

Periplaneta americana, L. } (Sub-fam. *Blattinae*.)
Periplaneta australasiae, Fab. }

Rhyparobia maderae, Fab. } (Sub-fam. *Panchlorinae*.)
Pycnoscelus surinamensis, L. }

but the following have an extremely wide distribution and will also be considered :—*

Supella supellectilium, Serv. (Sub-fam. *Pseudomopinae*.)

Neostylopyga rhombifolia, Stoll.

Blatta orientalis, L. } (Sub-fam. *Blattinae*.)

Periplaneta brunnea, Burm. (*truncata*, Kr.) }

Nauphoeta cinerea, Oliv. (Sub-fam. *Panchlorinae*.)

Euthyrrhapha pacifica, Coq. (Sub-fam. *Corydiinae*.)

All of the above, with the exception of *B. orientalis*, L., are essentially tropical insects, occasionally ranging into temperate zones but unable apparently to establish themselves permanently there.

[“ These posthumous papers of my old friend are rough notes drafted during his long illness, in preparation of some essays on various interesting subjects in which he was eminently qualified to write. Though rough and incomplete, I cannot help thinking that these are worth publishing, as they are useful and interesting in themselves.—M. B.”]

Anergates atratulus, Schenk., a British Ant, and the acceptance of a ♀ by **Tetramorium caespitum**, L.

By W. C. CRAWLEY, B.A., F.E.S.

On July 23rd of this year my friend Mr. Donisthorpe and I were collecting ants in the New Forest near Lyndhurst, where *Tetramorium caespitum* is abundant, when I was attracted by the large size and deep black colour of some ♂s of *Tetramorium* that were coming out of some galleries on the side of a small mound. On removing the earth covering these galleries I found numbers of a small black winged ♀ ant among the *Tetramorium*. Mr. Donisthorpe then coming up, we carefully excavated the nest, which nowhere descended more than two or three inches into the sandy soil. The colony consisted of an obese queen, 20-30 winged ♀s, and three ♂s of *Anergates atratulus*, with a fair number (several hundreds) of *Tetramorium caespitum* ♂s. The only pupæ and larvæ were those of *Anergates*, and there were, of course, no ♂s or ♀s of *Tetramorium*. I established this colony in a terra-cotta Janet nest, where it is doing well. The queen lays an enormous quantity of eggs, most of which are devoured by the ♂s, the *Anergates* queen thus being an important source of food-supply. The *Tetramorium* ♂s readily received and hatched out strange larvæ and pupæ of their own species.

This curious parasitic ant, with an apterous pupoid ♂ and no ♀ caste, now established as British, was first discovered by Schenk, at Weilburg in 1852. C. W. Dale in 1897, speaking of *T. caespitum*, mentions *Anergates atratula*, Sch., as occurring with it, and says it is

* Kirby in his *Synonymic Catalogue of the Orthoptera*, vol. i., quotes a wide distribution for *Ischnoptera rufescens*, Beauv., to which name he appends numerous synonyms. I am by no means satisfied that this synonymy can be established entirely, and until that is done the exact geographical distribution of the species remains in doubt. I therefore omit all further reference to it.

the ant standing in Curtis' guide as *Myrmica maculipes*, Curt., which was taken by his father at Charmouth in 1835 (*i.e.*, 17 years before its description by Schenk). No trace, however, of this ant can be found, this synonymy being given neither in Forel, Smith, nor Dalla Torre, and the matter therefore must be considered as very doubtful.

As the ♂ of *Anergates* is apterous and can only walk with difficulty, mating (which I have repeatedly observed) must necessarily take place inside the nest, and assume the form of adelphogamy. In my nest the ♀s removed their wings soon after copulation and made no attempt to leave the nest. In every case also each deälated ♀ seized a *Tetramorium* ♂ by the antenna, and kept hold for hours and sometimes days. In nature this would probably have occurred outside a strange nest to which the ♀ was trying to gain admission, and may have for its object the acquisition of the odour of the *Tetramorium*, or may cause the strange ♂s to drag her more readily into their nest. Neither of these explanations seems quite satisfactory however.

It is important here to emphasise the complete adoption of a newly fertilised *Anergates* ♀ as queen by a large colony of *T. caespitum* (recorded elsewhere), as it solves the problem of the elimination of the host ♀s. In this case the *Tetramorium* killed off all their own ♂s and ♀s, including two deälated ♀s, two days after accepting the *Anergates*. The latter is now distended to about half the size she should eventually reach. I am inclined to think that a similar slaughter takes place in colonies with queens of *Lasius niger* and *L. alienus*, after the acceptance of the parasitic ♀s of *Lasius umbratus* and *L. mixtus*. Mr. Donisthorpe has repeatedly expressed his opinion that *Anergates* would be found in Britain, and last year we actually made a special visit to Whitsand Bay, where *Tetramorium* abounds, in the hope of discovering it. Our search, however, was very much hampered by the extreme drought, which caused the ants to retire deep into the earth.

The ♂ of the British *Anergates* possesses no strigil, and therefore corresponds to the form found in Holland rather than to that found further south. The ♀, one of which I sent to Forel, is the typical *A. atratulus*.

NOTES ON COLLECTING, Etc.

COLLECTING NOTES 1912.—I had the pleasure of taking *Phoeropyga upupana* in a wood near here on May 19th, after having worked for it for some years. At Hailsham, on June 6th, at the entrance to a wood where *Bunium flexuosum* (the common earth-nut now known as *Conopodium denudatum*.—H. J. T.) is the the commonest flowering plant, *Odezia atrata* was plentiful. *Adscita statices*, too, in lovely condition, was found in an open space in the same wood. The specimens netted included the blue-green type form. I visited Hindhead Common on June 10th, a very unfavourable day, and found it difficult to get anything to fly. The only moth at all interesting to me was *Phoeropyga* (*Anchylopera*) *myrtillana* one or two examples of which I knocked out of the *Vaccinium*. I was at Lyndhurst for a few days in the middle of June but had a disappointing time. *Rhyacionia* (*Retinia*) *pinivorana*, and *Coleophora ahenella*, as also larvæ of *Sarothripa undulans* (*revayana*) occurred. There was very little butterfly life. I did see