

Indian Ants of the Indian Museum, Calcutta.—By PROFESSOR AUGUST FOREL, Zurich. Communicated by the NATURAL HISTORY SECRETARY.

[Received Nov. 13th;—Read Dec. 2nd, 1885.]

Family FORMICIDÆ.

I. Subfamily Camponotidæ.

Forel, Zeitschr. f. wiss. Zool. xxx, Suppl. 1878.

Genus CAMPONOTUS.

Mayr, Europ. Formic. 1861.

1. CAMPONOTUS SYLVATICUS, Olivier (Encyclop. Méth. Hist. Nat. VI).
Subspecies *C. cognatus*, Smith (Cat. Brit. Mus. 1858),
var. *e*, Mayr (Ants of Turkestan coll. b. Fedtschenko), ♂ and ♂.*

The *Camponotus sylvaticus* is a large species, which is divided into many subspecies and varieties, and which occurs throughout the world. The subspecies *cognatus*, var. *e*, inhabits Africa and South Asia.

2. CAMPONOTUS MICANS, Nylander (Annal. d. Sc. Nat. IV), ♂.

This species is found in Europe, Africa, and India.

3. CAMPONOTUS OPACIVENTRIS, Mayr (Verhandl. k. k. zool.-bot. Ges. Wien, 1878), ♂.

Species very closely allied to the *C. sericeus*, Fabr.

4. CAMPONOTUS IRRITANS, Smith (Catal. Brit. Mus. 1858 (= *Camp. inconspicuus*, Mayr, Ann. Mus. Civ. Genova, 1872), ♂.

Genus POLYRHACHIS.

Shuckard, Hist. of Insects.

5. POLYRHACHIS LÆVISSIMA, Smith (Catal. Brit. Mus. 1858) (= *Polyrhachis globularia*, Mayr, Tijdschrift voor Entomologie 1867), ♂.

Genus PRENOLEPIS.

Mayr, Europ. Formic. 1861.

6. PRENOLEPIS LONGICORNIS, Latr. (Hist. Nat. Fourmis, 1802), ♂.
A cosmopolitan species.

Genus CECOPHYLLA.

Smith, Proc. Lin. Soc. Zool. 1860.

7. CECOPHYLLA SMARAGDINA, Fabr. (Spec. Ins. I) (= *Formica virescens*, Fabr., Syst. Ent. 392 = *Formica longipes*, Jerdon, Madras Journal Lit. & Sc. 1851), ♂.

This species is also found of a green colour.

* ♂ is the sign for "worker"; ♀, for "female"; ♂, for "male"; and ♀, for "soldier."

Genus ACANTHOLEPIS.

Mayr, Europ. Formic. 1861.

8. ACANTHOLEPIS FRAUENFELDI, Mayr (Form. Austr. 1851), ♂.

This species has been hitherto known only from the Mediterranean country, Aden, Turkestan, and Persia. The specimens from Calcutta would belong to the variety *bipartita*, Smith (Proc. Lin. Soc. Zool. 1861); but the body is of a dark brown-blackish colour. They are large (3 millims.) and opaque.

The mesothorax of this genus is much narrowed in the middle, like the waist of a slender lady.

II. Subfamily Dolichoderidæ.

Forel, Zeitschr. f. wiss. Zool. xxx, Suppl. 1878.

No representative of this subfamily was among the ants sent from Calcutta.

III. Subfamily Poneridæ.

Smith, Cat. Brit. Hym. 1851.

Genus PONERA.

Latreille, Gen. Crust. et Ins. 1806-1809.

9. PONERA TESSERINODA, Mayr (Verhandl. k. k. zool.-bot. Ges. Wien, 1878, *nec* Emery, Ann. Mus. Civ. Genov. IX, 1876-77), ♂.

10. PONERA LUTEIPES, Mayr (Myrmecol. Studien, 1862), ♂.

Genus DIACAMMA.

Mayr, Myrmec. Studien, 1862.

11. DIACAMMA VAGANS, Smith (Journ. Linn. Soc. Zool. V, 1860, Roger (Berl. ent. Zeitschr. 1860, p. 304), ♂.

Genus LOBOPELTA.

Mayr, Myrmec. Studien, 1862.

12. LOBOPELTA CHINENSIS, Mayr (Neue Formiciden, 1870), ♂.

The specimen from Calcutta is only 8.5 millims. in length. Mayr's specimens were larger (9.5—10 millims.).

13. LOBOPELTA KITTELI, Mayr (Neue Formiciden, 1870), ♂.

IV. Subfamily Dorylidæ.

Shuckard, Ann. of Nat. Hist. v, 1840.

Genus TYPHLOPONE.

Westwood, Introd. Class. Ins. 1840.

14. TYPHLOPONE ORANIENSIS, Lucas (Expl. de l'Algérie, 1840-42), ♂.

This species has been hitherto known only from Northern Africa and from Asiatic Turkey. The specimens from Calcutta are quite identical with specimens from Algeria and Palestina in my collection.

V. Subfamily Myrmicidæ.

Smith, Cat. Brit. Hym. 1851.

Genus SIMA.

Roger, Berl. ent. Zeitschr. 1863 = *Eciton* Jerdon, nec Latreille.

15. SIMA RUFO-NIGRA, Jerdon (Madras Journ. Lit. & Sc. 1851, *Eciton*), ♂.

16. SIMA COMPRESSA, Roger (Berl. ent. Zeitschr. 1863?), ♀.

The only specimen from Calcutta is very large (7.5 millims.) The specimens which were described by Roger (l. c.) and Mayr (Tijdschr. voor Entomol. 1867) measured only 4—5 millims. Therefore the identity of our specimen with *S. compressa* does not seem to me to be perfectly sure, though the other characters agree with the description.

Genus MYRMICARIA.

Saunders, Trans. Ent. Soc. Lond. 1841-43 = *Heptacondylus* and *Physatta*, Smith.

17. MYRMICARIA SUBCARINATA, Smith (Cat. Brit. Mus. 1858, *Heptacondylus*), ♀.

Genus HOLCOMYRMEX.

Mayr, Verh. k. k. zool.-bot. Ges. Wien, 1878.

18. HOLCOMYRMEX SCABRICEPS, Mayr (Verh. k. k. zool.-bot. Ges. Wien 1878), ♂ major and ♀ minor.

Genus PHEIDOLE.

Westwood, Ann. & Mag. Nat. Hist. vi, 1841 = *Ocodoma*, Jerdon, l. c.

19. PHEIDOLE INDICA, Mayr (Verh. k. k. zool.-bot. Ges. Wien 1878), ♂, ♀, and ♀.

The specimens are smaller than Mayr's. I have submitted this ant to Prof. Mayr, who has pronounced it to be his *P. indica*; but joints 3—4 of the antennæ are longer than broad in the soldier, as long as broad in the female.

♂. Length: 4—5 millims. A curved striation at the posterior angles of the head. Head shining between the striæ.

♀. Length: 2.5—2.8 millims.

♀. Length: 7—7.5 millims. Head narrower than the thorax.

20. PHEIDOLE LATINODA, Roger (Berl. ent. Zeitschr. 1863), ♂, ♀, and ♀, var. MAJOR.

The specimens are larger than Roger's and Mayr's. This species has hitherto only been found in India, and the ♀ is still unknown.

♂. Length: 5.4—6.2 millims. Head coarsely striate-rugose, posteriorly coarsely rugose-reticulated. The ground of the reticulations is moderately shining and sometimes contains secondary rugosities. Less shining than *P. indica*; the clypeus carinate (in *P. indica* not carinate);

the basal surface of the metanotum transversely rugose. The first node of the petiole anteriorly almost broader than posteriorly; beneath, furnished with a longitudinal carina. The second node very broad, nearly three times as broad as the first. Tibiæ and scapi of the antennæ abundantly furnished with long erect hairs.

♂. Length 3—3.3 millims. Antennæ and legs very long and slender, with abundant long erect hairs. First node of the petiole convex beneath. Spines of the metanotum longer and at the base narrower as in *P. indica*.

♀. Length: 7.5—8 millims. Head (without the mandibles) broader than long, broader than the thorax, little shining. Thorax narrow and short. Mesonotum longitudinally rugose (wrinkled). The wrinkles converge anteriorly and anastomose together at the median line in front. Mesonotum opaque, granulated between the wrinkles. Scutellum smooth and shining. Metanotum between the spines with some coarse longitudinal wrinkles laterally, smooth and shining in the middle.

Nodes of the petiole very broad. The first is short and bears upwards a much broadened transverse scale, which is emarginate at the middle of its superior margin. The first node with a longitudinal, lobi-form, very prominent edge beneath. The second node twice as broad as the first, and nearly three times as broad as long, coarsely rugose with an obtuse tooth beneath. The anterior half of the basal segment of the abdomen closely striate-rugose, the posterior finely and closely reticulate-punctured, opaque. The anterior two-thirds of the following segments smooth and shining; their posterior third reticulate-punctured and opaque.

Wings pale yellowish.

In other respects like the soldier.

21. *PHEIDOLE JUCUNDA*, n. sp.

This species resembles *P. javana*, Mayr, and *P. indica*, Mayr. The soldier only is known.

♂. Length: 3.3 millims. Head (without the mandibles) rectangular, a little narrowed posteriorly, deeply emarginate and a little flattened behind (like the *P. latinoda*), relatively small. The anterior half of the clypeus carinate. The anterior edge of the clypeus emarginate in the middle. Mandibles shining, very delicately striate-rugose, with scattered punctures and with two blunt teeth at the apex. Scapus of the antennæ lodged in a distinct, smooth, longitudinal groove, which is edged medially by the very long frontal edges (*laminæ frontales*). Scapus of the antennæ very long; but not quite reaching the posterior angles of the head. Joints 3—6 of the funiculus of the antennæ as broad as long.

Mesonotum with a deep transverse impression, which is nearly as deep as the meso-metanotal groove. Basal surface of the metanotum narrow, with a very distinct, abruptly edged longitudinal channel in the middle. Spines of the metanotum of moderate size, divergent, near one another at the base. The nodes of the petiole have the usual form; the second node rounded, without lateral conuli. Antennæ and legs rather elongate.

Head coarsely and longitudinally striated in the middle; striate-rugose, then reticulate-rugose at the sides, very coarsely rugose-reticulate at the posterior angles (like *P. latinoda*). Frontal area and middle of the clypeus nearly smooth. Thorax wrinkled and rugose, moderately shining. The sides of the mesonotum and metanotum, as also the declivous (posterior) surface of the metanotum finely reticulate-punctured and opaque. Nodes of the petiole finely reticulate, nearly opaque. The base of the abdomen very delicately reticulate; the rest smooth and shining with some scattered punctures, with a hair in each point.

Head and abdomen sprinkled moderately with erect hairs. A few scattered erect hairs on the thorax and the femora. The tibiæ and scapi without erect hairs, only with a delicate quite applied pubescence. The body nearly without applied pubescence.

Dark ferruginous-red. The posterior three-fourths of the head, the scapi, and the abdomen (its base excepted) dark chestnut-brown.

This species is easily to be distinguished from the *Ph. latinoda* by its smaller size, its tibiæ and scapi without erect hairs, the nodes of its petiole, etc.; from the *Ph. indica* by its carinate clypeus, its more emarginate head with the posterior angles coarsely reticulate-rugose, etc. The closely allied *Ph. javana* has very abundant erect hairs on the legs and on the antennæ, the metanotal spines much removed from another at the base, the clypeus without carina, etc.

22. PHEIDOLE WOOD-MASONI, n. sp.

I dedicate this pretty little new species to Prof. J. Wood-Mason, who has been so kind as to send it to me with the others noticed in this paper.

4. Length 2.6 millims. Head elongate, rectangular, slightly emarginate behind. Eyes very minute, each compounded of about 20 facets, situated at the anterior quarter of the head. Antennæ very short; scapi of the antennæ as long as half the breadth of the head, either as long as two-fifths of the length of the head (without mandibles). Antennæ 12-jointed, with very large club; the last joint as long as the two precedent together. Joints 2—6 of the funiculus twice as broad as long. Mandibles smooth, shining, with very scattered punc-

tures and with two black teeth at the end of the terminal edge. Clypeus very short, very deeply and broadly emarginate at the middle of its anterior edge, as smooth in its middle part even as the frontal area, longitudinally striated at the sides. Antennal fossæ very near to the anterior edge of the head. Frontal edges as long as the scapi. At their exterior side is a smooth and shining groove in which the scapus is lodged. The anterior half of the head is longitudinally striated; the posterior is smooth, shining, with some scattered puncture, with a hair in each point.

Thorax very short. The pronotum is broadened and forms at each side an edged and rounded protuberance. The pronotum and the mesonotum form together only one convex, smooth, and shining hump, without transverse impression. The meso-metanotal groove is very distinct. Metanotum low; its basal surface with two minute longitudinal edges at the sides, which terminate each in a triangular tooth (instead of the spines). The basal surface of the metanotum delicately transversely reticulate, the declivous one delicately transversely reticulate-rugose.

The nodes of the petiole have the usual form. They are narrow and microscopically reticulate. Abdomen smooth and shining with large golden concave points on its first segment. The whole body, inclusive of the tibiæ and of scapi, covered with erect hairs.

Yellow. The anterior edge of the clypeus and the anterior half of the mandibles darkened; the terminal edge of the mandibles blackish.

♂. Length: 1.5 millim. Stature relatively short and thickset. Head oval, not emarginate. Antennæ like those of the soldier. The scapi reach the posterior edge of the head. Mandibles smooth, shining, with scattered puncture and eight teeth. Clypeus entire, smooth and shining like the whole head. Eyes very minute, situated on the anterior third of the head, and each compounded of about 12 facets. No groove for the scapi. Thorax as in the soldier, but the metanotum is less low. Metanotum with two minute teeth, extremely finely and transversely wrinkled between these teeth. Nodes of the petiole microscopically reticulate. A very large brownish and gilt puncture on the abdomen. This puncture is more abundant than that of the soldier, and even more abundant than in *Tetramorium auropunctatum*. The erect hairs of the body are a little more scattered and those on the tibiæ and scapi more oblique than in the soldier.

Entirely yellow, with the terminal edge of the mandibles darkened and the puncture of the abdomen brownish (and gilt).

Genus PHEIDOLOGETON.

Mayr, Myrmecol. Studien, 1862.

23. PHEIDOLOGETON LABORIOSUS, Smith (Proc. L. S. Zool. 1861, *Solenopsis*), ♂ major.

Genus SOLENOPSIS.

Westwood, Ann. & Mag. Nat. Hist. vi, 1841.

24. SOLENOPSIS GEMINATA, Fabricius (Syst. Piezat. 423, 1822, *Atta*),
 ♀ major and minor, ♀, and ♂.

One of the commonest cosmopolitan tropical ants.

Genus MONOMORIUM.

Mayr, Formic. Austr. 1855.

25. MONOMORIUM LATINODE, Mayr (Ann. Mus. Civ. Genova, 1872), ♀.

Genus MERANOPLUS.

Smith, Trans. Ent. Soc. Lond. 1853.

26. MERANOPLUS BICOLOR, Guérin (Icon. Règn. Animal 1829—38,
Cryptocerus), ♀.

A further *Pheidole* ♂ is not to be determined without the correspondent soldier, worker, or female.

All the species included in the foregoing list were obtained in the neighbourhood of Calcutta.