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SOME ANTS FROM CHINA AND MANCHURIA[1]

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The following paper contains a record of a number of Chinese and of a few Manchurian ants recently sent me for identification by Mr. Rufus H. Lefevre, Professor Chenfu F. Wu, of the Yenching University at Peiping, Professor S. F. Light, of the University of California, Professor N. Gist Gee, Mr. H. H. Chung, formerly a student at the Bussey Institution, Professor A. P. Jacot of the Shantung Christian University, and Messrs. P. H. and S. H. Dorsett of the Federal Department of Agriculture.

FORMICIDÆ

Ponerinæ

Odontoponera transversa F. Smith.—Three workers from Hongkong (R. H. Lefevre).

Ectomomyrmex astutus F. Smith.—Three workers from Mokanshan (N. Gist Gee) and one from Foochow, Fukien (H. H. Chung); three deälated females from Hongkong (R. H. Lefevre).

Ectomomyrmex tonkinus Santschi.—I have cited this species as *astutus* in some of my previous papers, but it is evidently distinct. The materials in my collection (all workers) are from the following localities: INDOCHINA: Loakay and Coxan (F. Silvestri). CHINA: Hongkong (R. H. Lefevre); Repulse Bay, Hongkong and Kusang (F. Silvestri); Amoy, Kuliang and Back Liang (S. F. Light).

Ectomomyrmex japonicus Emery.—Three workers from Leng-oo (C. W. Howard) and Kuling, near Kin-Kiang (N. Gist Gee); two females from Soochow and Loka, between Shanghai and Foochow (N. Gist Gee).

Ectomomyrmex horni Forel.—A single worker from Foochow (F. Silvestri).

Euponera (*Brachyponera*) *nigrita* Emery subsp. *chinensis* Emery.—One worker and an immature male from Soochow.

[1]Contributions from the Entomological Laboratory of the Bussey Institution, Harvard University, No. 314.

Euponera (*Brachyponera*) *solitaria* F. Smith.—Numerous workers from Tsingtau, Shantung (R. H. Lefevre) and four from Peking (C. F. Wu).

Odontomachus hæmatoda L.—Five workers from Peking (C. F. Wu).

Myrmicinæ

Aphænogaster (*Attomyrma*) *geei* Wheeler.—Two workers from Peking and two from Soochow (C. F. Wu).

Aphænogaster (*Attomyrma*) *smythiesi* Forel var. *sinensis* Wheeler.—A worker, deälated female, and male from Peking (C. F. Wu).

The female (undescribed) closely resembles the female of the subspecies *japonica* Forel, but has the head, thorax and petiole deep castaneous brown, with broader pale brown borders to the gastric segments, the legs somewhat darker and more brownish, the anterior half of the mesonotum smooth and without traces of the fine concentric striæ of *japonica*. The epinotal spines are of the same length but somewhat more slender and more acute.

The male (undescribed) measures about 4.3 mm. It is black and shining, with the genitalia and terminal tarsal joints yellowish. Head opaque, densely and finely punctate, rounded-subrectangular, nearly as long as wide through the eyes. Mandibles with three distinct teeth. Thorax broad and robust; mesonotum strongly overarching the pronotum; epinotum short and very low, the dorsal outline of the base concave, twice as long as the declivity, with which it forms a blunt angle, and without traces of teeth. Legs slender; hind femora simple, not bent. Wings with two cubital cells, grayish hyaline, with very pale yellowish veins and pterostigma.

Messor aciculatus F. Smith.—Numerous workers from Weihsien, Shantung (R. H. Lefevre); workers, a male and female from Peking (C. F. Wu).

Pheidole tsailuni, new name for *Ph. concinna* Wheeler (1928), name preoccupied, Santschi (1910). Dedicated to Ts'ai Lun, the Chinese eunuch, who invented paper A.D. 105.

Pheidole javana Mayr.—Several soldiers, deälated females and workers from Foochow (H. H. Chung). These agree very closely with the typical Indonesian form of the species.

Pheidole javana var. **desucta**, new variety

SOLDIER.—Differing from the typical *javana* in color, being brownish yellow, with the head, except the cheeks, the gaster, borders of mandibles and median portions of femora and tibiæ brown; the antennal scapes black.

WORKER.—Differing from the worker *javana* in a similar manner but even paler than the soldier; the legs scarcely infuscated, the scapes brown.

FEMALE (deälated).—Very similar to the female of the typical *javana*, but the scapes, mandibles, gula and sides and articulations of the thorax paler, reddish brown.

Described from two soldiers, five workers and six females taken by Professor S. F. Light at Back Liang.

Pheidole nodus F. Smith subsp. *rhombinoda* Mayr.—Workers from Back Liang (S. F. Light) and Peking (C. F. Wu); soldiers, workers and females from Tsingtau and Weihsien, Shantung (R. H. Lefevre); soldiers and workers from Chao Yang and Shantung (A. P. Jacot).

From a study of the specimens in my collection I am convinced that Mayr's *rhombinoda* (1878) is merely a subspecies of Smith's *nodus* (1874) of Japan. The latter is somewhat smaller in all the female castes (soldier, 4–4.5 mm.; worker, 2.3–2.5 mm.; female, 5.5–5.7 mm. as compared with *rhombinoda:* soldier, 4.5–5 mm.; worker, 2.8–3 mm.; female, 6.3–6.6 mm.). The head of the soldier *nodus* is distinctly smaller, less deeply excised and impressed behind and more coarsely sculptured. The humeri are somewhat more rounded, the body is less shining, the tibiæ more hairy and the color is darker in both soldier and female. The latter is also more heavily sculptured and less shining than the female of *rhombinoda.* Wings opaque brown, with pale brown veins and pterostigma. I refer the specimens recently collected by Prof. F. Silvestri in Japan and described in my paper of 1928 to Smith's type because he gives the color as "obscurely ferruginous." The form collected by Sauter at Okayama, Japan and described as Smith's *nodus* in my paper of 1906 is really a pale variety, which may be called **prævexata,** new variety. The soldier of this form is of the same size as the typical *nodus* but yellowish ferruginous, with the thorax and petiole paler and the legs yellow, the scapes dark brown. The worker is yellowish brown with the gaster and posterior portion of the head somewhat darker. The female is dark red, with the legs and epinotal declivity paler and more yellowish, the gaster dark brown, except at the base.

The subspecies *rhombinoda* seems to be common and widely distributed in China. The soldiers differ from those of India and Indochina in my collection in having the head somewhat less deeply excised and impressed behind and are therefore more like the typical *nodus.* Further study may show that the Chinese form should be regarded as a distinct race or variety. For the present I arrange the known forms of the species as follows:

Pheidole nodus F. Smith

Subspecies *nodus* F. Smith. Japan
  Variety *prævexata,* new variety. Japan
Subspecies *rhombinoda* Mayr. India, Ceylon, Burma, Indochina, China
  Variety *formosensis* Forel. Formosa
  Variety *micantiventris* Forel. Ceylon, Indochina
  Variety *taprobanæ* Forel. Ceylon
Subspecies *stella* Forel. Sikkim

Pheidole rinæ Emery subsp. *taipoana* Wheeler.—A single soldier from Hongkong (R. H. Lefevre).

Cardiocondyla nuda Mayr.—A single worker from Foochow (H. H. Chung).

Crematogaster (*Acrocælia*) *brunnea* F. Smith.

There is much confusion in the literature in regard to the forms regarded as subspecies and varieties of this species, originally described from Borneo. Emery, in the 'Genera Insectorum' (1921, p. 149) divided the species into four subspecies, namely, *brunnea, sensu stricto, contemta* Mayr, *politula* Forel, and *subnuda* Mayr, each represented by several varieties. More recently Santschi (1928, Bull. Ann. Soc. Ent. Belg., LXVIII, p. 33) has brought this group into connection with *C. laboriosa* Smith of Japan, and remarks: "The Crematogasters assembled about *Cr. brunnea* Sm. by Emery and Forel may be divided into two species. One of them, which may be assigned to *Cr. laboriosa* Sm. is characterized by the disk of the petiole being broader than long and the [epinotal] spines being generally very short or dentiform. This species comprises the races and varieties *matsumurai* Forel st. *subnuda* Mayr, var. *formosensis* Wheeler [*recte formosæ*], st. *contemta* Mayr, var. *notabilis* Forel, st. *politula* Forel, var. *confucii* Santschi, var. *mongolica* Santschi, st. *ruginota* Forel, var. *tagala* Forel, var. *zoceënsis* Santschi. The other species has the petiole longer than broad and the spines longer, slender and often more erect. It is represented by *Cr. brunnea* Smith and its var. *nicevillei* Forel, *rabula* Forel and *sundaica* Forel."

The acceptance of the interpretations proposed by Emery and Santschi must obviously depend on the precise identification of Smith's *brunnea* and *laboriosa*, both of which were inadequately described. Both Mayr and Emery saw types of *brunnea*. The former pronounced it to be very close to *contemta*, the latter as almost identical with *rabula* Forel. Now Forel describes the petiole of *rabula* as trapezoidal, though somewhat narrower than that of *contemta*, and Bingham states that *rabula* is scarcely distinguishable from *subnuda*. None of the authors mentioned implies that the petiole of *rabula* is longer than broad. Were this the case it could hardly have passed unnoticed. In specimens recently taken by Mjöberg and belonging almost certainly to the typical *brunnea* (they were taken in the type-locality, Sarawak!), I find the petiole trapezoidal, broad at the base, strongly angular at the sides, in large individuals fully as broad as long and in smaller individuals broader than long. Furthermore, in my recent paper on the ants of Japan I have redescribed what is, in all probability, Smith's *laboriosa*. It proves to be an independent

species, related to the Mediterranean *auberti* Emery and quite different from *brunnea* and its subspecies. The worker is characterized by the peculiar petiole, which is small, only slightly broader than long, rounded anteriorly, with nearly straight, parallel sides, by the postpetiole which has strongly separated tubercles, by the subcarinate mesonotum and longer, more slender and more distinctly three-jointed antennal clubs. I have not seen specimens of this species from China. All of my material from that country belongs to subspecies of *brunnea*. I therefore prefer Emery's interpretation to Santschi's, but would include under Smith's species also the Japanese *matsumurai* Forel as a subspecies, of which I regard *zoceënsis* Santschi as a Chinese variety. In my opinion *ruginota* Forel should also be regarded as a subspecies distinct from *politula* Forel, and *formosæ* Wheeler of Formosa, *vagula* Wheeler of Japan and *tagala* Forel of the Philippines may be assigned to it as varieties. These forms are all closely related to the subspecies *subnuda* Mayr. Obviously, till some local myrmecologist in China can make a careful study of this whole perplexing group of Crematogasters, all our arrangements of the various subspecies and varieties must be tentative. I believe, however, that some of Santschi's allocations are erroneous, e.g., in addition to *brunnea* and *rabula*, previously discussed, he places in his species with long petiole also *sundaica*. Many specimens of this form recently received from Java show that it is closely related to *subnuda* of which it was described as a variety by Forel, and has a similar broadly trapezoidal petiole.

Crematogaster (Acrocœlia) brunnea subsp. **contemta** var. **contemtior**, new variety

WORKER.—Length, 2.3–2.6 mm.

Smaller than the typical *contemta*, with shorter epinotal spines, which are reduced to stout, slightly incurved teeth. Petiole much shorter. Pronotum more heavily sculptured, finely longitudinally punctate-striate; mesonotum nearly smooth, shining. Pilosity, both on body and legs, much more abundant than in *contemta*. Brownish red, head darker red; apical half of gaster black; mandibles, antennæ and legs brownish yellow.

Nine specimens from Soochow (N. Gist Gee).

Crematogaster (Acrocœlia) brunnea subsp. *matsumurai* Forel var. *zoceënsis* Santschi.—Numerous workers from Tsingtau, Shantung (R. H. Lefevre).

This is evidently a Chinese variety of *matsumurai*, with decidedly longer epinotal spines, broader petiole and more distinctly divided postpetiolar tubercles.

Crematogaster (Acrocœlia) brunnea subsp. **ruginota** Forel var. **chungi**, new variety

WORKER.—Length, 2.5–3 mm.

Head very smooth and shining, longitudinally striated anteriorly. Pronotum and base of epinotum strongly longitudinally rugose; mesonotum concave behind, nearly smooth, shining. Epinotal spines reduced to stout, acute teeth, directed somewhat upward and slightly incurved. Petiole decidedly broader than long, its anterior border straight in the middle and obliquely truncated on each side, the sides distinctly dentate in the middle. Tubercles of postpetiole distinctly separated, finely striated and subopaque. Pilosity feebly developed, short and appressed on the scapes and legs. Castaneous brown; antennæ, thorax, petiole and legs paler, more reddish brown; tarsi yellowish.

Seven specimens from Foochow (H. H. Chung).

Crematogaster (Acrocœlia) brunnea subsp. **ruginota** var. **lefevrei**, new variety

WORKER.—At first sight closely resembling the preceding variety, but differing in the following characters: head broader in proportion to its length; thorax more shining, with much more delicate longitudinal rugæ on the pronotum, the mesonotum not concave posteriorly and anteriorly with a distinct median ridge, or carinula; the carinæ bounding the sides of the mesonotum distinctly dentate posteriorly; lateral angles of the petiole not dentate, the tubercles of the postpetiole much less sharply divided than in *chungi*. Pilosity on scapes and tibiæ more abundant and less appressed. Color very much like that of *chungi*.

Numerous workers from Tsingtau, Shantung (R. H. Lefevre); also several specimens taken in the same locality by N. Gist Gee.

This form was cited erroneously as subspecies *rabula* Forel in one of my previous papers. Superficially the varieties *chungi* and *lefevrei* are very similar to the variety *vagula* of Japan, but this form has a distinctly convex mesonotum, a more strongly impressed mesonotal suture, longer epinotal spines, and more rounded sides to the petiole. The varieties *vagula* and *formosæ* have much longer epinotal spines than any of the varieties above mentioned.

Monomorium minutum Mayr subsp. *chinense* Santschi.—Many workers from Foochow (H. H. Chung); three workers from Tsingtau, Shantung (R. H. Lefevre); three females and numerous workers from Peking (C. F. Wu), Laoshan Mts. near Tsingtau and six males from Shantung (A. P. Jacot).

This form is really a subspecies instead of a variety of *minutum*. Not only is the worker much darker than that of the European type, but the male and especially the female are quite distinct.

The female (undescribed) is wingless (ergatomorphic), like the subspecies *ergatogyna* Wheeler from California, and measures only 2.3–2.5 mm. (the female of the

typical *minutum* is winged and measures 3.4–4 mm.). The thorax is much shorter and less elliptical, scarcely more than twice as long as broad, and much more narrowed in the epinotal region, with very small scutellum. In profile it is highest at the anterior end of the mesonotum whence it slopes gradually backward to the declivity of the epinotum. The pilosity is shorter and more even than in the typical *minutum*, the color darker, being black, like the worker, with the mandibles, antennæ, except their clubs, the knees, and tarsi reddish brown.

The male (undescribed) measures 2.3–2.6 mm. and is therefore smaller than the male of typical *minutum*, which measures 3–4 mm. The thorax is distinctly broader and stouter through the mesonotum. The color of the body and wings is like that of typical *minutum*.

Monomorium pharaonis L.—A single deälated female from Soochow (C. F. Wu).

Solenopsis fugax Latreille.—One worker, which seems to belong to this palearctic form, from Foochow (H. H. Chung).

Solenopsis indagatrix Wheeler.—Numerous workers from Tsingtau, Shantung (R. H. Lefevre) and three from Peking (C. F. Wu).

Solenopsis jacoti Wheeler.—Numerous workers from Weihsien, Shantung (R. H. Lefevre).

Solenopsis soochowensis Wheeler var. *pieli* Santschi.—One worker from Foochow (H. H. Chung) seems to belong to this variety, judging from the length of the antennal scapes.

Pheidologeton diversus Jerdon.—Numerous large and small workers from Hongkong (R. H. Lefevre) and one worker media from Foochow (H. H. Chung). They may represent some subspecies or variety of *diversus* but owing to the absence of soldiers more accurate identification is impossible.

Leptothorax congruus var. **wui**, new variety

WORKER.—Much like the typical *congruus* and with epinotal teeth of the same length, but the sculpture of the head is feebler, with the occipital border and middle of the front smoother and more shining. Legs paler yellow, the tibiæ and clubs of the antennæ not infuscated. In this character the specimens resemble the Japanese variety *spinosior* Forel.

FEMALE.—Differing from the female of *congruus* in having the nodes of the petiole and postpetiole smoother and shining above. The antennæ and legs are colored as in the worker; the wings are whitish hyaline, with very pale yellowish veins and pterostigma.

MALE.—Very similar to the male of the typical *congruus* but the thoracic dorsum is smoother and more shining and the femora and tibiæ are not infuscated in the middle. Coloration of wings as in the female.

Described from three workers, three females and four males from Peking (C. F. Wu).

Leptothorax eburneipes Wheeler.—This form should rank as an independent species. The thorax of the worker is much shorter and anteriorly higher and more convex than in *congruus* or any of its varieties, the petiole and postpetiole are higher and differently shaped and the epinotal spines are much longer.

Leptothorax galeatus Wheeler.—A single worker from Peking (R. H. Lefevre).

Triglyphothrix lanuginosa Mayr.—Numerous workers and a female from Hongkong (R. H. Lefevre). The former agree very closely with typical specimens in my collection from Java.

The female (undescribed) is very similar to the worker. It is slightly larger (2 mm.), with the head somewhat broader anteriorly and more rectangular. The epinotal spines are stouter at the base and the wings are long and colorless, with white veins and pterostigma.

Triglyphothrix striatidens Emery.—Numerous workers from Foochow (H. H. Chung).

Tetramorium cæspitum L. subsp. *jacoti* Wheeler.—Numerous workers from Peking (C. F. Wu), Tsingtau and Weihsien, Shantung (R. H. Lefevre).

Tetramorium cæspitum subsp. *jacoti* var. *geei* Wheeler.—Nine workers from Kiang-yin (N. Gist Gee) and one immature worker from Soochow (C. F. Wu).

Dolichoderinæ

Iridomyrmex itoi Forel.—Four workers of the typical Japanese form from Foochow (H. H. Chung).

Tapinoma geei Wheeler var. *tinctum* Wheeler.—Numerous workers from Tsingtau, Shantung (R. H. Lefevre) and Peking (C. F. Wu).

Tapinoma (*Micromyrma*) *melanocephalum* Fabricius.—Several workers from Hongkong (R. H. Lefevre) and Foochow (H. H. Chung).

Formicinæ

Plagiolepis manczshurica Ruzsky.—Numerous workers and females from Peking (C. F. Wu) and Peking, Soochow, and Tsingtau, Shantung (R. H. Lefevre).

As Santschi has shown, the worker of this species differs from the Mediterranean *pygmæa* Latrielle in the proportions of the third and fourth funicular joints, which are subequal and in the greater length of the first joint.

The female (undescribed) measures 3–4 mm. and averages smaller than the female *pygmæa* (3.5–4.5 mm.). It has the same proportions of the funicular joints

as the worker and is black or dark brown, with the mandibles, scapes, first funicular joint and legs yellow, the femora often somewhat infuscated in the middle. The thorax seems to be slightly shorter and more broadly elliptical than in *pygmæa*. Wings grayish hyaline, with pale brown veins and pterostigma.

Camponotus japonicus Mayr var. *aterrimus* Emery.—Numerous workers, females and males from Peking and Soochow (C. F. Wu); workers from Peking, and Tsingtau and Weihsien, Shantung (R. H. Lefevre). Also many workers taken at Boketu and White River, Barum, Manchuria by P. H. and S. H. Dorsett.

Camponotus japonicus var. **miltotus**, new variety

WORKER MAJOR.—Resembling the variety *aterrimus* in pilosity but the pubescence on the gaster is even shorter. The cheeks and clypeus are bright red, the latter with a black longitudinal streak in the middle. Mandibles deep red with black teeth; scapes and legs brown, the femora darker; the funiculi black like the remainder of the body. Borders of gastric segments paler and more yellowish than in *aterrimus*.

A single specimen from Peking (C. F. Wu).

Camponotus japonicus wui, new subspecies

WORKER MEDIA.—Length, nearly 10 mm.

Petiole smaller, lower, narrower and with much less acute superior border and surface of body, especially the sides of the head, thorax and gaster, decidedly smoother and more shining than in the other forms of *japonicus*. Pubescence as in the variety *aterrimus*, long but sparser on the gaster than in the typical *japonicus*, sparse but distinct on the thorax. Hairs on the tibiæ very short but coarser, more numerous and more conspicuous than in *aterrimus*. Brownish black; clypeus and sides of head bright red; mandibles, antennæ, sides of pronotum and thoracic sutures dark red; legs, including coxæ, brownish red, the tibiæ and tarsi paler and more yellowish. Pale borders of gastric segments dull yellowish, twice as broad as in the other forms of *japonicus*.

A single specimen from Soochow (C. F. Wu).

It may represent a distinct species but the material is insufficient to determine its precise status.

Camponotus (*Tanæmyrmex*) *barbatus* Roger var. *albosparsus* Forel.—Six workers from Foochow (H. H. Chung) and one from Soochow (C. F. Wu).

Camponotus (*Tanæmyrmex*) *variegatus* F. Smith var. *mitis* F. Smith.—Numerous workers and males from Hongkong (R. H. Lefevre).

Camponotus (*Tanæmyrmex*) *variegatus* var. *dulcis* F. Smith.—One small worker from Hongkong (R. H. Lefevre).

Camponotus (*Myrmosericus*) *rufoglaucus* Jerdon subsp. *paria* Emery.—Three workers from Hongkong (R. H. Lefevre).

Camponotus (*Myrmentoma*) *caryæ* Fitch var. *quadrinotatus* Forel.—A small worker from Soochow (C. F. Wu).

Polyrhachis lamellidens F. Smith.—Four workers from Soochow (C. F. Wu).

Paratrechina (*Nylanderia*) *flavipes* F. Smith.—Numerous workers and two females from Peking (C. F. Wu) and numerous workers from Tsingtau, Shantung (R. H. Lefevre). They agree in all respects with Japanese specimens.

Paratrechina (*Nylanderia*) *indica* Forel.—Numerous workers from Foochow (H. H. Chung) and Hongkong (R. H. Lefevre).

Lasius niger L.—Many workers, females and males from Weihsien, Shantung and numerous somewhat smaller workers from Tsingtau, Shantung (R. H. Lefevre); several workers and a deälated female from Peking (C. F. Wu).

Lasius (*Chthonolasius*) *flavus* De Geer.—Two deälated females and several small workers from Peking (C. F. Wu).

Formica fusca L. var. *japonica* Motsch.—Workers from Peitaiho, North China (N. Gist Gee), Tsingtau, Shantung (R. H. Lefevre), Peking (C. F. Wu) and White River, Barum, Manchuria (P. H. and S. H. Dorsett).

Formica rufibarbis Fabricius var. *glabridorsis* Santschi.—Numerous workers from Peking (C. F. Wu).

Formica rufibarbis var. *sinæ* Emery.—A dozen workers and a single deälated female from Peking (R. H. Lefevre).

The female (undescribed) measures nearly 8 mm. and closely resembles the female of the typical *rufibarbis*, but the dark bands on the mesonotum are larger and confluent. The superior border of the petiolar scale is deformed in the specimen but seems to be more convex and less transverse than in the European type.

Formica (Coptoformica) exsecta manchu, new subspecies

WORKER.—Head more narrowed behind than in the typical *exsecta*, so that the distance between the posterior corners is decidedly shorter than the width of the head at its anterior corners. The occipital excision is therefore narrower though quite as deep as in the type. Clypeus more flattened, not carinate posteriorly. Maxillary palpi as long as in the type. Epinotum with more rounded and convex base, which is as long as the declivity and passing into it without a distinct angle. Petiolar scale much narrower above than in the typical *exsecta*, its sides nearly parallel, the excision of the superior border quite as sharp and deep, semicircular.

Body, especially the gaster, more opaque than in typical *exsecta*. Pilosity even less developed on the gaster. Color darker, the head black, except the cheeks, sides, gula and mandibles which are brownish red. The thorax, coxæ and petiole are also brownish red, but the spot on the pronotum is black and more extensive than in typical *exsecta*. Gaster black; antennæ and legs dark brown or in some specimens reddish brown.

Described from several specimens taken by Messrs. P. H. and S. H. Dorsett at Boketu, Manchuria.

Formica (*Proformica*) *jacoti* Wheeler.—Several workers and an immature female from Peking (C. F. Wu).

The female (undescribed) measures 6 mm. Head subrectangular, as broad as long, scarcely narrower in front than behind. Petiolar scale with straight, subparallel sides, its superior border somewhat more deeply and angularly excised than in the large worker. Pilosity longer and more abundant, especially on the gaster.

Formica (Proformica) lefevrei, new species

WORKER.—Length, 4 mm.

Resembling *jacoti* but stouter, with shorter legs and antennæ. Head as broad as long, very slightly narrowed anteriorly, with broadly rounded posterior corners and straight posterior border. External borders of mandibles convex. Clypeus short and broad, indistinctly carinate, its anterior border not projecting, nearly straight. Frontal area not shining; frontal carinæ short and parallel; frontal groove distinct. Antennal scapes extending about one-fourth their length beyond the posterior corners of the head; first funicular joint slightly longer than the second and third joints together. Pronotum broader than long, convex and rounded, almost hemispherical when seen from above; mesonotum short, as long as broad, much narrower than the pronotum, in profile somewhat flattened above; mesoëpinotal constriction distinctly shorter than in *jacoti* and the epinotum shorter, its base rising somewhat posteriorly, shorter than the sloping declivity with which it forms a distinct rounded angle. Petiolar scale much more compressed anteroposteriorly than in *jacoti*, so that it appears very thin in profile, its anterior surface feebly convex, its posterior surface flat, its superior border sharp in profile, broadly rounded when seen from the front, distinctly emarginate in the middle. Gaster rather large.

Shining, with æneous reflections; mandibles striatopunctate; clypeus, cheeks and front very delicately and longitudinally striate and sparsely punctate; posterior portion of head smooth and shining with small, sharp and moderately sparse punctures. Mesopleuræ and sides of epinotum rather opaque and granular; remainder of thorax and gaster smooth and shining.

Pilosity white, delicate, sparse and rather short on the upper surface of the body. Pubescence fine and appressed, visible only on the sides of the thorax, coxæ, petiole and appendages.

Black; pro- and mesonotum castaneous; mandibles, antennæ, trochanters, knees, tibiæ and tarsi yellowish red.

A single specimen from Tsingtau, Shantung (R. H. Lefevre).

The structure of the petiolar scale is peculiar and quite unlike that of *mongolica* Emery, *jacoti* Wheeler, *nasuta* Nylander, etc.

Cataglyphis cursor Fonsc. subsp. *rockingeri* Forel.—Numerous workers from Weihsien, Shantung (R. H. Lefevre), varying from 5–7 mm. in length. They agree perfectly with Forel's description of the types from Tian Shan, Turkestan. The occurrence of this form in Shangtung extends the eastward distribution of *cursor*, which ranges westward across the dry portions of Asia and Europe as far as southern France.