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Dolichoderus (Hypoclinea) crawleyi n.sp., a species of Ant new to Science; with a few notes on the Genus.

By H. DONISTHORPE, F.Z.S., F.E.S.

♂ Black, shining, sides of clypeus, inner borders and base of mandibles, club of antennæ, base of joint of funiculus, and apex and base of scape, anterior border, and posterior border narrowly, of pronotum, base of epinotum narrowly, tarsi, apex of tibiæ and trochanters, yellow. Antennæ, legs, and whole body furnished with pale yellow outstanding hairs; gaster with white decumbent pubescence.

Head rugose and wrinkled, together with mandibles, triangular; clypeus convex, coarsely wrinkled; frontal area distinct; mandibles triangular, with large widely separated punctures, and many teeth on terminal border; antennæ with scape thickened towards apex; eyes high on sides of head. Thorax rugosely wrinkled; pronotum unarmed, flat on disc, rounded at sides; mesonotum higher than pronotum; epinotum unarmed, rounded, more rugosely wrinkled and pitted than rest of thorax, with declivity somewhat scooped out and much smoother. Scale of pedicel viewed from side conical, triangular, rugosely punctured; gaster short broad oval, finely punctured. Long. 4.5-4.8mm.

♀ Mandibles, clypeus, cheeks, mesonotum, scutellum, and metanotum pale yellowish white; a longitudinal stripe on centre of mesonotum and on the parapsidal furrows brown; gaster and rest of body yellowish brown; pilosity and pubescence as in ♂. (Probably immature.)

Head shape and punctuation as in ♂. Thorax smoother; mesonotum high and convex; scutellum very prominent and raised; epinotum rounded, convex, with white decumbent pubescence. Scale shape as in ♂, but not nearly so rugose; gaster smooth, short broad oval, but less round than in ♂. Long. 6mm.

Described from 12 ♂♂ and 1 winged ♀ from Singapore, given to me by my friend Mr. E. E. Green. They were associated with species of *Lecanium* (Coccids) in hollow stems of *Macaranga*.

I have named this species in honour of my friend and colleague, Mr. W. C. Crawley.

D. (H.) crawleyi comes in section 15 of Mayr's table of *Hypoclinea* [Zool. Bot. Ges. Wien, 20, 955 (1870)] which contains two species from Borneo—*patens* Mayr and *semirugosa* Mayr; both species are larger, the former is of a reddish-yellow colour and is smoother, etc.; the latter is of a deeper black, duller, and the head and thorax are much more rugose and wrinkled. In some respects it approaches *sulcaticeps* Mayr, but that species is also larger, and has the gaster broadly yellow anteriorly; moreover the clypeus is much less wrinkled, and the frontal area is not clearly defined, etc.

Dolichoderus Lund (tribe *Dolichoderini* Emery, subfamily *Dolichoderinae* Forel), is a large genus consisting of some 63 species, and is distributed over all the tropical and temperate regions of the world, except Africa, Madagascar, New Zealand, Polynesia and Chili. The type of the genus is *Dolichoderus attelaboides* Lund.

The chief characters are as follows:—

♂ Not very variable in size. Mandibles triangular, toothed. Maxillary palpi 6-jointed; labial palpi 4-jointed; antennæ 12-jointed; no ocelli. Thorax deeply impressed between mesonotum and epinotum. Pedicel with a scale, which is sometimes spined; gaster not overhanging pedicel; anus not visible from above. Gizzard without calyx, or cylindrical portion, and with a not very definite bulb.

♀ Anterior wings with two closed cubital cells, and one discoidal cell. Not much larger than, and resembling ♂ in general.

♂ Antennæ 13-jointed, scape a little longer than the second joint of the funiculus, first joint of the funiculus very small. Genitalia: stipites massive, volsellæ variable. Wings as in ♀.

OCTOBER 15TH, 1917.

The genus is divided into three subgenera thus :—

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|---|---|---------------------------------|
| 1 | { Mesonotum longer than broad | subg. <i>Dolichoderus</i> Lund. |
| — | { Mesonotum at most as long as broad | 2. |
| 2 | { Scale furnished above with an angle or a spine; pronotum nearly always bispinous, or biangular .. | subg. <i>Monacis</i> Roger. |
| — | { Scale unarmed; pronotum rarely bispinous .. | subg. <i>Hypoclinea</i> Mayr. |

The species described above belongs to the subgenus *Hypoclinea* Mayr. The type of *Hypoclinea* is *Formica quadripunctata* L., which is the only species of *Dolichoderus* found in Europe. There are some 46 species of *Hypoclinea* known, of which 4 are Holarctic, 12 Neotropical, 7 Australian, 2 belong to New Guinea, and 20 to India and the Malay Archipelago.

The species of *Dolichoderus* possess variable habits. The European *D. quadripunctatus* lives in small nests under bark of trees and in dead branches, generally running in company with *Colobopsis truncata* and *Leptothorax affinis*. The similarity between it and the *Colobopsis* is probably due to mimicry. It licks the surfaces of leaves on which the honey-dew of Aphids has fallen, and the exudations of flowers and twigs; but according to Forel it does not attend Aphides—its habits in fact being similar to those of *Leptothorax*. I have taken it in hollow walnut branches in Switzerland, where the *Colobopsis* and the *Leptothorax* also occurred.

Wheeler gives a very good account of the habits of some of the North American species [*Bull. Amer. Mus. N.H.*, 21, 305-19 (1905)], and these do attend Aphids, as well as licking the surface of leaves, etc.; they are also very fond of insects for food. As in the European species they crouch down when frightened, but if the nests are disturbed, they attack the intruder with all their force. Their nests, which are concealed beneath herbage, etc., are dug out in the sand.

A certain number of species construct carton nests (*D. attelaboïdes*, *D. bidens*, etc.), and in the forests of tropical America *D. bispinosus* builds voluminous nests, made of fibres, fastened together with a kind of cement, which are suspended from trees.

Notes on *Pararge aegeria* var. *egerides* in S. Devon, 1917.

By Dr. R. C. L. PERKINS, M.A., F.Z.S., F.E.S.

In 1916, having chanced to meet the late Mr. A. E. Gibbs, and finding him particularly interested at the time in the butterfly *Pararge aegeria* var. *egerides*, I had for some years been struck with the distinctive appearance, or one might say beauty, of some of the early spring specimens. I undertook the breeding of this species, and from time to time submitted specimens, both caught and bred, and notes on these to him.

When exhibiting the results of these experiments at the South London Entomological Society in October, 1916, Mr. Gibbs incorporated my observations in his remarks as follows :—

“ When I was in South Devon at the end of April and the beginning of May freshly-emerged females were fairly common, but females appear to have been less in evidence later on. The comparatively few captured by Dr. Perkins in May and up to the middle of June (excepting one or two, evidently virgins, freshly hatched specimens) were all kept alive in cages for eggs. Large numbers of ova were laid by these from the

latter part of May till the end of June. The resulting larvæ were fed on growing luxuriant food under natural conditions of temperature. The rate of growth was very slow, and it was not until the 29th of July (though possibly overlooked on the 28th) that the first butterfly, a ♀, emerged.

“On the same day the first second-brood wild female was observed in the lane whence the stock had been procured.

“From the latter part of June till July 29th, the butterfly in a wild state had become very scarce though throughout May and till the middle of June it was extremely common in the lanes. Except perhaps a few worn examples it disappeared in July in 1916, and it may be said that the second brood did not begin to emerge till the end of the month.

“By the end of July and in early August Dr. Perkins had hundreds of larvæ varying in size from those full grown or nearly so to those still very small, or about in the second and third stages. A few butterflies emerged from August 10th to August 17th, from May or early June eggs, but on August 10th most of them were still in the larval stage and many not more than half grown, some smaller still. On August 9th several pupated. Three butterflies emerged from these pupæ on October 1st to 3rd. One of them was a cripple, but the other two are rather small and peculiar specimens. These were bred indoors. The pupæ are dimorphic, a beautiful clear green or brown.

“On September 12th and following days the butterfly was found in great numbers in some of the lanes behind Paignton, many of the specimens being very fresh and perfect. About the same date some of both sexes were bred from early August pupæ. The females were put in cages and wild males with them to obtain fertile eggs. Ova were laid by these females till the end of the month but many of them were destroyed by predaceous insects or bad weather, the last butterfly dying about October 1st, after exposure to several nights of violent rains. The first caterpillar emerged from these eggs on October 5th, and half a dozen or more on the following morning.

“On the 3rd of October the grass on which the eggs were laid was dug up, potted, and placed in the open window of a loft.

“The conclusions at which Dr. Perkins has arrived from his observations and experiments during the present year are exceedingly instructive. No very early (March) specimens such as occur some years were seen in 1916, but the first brood of *egerides* appeared without any break or diminution in numbers from early spring till the middle of June. There is little doubt that all of these belonged to one brood derived from eggs laid the previous year. A distinct gap was then observed in the occurrence of the butterfly and it was not until the end of July that fresh specimens appeared. The fact that many of the eggs laid in the latter part of May and beginning of June did not become butterflies till September 12th to October 3rd, while hundreds of larvæ less advanced than these and only half grown in the second and third week in August were thrown away for want of facilities for rearing them, renders the idea of a third brood in 1916 impossible. It seems unlikely that most of these larvæ could possibly have produced any butterflies till next year. It would appear then that in 1916, so far from being three-brooded, *egerides* has been probably only partially double brooded, for it is extremely unlikely that the latest laid eggs of the first brood have