

**CONTRIBUTION TO THE KNOWLEDGE OF THE NEW
GUINEAN SPECIES OF *SCAPHIDIUM*
(COLEOPTERA: SCAPHIDIIDAE)¹**

By **Ivan Löbl**²

Abstract: New Guinean members of *Scaphidium* are treated with 3 species described as new; *S. atripene* Gestro, known from Queensland, is recorded for Papua New Guinea for the first time. All 10 species known from PNG are keyed, including an undescribed species. The aedeagus is illustrated for some of the species.

The present paper is based on the study of specimens of the genus *Scaphidium* Olivier collected recently in Papua New Guinea (PNG) by the staff and collaborators of Bishop Museum, Honolulu.

Among the 6 species treated here, 3 are described below as new. New locality data and notes on morphological variation are given for *Scaphidium papuanum* Löbl and *S. atripenne* Gestro; the latter is recorded for the first time from PNG. The 6th species is represented by a single ♀ and, therefore, is not described. Ten species of the genus are now known to occur in PNG; all of them exhibit conspicuous diagnostic features, especially in color pattern and in secondary sexual characters.

Holotypes are deposited in Bishop Museum (BISHOP), and paratypes are in BISHOP and Muséum d'Histoire naturelle, Geneva (GENEVA). Other museums cited are abbreviated as follows: Zoologisches Museum, Humboldt Universität (BERLIN); Museo Civico di Storia Naturale, Genova (GENOVA).

KEY TO NEW GUINEAN SPECIES OF *Scaphidium*

1. Pronotum unicolorous or almost so, without a rufous or red area 2
 Pronotum bicolorous: rufous or red, with black or dark metallic areas medioapically and basally 7
 2. Elytra bicolorous: red in basal 1/3 (except for a narrow basal area), remaining surface dark green with metallic sheen as in pronotum and head. **cheesmanae** Löbl
 Elytra unicolorous 3
 3. Body not black: at least head, pronotum and elytra with metallic sheen; puncturation of pronotum rather fine to very fine, diameters of punctures smaller than or subequal to intervals between them. Elytra not or very finely rugose 4
 Body unicolorous: black, without metallic sheen; pronotum coarsely and very densely punctured, diameters of punctures much larger than intervals between them; elytra conspicuously rugose **rugatum** Löbl
 4. Visible abdominal segments and legs colored similarly to remaining surfaces and with metallic sheen 5
 Visible abdominal segments and legs rufous to rufo-piceous, head and pronotum greenish, elytra bluish **metallescens** Gestro
-
1. Partial results of grants to Bishop Museum from the National Science Foundation (G-10734, GB-518, GB-5864), and the U.S. Army Medical Research Development Command (DA-MD-49-193-62-G65).
 2. Muséum d'Histoire naturelle, Geneva, Switzerland.

5. Dorsal and ventral surfaces, antennal club, femora and tibiae blue 6
 Dorsal surface green, except for virescent base of pronotum and bluish tergites; ventral surfaces, femora
 and tibiae bluish; antennal club dark bluish to virescent, apical 1/3 of last segment pale. **viride**, n. sp.
6. Ventral surface of pronotum rugose **coerulans**, n. sp.
 Ventral surface of pronotum smooth species indet.
7. Elytra without trace of longitudinal rows of coarser punctures, with a more or less conspicuous metallic
 sheen; larger species 8
 Each elytron bearing 2 longitudinal rows of coarser punctures; head, medioapical and basal portion of
 pronotum, and elytra nigropiceous to black, without metallic sheen; small and slender species:
 maximum breadth less than 2.2 mm. **atripenne** Gestro
8. Lateral margins of pronotum distinctly sinuate in basal 1/2; femur I in ♂ with a conspicuous ventroapical
 protuberance 9
 Lateral margins of pronotum slightly or scarcely sinuate in basal 1/3; femur I in ♂ not modified
 **alternans**, n. sp.
9. Metallic shining areas of pronotum and elytra dark virescent **cyanipenne** Gestro
 Metallic shining areas of pronotum and elytra bluish or greenish **papuanum** Löbl

Scaphidium papuanum Löbl

Scaphidium papuanum Löbl, 1975, Rev. Suisse Zool. **82**: 372-73. [Holotype ♂: PNG, Sattelberg (BERLIN).]

MATERIAL EXAMINED. PNG: New Guinea (NE): 1 ♂, Morobe Distr., Wau, 30.XII.(no year), J. & M. Sedlacek; 1 ♂, same loc., 1200 m, 25.XII.1961, G. Monteith & J. Sedlacek; 1 ♂, same loc., 1000-1300 m, 20.IV.1962, J. Sedlacek; 1 ♂, same loc., 1200 m, 1-15.V.1962, J. Sedlacek; 1 ♂, same loc., 1150 m, 17.X.1962, J. Sedlacek; 1 ♀, Feramin, 1200-1500 m, 11-22.V.1959, W. W. Brandt; 1 ♀, Wum, upper Jimmi Val., 1500 m, 11.VII.1955, J. L. Gressitt; all (BISHOP).

In some specimens the shining metallic surface is greenish instead of blue or bluish as has been described (Löbl 1975). The abdomen may be unicolorously red to dark brown, or (less frequently) darkened at apex. In the specimen from Wum the pygidium, except for the base, which is red, has the same shining color as the elytra.

Scaphidium atripenne Gestro FIG. 1.

Scaphidium atripenne Gestro, 1879, Ann. Mus. Civ. Stor. Nat. Genova **14**: 561. [Syntypes: Australia, Somerset (GENOVA).]

MATERIAL EXAMINED. PNG: New Guinea (SE): Kiunga, Fly R, 5-7.VIII.1967, 1 ♂, W.W. Brandt.

This apparently rare species was hitherto known only by a few specimens collected in northern Queensland. The ♂ from Kiunga differs from Australian specimens by the following: smaller size; paler elytra (reddish black); decidedly finer punctures on propygidium and pygidium; protibia slenderer and much less curved and internal margin of protibia producing a minute tooth situated before apical 1/10, with remaining apical portion constricted but not notched. The aedeagi are almost the same, except for a small

trilobed sclerite distinct in the single Australian ♂ that I have examined; this sclerite was not visible in the Kiunga specimen (FIG. 1).

Scaphidium alternans Löbl, new species FIG. 2-3.

Similar to *S. cyanipenne* and *S. papuanum*, especially in coloration, puncturation and microsculpture of abdominal segments. Shining metallic areas of head, medioapical and basal portion of pronotum, scutellum, elytra are darker, bluish black, with weaker sheen than in the former species. Middle, lateral portions, and ventral surface of pronotum red. Prosternum and mesosternum rufous to rufopiceous. Mesepisterna, mesepimera, metasternum, metepisterna and metepimera dark shining metallic blue. Legs rufous to rufopiceous. Color of antennal segments I-VI similar to that of abdomen, segments VII-X violescent-black, XI in basal 1/2 as in preceding or paler, yellowish on apical 1/2. Head: puncturation somewhat finer than in *S. cyanipenne*; frons narrower, at narrowest point less than 1/3 maximum breadth of eye. Antennae rather short, segmental ratios (length/breadth) (holotype) as follows: I 48/15: II 30/14: III 17/12: IV 33/12: V 28/13: VI 23/15: VII 29/28: VIII 24/32: IX 28/41: X 28/45: XI 45/43. Pronotum with lateral margins feebly rounded, the feebly to scarcely sinuate portion situated in basal 1/3; sub-basal row of coarse punctures briefly interrupted in middle. Scutellum vaulted, visible portion broader than long. Elytra together at widest point wider than long (index 14:13), 1.5-1.55 × as long as pronotum; contour regularly rounded in basal 1/2, nearly straight from middle to apical 1/4, then again distinctly rounded; lateral keel in dorsal view visible in basal 1/2; apical margin dentate in internal 1/2; interval between suture and sutural stria flat in basal 1/4, otherwise rather roof-like; discal puncturation very fine, especially in basal 1/2; surface almost smooth. Median keel of pronotum large, not reduced apically; apical row of coarse setiferous punctures dense but not attaining keel. Apical margin of metasternum somewhat convex between coxae and notched in middle. Tibia I finely carinate on external side, tibiae II and III finely carinate on dorsal and internal sides.

Length 4.1-4.5 mm; breadth 2.4-2.6 mm.

♂. Femora without sexual characters. Protibia 0.85-0.87 mm long, rather slender, slightly curved in basal 1/3, becoming stouter internally from base to middle; almost evenly stout and straight from middle to apical 1/5, then slightly expanded. Mesotibia 1.20-1.25 mm long, slightly and almost regularly curved; slightly stouter from base to middle 1/3; evenly stout between basal 1/3 and apical 1/4 and then stouter apically; apex scarcely more slender than apex of protibia. Metatibia 1.28-1.36 mm long, slightly curved in apical 2/3; almost regularly stout to apical 1/4 except for slender base; apical 1/4 stouter, with apex somewhat more slender than apex of mesotibia. Segments 1-3 of protarsus moderately enlarged. Medioapical depression of metasternum deep, the coarse punctate area limited to apical 1/5 of median portion; puncturation moderately dense, punctures smaller or subequal to intervals between them; pubescence short, longest hairs about 0.25 mm long. Aedeagus (FIG. 2, 3) 1.2 mm long.

♀ not known.

Holotype ♂ (BISHOP 10,835), IRIAN: New Guinea (NW): Bodem, 11 km SE of Oerberfaren, 100 m, 7-17.VII.1959, T.C. Maa; 1♂ paratype, PNG: New Guinea (NE): Eliptamin Val., 1200-1350 m, 19-30.VI.1959, W.W. Brandt (GENEVA).

The color pattern in this species more closely resembles *S. cyanipenne* and *S. papuanum*, than *S. atripenne*. The 2 former species are conspicuously larger with brighter metallic sheen. They are readily distinguished by their sexual characters, especially by those on the protibia and profemur. *S. atripenne* is slenderer than *S. alternans*, has elytra less rounded laterally, with lateral keels in dorsal view visible from base to apex, and on each of them 2 rows of coarser punctures.

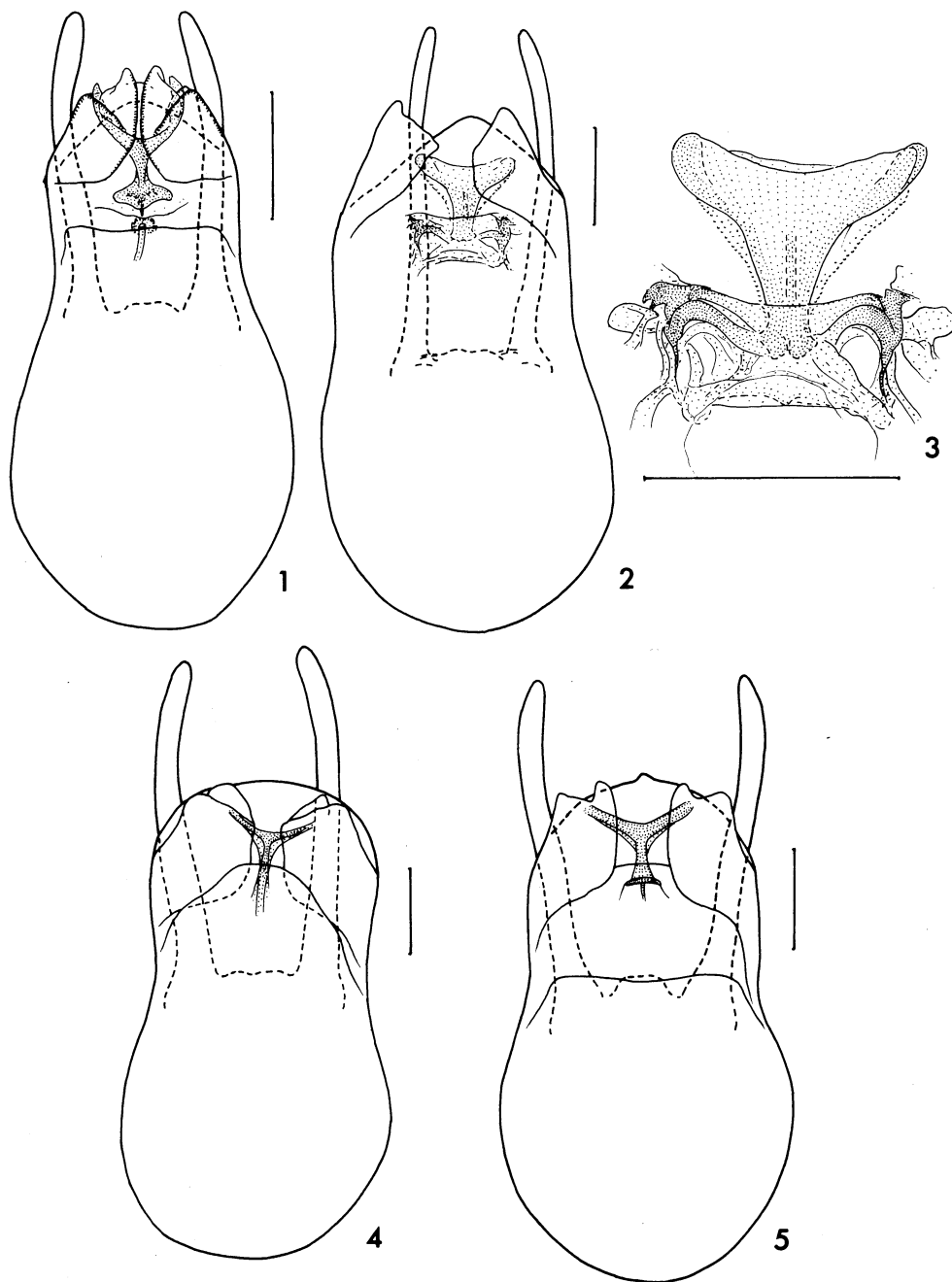


FIG. 1-5. Aedeagi of *Scaphidium*, dorsal view: 1, *S. atripenne* Gestro (Kiunga); 2, *S. alternans*, n. sp. (holotype); 3, *S. alternans*, n. sp. (holotype), internal sac; 4, *S. viride*, n. sp. (paratype); 5, *S. coeruleans*, n. sp. (paratype). Scale=0.2 mm.

Scaphidium viride Löbl, new species

FIG. 4.

General shape similar to *S. cyanipenne* and *S. papuanum*. Dorsal and ventral surfaces, femora and tibiae with metallic sheen. Head, pronotum and elytra dark green, except for a violescent area between basal pronotal margin and sub-basal transverse row of punctures. Ventral body surfaces, visible tergites, femora and tibiae very dark blue. Tarsi and antennal segments I-VI dark brown. Antennal segments VII-XI with bluish or violescent metallic sheen, apical 1/3 of XI yellowish. Head finely and rather densely punctate. Frons rather broad, at narrowest point narrower than 1/2 maximum breadth of eye. Antennae long, segmental ratios (length/breadth) (holotype) as follows: I 50/20; II 33/16; III 35/14; IV 45/15; V 40/15; VI 30/19; VII 40/32; VIII 40/36; IX 40/49; X 37/54; XI 60/51. Pronotum vaulted, 1.4 × as broad as long at base and 2.5-2.6 × as broad as at apex; lateral margins feebly sinuate before the middle, moderately convex in apical 1/2; stria of lateral margin sparsely and rather coarsely punctate; middle of basal margin rounded; stria of apical margin finely and densely punctate; sub-basal transverse row of coarse punctures interrupted at middle and prolonged laterally almost to lateral margins; discal punctation fine and rather dense, generally somewhat coarser than that of head. Visible portion of scutellum vaulted, slightly longer than broad. Elytra together at widest point as wide as or scarcely wider than long, about 1.6 × as long as pronotum, contour regularly rounded; lateral keel in dorsal view more or less distinct in basal 1/4 to 1/3, then not visible; apical margin rounded, irregularly dentate; interval between suture and sutural stria flat, with a sparse row of very fine punctures; basal transverse row of coarse punctures denser than pronotal sub-basal row and consisting of larger punctures; discal punctation in apical 1/5 about as fine as pronotal punctures, otherwise very fine and similar as in *S. papuanum*; discal surface almost smooth (magnification 50 ×). Pygidium and propygidium with microsculpture consisting of punctures; normal punctation dense, somewhat finer than elytral punctures. Prosternum with a dense row of irregular, coarse, setiferous punctures; median keel low and relatively broad, not reduced apically; surface near keel rugose, otherwise smooth. Median portion of metasternum very finely punctate (except for its apical part in ♂). Lateral portions of metasternum and sternites finely punctate. Median stria of metasternum rather deep, apical margin between coxae straight, not notched in the middle. Sternites regularly covered by microsculpture consisting of punctures. Tibia I finely carinate on external side. Tibiae II and III finely carinate on internal sides.

Length 5.2-5.4 mm; breadth 3 mm.

♂. Femora without sexual characters. Protibia 1.6-1.65 mm long, rather slender, curved in basal 1/2, becoming internally stouter from basal 1/5 to apical 1/3 or little beyond apical 1/3; external margin in dorsal view straight from middle to externally expanded apex; ventral margin abruptly but feebly enlarged in apical 1/7, where it is 0.21 mm broad. Meso- and metatibiae 2.05-2.2 and 1.9-2 mm long, respectively; slender, becoming slightly stouter from base to middle; evenly stout in apical 1/2, slightly curved. Segments 1 to 3 of protarsus enlarged. Medioapical metasternal depression moderately deep, with the coarse and densely punctate area limited to apical 1/4, punctures decidedly larger than their intervals; pubescence long, longest hairs attaining 0.60 mm. Aedeagus (FIG. 4) 1.45 mm long.

♀. Protibia slender, 1.3 mm long, somewhat curved in basal 1/2, becoming stouter from base to middle; almost straight and evenly stout in apical 1/2. Mesotibia 1.8 mm long, slightly curved in apical 1/2, somewhat stouter from base to middle 1/3, uniform in middle 1/3, then stouter apically; apex as broad as protibia in apical 1/2. Metatibia as long as mesotibia, slightly curved in apical 1/2, becoming scarcely stouter apically; apex slightly more slender than mesotibiae. Medioapical depression of metasternum shallow.

Holotype ♂ (BISHOP 10,836), PNG: New Guinea (NE): Morobe Distr., Mt Missim, 1600-2000 m, 21-24.IX.1964. M. Sedlacek; paratypes: 1 ♀, Wau, 1200 m, 1-4.X.1962, J. Sedlacek (BISHOP); 1 ♂, same locality, 7.VI.1962, J. Sedlacek (GENEVA).

This species is very distinct in external characters and it cannot be confused with any other.

Scaphidium coerulans Löbl, new species

FIG. 5.

General body form narrower than in *S. metallescens*. Dorsal and ventral surfaces, antennae and legs with a dark blue metallic sheen; antennal segments I-V and tarsi sometimes brownish. Head irregularly and finely punctured, except for the dense and rather coarse punctured medio-occipital portion (visible only when head not retracted). Frons moderately broad, at narrowest point distinctly narrower than 1/2 of maximum breadth of eye. Antennae moderately long, the segmental ratios (length/breadth) as follows: I 44/16: II 33/15: III 21/13: IV 30/13: V 26/14: VI 23/17: VII 35/34: VIII 26/34: IX 31/47: X 27/49: XI 47/48. Pronotum moderately vaulted, 1.35-1.5 × as broad as long at base and 2.2-2.3 × as broad as at apex; middle portion of lateral margins distinctly sinuate; stria of lateral margin coarsely and sparsely punctate; stria of apical margin finely and densely punctate; margin of medio-basal lobe straight at middle; sub-basal transverse row of coarse punctures dense, sometimes sparser at middle but not interrupted and prolonged laterally almost to lateral margins; discal puncturation relatively coarse and dense; ventral pronotal surface rugose. Visible portion of scutellum vaulted, broader than long. Elytra together at widest point as wide as long or slightly wider, 1.5-1.7 × as long as pronotum, contour almost regularly rounded; lateral keel in dorsal view usually distinct in basal 1/4 to 1/3; apical margin rounded, very finely dentate; interval between suture and sutural stria irregularly punctate, usually flat in basal 1/3, then vaulted, rarely flat behind basal 1/3; basal transverse row of coarse punctures dense, consisting of larger punctures than those of sub-basal pronotal row; discal puncturation fine, much finer than that of pronotum but decidedly coarser than in other species with metallic sheen; disc very finely rugose (magnification 25 ×). Propygidium and pygidium finely punctate, without microsculpture. Prosternum densely and deeply ridged longitudinally, median keel scarcely developed (except for its portion between coxae). Metasternum and sternites very finely punctate, except for medioapical 1/3 in ♂♂. Metasternal median stria deep, apical margin between coxae straight, not notched in middle. Lateral portions of 1st visible sternite with conspicuous microsculpture, microsculpture becoming medially obsolescent. Tibia I finely carinate on external side, tibiae II and III very finely carinate on internal sides.

Length 4.3-4.8 mm; breadth 2.3-2.7 mm.

♂. Femora without sexual characters. Protibia 0.90-1.15 mm long, rather slender, moderately curved in basal 1/2, becoming stouter apically; internal and external margins almost straight in apical 1/2; ventral margin expanded before apex, this dilated area small and visible only in lateral view. Mesotibia 1.25-1.50 mm long, slightly curved, becoming stouter towards apex, apex slightly more slender than protibia. Metatibia 1.30-1.60 mm long, straight in basal 2/5, then somewhat curved, stouter apically; apex as broad as mesotibia. Segments 1-3 of protarsus slightly enlarged. Medioapical metasternal depression rather deep, coarse punctate area limited to apical 1/3 of metasternum; puncturation dense, punctures in middle about as their intervals, lateral portions of depression with much denser puncturation; pubescence rather long. Aedeagus (FIG. 5) 1.2-1.3 mm long.

♀. Tibiae similar to ♂, slightly shorter; protibia not expanded ventrally before apex. Medioapical metasternal depression shallow.

Holotype ♂ (BISHOP 10,837), IRIAN: New Guinea (NW): Vogelkop, Lake Anggi Giji, 2000-2100 m, 4-5.III.1963, R. Straatman; paratypes: 11 ♂♂, 16 ♀♀, same data as holotype (BISHOP, GENEVA); 1 ♀, Vogelkop, Sururai SW of Lake Anggi Giji, 2000-2100 m, 4-5.III.1963, R. Straatman (BISHOP).

This is the first unicolorous blue species described. It differs also from all of the hitherto known species with metallic sheen by the rugose ventral sides of pronotum and the ridged prosternum.

Scaphidium sp.

MATERIAL EXAMINED. PNG: New Guinea (NE): 1 ♀, Morobe Distr., Lake Trist, 1600 m, 21-26.XI.1966, G. A. Samuelson (BISHOP).

This single specimen is similar to *S. coerulans* in general appearance, but belongs, no doubt, to a distinct not yet described species. It is larger than *S. coerulans*, has longer appendices and differs conspicuously from the latter in having a pronotum with smooth ventral sides, a nonridged prosternum and narrower visible portion of scutellum which is as long as broad. Its color is the same as in *S. coerulans* except for the brighter blue head and pronotum. Furthermore, the pronotum has somewhat finer puncturation and its lateral margins are distinctly sinuate in the basal 1/2.

REFERENCES

- Löbl, I. 1975. Beitrag zur Kenntnis der Scaphidiidae (Coleoptera) von Neuguinea. *Rev. Suisse Zool.* **82**: 369-420.
1976. Eine neue bemerkenswerte Art der Gattung *Scaphidium* Olivier (Coleoptera, Scaphidiidae) von Neuguinea. *Zool. Meded., Leiden* **49**: 317-20.