

## RONALDS' COLLECTION AND THE 'FLY-FISHER'S ENTOMOLOGY.'

BY MARTIN E. MOSELY, F.E.S.

It is not generally known amongst trout-fishermen that the models from which Alfred Ronalds drew his figures in the 'Fly-Fisher's Entomology' are mostly still in existence, and are preserved in the Hope Department in the Oxford University Museum.

The Ephemerae of the collection are in very bad condition, some specimens being reduced to a mere fragment of tissue on a pin, so that determination to-day must necessarily be somewhat uncertain; fortunately there is a record of most of the Ephemerae, as in 1871, when working on his Monograph, the Rev. A. E. Eaton examined the collection and noted, as far as their condition allowed, what the various numbered specimens actually were. The remainder of the collection has withstood the ravages of time and insect pests comparatively well, and there has been no difficulty in determining the species.

It is with some astonishment that we find in many instances that the actual insects do not correspond with Ronalds' figures even in such noticeable particulars as sex and the number of setae, and we are almost forced to the conclusion that at some period, probably when the fifth edition of his work was published, some interference with the collection may have taken place, and as Ronalds himself was at the time in Australia, errors, if errors there were, have remained uncorrected.

For example, Fig. 8 shows an Ephemera, obviously a male, yet the actual insect bearing the No. 8 ticket is a female. Again, in Fig. 22 we have a capital drawing of the 'Turkey Brown,' *Leptophlebia submarginata*, with three setae, while the insect bearing that number is a recently described *Rhithrogena* species, differing widely in general appearance and carrying only two setae.

The position is further complicated by the confusion which until quite recently has existed amongst the species of the genus *Ecdyurus*. At least two and possibly more species, one of which is the 'Autumn' or 'August Dun,' and another, the 'March Brown,' were confused as *Ecdyurus venosus* F., a name which should really apply to the 'March Brown' alone. On his examination of the Ronalds' collection, Eaton determined two differing species as *Heptagenia longicauda* and *Heptagenia venosa* respectively, though in his later monograph he decided that they were all one species, which he re-named *Ecdyurus venosus*. Ronalds was the more accurate, as he gives his two different species two different popular names.

There is confusion in other groups besides the Ephemeridae. Fig. 37 is a particularly fine drawing of a *Mystacides* species, the 'Black Silver-horns,' whilst the insect so numbered is a *Leptocerus cinereus*, or 'Brown Silver-horns,' differing entirely in appearance from the *Mystacides* species.

No. 1, the 'February Red' or 'Red-Fly,' is missing from the collection, but it is well known to fishermen as *Taeniopteryx nebulosa*, and we actually find this insect numbered 44, which should represent the Willow Fly, *Leuctra geniculata*.

Whilst it is unfortunate that there should be so much confusion, the bulk of the collection is accurately represented by the figures, and it is very desirable that the identity of the 'types,' if one may be permitted so to designate them, be placed on record whilst they are still recognisable.

In preparing this account of the collection I must acknowledge my indebtedness to Mr. K. G. Blair of the British Museum, who has rendered great assistance in the consideration of the fragments of the Ephemeridae, as well as in determining the Coleoptera; to the other specialists of the British Museum who have determined the species of their particular groups; and particularly to Professor E. B. Poulton of the Oxford University, for so kindly placing the collection in my hands for study.

#### NOTES ON THE COLLECTION.

It must be understood that in the following notes the determinations are of the actual specimens in the collection; they must not be considered as applying necessarily either to the figures on Ronalds' plates or to the popular names by which he distinguishes them.

The popular names given in these notes appear in the 'Fly-Fisher's Entomology' against the numbers of the figures, which no doubt originally corresponded with the numbers of the collection, which are still affixed to the pins.

#### NO. 1. RED FLY.

In the collection, No. 1 is missing, but the insect representing it is to be found labelled No. 44 as a Willow Fly. It is evident that the numbers have been changed, and that it is the Willow Fly model that has been lost of destroyed, and not the Red Fly, better known to the fishermen as the February Red, *Taeniopteryx nebulosa* L. ♀ (PERLIDAE).

#### NO. 2. BLUE DUN.

This is now represented by the thorax, abdomen, one anterior wing, one posterior leg; determined in 1871 by Eaton as a female

sub-imago *Baetis phaeops* Etn., now known as *Baetis vernus* Curt., and to fishermen as the Olive Dun. The figure indicates a male fly.

*Baetis vernus* Curt. ♀ (EPHEMERIDAE).

No. 3. RED SPINNER.

Now represented by the thorax, portion of the abdomen, greater portions of anterior and posterior wings, one median leg; determined by Eaton in 1871 as *Heptagenia longicauda* Steph., female imago, the August or Autumn Dun. Eaton determined this example as a female, but Ronalds' figure clearly indicates a male.

*Ecdyurus longicauda* Steph. ♀ (EPHEMERIDAE).

No. 4. WATER CRICKET.

Specimen in good condition and correctly determined by Ronalds.

*Velia currens* F. (HEMIPTERA).

No. 5. GREAT DARK DRONE.

Specimen in good condition.

*Dolerus niger* L. (HYMENOPTERA).

No. 6. COW-DUNG FLY.

Specimen in good condition and correctly determined by Ronalds.

*Scatophaga stercoraria* L. (DIPTERA).

No. 7. PEACOCK FLY.

Specimen in good condition.

*Quedius fulgidus* Gr. (COLEOPTERA).

No. 8. DUN DRAKE or MARCH BROWN.

Now represented by head, thorax, abdomen and portions of wings; legs missing. Determined in 1871 by Eaton as a female imago of *Heptagenia venosa* F., now known as *Ecdyurus venosus* F. The figure represents a male sub-imago of probably the same species, and has obviously been copied from some other insect, perhaps that now bearing the No. 22.

*Ecdyurus venosus* F. ♀ (EPHEMERIDAE).

No. 9. GREAT RED SPINNER.

This is represented by the head, thorax and abdomen, portions of one anterior and one posterior wing, one posterior leg. Not mentioned by Eaton. A female imago, probably *Ecdyurus venosus* F.; the plate shows a male imago of this species.

*Ecdyurus venosus* F. ♀ (EPHEMERIDAE).

No. 10. GOLDEN DUN MIDGE.

In perfect condition and correctly determined by Ronalds.

*Chironomus plumosus* L. ♂ (DIPTERA).

## No. 11. SAND FLY.

In good condition, antennae broken.

*Rhyacophila dorsalis* Curt. (TRICHOPTERA).

## No. 12. STONE FLY.

The insect here is a *Perlodes mortoni* Klap., although the figure on Ronalds' plate more closely resembles a *Perla cephalotes* Curt., which, together with *Perla maxima* Scop., is generally accepted by fishermen as the Stone fly.

*Perlodes mortoni* Klap. ♀ (PERLIDÆ).

## No. 13. GRAVEL BED.

Specimen in poor condition.

*Anisomera burmeisteri* Lw. (DIPTERA).

## No. 14. GRANNOM.

Specimen in fair condition.

*Brachycentrus subnubilus* Curt. (TRICHOPTERA).

## No. 15. YELLOW DUN.

Now represented by head, abdomen, fragments of wings, one anterior, one median, one posterior leg; determined by Eaton as *Heptagenia longicauda* Steph. sub-imago. It would appear from this that the 'Yellow Dun' is identical with the August Dun, No. 38, and also with the Whirling Blue Dun, No. 42, all three being represented by the same species. This assumption is not entirely contradicted by the figures, as they may well represent progressive stages of development of the same insect.

*Ecdyurus longicauda* Steph. (EPHEMERIDÆ).

## No. 16. IRON BLUE DUN.

Now represented by a mere fragment of thorax. Eaton in 1871 determined it as

*Baetis* sp. dub. (EPHEMERIDÆ).

## No. 17. JENNY SPINNER.

Now represented by a mere fragment of thorax. Eaton in 1871 determined it as

*Baetis* sp. dub. (EPHEMERIDÆ).

## No. 18. HAWTHORN FLY.

Specimen in good condition and correctly determined by Ronalds.

*Bibio marci* L. (DIPTERA).

## No. 19. LITTLE YELLOW MAY DUN.

There are two examples, one sub-imago ♀ changing to imago

and a female imago; determined by Eaton in 1871 as *Heptagenia elegans* Curt., now known as

*Heptagenia sulphurea* Müller (EPHEMERIDAE).

No. 20. BLACK GNAT.

Specimen in fair condition, one wing missing.

*Bibio leucopterus* Lw. (DIPTERA).

No. 21. DOWNHILL FLY, DOWN-LOOKER, OAK FLY, ETC.

Specimen in good condition.

*Leptis scolopacea* L. (DIPTERA).

No. 22. LITTLE BROWN DUN, TURKEY BROWN.

Specimen in fair conditions. The actual fly is a male sub-imago of a little known species of *Rhithrogena*, closely resembling the March Brown and with two setae. It was erroneously determined by Eaton in 1871 as *Heptagenia insignis* Etn. It can hardly have been the model of the Little Brown Dun with three setae, and, as mentioned above, is probably the model of Fig. 8.

*Rhithrogena fradgleyi* Blair (EPHEMERIDAE).

No. 23. LITTLE DARK SPINNER.

Specimen reduced to a fragment of thorax. Eaton in 1871 determined it as *Baetis* sp. dub., but the figure suggests the male imago of No. 22.

*Baetis* sp. dub. (EPHEMERIDAE).

No. 24. YELLOW SALLY.

Specimen in fair condition, setae broken, legs missing.

*Chloroperla grammatica* Scop. (PERLIDAE).

No. 25. SKY BLUE.

Specimen reduced to thorax and shreds of wings. Eaton in 1871 describes it as a 'fragment.' Blair considers it to be a *Baetis* species. The figure suggests a 'Pale Watery Dun,' possibly *Baetis binoculatus* L.

Undeterminable.

No. 26. FERN FLY.

Specimen in good condition.

*Cantharis lividus* L. (COLEOPTERA).

No. 27. ALDER FLY.

Specimen in good condition.

*Sialis lutaria* L. (MEGALOPTERA).

## No. 28. GREEN DRAKE, MAY FLY.

Specimen in fair condition.

*Ephemera danica* Pict. ♀ sub-imago (EPHEMERIDAE).

## No. 29. GREY DRAKE.

Specimen in good condition.

*Ephemera danica* Pict. ♀ imago (EPHEMERIDAE).

## No. 30. MARLOW BUZZ, COCH-A-BONDDU.

Specimen missing. It is generally accepted that the 'Coch-a-bonddu' is *Phyllopertha horticola* L., but the figure can hardly be reconciled with this insect, and Ronalds himself determines it as *Chrysomela populi* L. (COLEOPTERA).

## No. 31. DARK MACKEREL.

There are three specimens, one male imago emerging from sub-imagal skin in good condition and two others reduced to fragments, of which one is a ♂. The figures in Ronalds show a ♀ sub-imago and a ♀ imago.

*Ephemera vulgata* L. (EPHEMERIDAE).

## No. 32. PALE EVENING DUN.

Specimen missing. An unnumbered example of *Cloeon dipterum* Burm. may perhaps belong here.

## No. 33. JULY DUN.

Specimen missing. The figure shows a fly with three setae which in all probability represents the Blue-winged Olive, *Ephemerella ignita* Poda.

## No. 34. GOLD-EYED GAUZE-WING.

Specimen in good condition. Judging from the figure, Ronalds would seem to have copied a *Chrysopa perla* L., and he himself determines the species as this insect. But No. 34 actually is

*Chrysopa ventralis* Curt. (NEUROPTERA).

## No. 35. FROG HOPPER.

Specimen in good condition.

*Philaenus spumarius* Fall. (HEMIPTERA).

## No. 36. RED ANT.

Two specimens in good condition.

*Acanthomyops umbratus* Nyl. female, and  
*Myrmica ruginodis* Nyl. female.

## No. 37. SILVERHORNS.

Specimen in fair condition. Ronalds gives a capital figure of

the Black Silverhorns, a *Mystacides* species, but the specimen is a Brown Silverhorns.

*Leptocerus cinereus* Curt. (TRICHOPTERA).

No. 38. AUGUST DUN.

Specimen in bad condition, wings and legs missing. Eaton in 1871 determined this as *Heptagenia longicauda* Steph. sub-imago. It is no doubt the female of No. 15, the Yellow Dun. Ronalds in his figure depicts a male.

*Ecdyurus longicauda* Steph. ♀ sub-imago.

No. 39. ORANGE FLY.

Specimen in poor condition; head missing, rendering determination doubtful.

*Pycnocyrtus peregrinatus* L. ♀ (HYMENOPTERA).

No. 40. CINNAMON FLY.

Specimen in good condition. Halford's 'Cinnamon Sedge.'

*Limnophilus lunatus* Curt. (TRICHOPTERA).

No. 41. BLUE-BOTTLE.

Specimen in good condition.

*Calliphora erythrocephala* Mg. (DIPTERA).

No. 42. WHIRLING BLUE DUN.

Specimen reduced to a fragment of thorax. Eaton in 1871 determined this as *Heptagenia longicauda* Steph. sub-imago, so that the Whirling Blue Dun would seem to be the female sub-imago of the August or Autumn Dun, No. 38.

*Ecdyurus longicauda* Steph. (EPHEMERIDÆ).

No. 43. LITTLE PALE BLUE DUN.

Specimen reduced to a scrap of thorax and fragments of wings. Eaton in 1871 determined this as *Cloeon russulum* Müll. sub-imago ♀.

*Cloeon rufulum* Müll. ♀ sub-imago (EPHEMERIDÆ).

No. 44. WILLOW FLY.

Specimen of No. 44 probably missing, the Red Fly, No. 1, wrongly taking its place. The Willow Fly is generally considered to be *Leuctra gemiculata* Steph. (PERLIDÆ). However, No. 44 now is

*Taeniopteryx nebulosa* L. (PERLIDÆ).

No. 45. RED PALMER.

Specimen missing. Ronalds describes this as the caterpillar of

*Arctia caja* L. (Tiger Moth) (LEPIDOPTERA).

## No. 46. BROWN PALMER.

Specimen missing. Ronalds describes it as the caterpillar of  
*Spilosoma lubricepeda* L. (Buff Ermine Moth) (LEPIDOPTERA).

## No. 47. BLACK PALMER.

Specimen missing. Ronalds describes it as the caterpillar of  
*Lasiocampa rubi* L. (the Fox Moth) (LEPIDOPTERA).

Ronalds' specimens were in all probability taken on the River  
Blythe, near Uttoxeter in Staffordshire.

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London, W.11.  
May, 1930.

A CRITIQUE OF A. ZIMMERMANN'S 'DIE HALIPLIDEN DER WELT'  
(ENTOMOLOGISCHE BLÄTTER, 1924, HEFT 1-4, pp. 1-16, 65-80, 129-144, 193-214),  
FROM THE POINT OF VIEW OF A BRITISH COLEOPTERIST.

BY THE REV. E. J. PEARCE, M.A., F.E.S.

Coleopterists throughout the world owe a great debt to Herr Alois Zimmermann, in that in 1924 he published his 'Die Halipliden der Welt,' a monograph of the Haliplidae of the World, which must for years remain the standard work on this family, bringing as it does, for the first time in history, so many facts together concerning these insects within the scope of a single paper. His death is very much to be regretted by entomologists throughout the world.

I hope that any slight criticisms of this monograph which I may have occasion to make will not be taken as seriously impairing what must long remain an indispensable boon to all serious students of this family. The paper is published in the 'Entomologische Blätter' for 1924 and occupies some seventy pages, into which space Herr Zimmermann has contrived to condense a surprisingly large amount of information.

As was to be expected, the paper deals almost exclusively with the systematics of the family, and the author only mentions the discovery of Matheson that certain species at any rate are algophagous, to quote Herr Geschwendtner, who considers that the algae, 'although consumed, do not constitute the true diet, but rather the innumerable Infusoria and the other microscopic animal life attached to them.' Considering that Zimmermann's point of view is almost exclusively that of the systematist, it is remarkable that he has shown such a balanced treatment of the subject. It is

# **Bibliography of the Neuropterida**

*Bibliography of the Neuropterida Reference number* (r#):  
11315

***Reference Citation:***

Mosely, M. E. 1930 [1930.??]. Ronalds' collection and the "Fly-Fischer's entomology". Entomologist's Monthly Magazine 66:116-123.

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