Caribbean Journal of Science, Vol. 26, No. 3-4, 101-103, 1990

The Genus *Proceratium* Roger in Dominican Amber (Hymenoptera: Formicidae)

J. E. LATTKE[1]

[1]*Instituto de Zoología Agrícola, Facultad de Agronomía, Universidad Central de Venezuela, Maracay, Venezuela*

ABSTRACT. – **The first fossil *Proceratium* Roger from amber of the Dominican Republic is described. The specimen is compared with extant species of *Proceratium* and other ectatommine genera.**

RESÚMEN. – **Se describe el primer fósil conocido del género *Proceratium* Roger de ámbar de la República Dominicana. Se compara el ejemplar con las especies conocidas de *Proceratium* y otros géneros de la tribu Ectatommini.**

INTRODUCTION

Amber from the Dominican Republic has proven a rich source of insect remains. The antiquity of amber from these deposits has been estimated as 24-37 million years BP (Oligocene-Miocene), Langenheim, 1990. This is the first fossil record reported for the genus *Proceratium* Roger. The group has a worldwide distribution, with 8 known species in the New World, and is included in the ponerine tribe Ectatommini by Brown, 1958. Dominican amber has recently yielded other ectatommine genera such as *Gnamptogenys* Roger and *Paraponera* Smith (Wilson, 1985; Baroni Urbani, 1980).

METHODS

Terms for surface sculpturing follow Harris (1978). Most measurements and indices are as in Ward (1984). This particular piece of amber was purchased already cut and polished for use as a pendant. The specimen was submerged in glycerine for observation.

Proceratium denticulatum n. sp.
Figs. 1, 2

Holotype.—One de-alate female in polished, tear-drop shaped Dominican amber in the collection of the Institute de Zoología Agrícola, Universidad Central de Venezuela, Marcay, Venezuela. TL 5.5 HL 124 HW 1.00 SL 1.00 ED 0.26 WL 1.72 DPW 0.44 PH 0.58 PNL 0.56 LH femur 1.16 LHT 0.96 LHS 0.88 mm CI 0.80 SI 1.00

Head in full face view with broadly convex posterior margin and posterolaterally convex. Lateral margin above the eye straight to very broadly convex; oculomandibular margins straight, slightly divergent anterad. Eyes prominent and oval, with about 80 facets. Median clypeal lobe with concave sides, bluntly bidentate with a broad and slightly convex median emargination. Frontal area broad, with a depression above level of neck of scapes and a short low median costa. Frontal carinae are thin suberect lamellae, diverging posterad up to level of lower third of eyes. Mandibles with 4-5 teeth, dorsal surface with a triangular laterobasal depression and a sharply defined laterobasal ventral edge; ventral side shiny and smooth; basal margin weakly convex. Scape punctate, expanding apicad. Funicular segments mostly subcylindrical, gently incrassate apicad, forming a vague club, apical segment larger and thicker than the rest, subequal in length to segments (IX+X+XI). Funicular basal segments with parallel longitudinal, elongate depressions, becoming more oval apicad; last segment punctate apicad. Cephalic sculpture densely areolate, low piliferous tubercles present on genal area.

Pronotum anteriorly and anterolaterally densely foveolate to areolate; roughly areolate laterally with some piliferous tubercles. Mesoscutum shallowly areolate-rugulose; scutellum roughly areolate, echinate caudad. Metanotum with short acute median process. Wing stumps pres-

ent. Pleura roughly areolate; anepisternum and katepisternum separated by a broad shallow sulcus. Region between propodeum and metapleura forms a very broad shallow sulcus crossed by transverse rugae. Metapleural lobe forms a shining roughly rectangular shield, sharply defined by carinae; sculpture with elongate concentric oval rugae. Metapleural gland opening pyriform. Small denticle present on posterior side of lobe.

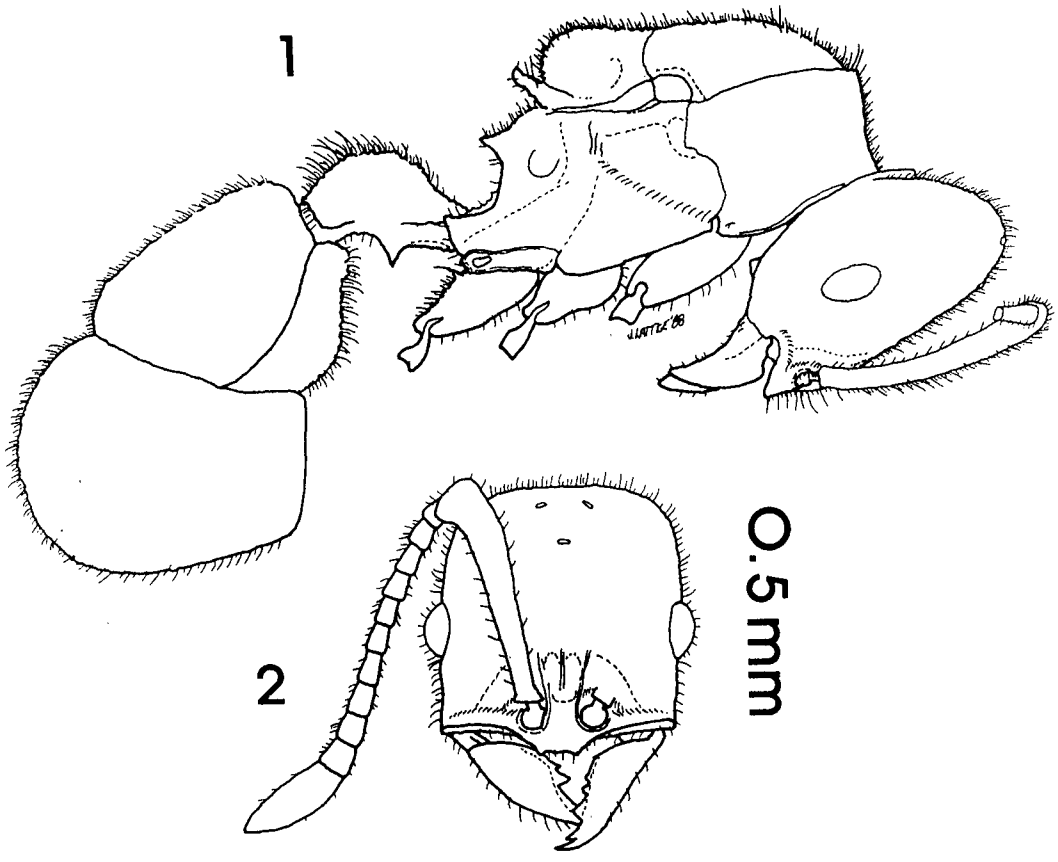
Propodeum posterolaterally bidentate, the concavity between the upper and lower teeth with a thin translucent lamella with 3 denticles. Propodeal spiracles presumably on round tubercle infero-anterad of upper tooth; opening not discernible. Propodeum longitudinally concave, transversely concave between upper teeth.

Petiolar node distinctly pedunculate, in dorsal view pyriform; anterolaterally pointed. Nodal sculpture roughly areolate, echinate caudad with dorsal and lateral denticles; posterior neck scrobiculate and shining. Subpetiolar process forming a single sharp tooth. Gastric sculpture mostly areolate with small piliferous tubercles; postpetiolar ventrum roughly areolate to echinate with a well developed anterior shelf. Gastric constriction strong, segment II (true abdominal segment IV) sharply undercurved. Gastric apex not visible, apparently missing.

Procoxae with obliquely transverse rugae. Meso- and metacoxae roughly sculptured; metacoxae with a sharp basal tooth and a series of sharp smaller teeth. Tibiae with low longitudinal rugae and elongate depressions. Tibial spurs pectinate; forespurs with a stout seta on the inner margin, between spur base and comb. Ventral femoral surfaces each with a longitudinal sulcus approximately the same length as each respective tibia. Tarsal claws simple, empodia well developed. Body and extremities with dense standing to semi-appressed pubescence and numerous suberect to decumbent hairs. Long hairs particularly present on petiolar node and postpetiolar ventrum. Eyes with short standing pilosity. General color apparently dark brown; mandibular chewing border black. The areolae of the body integument apparently have central tubercles or papillulae, at least on the head and trunk, but such detail is not easily discernible.

Discussion

This specimen shares with extant species characteristics typical of *Proceratium*, such as the gastric shape and the fronto-clypeal configuration, yet it has a number of traits that set it apart within the genus. It is considered a member of the species close to *stictum* Brown since it shares with them the rough sculpture, pedunculate petiolar node, broad anteromedian clypeal prominence, and roughly striate mandibles with 4–5 teeth. These characters are considered primitive for the genus by Brown (1958). The rough, echinate sculpture of the node and postpetiolar ventrum in *denticulatum* can be found in *P. goliath* Kempf & Brown (1968). The latter species is a New World member of the *stictum*-group and on this account may possibly be the closest known relative to *denticulatum*. The subpetiolar process of *denticulatum* is much more developed than in the *stictum*-group and *P. diplopyx* Brown. Ocular pilosity was previously reported in Ectatommini for *Aulacopone* Arnoldi, known only from females, and *Heteroponera* cf. *leae* Taylor (1980). P. Ward kindly examined specimens of *Proceratium* females at his disposition and found ocular pilosity in *californicum* Cook, cf. *pergandei* (Emery), *silaceum* Roger, and *micrommatum* (Roger). Although empodia occur in most or all ectatommine males they are much rarer in workers, known only for *Paraponera* Smith (Freeland et al., 1982) and some species of *Proceratium* (Ward, 1988). A frontal costa, feebly developed in *denticulatum* can be found in *Aulacopone*, *Heteroponera* Mayr, and some *Proceratium* species, such as *goliath*, *silaceum*, and *croceum* (Roger) plus a few *Gnamptogenys* Roger. Propodeal infradental lamellae are found in some other *Proceratium* (*pergandei*, and *watasei* (Wheeler); P. Ward, pers. comm.), but apparently unreported and unique for the genus is the shield-like metapleural lobe, and the stout seta on each protibial spur. The propodeum in *denticulatum* is evidently separated from the metapleura by broad suture;



FIGS. 1 AND 2. *Proceratium denticulatum*, n. sp. Fig. 1. Lateral view of body. Fig. 2. Frontal view of head. (Both illustrations drawn to the same scale.)

thus the lower tooth would be a lower propodeal tooth and not a metapleural tooth as has been considered for an analogous tooth or angle in some extant *Proceratium*.

Acknowledgments.—Mrs. M. L. Gadou generously donated the specimen to the Instituto de Zoología Agrícola collection. My deepest gratitude to Phil Ward and Bill Brown for reading the manuscript and offering very valuable comments and suggestions.

LITERATURE CITED

Baroni Urbani, C. 1980. The ant genus *Gnamptogenys* in Dominican amber. Stuttgarter Beitraege zur Naturkunde, Ser. B. 67:1-10.

Brown, Jr., W. L. 1958. Contributions toward a reclassification of the Formicidae. II. Tribe Ectatommini. Bulletin of the Museum of Comparative Zoology 118:177-362.

Freeland, J. et al. 1982. On the occurrence of arolia on ant feet. Journal of the Australian Entomological Society 21:257-262.

Harris, R. 1978. A glossary of surface sculpturing. Occasional Papers in Entomology. California Department of Food and Agriculture 28:1-31.

Kempf, W. W., and W. L. Brown, Jr. 1968. Report on some neotropical ant studies. Papeis Avul. Dep. Zool. São Paulo 22:89-102.

Langenheim, J. H. 1990. Plant resins. Am. Sci. 78: 16-24.

Taylor, R. W. 1980. Notes on the Russian endemic ant genus *Aulacopone* Arnoldi. Psyche 86:353-361.

Ward, P. S. 1984. A revision of the ant genus *Rhytidoponera* in New Caledonia. Austr. J. Zool. 32: 131-175.

———. 1988. Mesic elements in the Western Nearctic ant fauna: taxonomic and biological notes on *Amblyopone*, *Proceratium*, and *Smithistruma* J. Kansas Entomol. Soc. 61:102-124.

Wilson, E. O. 1985. Ants of the Dominican Amber 4. A giant ponerine in the genus *Paraponera*. Israel J. Entomol. 19:197-200.

Accepted: 17 May 1990.