

been a great pleasure to me to help forward the subject of entomology in the Province, and incidentally to meet so many men interested in the realm of insects injurious or otherwise.

On completing my year of office as President, I wish to thank you most cordially for your attendance and support and for all the time you have devoted to the study of entomology.

May I be permitted to express the hope that your interest will not be allowed to wane, and that our Society may continue to show its vitality by giving evidence of good work accomplished, and may further justify its existence by fostering a feeling of mutual help, encouragement, and incentive among the members, and that as individuals we may each derive benefit from our association and co-operation as a body.

Before I sit down, there is another matter I wish to mention, and that is the aid and recognition the Society has received and is receiving from the Government through the Department of Agriculture, of which the Honourable Mr. Ellison is the head. I, for one, fully realize the importance and value of the support given, and I think it is our bounden duty to pass a formal resolution at this meeting, which can be done in its proper place later in the session, expressing our thanks and appreciation of the assistance rendered by grant of money and by the printing of our Report, and, not least, of the encouragement and personal interest in the Society by the Honourable Mr. Ellison himself.

NOTES ON SOME OF THE VARIABLE SPECIES OF THE GENUS *HYDRIOMENA* AND ITS ALLIES OCCURRING ON VANCOUVER ISLAND.

BY E. H. BLACKMORE, VICTORIA.

As I have been giving special attention to the genus *Hydriomena* and its allies during the past season, and in addition have had my material determined by a well-known specialist, I thought that a short note on a few species and varieties of this group would be of some use to the science of entomology in the Province. This winter while classifying and rearranging the species belonging to the *Hydriomena*, collected during the past season, I was struck by the remarkable variations occurring in some of the species, and in some instances the constancy of the variations was particularly noticeable. As many of these forms were new to me, I compared them with several local collections, and was surprised to find them listed under one or the other of two names. However, I was convinced that they were different species, or at least good varieties. I separated them into as many series as their variations would allow and submitted the whole to L. W. Swett, of Boston, Mass. He has been to a great deal of trouble to get some of them determined, necessitating several trips for comparison with large collections in the New York and Cambridge Museums, and I am greatly indebted to him for his determinations and also for a great deal of information given me in his replies.

The first species I wish to take up is the one listed as *Mesoleuca truncata*, Hufnagel, in Dyar's List No. 3379. In the catalogue of British Columbia Lepidoptera issued in 1904 it is listed under that name, with the words "very variable" after it, and in the Check List of British Columbia Lepidoptera, published two years later, *Mesoleuca immanata* is listed in addition to *truncata*, which is No. 3380 in Dyar's List. Now, *M. truncata* and *M. immanata* were very badly mixed up until Mr. L. B. Prout, of England, worked them out, giving the synonymy and varieties in the "Transactions of the City of London Entomological Society" in 1908. He showed that *truncata* is strictly European, and though closely allied to our form here is not the same. The form we get in North America is *citrata*, Linn., and described by him in 1761 from a specimen taken in Scandinavia, and is quite different from *truncata*. The chief difference lies in the extra diskal band beneath the hind-wing; in *truncata* it is rounded all the way, whereas in *citrata* it ends in a sharp angle as it reaches the base. On the primaries above, the projections in *truncata* are more

rounded and less toothed than in *citrata*. Mr. L. B. Prout has resurrected the genus *Dysstroma*, which was a synonym of *Hydriomena*, and in it he has placed *truncata*, *citrata*, and their varieties, making *truncata* the type. Speaking of varieties, in Europe alone *truncata* has seven and *citrata* thirteen named varieties, which, in addition to five or six varieties of the latter which occur in North America, makes it no easy matter to separate them. *Dysstroma citrata*, Linn., occurs in the eastern portion of this country and does not occur in the West at all, although we have four of its varieties occurring on Vancouver Island—viz., *immanata*, Haw.; *suspectata*, Mosch.; *mulleolata*, Hubst.; and *junctum-notata*, Haw.

I will now try and describe the differences between these varieties as briefly as possible. (I have with me specimens of typical insects and the varieties, and also, through the kindness of Mr. Swett, a specimen of the Eastern *citrata* and one of the European *truncata*.)

The normal *citrata* is grey, with a solid grey central band and no red or brown markings whatever. The variety *immanata* has the median band black instead of grey, and the rest of the primaries brownish. *Junctum-notata* has the central portion of the mesial band white, and in general appearance is very much like the true *truncata*, but can always be told by the differences in the extra diskal band beneath the hind-wing. The variety *suspectata* has no white in the mesial band, is orange-red towards the apex of the fore-wing, and has the median band more toothed, and in the upper part of the same band has a slight projection which does not occur in the other varieties. The fourth and last species, *mulleolata*, which Dyar lists as a synonym of *truncata*, is much larger than the other varieties; the hind-wings are darker and the projections on the median band are more rounded.

In summing up the above changes and additions, we will have to drop the names of *Mesoleuca truncata* and *immanata* from our British Columbia lists and add the following, which is how this species stands at present:—

<i>Dysstroma</i> , Linn., var. <i>immanata</i> , Haw.
" " <i>suspectata</i> , Mosch.
" " <i>mulleolata</i> , Hubst.
" " <i>junctum-notata</i> , Haw.

Before leaving the genus I would like to remark that in all our local collections I have seen *Mesoleuca vasiliata*, Gue., var. *nineifascia*, Hubst., is listed wrongly as *Mesoleuca vasiliata*, Gue. The variety has a white band which is entirely lacking in the typical *vasiliata*. Of course, the true *vasiliata* may occur here, but all the specimens I have seen so far are the variety *nineifascia*.

Coming to our genus *Hydriomena*, we find another name has to be dropped from our list, and that is *taniata*. Now, *Hydriomena taniata*, Stephens, is a strictly European species and does not occur in North America; the form which takes its place in the East is *basaliata*, Walker, which Dyar lists as a synonym of *taniata*. It is not a synonym, but a good species.

We have another form here on the Pacific Coast called *grandis*, which Dyar erroneously placed in the genus *Eucymatoge*, Hub., but there is no doubt that *grandis* is the Western form of *basaliata*, the median band being a little different in outline and there are other minor differences. I have also taken a variety of *grandis* both in Victoria and at Duncan, V.I., which is a little different in markings, being of a warm brown colour. This species is as yet undescribed, but it will probably be described some time this year. Both *basaliata*, Walker, and *grandis*, Hubst., along with a few others are being taken out of the genus *Hydriomena* and placed in the old European genus *Larentia*, thus reserving *Hydriomena* for the true forms, such as *californiata*, *autumnalis*, *furcata*, etc. Our species therefore will stand as *Larentia grandis*, Hubst.

The next species on my list is *Hydriomena californiata*, Packard, which is our commonest and at the same time the most variable species of this genus that occurs on Vancouver Island. I have seen three and in one instance four different species listed under this one name. As far as is known, it only occurs on the Pacific Coast

and is the Western representative of *H. autumnalis*, Strom., differing from this latter species in having red shadings to lines and mesial space. Strange to say that, although *californiata* has no described varieties of the Eastern form occurring here, there is one which is generally listed under the name of *Hydriomena autumnalis*, Strom., var. *crokerii*, Swett, which has the green shadings of the typical form replaced by yellow and has an intensely black, irregular median band, which separates it at once from any other variety. It was described by Swett in Can. Ent. XLII., page 278, 1910, from specimens sent to him by Mr. A. J. Croker, of this City (Victoria, B.C.).

The other one is *Hydriomena autumnalis*, Strom., var. *columbiata*, Taylor (Can. Ent. XXXVIII., page 399, 1906). It is easily distinguished by its much larger size and its narrow mesial area, which is shaded with dark cinerous where the typical species is white.

There is also another species like *californiata* occurring here, and that is *Hydriomena irata*, Swett. These two species are separated chiefly by the length of the palpi, which in *irata* is short, not exceeding 1 mm. in length, and is moderately long in *californiata*, and also by the time of their emergence, *irata* flying early in May, while *californiata* does not appear until the end of June. There is generally a period of from six to seven weeks between them.

Hydriomena ednata, Swett, is another species which has in some cases been labelled as *californiata*, but is easily distinguished by the wide black bar at the base of the inner margin, and by its much larger size, my specimens being 35 mm. in expanse. Its early appearance would also separate, as it emerges towards the end of March, and is, I believe, the first species of this genus to appear.

Hydriomena speciosata, Packard, which occurs here fairly plentifully, varies but very little, but there is a distinct colour variety of it which is much scarcer, and was first taken by the late Rev. G. W. Taylor at Departure Bay in 1908. It is a very pretty variety, and differs from the normal *speciosata* in having all the pea-green areas of the typical form replaced by olive-brown. It was named *H. speciosata*, Packard, var. *taylori*, by Swett, who described it in Can. Ent. XLII., page 277, 1910.

This concludes my remarks on the more variable species of this genus. There are a few other species I would like to have touched upon, but lack of time prevents me on this occasion.

NOTES ON THE LIFE-HISTORIES OF BLOOD-SUCKING DIPTERA OF BRITISH COLUMBIA, WITH SPECIAL REFERENCE TO THE TABANIDÆ.

BY SEYMOUR HADWEN, D.V.SCL., AGASSIZ, B.C.

Mr. Chairman and Gentlemen.—First of all, I intend to give you a list of the species of Tabanidæ which are known to me to occur in British Columbia. I wish to refer to the pioneer work of Mr. R. V. Harvey, who was the first to do any systematic work on this important group of insects, and who published the first list of species. Most of my collecting has been done on the Lower Fraser and on Vancouver Island, and there are doubtless a number of up-country forms yet to be recorded. The determinations of Harvey's specimens were made by Professor Hine, as were also some of my own. Others I sent to the British Museum. This has led to a little confusion in one or two species. For instance, Professor Hine names one of the species *Tabanus insuetus*, O. S.; whereas the authorities at the British Museum refer to it as an *Atylotus*. Hine's *Tabanus fratellus*, Wills., the British authorities name *T. patullus*, Walk. Hine also gives priority to *T. captonis*, Martin, over *T. comastes*, Wills.

I shall now give you a list which Mr. Harvey gave me of the Tabanidæ in his collection. I have collected all these forms myself, and in addition have found three more species which I am adding to his list.