 179819. *Onitis excavatus* Arrow

1931. *Onitis excavatus* Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 391, Pt. xii, fig. 19.
 1963. *Onitis excavatus*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 37-38.

Material examined : 3 exs., (1 ex., Gibbonland, 3.v.1981, 2 exs., Miao, 5.v.1981), S. Biswas coll.

Distribution : Burma ; S. China and India : In India the species is known from Assam and Arunachal Pradesh (Namdapha). The species is recorded for the first time Arunachal Pradesh.

20. *Onitis falcatus* (Wulfen)

1786. *Scarabaeus falcatus* Wulfen, *Descr. cap. Ins.*, 14. pl. 2, fig. 17.
 1875. *Onitis falcatus* Lansberge, *Ann. Soc. ent. Belg.*, 18 : 126.
 1848. *Onitis himalayicus* Redtenbacher, *Hiigel's Kaschmir*, 4(2) : 518.
 1913. *Onitis falcatus*, Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 392-393.
 1963. *Onitis falcatus*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 33-34.

Material examined : 5 exs., Miao, 5.v. 1981, S. Biswas coll.

Distribution : The species is known from Philippine Island ; Malay Peninsula ; S. China ; Burma ; Bangladesh and India. In India, the species is known from Uttar Pradesh, Maharashtra, Tamil Nadu, Kerala, Bihar, West Bengal and Arunachal Pradesh (Namdapha).

Genus 11. **Paraphytus** Harold 187721. **Paraphytus hindu** Arrow

1913. *Paraphytus hindu* Arrow, *Rec. Indian Mus.*, 8 : 193.
 1931. *Paraphytus hindu* Arrow, *Fauna Brit. India*, (*Coleoptera* : *Lamellicornia*), 3 : 418-419.
 1963. *Paraphytus hindu*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 1 : 283-284, fig. 115.

Material examined : 3 exs., 12.iv.1981, S. Biswas coll.

Distribution : The species is known from Meghalaya and Arunachal Pradesh in India.

Remarks : The specimens under report were collected under bark from decaying tree trunk, fallen near a hill stream.

Genus 12. **Caccobius** Thomson 186322. **Caccobius inermis** Arrow

1931. *Caccobius inermis* Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 147.

Material examined : 1 ex., Hornbill, 14.iv.1981, S. Biswas coll.

Distribution : The species is known from Ceylon and India. In India the species is recorded from Uttar Pradesh, Maharashtra, Sikkim, West Bengal and Arunachal Pradesh (Namdapha).

Genus 13. **Onthophagus** Latreille 180223. **Onthophagus crassicollis** Boucomont

1883. *Onthophagus nanus* Lansberge, (nac. Waterhouse), *Notes. Leyd Mus.*, 5 : 67.
 1914. *Onthophagus crassicollis* Boucomont, *Ann. Soc. ent. France*, 83 : 280.
 1931. *Onthophagus crassicollis*, Arrow, *Fauna Brit. India*, (*Coleoptera* : *Lamellicornia*), 3 : 170-171, fig. 15.
 1963. *Onthophagus (Onthophagiellus) crassicollis*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 320-321.

Material examined : 6 exs., (1 ex., Zerocamp, 9.iv.1981 ; 1 ex., Miao, 22.iv.1981 ; 1 ex., Hornbill, 16.iv.1981 ; 2 exs., Firmbase 19.iv.1981 ; 1 ex., Chiricamp, 29.iv.1981), S. Biswas coll.

Distribution : The species is known from Burma ; Malay Peninsula ; Indonesia and India. In India the species is recorded from Arunachal Pradesh (Namdapha).

Distribution : Specimens under report were collected from human faeces and faecal matter of Carnivora animals. This is the first time the species is being recorded from India.

24. *Onthophagus laevis* Harold

1880. *Onthophagus laevis* Harold, *Notes Leyden Mus.*, P. 194.
 1931. *Onthophagus laevis*, Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 171-172.
 1963. *Onthophagus* (s. str.) *laevis*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)* 2 : 412-413.

Material examined : 2 exs., (1 ex., Namdapha, 28.iv.1981 ; 1 ex., Miao, 22.iv.1981), S. Biswas coll.

Distribution : The species is known from Burma ; Indonesia ; W. China and India : In India the species is known from Uttar Pradesh, West Bengal, Sikkim and Arunachal Pradesh (Namdapha).

Remarks : Specimens under report agrees with the variety *O. laevis* var. *asiaticus*. Specimens were collected from human faeces.

25. *Onthophagus pacificus* Lansberge

1885. *Onthophagus pacificus* Lansberge, *Notes Leyden Mus.*, 7 : 17.
 1914. *Onthophagus pacificus* var. *peguanus* Boucomont, *Ann. Mus. Civ. Stor. Nat. Genova*, 46 : 215.
 1931. *Onthophagus pacificus*, Arrow, *Fauna Brit. India, (Coleoptera : Lamellicornia)*, 3 : 172-173.
 1963. *Onthophagus* (s. str.) *pacificus*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 465.

Material examined : 7 exs., (2 exs, Deban, 7.iv.1981 ; 1 ex, Zerocamp, 9.iv.1981 ; 2 exs, Firmbase, 17.iv.1981 ; 1 ex, Namdapha camp, 21.iv.1981, 1 ex, Chiria camp, 28.iv.1981), S. Biswas coll.

Distribution : The species is known from Burma ; Bangladesh ; Indochina ; Thailand ; Malay Peninsula ; Indonesia and India : In India the species is known from Kanara, Nilgiri hills, Uttar Pradesh, Meghalaya and Namdapha.

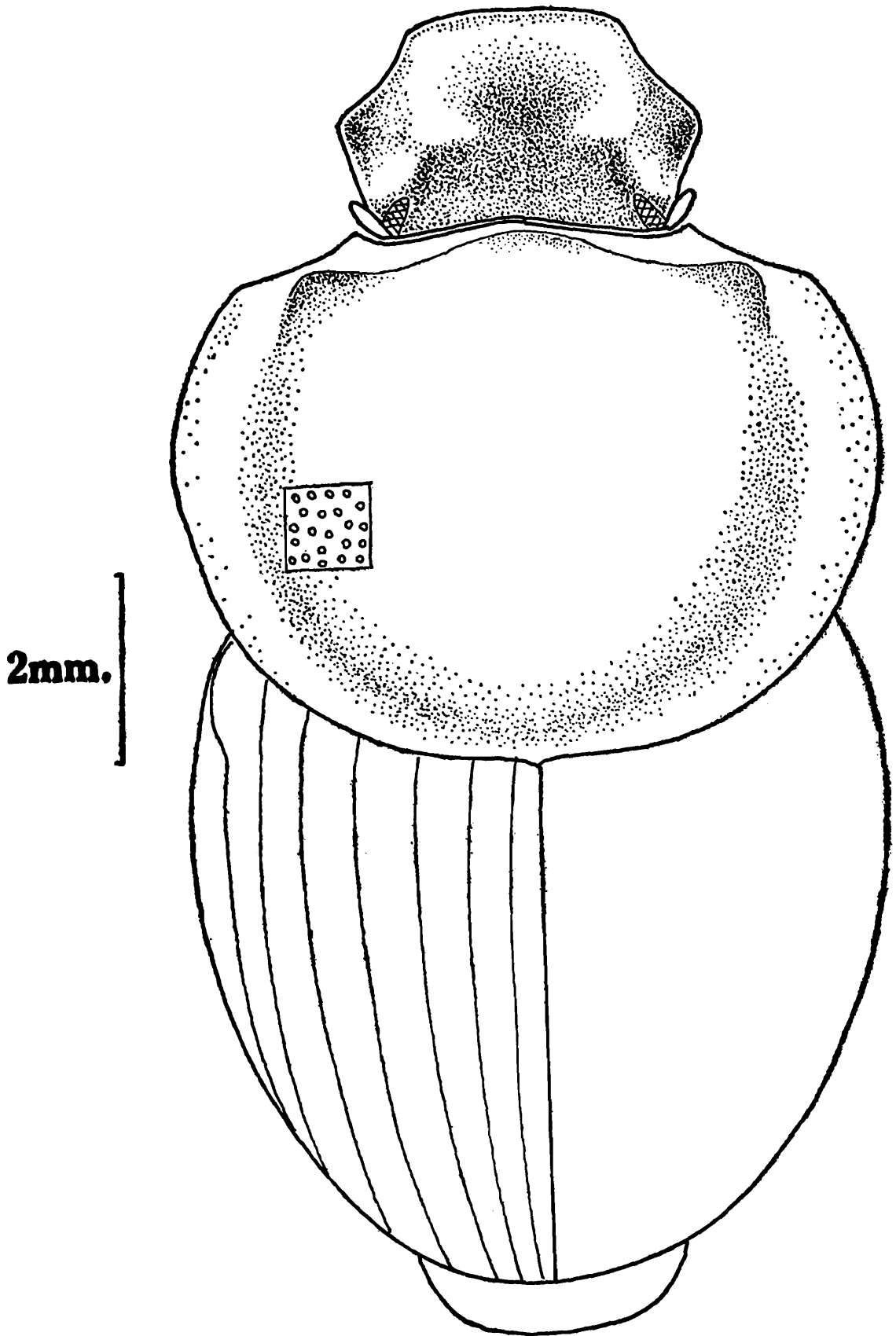
26. *Onthophagus tirapensis* sp. nov.

(Fig. 4)

Male major—Length 13 mm ; braedth 7 mm. Black above and beneath ; antennae, mouthorgans, tarsi deep brown, legs and lower surface covered with pale hairs, a luft of golden hairs above the apical tibial spur.

Elongated oval, highly convex ; Head broadly rounded in front, gently sinuate at sides giving rise to prominent process in front

of ocular lobe, which almost straight behind. Clypeus feebly rounded in front with a rounded obsolete ridge just behind the front margin ;



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Fig. 4. *Onthophagus tirapensis* sp. nov., male.

very closely and rugosely punctured, clypeo-frontal carina absent.

Frontal region closely but less rugosely punctured, convex, risen gradually from clypeal and ocular surface. Vertex with a strong and broad lamina, directed, upward and backwardly and split in the middle, two finger like process behind the eyes. Pronotum highly convex, anterior declivity prominent, upper edge of declivity with a bisinuate carina, angulate in the middle and at sides ; minutely but almost uniformly punctured, middle of basal region more minutely and sparsely punctured ; front angle bluntly produced, sides almost straight but gradually sloping upwards anteriorly and sinuate behind ; hind angles obsolete, base a little produced in the middle. Elytra not strongly striate, striae minutely and sparsely punctured, elytral interval microscopically sculptured and minutely punctured. Pygidium sparsely punctured. Metasternal shield with a longitudinal groove in the middle and minutely punctures, sides of metasternum more strongly punctured and covered with hairs. Anterior tibiae with four external teeth and a prominent tuft of hairs, hind margin of hind tibiae with three distinct lobe.

Male minor—Ridge just behind the front margin of clypeus more strongly developed, vertex without lamina and process, only with a strong straight carina. Anterior declivity on pronotum reduced.

Female—Similar to male minor.

Holotype : ♂ major, Deban, Arunachal Pradesh, 7.iv.1981, *S. Biswas* coll.

Paratypes : 4 exs., (1 ♀, Hornbill, 9.iv.1981. 2 ♂♂, Chiria camp. 29.iv.1981, 1 ♂, Firmbase, 17.iv.1981), *S. Biswas* coll.

The species is unlike any other described species of the imperator group of species and can be separated by the presence of paired horns in the male and absence of horns in the female.

27. *Onthophagus arunachalensis* sp. nov.

(Fig. 5)

Male—Length 7 mm ; breadth 3.5 mm.

Black and shining above ; antennae, mouthorgans, femora, tibiae, tarsi and metasternum pitchy ; Legs, upper and lower surface covered with pale setae. Setae shorter on upper surface.

Head narrow in front ; clypeus produced and strongly reflexed anteriorly. Uniformly punctured ; clypeo frontal carina absent, ocular lobe rounded, uniformly punctured and devoid of any suture

or carina in between eyes two prominent tubercles present, behind these tubercles a depressed smooth area. Pronotum with a large

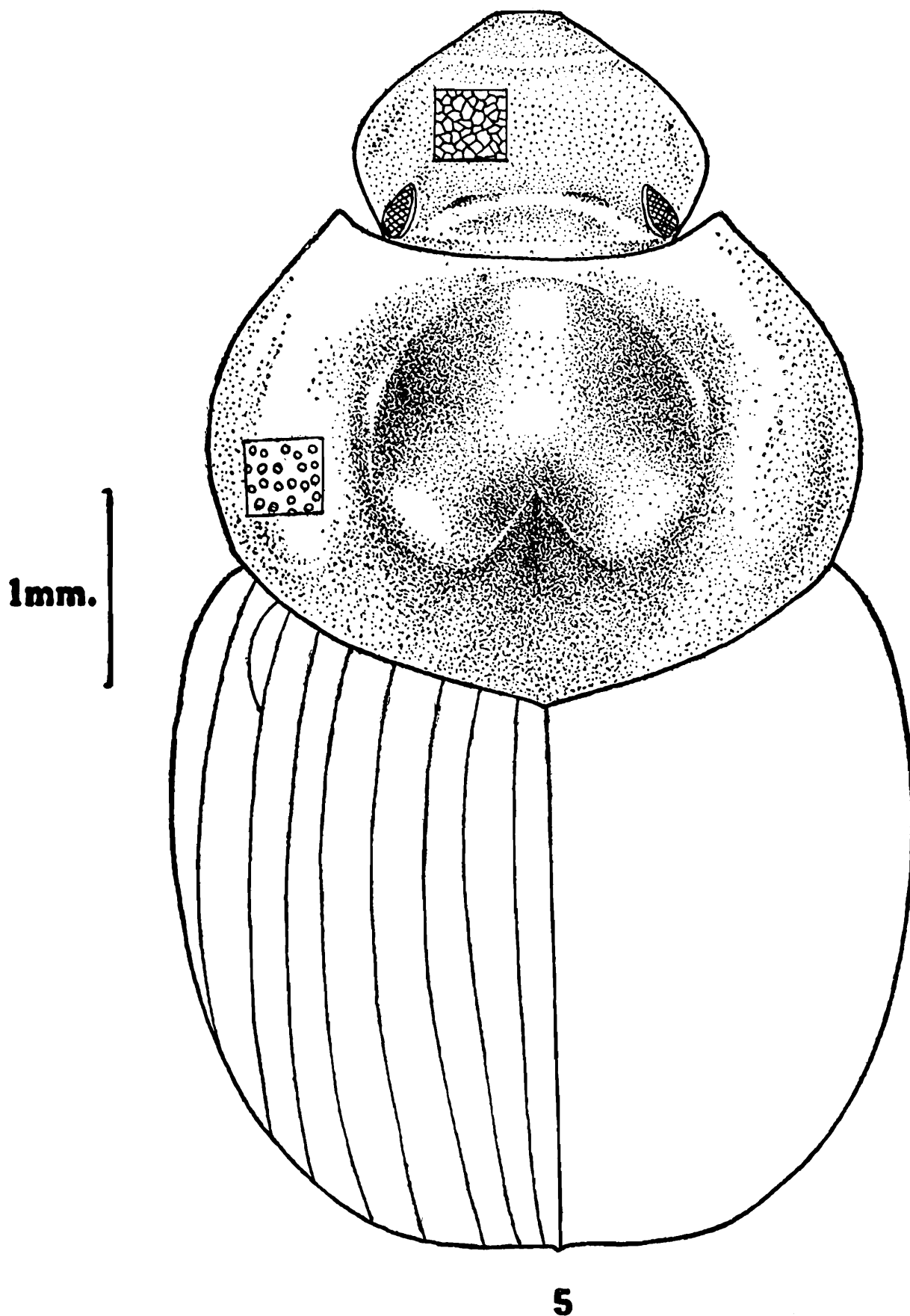


Fig. 5. *Onthophagus arunachalensis* sp. nov., male.

central depression and extending a little behind there is one on each

side of this central depression. Upper margin of central depression with a strong conical process. Front angles produced, lateral margin almost straight in front, rounded in the middle and feebly sinuate behind, base almost rounded on the middle. Pronotum moderately strong punctured, punctures fewer more minute in the depression. Elytra shallowly striate, striae sparsely and minutely punctured. Elytral intervals uniformly and minutely punctured. Metasternal shield minutely punctured in the middle; more strongly punctured and covered with setae in front and at sides. Pygidium uniformly punctured. Front tibiae with four external teeth and extremity of hind tibiae produced into three lobes externally.

Female—Clypeal margin straight in middle anteriorly; a strong straight clypeo frontal carina running across, another shorter transverse carina behind pronotum without and depression and process.

Holotype: ♂ major, Hornbill, Arunachal Pradesh, 14.iv.1981, S. Biswas coll.

Paratype: 11 exs., (1 ♂, 1 ♀, Miao, 4.v.1981; 1 ♀, Deban, 7.iv.1981; 1 ♂, 1 ♀, Zero camp, 8.iv.1981; 1 ♂, 1 ♀, Hornbill, 14.iv.1981; 1 ♂, 1 ♀, Firmbase, 19.iv.1981; 1 ♀, Namdapha, 21.iv.1981; 1 ♀, Chiria camp, 28.iv.1981) S. Biswas coll.

The species resembles *O. badeni* Harold in the nature of pronotal armature but can be easily separated by its much smaller size and nature of cephalic armature.

28. *Onthophagus rudis* Sharp

1875. *Onthophagus rudis* Sharp, *Col. Hefte*, 14 : 58.

1877. *Onthophagus foveolatus* Harold, *Ann. Mus. Civ. Stor. Nat. Genova*, 10 : 68.

1931. *Onthophagus rudis*, Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 185.

1963. *Onthophagus* (s. str.) *rudis*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 505.

Material examined: 10 exs., (1 ex., Zero camp, 9.iv.1981; 1 ex., Namdapha, 21.iv.1981; 2 exs., Miao, 4.v.1981; 1 ex., Hornbill, 14.iv.1981; 1 ex., Firmbase, 19.iv.1981; 1 ex., Chiria camp, 29.iv.1981; 3 exs., Deban 7.iv.1981), S. Biswas coll.

Distribution: The species is known from Indonesia; Burma and India. In India the species is recorded from Assam (Patkai hills) and Arunachal Pradesh (Namdapha).

Remarks : Earlier distributional record from Assam seems to be a place not in the Assam state as stands now. As Patkai hills area may be either in Manipur or Nagaland, both of which once were within Assam.

29. *Onthophagus jucundus* Arrow

1931. *Onthophagus jucundus* Arrow, *Fauna Brit. India*, (*Coleoptera* : *Lamellicornia*), 3 : 188.
 1963. *Onthophagus* (s. str.) *jucundus*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Regiou* (*Coleoptera* : *Lamellicornia*), 2 : 398-399.

Material examined : 4 exs., Deban, 7.iv.1981, S. Biswas coll.

Distribution : The species is known from Burma and India. In India the species is recorded from Manipur and Arunachal Pradesh (Namdapha).

Remarks : The species agrees well with the description of *O. jucundus* Arrow in general but specimens under report differs in clypeal margin almost rounded, truncate in *jucundus* Arrow and clypeal disc region of head, rugosely punctured instead of grannuler. Pronotum is little hollowed in front and upper margin with two not very distantly placed tubercles.

30. *Onthophagus orientalis* Harold

1868. *Onthophagus orientalis* Harold, *Col. Hefte*, 4 : 83.
 1931. *Onthophagus orientalis*, Arrow, *Fauna Brit. India* (*Coleoptera* : *Lamellicornia*), 3 : 213-214.
 1963. *Onthophagus* (s. str.) *orientalis*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Oriental ischen Region* (*Coleoptera* : *Lamellicornia*), 2 : 463-464.

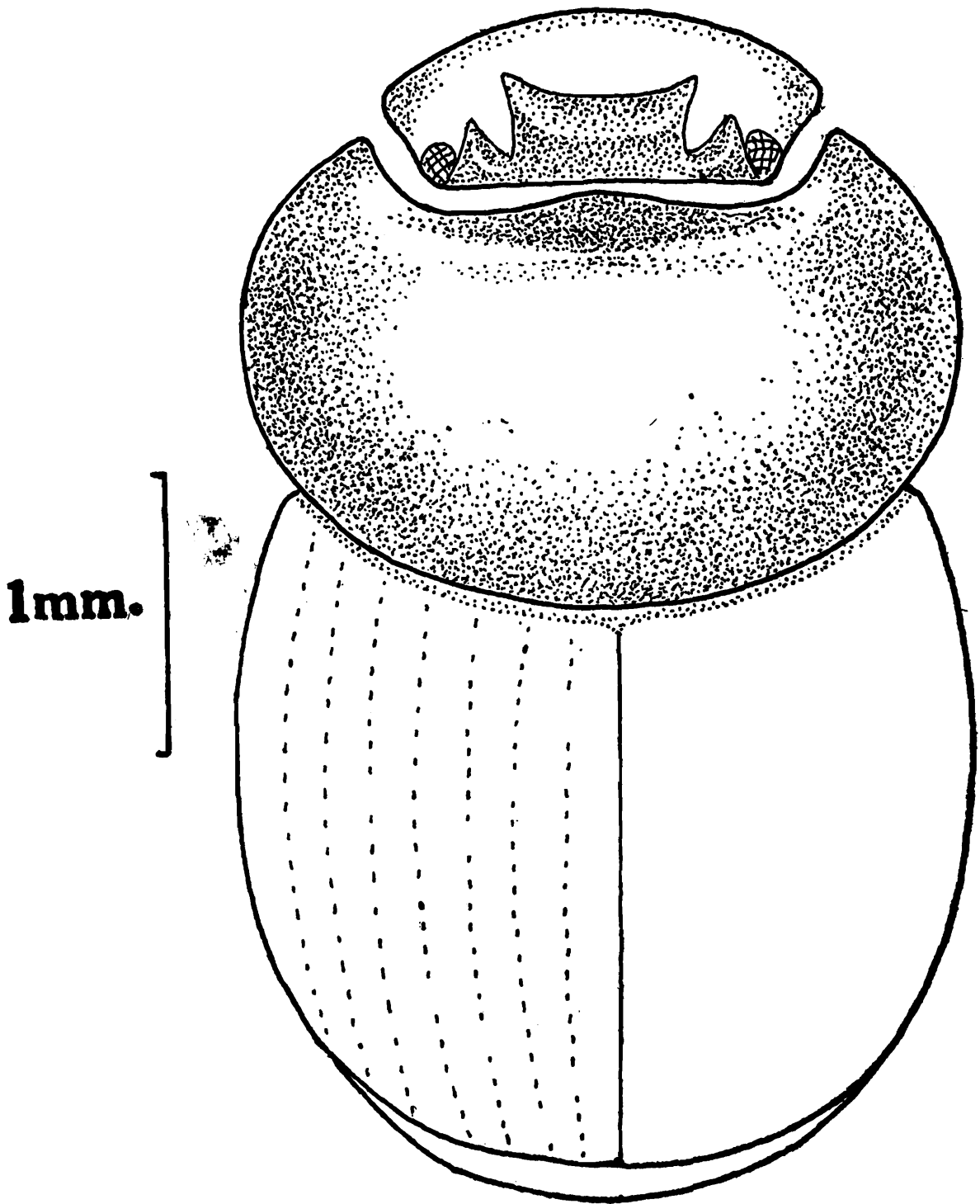
Material examined : 7 exs., Deban, 7.iv.1981, 3 exs., Firmbase, 18.iv.1981, S. Biswas coll.

Distribution : The species is known from Burma ; Bangladesh ; Malay-Peninsula ; S. China and India. In India the species is recorded from Uttar Pradesh, Bihar, Sikkim, Manipur, Meghalaya, Assam and Arunachal Pradesh (Namdapha).

Remarks : The species shows considerable variations in size and sexual characters. Tubercles of asperites elytral intervals are indistinct in some specimens.

31. *Onthophagus songsokensis* sp. nov.

(Fig. 6)



6

Fig. 6. *Onthophagus songsokensis* sp. nov., male.

Male : Length 4 mm ; breadth 3 mm. Black, not very shining, elytra at shoulder prominence and at apex, tarsi and mouthorgans reddish ; antennae black. Body short and compact, convex.

Head rounded, clypeus very feebly emarginate in the middle, clypeal disc strongly punctured anteriorly forms strongly but sparsely

punctured ; clypeofrontal carina absent. Vertex with a strong transverse carina, abruptly narrowed and leaving one strong angular process on each side near base and bifurcate at apex, forming horn like projections.

Pronotum strongly punctured, punctures appearing umblicate but incomplete in front or in the sides, front angle blunt, hind angle obsolete, base feebly margined and a little angular in the middle, lateral margin straight in front, rounded behind. Elytra fairly strongly striate, striae closely punctured, strial intervals convex, shining and asperately punctured. Front tibiae short, with 4 external teeth. Metasternum feeble punctured in the middle, strongly in front and at sides and a small compressed prominence in the middle towards apex. Pygidium fairly strongly punctured with umblicate punctures.

Female : Similar to male but (i) lamina on vertex replaced by a transverse carina, (ii) presence of a rounded clypeofrontal carina (iii) clypeal disc more strongly punctured and (iv) last abdominal sternite emerginate in the middle.

Holotype : ♂ Miao, 6.iv.1981, *S. Biswas* coll.

Paratypes : 15 exs., (3 ♂ ♂, 2 ♀ ♀, Zero camp, 8.iv.1981 ; 6 ♀ ♀, Miao, 2.iv.1981 ; 1 ♂, Namdapha, 21.iv.1981 ; 3 ♂ ♂, Hornbill, 14.iv.1981) *S. Biswas* coll.

The species comes near to *O. troglodyta* (F.) but may be separated from the former by black colour being more predominant and punctures of pronotum being almost umblicate.

32. *Onthophagus rugulosus* Harold

1886. *Onthophagus rugulosus* Harold, *Dt. ent. Z.* 30 : 289.

1891. *Onthophagus expansicollis* Fairmaire, *C. R. Soc. ent. Belg.* 35 : 193.

1931. *Onthophagus rugulosus*, Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 227-228.

1963. *Onthophagus* (s. str.) *rugulosus*, Belthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 507.

Material examined : 3 exs, Zero camp, 9.iv.1981 ; *S. Biswas* coll.

Distribution : The species is known from South China ; and India. In India the species is recorded from Meghalaya and Arunachal Pradesh (Namdapha).

Remarks : This is the first time the species is being recorded from Namdapha Will Life Sanctuary, Tirap district, Arunachal Pradesh.

33. *Onthophagus ramosellus* Bates

1891. *Onthophagus ramosellus* Bates, *Entom.*, 24 : 11.
 1831. *O. capella* Hope, Gray's *Zool. Misc.*, P. 22.
 1931. *O. ramosellus*, Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 217-218.
 1963. *O. (s, str.) ramosellus*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 277-278.

Material examined : 7 exs., (5 exs, Zero camp, 9.iv.1981 ; 2 exs., Chiria camp, 27.iv.1981), S. Biswas coll.

Distribution : The species is known from Burma ; Vietnam ; Philippine Island ; Indonesia and India. In India the species is recorded from Assam and Arunachal Pradesh (Namdapha).

34. *Onthophagus rectecornutus* Lansberge

1883. *Onthophagus rectecornutus* Lansberge, *Notes Leyd. Mus.*, 5 : 49.
 1931. *Onthophagus rectecornutus*, Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 233-234.
 1963. *Onthophagus (Serrophorus) rectecornutus*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 498-499.

Material examined : 2 exs., Zero camp, 9.iv.1981, S. Biswas coll.

Distribution : The species is known from Vietnam ; Bangladesh ; Burma ; Sri Lanka ; Bhutan and India. In India the species is recorded from Nagaland, Bihar, Nilgiri hills, Malabar, Bangalore and Arunachal Pradesh (Namdapha).

Remarks : Specimens under report were collected from elephant dung.

35. *Onthophagus manipurensis* Arrow

1907. *Onthophagus manipurensis* Arrow, *Ann. Mag. nat. Hist.*, (7) 19 : 426.
 1931. *Onthophagus manipurensis*, Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 242-243, Pl. xiii, fig. 7, 8.
 1963. *Onthophagus (Digitonthophagus) manipurensis*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 431, Pl. xiii, fig. 6.

Material examined : 1 ex, Miao, 3.iv.1981, ; S. Biswas coll.

Distribution : The species is known from Burma and India. In India the species is recorded from Manipur, Meghalaya and Arunachal Pradesh.

Remark : This is the first time the species is being recorded from Arunachal Pradesh (Tirap dist. Miao).

36. *Onthophagus rubricollis* Hope

1831. *Onthophagus rubricollis* Hope, Gray's Zool. Misc., P. 22.
 1931. *Onthophagus rubricollis*, Arrow, Fauna Brit. India (Coleoptera : Lamellicornia), 3 : 244-245.
 1963. *Onthophagus (Digitonthophagus) rubricollis*, Balthasar, Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia), 2 : 503-504, Pl. xiv, fig. 4.

Material examined : 1 ex., Namdapha camp, 20.iv.1981 ; S. Biswas coll.

Distribution : The species is known from Nepal and India. In India the species is recorded from Uttar Pradesh, Sikkim, Meghalaya and Arunachal Pradesh (Namdapha).

Remarks : A single specimen was collected in dense forest from carnivora dung. This is the first time the species is being recorded from Arunachal Pradesh.

37. *Onthophagus mauritii* Boucomont

- 1919 (1920). *Onthophagus mauritii* Boucomont, Ann. Soc. ent. France, P. 311.
 1931. *Onthophagus mauritii*, Arrow, Fauna Brit. India (Coleoptera : Lamellicornia), 3 : 267-268.
 1963. *Onthophagus (S. Str.) mauritii*, Balthasar, Monographic der Scarabaeidae der palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia) 2 : 434.

Material examined : The species is known from India was recorded from Tamilnadu, Maharastra and Bihar. This is the first time the species is recorded from Arunachal Pradesh.

38. *Onthophagus* sp. I

A single specimen collected from Miao, Tirap district of Arunachal Pradesh on 4.iv.1981. The specimen belongs to gemma group but does not belong to any species known from India and most likely belongs to an undescribed species. As there is only one specimen description of the species is not attempted .

39. *Onthophagus* sp. 2.

A single specimen was collected from Miao, Tirap district of Arunachal Pradesh on 5.iv.1981. The specimen comes closer to *O. questus* Sharp but differs from that species by total absence of fronto-peal carina and punctures on pronotum also being stronger.

40. *Onthophagus* sp. 3.

Single specimen belonging to Mopsus group (length 10 mm ; breadth 6 mm) probably belongs to an undescribed species. The large size and pronotal shape are not met with any of the species known from Indian region. So, more specimens are needed for further study.

41. *Onthophagus rubripennis* Arrow

1907. *Onthophagus rubripennis* Arrow, *Ann. Mag. Nat. Hist.* (7) 19 : 419.
 1931. *Onthophagus rubripennis*, Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 271-272.
 1963. *Onthophagus* (s. str.) *rubripennis*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 504.

Material examined : 3 exs., (1 ex., Deban, 4.iv.1981 ; 1 ex., Hornbill, 15.iv.1981 ; 1 ex, Namdapha camp, 19.iv,1981), S. Biswas coll.

Distribution : The species is known from Bhutan ; Burma and India. In India the species is recorded from Sikkim, West Bengal, Meghalaya and Arunachal Pradesh (Namdapha).

Remarks : Besides typical one two other varieties of these species are recognised, variety *O. subcristatus* is characterised by more denser and rugose sculpture on pronotum and variety *vespilo* by entire body is black. Specimens under report agree with variety *subcristatus* in pronotal sculpture and one of the specimens is almost black. The species is being recorded for the first time from Arunachal Pradesh.

42. *Onthophagus furcicollis* Arrow

1931. *Onthophagus furcicollis* Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 276-277, fig. 32.
 1963. *Onthophagus* (s. str.) *furcicollis*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 359.

Material examined : 5 exs., Namdapha, 22.iv.1981, S. Biswas coll.

Distribution : The species is known from India and recorded from Uttar Pradesh, Sikkim and Arunachal Pradesh.

43. *Onthophagus dama* (Fabricius)

1798. *Copris dama* Fabricius, *Ent. Syst. Suppl.* : 32.
 1898. *Onthophagus dama*, d'orbigny, *L'Abeille*, 29 : 217.
 1931. *Onthophagus dama*, Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 280-281.
 1963. *Onthophagus* (s. str.) *dama*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 325-326, Pl.xii, fig. 6.

Material examined : 2 exs, Miao, 30.iii.1981 ; Deban, 7.iv.1981, S. Biswas coll.

Distribution : The species is known from Srilanka ; Nepal ; Bhutan and India. In India the species is recorded from West Bengal, Bihar, Uttar Pradesh, Maharashtra, Madhyapradesh, Karnataka, Tamilnadu and Arunachal Pradesh (Namdapha).

44. *Onthophagus triceratops* Arrow

1913. *Onthophagus triceratops* Arrow, *Rec. Indian Mus.*, 8 : 195.

1931. *Onthophagus triceratops*, Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 301-302, fig. 36.

1963. *Onthophagus* (s. str.) *triceratops*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 559.

Material examined : 12 exs, (2 exs, Miao, 30.iii.1981 ; 2 exs, Deban, 7.iv.1981 ; 2 exs, Zero camp, 8.iv.1981 ; 2 exs, Hornbill, 14.iv.1981 ; 1 ex, Firmbase, 19.iv.1981 ; 2 exs, Namdapha camp, 21.iv.1981 ; 1 ex, Chiria camp, 29.ix.1981), S. Biswas coll.

Distribution : The species is known only from India and is recorded from Assam and Arunachal Pradesh (Namdapha).

45. *Onthophagus armatus* Blanchard

1853. *Onthophagus armatus* Blanchard, *Voy. au Pole Sud*, P. 98, Pl. vii, figs. 9 & 10.

1883. *Onthophagus luzonicus* Lansberge, *Notes Leyden Mus.*, 5 : 51.

1931. *Onthophagus armatus*, Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 293-294.

1963. *Onthophagus* (s. str.) *armatus*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 277-278.

Material examined : 3 exs, (1 ex, Firmbase, 18.iv.1981 ; 1 ex, Namdapha, 22.iv.1981 ; 1 ex, Chiria camp, 28.iv.1981), S. Biswas coll.

Distribution : The species is known from Burma ; Vietnam ; Philippine Is. ; Indonesia and India. In India the species is recorded from Assam and Arunachal Pradesh (Namdapha).

46. *Onthophagus luridipennis* Boheman

1858. *Onthophagus luridipennis* Boheman, *Eagenies Resa* : 45.

1914. *Onthophagus fuscopuhctulatus* Boucomont, *Ann. Soc. ent. France*, 88 : 292-293.

1931. *Onthophagus luridipennis*, Arrow, *Fauna Brit. India, (Coleoptera : Lamellicornia)*, 3 : 317-318.

1963. *Onthophagus* (s. str.) *luridipennis*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 424-425.

Material examined : 19 exs. (2 exs, Miao, 22.iv.1981 ; 10 exs, Zero camp, 11.iv.1981 ; 3 exs., Firmbase, 19.iv.1981 ; 4 exs., Namdapha, 21.iv.1981), S. Biswas coll.

Distribution : The species is known from Philippines Island ; S. China ; Indonesia ; Indochina ; Burma ; Bangladesh and India. In India the species is known from Uttar Pradesh, Assam and Arunachal Pradesh (Namdapha).

47. *Onthophagus remotus* Harold

1879. *Onthophagus remotus* Harold, *Col. Hefte*, 26 : 226.

1931. *Onthophagus remotus*, Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 318-319.

1963. *Onthophagus* (s. str.) *remotus*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Oriental Region (Coleoptera : Lamellicornia)*, 2 : 500-501.

Material examined : 11 exs., (5 exs., Debau, 7.iv.1981 ; 4 exs., Chiria camp, 27.iv.1981 ; 2 exs., Hornbill. 16.iv.1981), S. Biswas coll.

Distribution : The species is known from Burma and India. In India the species is being recorded for the first time from Arunachal Pradesh (Namdapha).

48. *Onthophagus porcus* Arrow

1931. *Onthophagus porcus* Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 325.

1963. *Onthophagus* (s. str.) *porcus*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 482.

Material examined : 3 exs., Firmbase, 18.iv.1981, S. Biswas coll.

Distribution : The species is known from Bangladesh and India. In India the species is recorded for the first time from Arunachal Pradesh (Namdapha).

49. *Onthophagus royi* sp. nov.

(Fig. 7)

Male : Length 5-6 mm., breadth 3-3.5 mm. Body short, not very convex, upper surface black, lower surface blackish brown, covered with short reddish setae, antennal club dark.

Head semicircular, clypeal margin uniformly rounded, ocular lobe rounded, little angulate in front of eyes ; clypeus separated from

forehead by a curved carina and from ocular lobes by a carinate suture ; clypeal disc closely punctured with large, medium and sinuate, punctures,

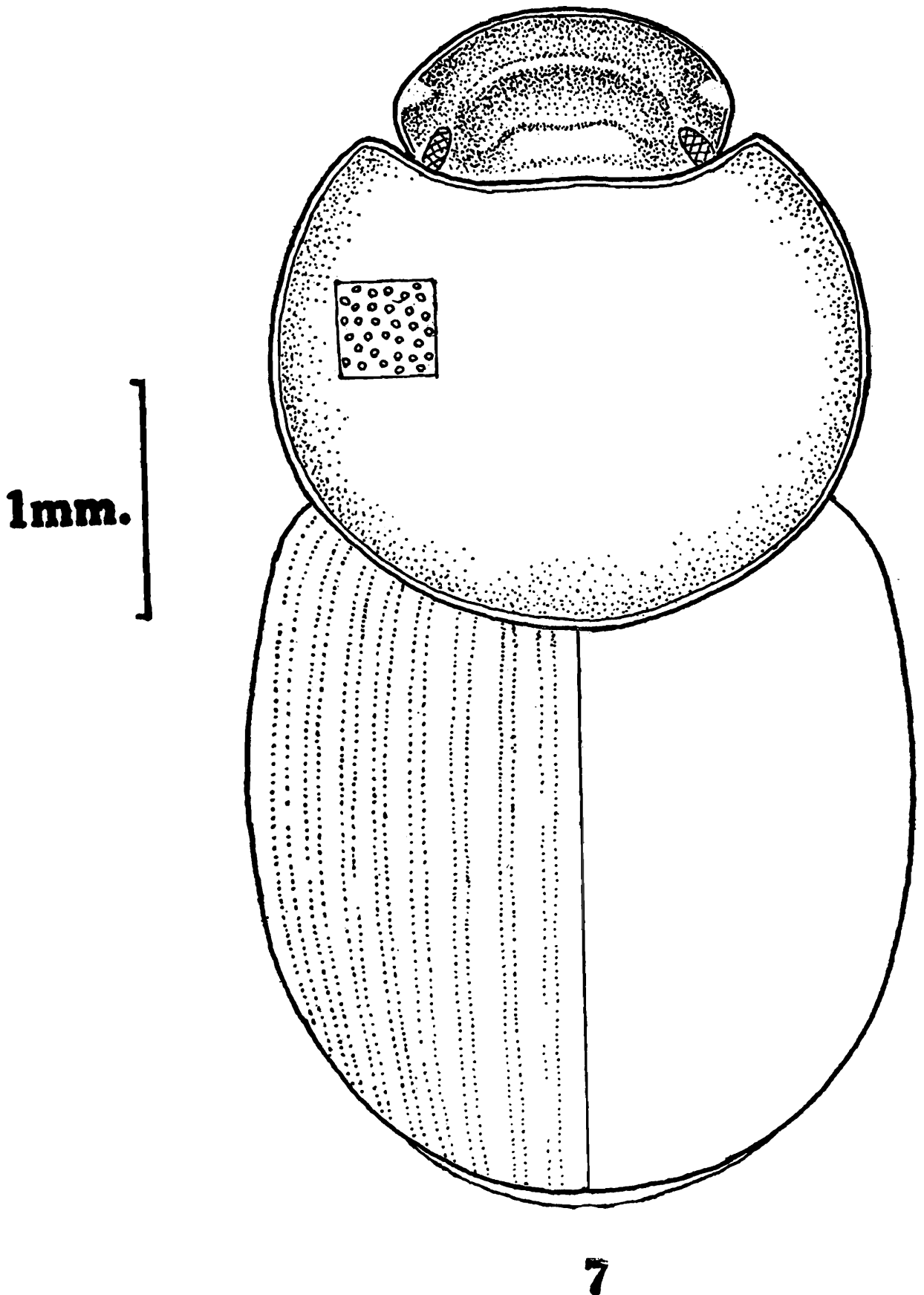


Fig. 7. *Onthophagus royi* sp. nov., male.

ocular lobes less closely punctured by large and medium punctures, large punctures being fewer in numbers ; forehead bounded posteriorly by a

straight carina, little elevated in the middle and punctured as in ocular lobe. Antennae 9 segmented, basal segment carinate at anterior margin but not serrated. Pronotum not very convex, a little depressed longitudinally in the middle towards base, uniformly and moderately closely and strongly punctured, punctures simple, each with a seta at middle, space between punctures appear shining, lateral margins rounded in front, a little sinuate behind. Elytra strongly striate, striae feebly punctured, punctures being connected by longitudinal streak; elytral intervals covered with numerous setigerous punctures, arranged in two rows, except sutural interval which show a single row of puncture; space between punctures minutely sculptured in most of the parts, shining only postero-medially. Front tibiae provided with 4 external teeth, which are serrated at base. Metasternal shield narrowly grooved in the middle, thinly punctured with large punctures. Abdominal sternite with a single row of large setigerous punctures, not very closely placed. Last sternite emarginate in the middle to receive pygidium. Pygidium not margined at base and moderately strongly punctured.

Female: Same as male except the clypeal disc more strongly punctured, last ventral sternite emarginate in the middle.

Holotype: 1 ex., ♂ (Regd. No. A1/4552) collected from dog faeces, Shillong, Khasi hills, 18.vi.1973, *S. Biswas* coll.

Paratypes: 6 ♂ ♂, 4 ♀ ♀, (Regd. No. A1/4553), Khasi hills, 6.vii.1974, *S. Biswas* coll., 1 ♂, 1 ♀, (Regd. No. A1/4554) from human faeces, Shillong, Khasi hills, 9.v.1973, *S. Biswas* coll., deposited at present in the collection of Zoological Survey of India, Shillong, 2 ♂ ♂, Deban Namdapha, 21.iv.1981, *S. Biswas* coll.

The species comes closer to *O. orientalis* Harold but can be separated by the absence of cephalic horn in both sexes, upper surface being smooth.

50. *Onthophagus deflexicollis* Lansberge

1883. *Onthophagus deflexicollis* Lansberge, *Notes Leyden Mus.*, 5 : 72.
 1883. *Onthophagus mutabilis* Lansberge, *Notes Leyden Mus.*, 5 : 72.
 1931. *Onthophagus deflexicollis*, Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 331-332.
 1963. *Onthophagus* (s. str.) *deflexicollis*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 327-328.

Material examined: 3 exs., (1 ex., Zero camp, 10.iv.1981; 1 ex., Firmbase, 18.iv.1981; 1 ex., Chiria camp, 28.iv.1981), *S. Biswas* coll.

Distribution : The species is known from Indonesia ; Vietnam ; Malay Peninsula ; Burma and India. In India the species is recorded from Uttar Pradesh, Sikkim, West Bengal, Assam, Meghalaya and Arunachal Pradesh (Namdapha).

51. *Onthophagus phanaeiformis* Boucomont

1914. *Onthophagus phanaeiformis* Boucomont, *Ann. Mus. Civ. Stor. Nat. Genova*, 46 : 224.
 1931. *Onthophagus phanaeiformis*, Arrow, *Fanna Brit. India (Coleoptera : Lamellicornia)*, 3 : 335-336.
 1963. *Onthophagus (Paraphaneimorphus) phanaeiformis*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 478.

Material examined : 3 exs., Namdapha camp, 22.iv.1981, S. Biswas coll.

Distribution : The species is known from Burma and India. In India the species is recorded for the first time from Namdapha Wild Life Sanctuary, Tirap dist., Arunachal Pradesh.

Remarks : Specimens under report were collected from human faeces. The species was known only by male, this is the first time the female of the species is described here.

52. *Onthophagus centricornis* Fabricius

1798. *Copris centricornis* Fabricius, *Ent. Syst., Suppl.*, P. 33.
 1823. *Copris luteipennis* Wiedemann, *Zool. Mag.*, 2(1) : 20.
 1858. *Onthophagus minutus* Motschulsky, *Etudes Ent.*, 7 : 54.
 1931. *Onthophagus centricornis*, Arrow, *Fauna Brit. India, (Coleoptera : Lamellicornia)*, 3 : 343-344.
 1963. *Onthophagus (s. str.) centricornis*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 305-306.

Material examined : 2 exs., (1 ex. Hornbill, 17.ix.1981 ; 1 ex., Chiria camp, 26.iv.1981), S. Biswas coll.

Distribution : The species is known to occur in Ceylon and India. In India the species is recorded from Madhya Pradesh, Maharashtra, Karnataka, Tamil Nadu, Meghalaya and Arunachal Pradesh (Namdapha).

53. *Onthophagus vaulogeri* Boucomont

1923. *Onthophagus vaulogeri*, Boucomont, *Bull. Soc. ent. Fr.* P. 10.
 1931. *Onthophagus vaulogeri*, Arrow, *Fauna Brit. India (Coleoptera : Lamellicornia)*, 3 : 344-345.
 1963. *Onthophagus (s. str.) vaulogeri*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 576-577.

Material examined : 5 exs., (1 ex., Namdapha, 21.iv.1981 ; 1 ex., Miao, 22.iv.1981 ; 1 ex., Hornbill, 16.iv.1981, 1 ex., Firmbase, 19.iv.1981 ; 1 ex., Chiria camp, 27.iv.1981), S. Biswas coll.

Distribution : This species is known from Indo-China ; Burma and India. In India the species is recorded from Uttar Pradesh, Meghalaya and Arunachal Pradesh (Namdapha).

54. *Onthophagus duporti* Boucomont

1914. *Onthophagus duporti* Boucomont, *Ann. Mus. Civ. Stor. Nat. Genova*, 46 : 228.
 1931. *Onthophagus duporti*, Arrow, *Fauna Brit India*, (Coleoptera : Lamellicornia), 3 : 353.
 1963. *Onthophagus* (s. str.) *duporti*, Balthasar, *Monographic der Scarabaeidae und Aphodiidae der palaearktischen und Orientalischen Region (Coleoptera : Lamellicornia)*, 2 : 337-338.

Material examined : 6 exs., (2 exs., Zero camp, 11.iv.1981 ; 1 ex., Namdapha, 20.iv.1981 ; 2 ex., Miao, 23.iv.1981 ; 1 ex., Firmbase, 19.iv.1981), S. Biswas coll.

Distribution : The species is known from Burma and India. In India the species is recorded from Bihar, Tamil Nadu (Nilgiri hills), Karnataka (Kanara) and Arunachal Pradesh (Namdapha).

55. *Onthophagus bengali* Gordon & Oppenheimer

1975. *Onthophagus (Onthophagus) bengali* Gordon & Oppenheimer *Oriental Insects*, 9(4) : 497-498.

Material examined : 5 exs., (1 ex., Deban ; 8.iv.1981 ; 1 ex., Zero camp, 18.iv.1981 ; 2 exs., Namdapha, 21.iv.1981 ; 1 ex., Chiria camp, 27.iv.1981), S. Biswas coll.

Distribution : The species is known only from West Bengal. This is the first time the species is recorded from Arunachal Pradesh.

SUMMARY

This paper records 55 species belonging to 13 genera of subfamily Coprinae under family Scarabaeidae from Namdapha Wild Life Sanctuary, now Namdapha Tiger Reserve, Tirap dist., Arunachal Pradesh. 7 species namely, *Oniticellus namdaphaensis*, *O. subhendui*, *O. gayeni*, *Onthophagus tirapensis*, *O. songsokensis*, *O. arunachalensis*, *O. royi*, are described as new to science. Distributional records of all the species included in the paper have been provided on the basis of literature and collections present in Zoological Survey of India.

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