

the pro- and mesonotum forming together an evenly rounded convexity; mesopleuræ somewhat compressed; epinotum short, nearly horizontal, lower than the mesonotum, passing through a curve into the sloping, flat declivity. Petiolar scale narrowed above, its sides curved, its superior border rather blunt, truncated, entire. Gaster elliptical. Legs rather short.

Whole body smooth and shining, except the mandibles, which are opaque and very finely and densely striated. Integument of the body and appendages apparently microscopically but not densely punctate.

Hairs and pubescence white, the former sparse, conspicuous only on the clypeus, thorax, and gaster, the appendages being without erect hairs. Pubescence short, rather dense on the head and gaster, longer on the latter, slightly oblique on the scapes and legs.

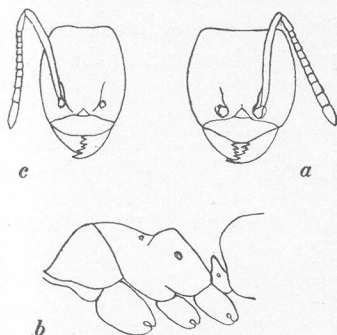


Fig. 57. *Pseudolasius gowdeyi*, new species. *a*, head of worker major; *b*, thorax and petiole of same in profile; *c* head of worker minor.

Pale yellow, the head and thorax a little darker, mandibular teeth dark brown.

WORKER MINOR.—

Length 1.8 to 2 mm.

Differing from the major worker in its smaller head, which is elongate and with very feeble occipital excision. Antennal scapes reaching nearly one-fourth their length beyond the posterior corners of the head; joints 2 to 6 of the funiculus as broad as long.

Described from two major and sixteen minor workers taken by Mr. C. C. Gowdey at Entebbe, Uganda. They were found attending subterranean coccids (*Pseudococcus citri* Risso) about the roots of coffee.

This is readily distinguished from all the preceding species by its smaller size, paler color, the complete absence of eyes even in the major workers, the shape of the head and thorax, and the pilosity.

### CECOPHYLLA F. Smith

WORKER medium-sized, slender, slightly polymorphic. Head rather large, broader behind than in front, with rounded sides and posterior corners and semi-circularly excised occipital border, very convex above. Eyes large, convex, broadly elliptical, situated in front of the middle of the head. Ocelli absent. Palpi very short, maxillary pair 5-jointed, labial pair 4-jointed. Mandibles long and large, triangular, with nearly straight lateral borders, a very long curved apical tooth and numerous short denticles along the straight apical border. Clypeus very large and convex, but not distinctly carinate, its anterior border entire or very feebly sinuate in the middle, depressed and projecting over the bases of the mandibles. Frontal area rather large, subtriangular; frontal carinae moderately long, subparallel. Antennae very long, 12-jointed, the scapes inserted some distance from the posterior corners of the clypeus, rather abruptly incrassated at their tips; the first funicular joint very long and slender, longer than the second and third together, joints 2 to 5 much shorter, subequal,

slender, the remaining joints, except the last, shorter and distinctly thicker. Thorax long and narrow; pronotum longer than broad, evenly convex above, narrowed and colliform anteriorly; mesonotum anteriorly long and constricted, subcylindrical, suddenly broadened behind where it joins the small, short, unarmed epinotum, which is rounded and convex above and without distinct base and declivity. Petiole long and slender, much longer than broad, subcylindrical, with a very low rounded node near its posterior end, its ventral surface near the middle more or less convex, its posterior border on each side with a small rounded, projecting lamella, appearing like an acute tooth when the segment is viewed from above. Gaster short, broadly elliptical, its first segment suddenly contracted to the petiole, the tip rather pointed. Legs very long and slender; claws, pulvilli, and last tarsal joint enlarged. Gizzard with long slender sepals, which are not reflected at their anterior ends.

FEMALE much larger than the worker. Head broad, subtriangular; eyes not much larger than in the worker; ocelli well developed. Thorax and gaster very broad and massive, flattened above; thorax nearly as broad as long, pronotum small and vertical, overhung by the large depressed mesonotum; epinotum nearly vertical. Petiole short and stout, broader than long, its node low and rounded, more or less impressed in the middle, obliquely truncated or concave behind. Gaster short, nearly as broad as long. Wings very long and ample, decidedly longer than the body, heavily veined, with a narrow closed radial, a large single cubital, and no discoidal cell.

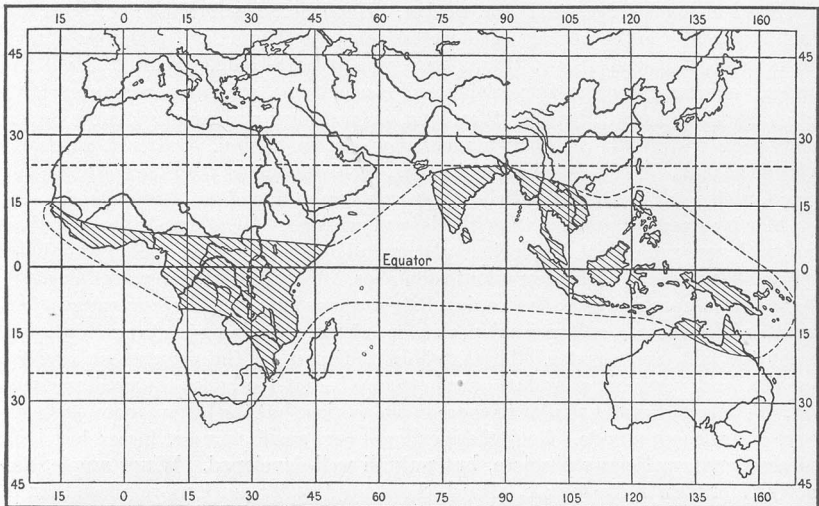
MALE somewhat smaller than the largest workers. Head small, broader than long, with very prominent, hemispherical eyes and moderately large ocelli. Mandibles very small, spatulate, with a few minute denticles. Antennæ slender and rather short, 13-jointed; scapes elongate, their apical halves somewhat abruptly incrassated; first funicular joint clavate, enlarged at tip, slender at base; remaining joints much shorter, except the last, and slender. Thorax short and massive, the mesonotum broader than the head, very convex and gibbous in front where it overhangs the small mesonotum. Petiole and gaster similar to those in the worker, but the former more flattened above and without a node. Genital appendages very small, narrow, linear; legs long and slender, tarsal claws obsolete, but pulvilli well-developed. Wings ample, distinctly paler than in the female. Head, thorax and gaster much more pilose than in the worker and female.

PUPÆ not enclosed in cocoons.

This interesting genus is confined to the Old World tropics and ranges over the Indomalayan, Papuan, and Ethiopian Regions, but does not occur in Madagascar (Map 37). It comprises the famous and vicious "tree-ants," or "tailor ants," which make peculiar globular or elliptical nests of leaves on living trees. The leaves are spun together with films of white silk, which is supplied by the larvæ. Numerous observers, notably Holland and Green, Wroughton, Rothney, Dodd, Saville Kent, Doflein, Bugnion, the Sarasin Brothers, Jacobson, Kohl, and myself, have described the extraordinary manner in which the workers use the young larvæ as animated shuttles.

According to the majority of myrmecologists, the genus *Ecophylla* comprises only a single species, *smaragdina* (Fabricius), with several geographical races and varieties. A study of the materials that have been

accumulating in my collection for the past twenty years, together with the fine series of specimens taken by Lang and Chapin in the Congo, has convinced me that there are really two distinct species: *Æ. smaragdina* (Fabricius) of the Indomalayan and Papuan Regions, with the varieties *selebensis* Emery, *gracilior* Forel, and *gracillima* Emery and the subspecies *subnitida* Emery and *virescens* (Fabricius); and *Æ. longinoda* (Latreille) of the Ethiopian Region, with the varieties *textor* Santschi, *rubriceps* Forel, *annectans*, new variety, and *fusca* Emery. Ern. André described a form *brevinodis*, from Sierra Leone, as a distinct species, and Stitz has recently cited it from Spanish Guinea, remarking that *longinoda*



Map 37. Distribution of the genus *Ecophylla*.

occurs on the coast, *brevinodis* in the hinterland, and that there are no transitions between the two. He implies also that *brevinodis* does not make silken nests like *longinoda*. The abundant Congo series from various nests shows, however, without the slightest doubt, that *brevinodis* is nothing but the worker minima of *longinoda* (see Fig. 58c), as Emery maintained as long ago as 1886, and the localities of the material before me show that this species is not confined to the west coastal region. It occurs also in East Africa, Santschi's variety *textor* being from Zanzibar. Several authors have cited the true *smaragdina* from East Africa. Unfortunately I have little material from that region and what I have is certainly *longinoda*, presumably belonging to *textor*, though this variety seems to me to be poorly characterized and possibly not distinct from

the typical form of the species. I am unable to say, therefore, whether *Æ. smaragdina* actually occurs on the African continent.

According to Emery, *longinoda* is the most primitive of the existing forms of *Æcophylla*, because most closely allied to *Æ. sicula*, which he described from the Miocene amber of Sicily. In the Baltic amber I have recognized two species of the genus, *Æ. brischkei* Mayr and *brevinodis* Wheeler. As the latter name is preoccupied by *brevinodis* André, which was based, as I have shown, on the minima worker of *longinoda*, I suggest that the fossil species be called **crassinoda** (new name). In the shape of the petiole both of the Baltic amber forms, being of Lower Oligocene age and therefore older than *sicula*, are also more like *longinoda*, and especially its smaller workers, than the Oriental *smaragdina*.

***Æcophylla longinoda* (Latreille)**

Plate XX, Figures 1 and 2; Text Figures 58 and 59

Faradje, ♀, ♀, ♂; Malela, ♀; San Antonio, ♀ (Lang and Chapin); Katala, ♀; Leopoldville, ♀ (J. Bequaert).

The following differences between this species and *smaragdina* may be noted. In the worker the polymorphism is greater, for not only do the individuals of the same colony show a greater range in size (from 3 to 9 mm.) but the minima differ more from the media and maxima in the shape of the thorax and petiole. The head of the worker *longinoda* is distinctly more triangular than that of *smaragdina*, being broader behind, with less convex sides; the eyes are distinctly larger, the mandibles shorter, the clypeus more nearly subcarinate behind, its anterior border sometimes feebly and sinuately emarginate in the middle, the pronotum less convex, the petiole decidedly stouter, more thickened behind, with the stigmata much less prominent when the segment is viewed from above and its ventral surface much more convex anteriorly on the ventral side, when viewed in profile. The sculpture, pilosity, and color are very similar in the two species, but in *longinoda* the integument is more decidedly opaque, the mandibles are somewhat more coarsely striated, always darker, being concolorous with the posterior portion of the head, at least in the large workers and especially in the dark varieties. The transverse furrow on the second and succeeding gastric segments just behind the anterior border is more pronounced in *longinoda*.

The female of this species measures 12 to 14 mm. (wings 16 mm.) and is, therefore, distinctly smaller than the corresponding sex of *smaragdina*, which measures 15 to 17 mm. (wings 18 to 19 mm.). The body of the African species is much more opaque throughout, the wing-veins more

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heavily bordered with dark brown, and the transverse bands at the bases of the second and following gastric segments are broader, darker, and more sharply marked off from the remainder of the segments. The green portions of the typical *longinoda* female are slightly more olivaceous and less pea-green, and the basal bands of the gaster are more exposed and brownish; the appendages are more brownish.

The male *longinoda* is scarcely smaller than that of *smaragdina* and measures 6 to 6.5 mm., but the head, thorax, and petiole are darker and

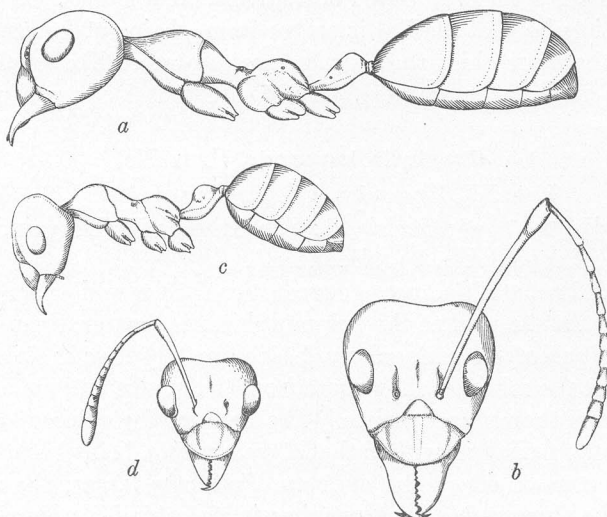


Fig. 58. *Ecophylla longinoda* (Latreille). *a*, body of worker major in profile; *b*, head of same; *c*, body of worker minima in profile; *d*, head of same.

more blackish; the head is decidedly broader, especially behind, the mandibles, petiole, antennal scapes, and wings are decidedly shorter and the integument is less shining.

The workers of the various subspecies and varieties of the two species may be separated by means of the following key.

1. Petiole very slender, its stigmata seen from above very prominent, its ventral surface nearly straight or very feebly convex in profile (*smaragdina*) . . . . . 2.  
 Petiole stouter and higher, its stigmata seen from above not prominent, its ventral surface strongly convex in profile (*longinoda*) . . . . . 7.
2. Body ferruginous or testaceous . . . . . 3.  
 Gaster and sometimes the head pea-green, head more rounded and less truncated behind; size smaller, petiole somewhat shorter (Queensland, New Guinea, Islands Aru and Key) . . . . . subspecies *virescens* (Fabricius).

3. Integument opaque or subopaque. . . . . 4.  
Integument more or less distinctly shining. . . . . 5.
4. Color ferruginous (India, Ceylon, Cochin China, Indonesia).  
*smaragdina* (typical).  
Smaller and more testaceous, mesonotum and petiole a little narrower (Java).  
variety *gracilior* Forel.
5. Large forms, integument slightly shining (Papua, Philippines, Melanesia).  
subspecies *subnitida* Emery.  
Smaller forms, integument more shining. . . . . 6.
6. Body very shining and slender, color testaceous, head rather elongate (Island of  
Batjan). . . . . variety *gracillima* Emery.  
Less shining and less slender, head shorter (Celebes).  
variety *selebensis* Emery.
7. Ferruginous or testaceous throughout. . . . . 8.  
Brown or black. . . . . 9.
8. Color ferruginous (West Africa). . . . . *longinoda* (typical).  
Color paler, more testaceous, petiole shorter, head slightly broader, apical tooth  
of mandibles shorter (Zanzibar). . . . . variety *textor* (Santschi).
9. At least the thorax and mandibles black. . . . . 10.  
Body rather uniformly brown (Belgian Congo). variety *annectens*, new variety.
10. Head dull red, gaster often brownish (Belgian Congo) . . . variety *rubriceps* (Forel).  
Head and gaster black or dark brown (Belgian Congo, Nigeria, Liberia,  
Cameroon, Spanish Guinea). . . . . variety *fusca* (Emery).

*Æ. fusca* was originally described by Emery as an independent species, but Forel reduced it to subspecific rank on finding the variety *rubriceps*, which shows some color variation in the direction of the typical *longinoda*. The discovery of another variety, *annectens* described below, connecting *rubriceps* and *longinoda* is additional evidence that *fusca* cannot be maintained as a species. In my opinion it is merely an extreme melanic variety, for I am unable to detect in it any morphological characters of even subspecific value. All of the varieties of *longinoda* are equally polymorphic in the worker caste and the smallest individuals all agree with the description of André's *brevinodis*, except in color.

The ethological observations of Chun<sup>1</sup> and Father Kohl<sup>2</sup> refer to this species.

Mr. Lang's photographs reproduced on Pl. XX, figs. 1 and 2, show two of the nests of the typical *longinoda* from Malela, consisting of the leaflets of a bush skillfully folded and united with the white silk spun by the young larvæ. He found that the nests of *longinoda* and its varieties are most often constructed on bushes and are sometimes only a few feet

<sup>1</sup>1903, 'Aus den Tiefen des Weltmeeres, II, p. 129.

<sup>2</sup>1906, 'Zur Biologie der spinnenden Ameisen,' Natur und Offenbarung, LII, pp. 166-169.



Fig. 59. Nest of *Ecophylla longinoda* (Latreille) at Avakubi, October 27, 1909. This nest, 16 cm. long, was placed about four feet from the ground in one of the coffee trees of a deserted plantation. Photograph by H. Lang.

from the ground. Text Fig. 59 shows a nest of this ant placed in a coffee tree at Avakubi. The habits seem to be the same in all essential particulars as those of *smaragdina*.

***Ecophylla longinoda* variety *annectens*, new variety**

WORKER very similar to the typical form but brown instead of ferruginous, the gaster sometimes slightly darker than the remainder of the body. Mandibles, except in the small workers, darker brown than the front, cheeks, and clypeus. Incrassated tips of antennal scapes with a dark brown spot; funiculi, knees, tarsi, and tips of tibiae pale yellow; pulvilli black.

FEMALE brown, instead of green and brown like the typical *longinoda*, with darker brown markings on the thorax. Second and following gastric segments with the basal bands velvety black, so that the gaster is distinctly fasciate. Funiculi, tips of scapes, tibiae, tarsi, and vertex paler, more reddish brown. Wings slightly darker than in the typical form, with deeper brown margins to the veins.



MALE darker brown than the worker. Mandibles, antennæ, tarsi, and articulations of legs brownish yellow; last tarsal joint black. Wings distinctly paler than in the female.

Described from long series of specimens from the following places: Avakubi (type locality), ♂, ♀, ♂; Stanleyville, ♂; Niangara, ♂ (Lang and Chapin); Malela, ♂ (J. Bequaert).

#### ***Cecophylla longinoda* variety *rubriceps* (Forel)**

WORKER black or dark brown, the head dull, blood red, often darker laterally and posteriorly, tips of antennal funiculi and second to fourth tarsal joints pale brownish yellow. Gaster in specimens from some colonies brown, the posterior margins of the segments paler.

FEMALE dark brown, almost black, the gaster very little paler, the bands at the bases of the segments velvety black; tarsi and tips of funiculi pale brown. Wings even darker than in the variety *annectens*.

MALE black; mandibles, legs, and funiculi piceous; wings paler than in the female but darker than in the male *annectens*.

Described from many specimens from two colonies taken at Stanleyville (Lang and Chapin). The workers of one colony agree closely with Forel's description of the types from the Belgian Congo in having the gaster nearly or quite concolorous with the thorax, and some of the larger specimens are scarcely distinguishable from the variety *fusca*; the workers of the other colony have the gaster rather pale brown and, therefore, connect the variety with *annectens*, which seems to be a more stable form than *rubriceps*.

#### ***Cecophylla longinoda* variety *fusca* (Emery)**

WORKER differing from *rubriceps* only in having the head entirely black or dark brown, though sometimes with a reddish tinge above. Mandibles black, with dark brown teeth. Large workers have the clypeal border very feebly sinuate in the middle and the surface just behind it with a faint longitudinal impression. The smallest workers are a little paler, with paler mandibles, but in the structure of the thorax and petiole precisely like the corresponding phase of the other forms of the species.

FEMALE like that of *rubriceps*, but perhaps a shade darker.

MALE indistinguishable from the male of *rubriceps*, except that the erect white hairs on the dorsal surface of the head, thorax, and gaster are distinctly longer and more abundant.

Redescribed from specimens taken at Stanleyville and Garamba (Lang and Chapin). There is also a worker of this variety from Monrovia, Liberia, (J. Morris) in my collection.