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LARGE-EYED *ONTHOPHAGUS* SPECIES OF SUNDALAND: A KEY AND DESCRIPTIONS OF FIVE NEW SPECIES (COLEOPTERA: SCARABAEIDAE)

by

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and

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Key words: Coleoptera; Scarabaeidae; *Onthophagus*; Indonesia; Malaysia; new species.

Seven species of the scarab genus *Onthophagus* Latreille are keyed and described. They are all characterized by the possession of large eyes (in full-face view), a feature possibly related to nocturnal habits. Traditionally these species are placed in *Micronthophagus* Balthasar, which is here argued to be a polyphyletic group. Five species are new: *paroculus* (Sumatra), *setoculus* (Sumatra), *sideki* (Sumatra, Borneo), *phillippsorum* (Borneo), *collinsi* (Borneo). Of two old species, *O. drescheri* Paulian and *rotundicollis* Lansberge, new records are given.

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1. INTRODUCTION

In the large scarab genus *Onthophagus* Latreille the vast majority has eyes that are, when viewed full-face, narrowly exposed, usually bean-shaped to luniform. The number of exposed facet rows across their widest point usually does not exceed the arbitrary limit of 15. A limited number of species, several of them united in an artificial subgenus *Micronthophagus* Balthasar, 1935 (cf. also Balthasar, 1963: 165), has very broadly elliptic eyes, with many more facet rows across their widest point. These species seem to have nocturnal or crepuscular habits and are sometimes collected at light. From what is known

to us they all seem to be associated with mammal excrements. For unknown reasons most of the species have rarely been collected (Hanski, 1983, despite his large-scale pitfall trapping in the Mulu region, did not collect any, though they do occur in the region, see below). Several "*Micronthophagus*" have been recorded from tropical Africa, Arabia and Asia, whereas additional large-eyed species are known from the Australasian region (Matthews, 1972; Balthasar, 1969). Up till a few years ago only one species of "*Micronthophagus*" was known from the Sunda islands, *O. drescheri* Paulian, 1939, from Java. The poorly known *O. rotundicollis* Lansberge, 1883, with large eyes, about 15 facets wide, was overlooked. There are more species with large eyes currently placed in other groups, like *O. tragus* (Herbst), combined with *Colobonthophagus* Balthasar. During the past few years we acquired material from Borneo and Sumatra that appeared to contain three undescribed large-eyed species; during 1986 trips to Sabah and Sumatra by Krikken and Van Berge Henegouwen, respectively, yielded two more species. These novelties are described herein and a key to the seven known Sundaland species is provided. The key is strictly limited to the species lacking long frontal horns in the male sex (and thus *O. tragus* is excluded).

The subgenus *Micronthophagus* as currently delimited (e.g. by Balthasar, 1963), i.e. on the large eyes only, is, as already implied by the above remarks, polyphyletic: it is an amalgam of smaller groups that may have arisen independently from "normal" *Onthophagus*. This certainly holds for the species described below. The development of the eye-canths on the one hand and the area of the ocular foramen on the other hand differs from species to species (compare for instance *O. setoculus* with *drescheri*), and this alone is already indicative of an independent evolution. We have seen more large-eyed species from the island of Sulawesi, but these appear not directly related to the species described herein. They will be dealt with in a proposed review of the Sulawesi Scarabaeidae, as partial results of Project Wallace.

Technical notes. — The low magnification scanning electron micrographs were produced with a JEOL JSM 840A. Most of the specimens figured remained uncoated.

BM = British Museum (Natural History), London.

RMNH = Rijksmuseum van Natuurlijke Historie, Leiden.

Magnifications $\times 40$ etc. indicate magnifications at which features are distinct.

2. KEY TO THE SPECIES FROM SUNDALAND

- 1a. Elytra completely glabrous 2
- 1b. At least lateral elytral interstriae with distinct setae 4
- 2a. Head with distinct clypeofrontal ridge. Punctures on abdominal sternites shallow. Punctuation of pronotum distinct ($\times 40$) 3
- 2b. Head without any ornamentation. Punctures on abdominal sternites very deep. Punctuation of pronotum extremely fine. Borneo *collinsi*
- 3a. Eyes larger, over 20 facet rows wide in full-face view. Sumatra
..... *paroculus*
- 3b. Eyes smaller, less than 19 facet rows wide in full-face view. Java
..... *drescheri*
- 4a. All elytral interstriae with numerous long setae. Eye-canthus incomplete, short. Male protibia without tuft of setae at apex 5
- 4b. Only lateral elytral interstriae with setae. Metatarsal segment 1 shorter than segments 2-5 combined. Head without any ornamentation. Eye-canthus reaching to near temple. Male protibia with tuft of setae at apex 6
- 5a. Frons posteriorly with high, short transverse ridge, occupying ca 0.3 of interocular distance. Protibia with three external denticles only. Clypeofrontal ridge absent. Metatarsal segment 1 much longer than segments 2-5 combined. Elytra opaque, interstitial punctures more or less granulate. Length ca 8.5 mm. Sumatra *setoculus*
- 5b. Frons posteriorly without (male) or with (female) low, indistinct, longer transverse ridge, occupying ca 0.7 of interocular distance. Protibia with 3 + 1 external denticles. Clypeofrontal ridge present. Metatarsal segment 1 not longer than segments 2-5 combined. Elytra shiny, interstitial punctures not granulate. Length less than 6.5 mm. Sumatra, Java, Lesser Sundas. *rotundicollis*
- 6a. Dorsal side opaque. Setae on lateral elytral interstriae numerous, semiappressed. Pronotum flattened only in front. Borneo *phillippsorum*
- 6b. Dorsal side shiny. Setae on lateral elytral interstriae sparse, erect. Pronotum of male extensively flattened (anterior 0.7). Sumatra, Borneo .
..... *sideki*

3. DESCRIPTIONS

***Onthophagus collinsi* spec. nov.**

(fig. 1)

Material examined. — Holotype only, from MALAYSIA: Sarawak: 4th Division, Gng Mulu NP, near Camp 5, limestone plot, pitfall trap, 04/1978, N.M. Collins (in BM).

Holotype (cf. male). — Length ca 6.3 mm. Colour brownish-black, shiny. Pilosity yellowish, dorsal side glabrous. Clypeal apex slightly reflexed, anteromedially very feebly emarginate; clypeogenal transition virtually continuous; clypeofrontal ridge absent; head largely, sparsely, very finely punctate ($\times 40$). Frons and vertex unmodified. Eyes very large, canthus complete; ca 20 facet rows across widest point. Pronotum with evenly, moderately convex general surface, without discal midline impression; anterior section of lateral border very slightly rounded, anterolateral angle shortly rounded, ca 95° ; posterior section of lateral border moderately sinuate; lateral border, especially posteriorly, distinctly marginate; base virtually immarginate; entire pronotal derm with sparse, very fine punctation; density of punctures on disc 22-28/0.1 sq.mm, diameters ca 0.01 mm or less. Elytral striae impressed, discally well-defined, with distinct punctures, mostly separated by 2-4 times their diameter, distinctly crenulating interstriae; interstriae slightly convex, with sparse, very fine punctures ($\times 40$).

Antennal club orange-yellow. Metasternum posteriorly with distinct midline impression, disc with sparse, very fine punctation, anteromedian lobe with sparse, ocellate punctures, lateral wings with sparse seta-bearing ocellate punctures and with microreticulation. Visible abdominal sternites 1, 3-6, with complete transverse row of very coarse, deep punctures; sternite 2 only laterally with punctures; posterior margin of sternites 4, 5, distinctly convex. Pygidium with sparse, scattered, distinct punctures, generally shiny; base marginate; anal margin thickened. Protibia with 3 + 1 larger denticles, terminal spur elongate-acuminate, curved. Meso- and metatibiae and their terminal spurs unmodified. Profemoral underside with scattered, coarse seta-bearing punctures; other femora impunctate, virtually glabrous. Segment 1 of metatarsus slightly shorter than segments 2-5 combined. Parameres not found, but compaction of abdominal sternites indicative of male sex.

Measurements in mm. Maximum width of head 2.1. Median length of pronotum 2.1, maximum width 3.4. Sutural length of elytra 3.1, maximum width 3.7.

Note. — Dedicated to the collector, Mark Collins (Cambridge, U.K.).

***Onthophagus paroculus* spec. nov.**

(fig. 2)

Material examined. — Three specimens, in two records from Indonesia.

N SUMATRA: Gng Leuser NP: Mt Mamas, 20-29/07/1983, Räsänen, 17a, 1000 m, lowland evergreen rainforest: human excrement trap, 2, incl. holotype, paratype, in RMNH. 05-11/08/1983, Räsänen, 17c, 1000 m, lowland evergreen rainforest: human excrement trap, 1 paratype in RMNH.

Holotype (male). — Length ca 5.4 mm. Colour brownish-black, shiny. Pilosity yellowish, dorsal side glabrous. Clypeal apex slightly reflexed, anteromedially very feebly emarginate; clypeogenal transition vaguely interrupted; clypeofrontal transition with short, straight, transverse ridge, not reaching clypeogenal sutures; clypeal margin abundantly, coarsely punctate; genae and interocular surface with numerous ocellate punctures; remainder at most sparsely, very finely punctate ($\times 40$). Vertex unmodified. Eyes very large, canthus complete; ca 22 facet rows across widest point. Pronotum with evenly, moderately convex general surface, without discal midline impression; anterior section of lateral border almost straight; anterolateral angle shortly rounded, ca 90° ; posterior section of lateral border moderately sinuate; lateral border distinctly marginate; base virtually immarginate; entire pronotal derm with abundant, distinct punctation; density of punctures on disc 20-25/0.1 sq.mm, diameters medially ca 0.01 mm, increasing laterad. Elytral striae discally well-defined, with distinct punctures, mostly separated by 2-4 times their diameter, slightly crenulating interstriae; interstriae slightly convex, with sparse, fine punctures ($\times 40$).

Antennal club yellowish. Metasternum posteriorly with distinct midline impression, disc with sparse, very fine punctation, anteromedian lobe and lateral wings with sparse, ocellate, seta-bearing punctures, lateral wings additionally with microreticulation. Abdominal sternites laterally with transverse rows of ocellate, seta-bearing punctures. Pygidium with abundant, distinct punctures, generally shiny; base marginate; anal margin thickened. Protibia with 3 + 1 larger denticles, terminal spur elongate-acuminate, curved. Meso- and metatibiae and their terminal spurs unmodified. Profemoral underside with scattered, coarse seta-bearing punctures; other femora with few seta-bearing punctures. Segment 1 of metatarsus almost as long as segments 2-5 combined.

Measurements in mm. Maximum width of head 1.7. Median length of pronotum 1.8, maximum width 2.7. Sutural length of elytra 2.6, maximum width 3.1.

Variation and sexual dimorphism. — Male holotype is rather small, length of a male paratype 6.1 mm, clypeofrontal ridge higher; this specimen is also darker.

Female paratype has long, low, transverse ridge in front of clypeogenal ridge. Clypeus densely rugulate-punctate. Protibia more robust. Otherwise rather similar to male. Length 5.8 mm.

***Onthophagus drescheri* Paulian, 1939**
(fig. 3)

Onthophagus drescheri Paulian, 1939: 71.

Material examined. — Five specimens, in three records from Indonesia.

W JAVA: Tangkuban Perahu, 03/1934, Drescher, 1200-1500 m, 1 syntype in Paris. 10/09/1939, Drescher, 1200-1500 m, 1 syntype in Paris. Telaga Warna, nr Puncak, 17/03/1986, Van Berge Henegouwen, 128, 1500 m, submontane forest: human excrement trap, 3, in RMNH.

Description. — Length 5.8-6.8 mm. Colour brown to brownish-black, shiny. Pilosity yellowish, dorsal side glabrous. Clypeal apex slightly reflexed, anteromedially very feebly emarginate; clypeogenal transition continuous at border; clypeofrontal transition with short, straight, transverse ridge, almost reaching clypeogenal sutures; ridge slightly concave above; clypeal margin rugulate-punctate; genae and interocular surface with numerous punctures; remainder sparsely, finely punctate ($\times 40$). Vertex medially transversely “inflated”. Eyes large, canthus complete; ca 17 facet rows across widest point. Pronotum with moderately convex general surface, anteromedially occasionally slightly flattened, without discal midline impression; anterior section of lateral border almost straight; anterolateral angle shortly rounded, ca 90° ; posterior section of lateral border moderately sinuate; lateral border distinctly marginate; base medially indistinctly marginate; entire pronotal derm with abundant, distinct punctation, lateral parts with vague microreticulation. Elytral striae discally well-defined, with distinct punctures, mostly separated by 2-4 times their diameter, slightly crenulating interstriae; interstriae virtually flat, with sparse, fine punctures ($\times 40$).

Antennal club yellowish. Metasternum posteriorly with distinct midline impression, disc with sparse, very fine punctation, anteromedian lobe and lateral wings with sparse, ocellate, seta-bearing punctures, lateral wings additionally with microreticulation. Abdominal sternites laterally with transverse rows of ocellate, seta-bearing punctures. Pygidium with abundant, distinct punctures, generally shiny; base marginate; anal margin thickened. Protibia with 3 + 1 larger denticles, terminal spur elongate-acuminate, curved. Meso- and metatibiae and their terminal spurs unmodified. Profemoral underside with scattered, coarse seta-bearing punctures; other femora with few seta-bearing

punctures. Segment 1 of metatarsus slightly shorter than segments 2-5 combined.

***Onthophagus setoculus* spec. nov.**

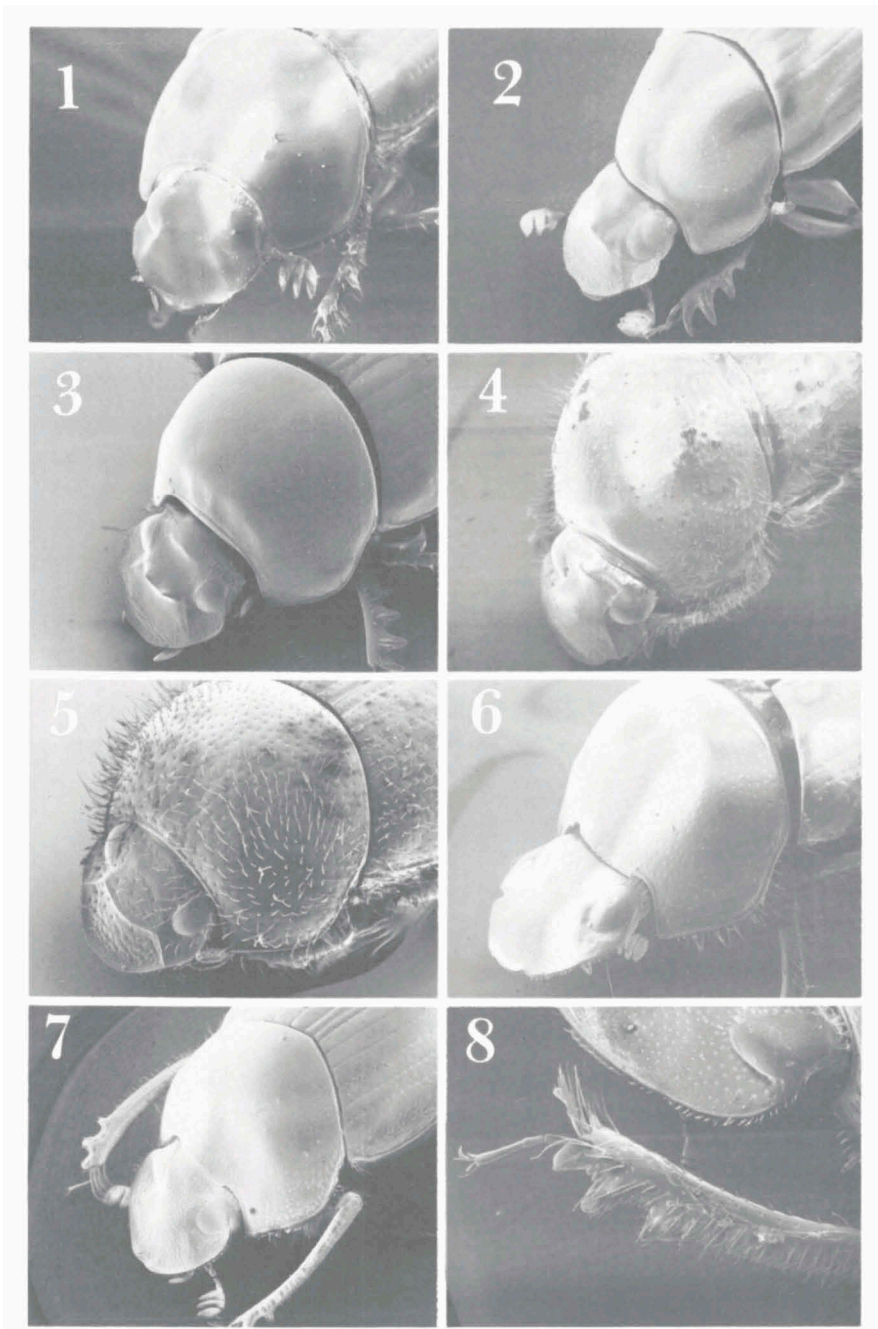
(fig. 4)

Material examined. — Four specimens, in three records, from Indonesia.

N SUMATRA: Gng Leuser NP: Lawe Mamas, 08-10/09/1983, Raisänen, 40Ca, 1530-1550 m, lower montane rainforest: human excrement trap, 1 paratype in RMNH. 08-10/09/1983, Raisänen, 39Ca, 1650-1680 m, lower montane rainforest: human excrement trap, 1 paratype in RMNH. Mt Mamas, 21-29/07/1983, Raisänen, 18a, 1150 m, lower montane rainforest: human excrement trap, 2, incl. holotype, paratype, in RMNH.

Holotype (male). — Length ca 8.2 mm. Colour blackish-brown, opaque due to microreticulation ($\times 60$). Pilosity very long, abundant, yellowish. Clypeal apex slightly reflexed, rounded; clypeogenal transition continuous; clypeofrontal ridge absent; head with scattered, distinct, seta-bearing punctures, especially on anterior part of clypeus; punctation double, secondary punctures sparse, very fine; remainder at most sparsely, very finely punctate ($\times 40$); frons posteriorly with high, short transverse ridge, occupying ca 0.3 of interocular distance. Eyes extremely large, broadly elliptic, with ca 30 facet rows across widest point, canthus incomplete. Pronotum with evenly, moderately convex general surface, without discal midline impression; anteromedian surface with slight deplanation; anterior section of lateral border virtually straight; anterolateral angle shortly rounded, ca 85° ; posterior section of lateral border very slightly sinuate; lateral border distinctly marginate; base virtually immarginate; entire pronotal derm with abundant, distinct, seta-bearing punctures; their density on disc 6-8/0.1 sq.mm, diameters ca 0.025 mm. Elytral striae discally well-defined, with indistinct punctures ($\times 40$), mostly separated by 2-4 times their diameter, slightly crenulating interstriae; interstriae almost flat, with subserially arranged, subgranulate, seta-bearing punctures ($\times 40$).

Antennal club grayish. Metasternum posteriorly with distinct midline impression, impunctate, disc generally with sparse, seta-bearing punctures, anteromedian lobe distinctly punctate, slightly raised in front, lateral wings with sparse seta-bearing ocellate punctures and with indistinct microreticulation ($\times 40$). Abdominal sternites at least laterally with transverse rows of ocellate, seta-bearing punctures. Pygidium with abundant, ocellate, seta-bearing punctures; base marginate; anal margin thickened. Protibia with three larger denticles, apico-internal angle slightly produced, terminal spur



Figs. 1-8. *Onthophagus* species. 1, *collinsi*, holotype; 2, *paroculus*, holotype; 3, *drescheri*, Telaga Warna, male; 4, *setoculus*, male paratype, Lawe Mamas; 5, *rotundicollis*, Way Kambas, male; 6, *sideki*, holotype; 7, *phillippsorum*, paratype, male; 8, ditto, holotype. — 1-7, forebody, oblique view; 8, left margin of head, eye, distal part of protibia.

elongate-acuminate, curved. Meso- and metatibiae elongate, mesotibial spurs unmodified, metatibial spur distally feebly sinuate, apex truncate. Femoral undersides with numerous, distinct seta-bearing punctures. Segment 1 of metatarsus much longer than segments 2-5 combined.

Measurements in mm. Maximum width of head 2.2. Median length of pronotum 2.8, maximum width 3.9. Sutural length of elytra 3.7, maximum width 4.9.

Variation. — Length 8.2-8.8 mm. Colour and development of interocular elevation somewhat variant.

***Onthophagus rotundicollis* Lansberge, 1883**

(fig. 5)

Onthophagus rotundicollis Lansberge, 1883: 65.

Material examined. — Sixteen specimens, in nine records, from Indonesia.

BALI: Candidasa, 13 km N Padang Bai, 25/03/1986, Van Berge Henegouwen, 137, sea-level, coconut plantation nr beach: human excrement trap, 1700-0600 hrs, 2, in RMNH. C JAVA: Slawi Tegal, Illing, 6, in RMNH. Valck Lucassen, 1, in RMNH. E JAVA: Kediri: Balor, 1, in RMNH. W JAVA: Jakarta (Batavia), De Gavere, 1 holotype, in RMNH, Jacobson, 1, in RMNH. LESSER SUNDAS: Komodo, 07/04/1986, Van Berge Henegouwen, 145, sea-level, open forest × grassland: human excrement trap, 1, in RMNH. SUMBAWA: Lape-Lopok, 35 km E Sumbawa Besar, 28/03/1986, Van Berge Henegouwen, 139, 0170 m, cultivated area: fish trap, 1, in RMNH. S SUMATRA: Lampung Tengah: Way Kambas GR: Way Kanan River, 04/05/1986, Van Berge Henegouwen, 160, open forest × grassland: human excrement, 2, in RMNH.

Description. — Length 4.0-6.2 mm. Colour blackish-brown, with greenish tinge on head and pronotum; frequently lighter (orange-brown), especially at elytral base, shiny. Pilosity very long, abundant, yellowish. Clypeal apex slightly reflexed, in males indistinctly truncate, in females more or less emarginate, margin slightly reflexed; clypeogenal transition slightly interrupted at border; clypeofrontal ridge curvilinear, reaching clypeogenal suture; males without distinct frontal ridge, females with ridge halfway eyes occupying ca 0.7 of interocular distance; clypeus rugulate-punctate, remainder of head with scattered, distinct, seta-bearing punctures; punctation double, secondary punctures sparse, very fine (×60). Eyes large, broadly elliptic, ca 15 facet rows across widest point; canthus incomplete. Pronotum with evenly, moderately convex general surface, without discal midline impression; anterior section of lateral border virtually straight; anterolateral angle, ca 80°; posterior section of lateral border slightly sinuate; lateral border distinctly marginate; base indistinctly marginate; entire pronotal derm with abundant, distinct, seta-bearing punctures. Elytral striae discally well-defined, with

distinct punctures, mostly separated by 2-4 times their diameter, slightly crenulating interstriae; interstriae slightly convex, each with two rows of simple, seta-bearing punctures.

Antennal club yellowish. Metasternum posteriorly with indistinct midline impression, impunctate, disc generally with abundant, seta-bearing punctures, anteromedian lobe distinctly punctate, distinctly raised, lateral wings with abundant, ocellate, seta-bearing punctures. Abdominal sternites at least laterally with transverse rows of ocellate, seta-bearing punctures. Pygidium with abundant, ocellate, seta-bearing punctures; base marginate; anal margin thickened. Protibia with 3 + 1 larger denticles, apico-internal angle slightly produced, terminal spur elongate-acuminate, curved. Meso- and metatibiae elongate, terminal tibial spurs unmodified. Femoral undersides with numerous, distinct seta-bearing punctures. Segment 1 of metatarsus slightly arcuate, almost as long as segments 2-5 combined.

Apart from the shape of the head, there is some sexual dimorphism in microsculptural details. Clypeus more densely rugulate-punctate.

Notes. — Previously known from Java only. Holotype (male) from Java: Batavia (= Jakarta), length 6.2 mm. Not examined by Boucomont (1914) and misinterpreted by him; not properly keying out in the *variolaris* group. Male from Komodo slightly different from the other series available. Collected from human faeces as well as with fish-baited pitfalls, all in open vegetation formations, apparently nocturnal.

***Onthophagus phillippsorum* spec. nov.**
(figs. 7-8)

Material examined. — Three specimens in one record from Malaysia.

Holotype, in RMNH, from MALAYSIA: Sabah: Kinabalu NP, Silau-Silau (low), 1530 m, 12-17/01/1986, Krikken, multistratal evergreen forest, 2 human excrement traps; 2 paratypes with same data; in RMNH and in Sabah.

Holotype (male). — Length ca 9.0 mm. Colour blackish-brown, opaque due to microreticulation ($\times 40$). Dorsal side largely glabrous; pilosity abundant on ventral side, brownish. Clypeal margin distinctly reflexed, apex very slightly emarginate medially; clypeogenal transition virtually continuous; head without any protrusions; clypeus anteriorly rugulate-punctate; vertex with irregular row of coarse punctures, rest of cephalic surface abundantly, coarsely punctate; no secondary punctation at $\times 40$; eyes extremely large, broadly elliptic, with 27-30 facet rows across widest point, canthus complete. Pronotum with moderately convex general surface, anteriorly declivity feebly

deplanate on either side of midline, without discal midline impression; anterior section of lateral border virtually straight; anterolateral angle sharp, ca 80°; posterior section of lateral border very slightly sinuate; lateral border distinctly marginate; base virtually immarginate; entire pronotal derm with sparse, fine, but distinct punctures, their diameters increasing laterad, posterolateral punctures bearing long, subappressed seta; their density on disc 10-14/0.1 sq.mm, diameters ca 0.02 mm. Elytral striae discally well-defined, with distinct punctures ($\times 40$), mostly separated by 2-4 times their diameter, distinctly crenulating interstriae, punctures distally more strongly impressed; interstriae almost flat, with scattered, very fine punctures ($\times 40$); interstriae 7 and 8 with coarse seta-bearing punctures, setae long, subappressed, especially abundant on interstriae 8, additional seta-bearing punctures on apex of other interstriae.

Antennal club orange-yellow. Metasternum posteriorly with distinct, impunctate midline impression, disc generally with sparse, fine seta-bearing punctures, anteromedian lobe slightly raised in front, with abundant ocellate, seta-bearing punctures; lateral wings with abundant seta-bearing ocellate punctures and with indistinct microreticulation ($\times 40$). Abdominal sternites (except anal one) laterally slightly impressed, at least laterally with transverse rows of ocellate, seta-bearing punctures, anal sternite deeply punctate. Pygidium slightly convex, with indication of midline fold; derm with abundant, ocellate, seta-bearing punctures; base marginate; anal margin thickened. Protibia elongated, with three larger denticles, apico-internal angle with tuft of long, brownish setae; terminal spur elongate-acuminate, curved. Meso- and metatibiae slender, metatibia very slightly sinuate, meso- and metatibial spurs unmodified. Femoral undersides abundantly punctate-setose, setae long, semierect. Segment 1 of metatarsus shorter than segments 2-5 combined.

Measurements in mm. Maximum width of head 2.6. Median length of pronotum 2.8, maximum width 4.3. Sutural length of elytra 4.1, maximum width 4.6.

Variation and sexual dimorphism. — Length 7-9 mm. There are slight differences in microsculpture and shape, partly related to size.

Female with clypeus more strongly rugulate; frons with vague para-ocular elevations; pronotum evenly convex; protibia shorter, with (at most) thin apico-internal tuft.

Note. — Dedicated to the Phillipps family, great contributors to the natural history of Sabah.

***Onthophagus sideki* spec. nov.**

(fig. 6)

Material examined. — Two specimens in two records from Indonesia and Malaysia.

Holotype male, from SUMATRA: Lampung Tengah, Way Kambas GR, near resthouse camp 1, sea-level, 04/05/1986, Van Berge Henegouwen & Pariwono, 163, fish-baited pitfall trap in evergreen forest (after 48 hrs). Paratype female, from MALAYSIA: Sabah: Kinabalu NP, Poring (Rafflesia forest), 570 m, 19-23/01/1986, Krikken, multistratal evergreen forest, 2 human excrement traps. Both in RMNH.

Holotype (male). — Length ca 7.9 mm. Colour blackish-brown, shiny. Dorsal side (apart from lateral surface of elytra) largely glabrous; pilosity abundant on ventral side, brownish. Clypeal apex reflexed, rounded; clypeogenal transition virtually continuous; head with vague para-ocular protrusions; clypeus anteriorly densely, distinctly punctate, remainder of head less densely, somewhat unevenly punctate; eyes extremely large, broadly elliptic, with 25-27 facet rows across widest point, canthus complete. Pronotum with declivous anterior 0.7 flattened, without discal midline impression; anterior section of lateral border very slightly concave; anterolateral angle distinct, ca 80°; posterior section of lateral border slightly sinuate; lateral border distinctly marginate; base virtually immarginate; pronotal disc with sparse, fine, but distinct punctures, anterior declivity with abundant, distinct punctures, pronotal sides with abundant, coarse punctures, some posterolateral punctures bearing seta; density of punctures on disc ca 10-14 sq.mm, diameters ca 0.025 mm. Elytral striae discally well-defined, with distinct punctures ($\times 40$), mostly separated by 2-4 times their diameter, distinctly crenulating interstriae, punctures distally more strongly impressed; interstriae almost flat, with scattered, very fine punctures ($\times 40$); interstriae 5-8 with sparse, subserially arranged, coarse seta-bearing punctures, setae long, erect, additional seta-bearing punctures on apex of other interstriae.

Antennal club orange-yellow. Metasternum posteriorly with distinct, impunctate midline impression, disc with sparse, scattered, distinct seta-bearing punctures, anteromedian lobe slightly raised in front, with abundant ocellate, seta-bearing punctures; lateral wings with abundant ocellate, seta-bearing punctures and with indistinct microreticulation ($\times 40$). Abdominal sternites (except anal one) laterally impressed, at least laterally with transverse rows of ocellate, seta-bearing punctures. Pygidium slightly convex, with indication of midline fold; derm with abundant, ocellate, seta-bearing punctures; base marginate. Protibia with three larger denticles, apico-internal angle with tuft of long, brownish setae; terminal spur elongate-acuminate, curved. Meso- and metatibiae slender, their terminal spurs unmodified. Femoral undersides

sparsely punctate-setose, setae long, semierect. Segment 1 of metatarsus slightly shorter than segments 2-5 combined.

Measurements in mm. Maximum width of head 2.4. Median length of pronotum 2.4, maximum width 4.1. Sutural length of elytra 3.5, maximum width 4.4.

Sexual dimorphism. — Length of female paratype 7.0 mm. There are differences in the shape of the pronotum and in microsculptural details, and it may well be that this female will prove to belong to another undescribed species. The pronotum of this female is only very slightly flattened.

Note. — Dedicated to Abd. Rahim Sidek of Sabah Parks.

Total of large-eyed *Onthophagus* material examined. — Seven species, 21 records, 34 specimens, 15 localities.

Localities mentioned above: BALI: Candidasa, 13 km N Padang Bai, C JAVA: Slawi Tegal, E JAVA: Kediri: Balor, W JAVA: Jakarta (Batavia), Tangkuban Perahu, Telaga Warna nr Puncak. LESSER SUNDAS: Komodo, N SUMATRA: Gng Leuser NP: Lawe Mamas, Mt Mamas, S SUMATRA: Lampung Tengah: Way Kambas GR: Way Kanan River, Way Kambas GR: nr resthouse, SABAH: Kinabalu NP: Poring (Rafflesia forest), Silau Silau (low), SARAWAK: Gng Mulu NP: Camp 5 envs: limestone plot, SUMBAWA: Lape-Lopok, 35 km E Sumbawa Besar.

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