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THE

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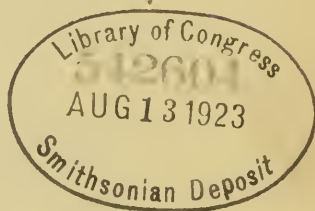
OF THE

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1919.



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exhibitor, and another to the Natural History Museum, in which the species was previously represented neither by British nor Continental specimens.

*Wicken Fen.*

The Treasurer announced that subscriptions were needed for the upkeep of Wicken Fen; observing that permits would be given preferentially to subscribers. He stated that two acres in the middle of the fen had been offered for sale at a very reasonable price, and had been acquired by the National Trust.

*Date of Dr. Ris' Names in Odonata.*

Dr. GAHAN said that M. Severin had written to him asking whether it would be possible to give to Dr. Ris' names in Odonata the date at which they were ready for publication, the actual publication having been made impossible by the war.

Several Fellows joined in the ensuing discussion, but it was universally held that such a course would be impossible.

*A Judge on Entomology.*

Mr. BETHUNE-BAKER called the attention of the Society to the disparaging remarks made in a recent case by Mr. Justice Darling with reference to Entomology, and asked whether it would be possible and wise to take official notice of the matter. It seemed, however, to be generally felt that it was not worth while, Dr. Longstaff remarking that even though the "learned Judge" had displayed a want of knowledge, the Society was not a finishing school for Judges.

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Wednesday, May 7th, 1919.

Commander J. J. WALKER, M.A., R.N., F.L.S., President, in the Chair.

*Exhibitions.*

A GIGANTIC SCARAB.—Mr. O. E. JANSON exhibited a specimen of the extraordinary and gigantic ball-rolling beetle, of the family *Scarabaeidae*, described by Mr. G. J. Arrow

in last month's number of the Ann. Mag. Nat. Hist., under the name of *Mnematum cancer*. The type specimen in the British Museum is a male, and that exhibited a female, in which the intermediate legs are of more normal size. Both specimens were contained in a collection made in various parts of South-West Africa, and the precise locality in which these were taken was not indicated.

COCCINELLA DISTINCTA, FALD., AND ITS ASSOCIATION WITH FORMICA RUFA, L.—Mr. DONISTHORPE exhibited this Coccinellid and contributed the following observations:—

*Synonymy.*—I do not propose to spend much time on this point, as my chief problem is its association with ants.

Faldermann described and figured the species in 1837, but with only five spots. Although this has to be the type form I believe it is exceedingly rare, and is only a case where an individual has lost a spot, and is really an aberration. I have only seen a single specimen with five spots, taken by Mr. Ashdown in Switzerland with a number of other examples all possessing seven spots. I have never seen a British specimen, but exhibit the nearest form to it I have taken, in which the 1st spot is very small. Redtenbacher in 1844 again described the species under the name of *magnifica*; also with only five spots.

Mulsant in 1846 described the usual form with seven spots under the name of *labilis*. I may mention that there is an aberration with nine spots (ab. *domiduca*, Weise, 1879) which occurs in Britain, and which I exhibit.

*Distribution.*—*C. distincta* appears to be widely distributed in Europe and occurs in the Caucasus.

*British Distribution.*—In Britain it has been found in Hants, Sussex, Kent, Surrey, Essex, Berks and Worcester. Edward Newman first recorded it as British in 1847; but Stephens stated that he had placed British specimens in the Museum Collection in 1816.

*Association with Ants.*—The first time in literature that this Lady-bird was mentioned as actually being connected with ants, was in 1888, when C. H. Morris recorded it from near Lewes, and stated it was attached to the nests of *Formica rufa*. It is, of course, most probable that the single

example of *C. 7-punctata* recorded from Finland in 1843 as being taken with *F. rufa*, by Mannerheim, was really *C. distincta*.

In 1895 I recorded it with *Formica rufa*, and pointed out it was a myrmecophilous species.

As a matter of fact, it is only to be found in the immediate neighbourhood of ants' nests, and in this country with *Formica rufa*. My problem, which I have been working at for over twenty years now, is to try and account for its association with ants.

I have taken it, in every month in the year, on and about the nests of *F. rufa*. In 1900 I proved by experiment that this species was more protected against the attacks of its host than is the nearly related *C. 7-punctata*, and that the ants were far less aggressive to it than they were to the latter. This point I was able to demonstrate to Mr. Blair in the field last year, when he was with me at Weybridge.

I may here mention that Dr. Sharp has kindly dissected the ♂ genitalia of *C. distincta* and *C. 7-punctata* for me (which I exhibit), and he found they differ greatly; those of *C. distincta* being very highly specialised.

In 1900 I suggested that the larvae of the beetle fed upon the Aphidae and Coccidae dwelling with the ants. This point was seized on by Wasmann in a paper published in 1912 (the first and only real record of the Lady-bird with ants on the Continent). He writes: "The larvae of this *Coccinella* lives from analogy with the other Coccinellid larvae without doubt, as Donisthorpe already in 1900 has remarked on the Aphidae and Coccidae dwelling with ants." He then goes on to say that the ant species with which it occurs do not keep any Aphidae or Coccidae in their nests, and that this is a Darwinian paradox. In this he is not quite correct, as *F. rufa* does keep a few species of both in the nests; but not, of course, in anything like sufficient numbers to serve as food for the Lady-bird's larvae. However, on July 3rd, 1918, I found a large number of the larvae feeding on Aphids, attended by the ants, on fir-trees over *rufa* nests. I brought a number home, with fir-boughs covered with Aphids, and introduced them into my large *rufa* observation nest. They

all pupated and hatched by July 20th; eight to nine days only being spent in the pupal state. I exhibit larvae and pupae and bred insects and the pupal skin.

Both the larva and pupa differ in various ways from those of *C. 7-punctata*, but we need not go into that here.

In 1908 I wrote: "My present view is that these beetles seek the nests of *Formica rufa* for hibernation, and leave in the spring or early summer." I endeavoured to settle this point this winter. I brought a number of the beetles home on August 27th and established them on the small fir-tree planted in my large *rufa* observation nest. Of course, my Aphids died off, but I found the beetles would feed with the ants on the honey supplied for the latter. I may mention that a number of them passed the whole winter on the fir-tree, and sides of the nest (I exhibit two of them taken off the small fir-tree to-day), but a number disappeared. On Feb. 29th this year I dug up the whole nest, all the ants being down below, but only found one Lady-bird right beneath the débris with the ants.

On Feb. 28th I had been down to Weybridge and dug up a *rufa* nest in nature there. The ants were right below the hillock in earth chambers some  $2\frac{1}{2}$  feet down, and I found one Lady-bird with them; dormant, but quite alive. There were others as usual on the fir-trees above the nests.

I fear this is not sufficient evidence to prove my point, and one must still ask why is *C. distincta* only found with *F. rufa*, when it could as easily find plenty of its food away from ants' nests?

Another point which may be a factor in the problem is the fact that *Coccinella distincta* is often found in company with *Clythra 4-punctata*, the latter beetle passing its earlier stages in the *rufa* nests. I stated as long ago as 1900 that I considered the *Clythra* to be a mimic of the *Coccinella* [Ent. Rec. xii, p. 174 (1900)]. This is a case of Müllerian mimicry as I suggested might be the case in 1901 [Trans. Ent. Soc. Lond., 1901, 367]. Experiments with *Clythra* at the Zoological Gardens proved it to be distasteful to various birds and insectivora [Trans. Ent. Soc. Lond., 1902, p. 17]. It might

be that the *Coccinella* was a mimic of the *Clythra* in the first place, as the latter always lives in *rufa* nests in its early stages. *C. distincta* has larger spots than *C. 7-punctata*, and this may have been brought about by mimicry as the spots on the *Clythra* are still larger.

Prof. POULTON suggested that this was possibly the beginning of an association which might gradually develop.

The PRESIDENT observed that he had seen a number of Coccinellids emerging from ants' nests in Blean Woods at the end of April 1914, all immature.

Mr. CHAMPION suggested that the instinct of the Coccinellid to lay its eggs might be stimulated by the presence of the Aphids, and have no relation to the ants, with reference to which Prof. POULTON said that he understood from Mr. Donisthorpe that the Coccinellid larvae were not found indiscriminately on colonies of the *Aphis*, but only on those in the neighbourhood of the ants' nests.

FEMALE FORMS OF PAPILIO POLYTES, L., BRED AT HONG-KONG.—Prof. POULTON exhibited 4 females bred in 1914 by Mr. R. W. Barney of St. Stephen's College, Hong-Kong. Accompanying these was a *stichius*, Hübn., form of female (without white in the hind-wing cell), captured Aug. 1, 1914, and described by Mr. Barney as closely resembling the female parent. Of the 4 bred specimens one (bred Nov. 27) was a *stichius* form with a minute vestige of the white mark in the hind-wing cell, one (Nov. 23) a *polytes* form but with a very small white patch in the same position, two (Nov. 24 and 26), the ♂-like form *mandane*, Rothsch., corresponding to the *cyrus*, Hübn., ♀ f. of the more western subspecies, *polytes romulus*, Cram. The three first-named specimens afforded some slight evidence that the amount of white in the hind-wing cell was a hereditary feature, but further investigations on a large scale were greatly needed.

THE ETHIOPIAN HESPERID RHOPALOCAMPTA ANCHISES, GERST., ATTRACTED BY LIGHT.—Prof. POULTON exhibited a male and female of *R. anchises* captured by the President under the circumstances described in the following note from his diary of June 18, 1893:—

“ In the evening I caught two specimens of a fine large