STRUMIGENYS LOPOTYLE species nov.

Insecta: Hymenoptera: Formicidae

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DIAGNOSIS: A large Strumigenys with broad head, depressed occipital lobes, and broad mandibles, each with a single small preapical tooth. Trunk, petiole and postpetiole unique in form. Propodeum narrow and with sloping dorsum, convex from side to side and with reduced teeth. Petiolar node massive, its summit with a deeply excised margin formed so as to fit against the propodeal dorsum when the petiole is raised. Both petiolar and postpetiolar nodes almost entirely covered by very aberrant, dense, silky spongiform appendages that are finely longitudinally striolate. Sculpture coarser and more irregular than usual for the genus; dorsum of head rugulose-punctate, promesonotum with coarse glandular pitting, dorsum of propodeum and the tiny postpetiolar disc arched-transversely striate. Pilosity fine, long hairs tapered.

FURTHER DESCRIPTION OF HOLOTYPE WORKER: from nest No.702: total length (TL) 3.7, head length (HL) 0.86, head width (HW) 0.77 (cephalic index 90), mandible length (ML) 0.38 (mandibulo-cephalic index 44), length of truncus (WL) 0.91, scape length 0.48, greatest diameter of eye 0.09 mm.

Vertex gently convex, occipital lobes depressed below this level and nearly flat, with submarginate sides bearing piligerous tubercles. Clypeus impressed anteromedially; antennal scrobe fairly well developed and with a moderate margin above; eyes strongly convex, with oblique main axis of view. Mandibles broad, flat, each with a narrow, cultrate inner margin ending near the short preapical tooth; dorsal tooth of apical fork nearly twice as long as ventral; apical fork with 2 stout, subequal intercalary denticles.

Promesonotum forming a convexity, with promesonotal suture obsolete; as seen from above long-elliptical, with evenly convex sides (no humeral angles) and broadest near midlength. Propodeum notably narrower than promesonotum, overall about as wide behind as in front, but the dorsal surface slightly broader behind; dorsal surface rounding gently into declivity, which is flat (feebly impressed in middle) and only weakly marginate on the sides. Propodeal teeth small, acute, turned obliquely laterad at about a 45° angle, so as not to impede the petiolar node when it is brought forward over the propodeum. The promesonotum is honeycombed with many small, deep pits over its whole surface, and a few of these occur along the upper sides of the propodeum. The pits are partly filled with whitish granular material, probably a dried secretion. Paired long-oval secretory fossae also lie on the propleura near the midline, and another large fossa occurs on each side at the anteroventral limit of the mesepisternum (Fig.2).

The structure of the very aberrant truncus, petiole, and postpetiole is shown in Figs. 2 and 3. The concave summit of the petiolar node as seen from above varies from curved, as in the paratype shown in Fig. 3, to broadly V-shaped, as in the holotype, and has an acute margin. This edge and the concave anterior face of the node are finely transversely rugulose, shading to finely and densely punctate on the slender peduncle. Dorsal and lateral surfaces of node almost totally covered by an extraordinary, thick blanket of silvery-gray spongiform appendage, which appears very finely "combed" or striolate in a longitudinal direction.

Postpetiole also covered with similar material, except for the small anteromedian portion, which is coarsely arched-striate (Fig. 3). Both nodes have voluminous ventral skirts of more normal areolate spongiform appendage, and a small anteroventral pad with fine hairs occurs at base of first gastric sternum.

Gaster broad, short and deep, but only a little wider than postpetiole with its vestiture. Spongiform costulae bridge the gap between postpetiole and base of gaster, and meet a margin of very short basigastric costulae.

Legs long and relatively slender (femora and tibiae moderately incrassate), with scattered fine sense hairs up to 0.2 mm long, especially on hind legs.

Sculpture, in addition to that already described: Head finely rugulose-punctate, the punctures not as coarse as the thoracic pits, the rugulae tending to run longitudinally. Underside of head densely punctulate; clypeus, antennae, legs and mandibles more finely and superficially so, but the mandibles more smooth and shining near their bases. On promesomotum, shining slender rugules separate the pits, and tend to run longitudinally near the midline. Dorsum of propodeum transversely rugulose or coarsely striate in front, finely punctate behind, and smooth on the central declivity. Sides of propodeum obliquely longitudinally costulate-punctate, shining. Gaster smooth and shining.

Ground pilosity consisting of abundant appressed to decumbent fine, curved hairs distributed over head above and below, mandibles, appendages and promesonotum. Hairs fringing anterior scape borders short, fine, curved toward scape apex.

Longer, fine, tapered erect hairs distributed mainly along borders of head (Fig. 1), but a few are scattered over the vertex and occipital lobes (shorter ones sparse on underside of head). Each humerus with

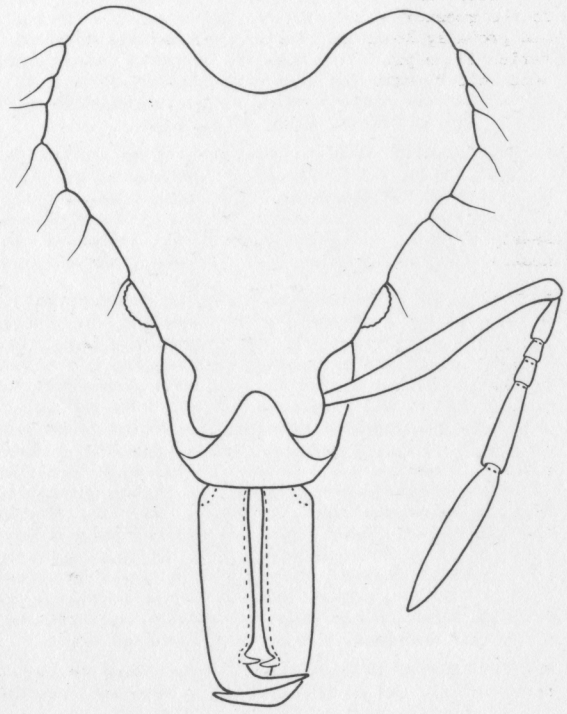

Fig. 1. S. lopotyle paratype worker, head in full-face view. Pilosity omitted except for main hairs on sides of occipital lobes. Drawing by Nancy Buffler.

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(OVER)

a long fine hair, and several other pairs of fine erect hairs on thorax, mainly on mesonotum. Long fine hairs on nodes and gastric dorsum as in Figs. 2 and 3, gastric hairs mostly about 0.15-0.16 mm long, those on underside shorter. Sting long and strong. Color dark reddish-brown, gaster darker brown; clypeus, mandibles and appendages lighter, more yellowish- or reddish-brown.

PARATYPE WORKERS: 18 specimens from the type nest and 2 additional collections (see below): TL 3.2-3.8, HL 0.74-0.86, HW 0.67-0.77 (CI 90-92), ML 0.33-0.38 (MI 43 in largest worker to 45 in smallest), WL 0.78-0.91, scape L 0.43-0.49 mm. (The smallest worker is a nanitic from collection No. 716, a probable incipient colony found with only 2 small workers in addition to the queen.) A few specimens, especially the nanitics from No. 716, are lighter in color and probably somewhat teneral. As already mentioned, the apical border of the petiolar node varies in shape. In a specimen divested of its spongiform appendage, the petiolar node is much more slender and is produced upward into a pair of stout, diverging cornuae; the cultrate crotch between these cornuae is the aforementioned "apical border." Variation in pilosity is mainly due to loss of hairs by handling.

QUEEN, DEALATE: from collection No. 716: TL 4.0, HL 0.88, HW 0.84 (CI 95), ML 0.37 (MI 42), WL 1.03, scape L 0.49, greatest diameter of eye 0.14 mm. With the caste differences from the worker usual for the genus. Scutellum high and projecting, forming the highest part of the truncus, but rounded behind. Scutum with a median costule or carina. Lower mesopleura weakly shining, irregularly punctate. Propodeal teeth reduced to mere tubercles. Petiolar node shorter and broader than in worker, and color slightly darker.

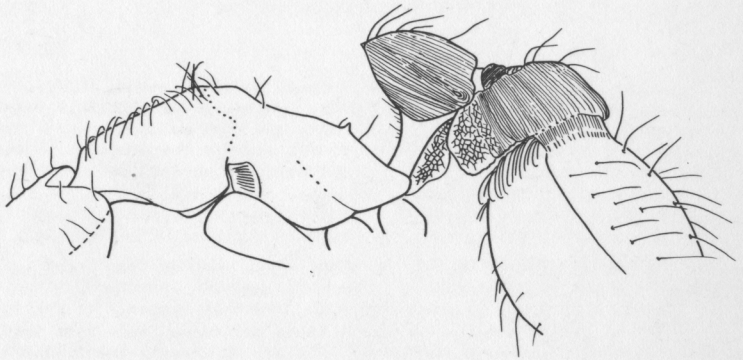

Fig. 2. S. lopotyle paratype worker, body in side view, sculpture omitted. Drawing by Nancy Buffler.

TYPE LOCALITY: The type nest (Wilson notebook No. 702) and two additional collections (Nos. 690 and 716) were all taken in rain forest at Didiman Creek, near Lae, New Guinea, on 27 March 1955, by E. O. Wilson. Wilson's notes on the collections are as follows: No. 690, Strays from leaf litter at edge of rain forest. No. 702, Nest in soil of rain forest border. There was a single entrance hole, 1/8 inch in diameter and surrounded by a circle of insect remains apparently too large to have served as prey. One worker was observed carrying a dead, decayed spider leg toward the nest, apparently for the purpose of adding it to the ring. The nest was watched for several hours during the day, and the following prey were observed being carried in by foraging workers: 9 entomobryid Collembola, mostly small; 1 small isopod; 1 pupa of Cardiocondyla paradoxa from a nearby nest opened by me; 1 small fly, which was seen to run away when released from the ant. Workers--apparently from this same nest--were seen foraging up to 5 feet from the nest entrance. (In another personal communication, Wilson described the insect remains around the entrance of nest No. 702 as crater-like, or even as a short "turret.") No. 716, One queen and 2 workers in a cavity in the soil under a small rock on the rain forest floor. Nothing like the pile of insect remains around the nest entrance of No. 702 has ever before been described for a dacetine ant. It could represent merely the scrap-heap of unsuitable prey remains brought home by "mistaken" workers, but it is also possible that this feature has some adaptive value to the ants. It might for example, tend to attract entomobryid collembolans prey to the nest entrance. This odd nest adornment, and also the odd inferred habit of carrying the petiolar node pressed against the propodeal dorsum, make Strumigenys lopotyle a species of special interest, and one worth special study.

HOLOTYPE DEPOSITED in Museum of Comparative Zoology (MCZ) at Harvard University, Cambridge, Massachusetts, U.S.A. Paratypes in MCZ, and in the Australian National Insect Collection at Canberra.

The specific name is from the Greek for lopo = cloak or mantle + tyle = a knot or knob, in reference to the petiole and its vestiture.

The relationships of S. lopotyle are problematical, though some resemblances to S doriae exist, and membership in the Indo-Australian faunal branch of Strumigenys is unquestioned. S. lopotyle constitutes a species-group of its own.

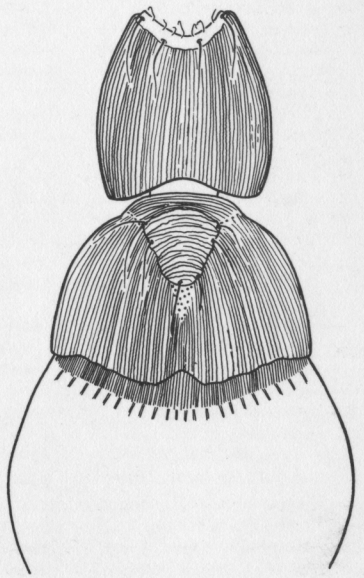

Fig. 3. S. lopotyle paratype worker, dorsal view of petiolar node, postpetiole and base of gaster; gastric pilosity omitted. Drawing by Nancy Buffler.