

### Outbreak of a Springtail, *Achorutes nivicolus* Fitch, at Ottawa

An interesting record of a severe infestation of this insect in the early spring of 1950 was obtained from a farm at Leitrim, Ontario, five miles southeast of Ottawa. The writer, on visiting the farm on March 28, found that the snow in the front- and back-yards of the house was grey with the insect. The springtails were on the side of the house, on the verandah, and on the doorstep; and the owner of the house claimed that they were everywhere inside, even in the beds. He alleged also that the infestation extended over 25 to 30 acres of his farm, and that he had first noticed the insect on March 25.

H. G. James of the Dominion Parasite Laboratory, Belleville, Ontario, who identified the specimens, states (in litt.), "When the Iroquois spoke of 'soft weather fleas' during the winter this was probably the insect they had in mind. Although a number of species of Collembola are found on snow, *A. nivicolus* is usually the one that occurs in outbreak numbers. Charles Macnamara gives an interesting discussion of *A. nivicolus* Fitch [= *A. socialis* Uzel] in *Canadian Ent.* 54: 149. This species is common in many parts of Europe as well as in North America, and according to Harlow B. Mills (1934. *The Collembola of Iowa*. Collegiate Press, Ames, Iowa) it is cosmopolitan."

L. M. CASS  
Vegetable Insect Laboratory  
Division of Entomology  
Ottawa, Canada

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### The Illustration of Entomological Papers

Readers will have noted that, beginning with the January number, a better grade of paper has been adopted for the *Canadian Entomologist*. This step was taken in order to meet the demand for a better reproduction of photographic illustrations, in which a good deal of important detail was lost with the paper formerly used. It will we think be generally agreed that the new paper is a great improvement.

However, we should like to take this opportunity of making some general observations on the illustration of entomological papers.

When a new technique is discovered, and particularly if it appears to save work, there is naturally a general tendency to adopt it and to discard the older methods. For example, after the microtome came into general use, many morphologists gave up dissection and began to use the method of building wax or paper models from sections. This method is theoretically attractive but in practice very laborious. Furthermore, for various reasons the results obtained from it are not always accurate. A morphologist who takes the trouble to acquire reasonable skill in dissection will often find that he can work out anatomy much more rapidly than by section-cutting.

We hope we shall not be regarded as reactionary if we say that the pictorial representation of natural objects, though immensely older than written descriptions as such relics as the Grotto of Altamira bear witness, is, in many cases, more effective and valuable; and that some of the older pictorial representations were much more useful than those made with later methods.

To begin with, an accurate pictorial representation of an insect is better than a description; particularly for the systematist. This is because an accurate pictorial representation gives simultaneously, all the forms, dimensions and quantitative relations between anatomical parts whereas the written description includes only a selection of these features, deemed at the time to be of systematic

importance. But as systematic work becomes more extensive and penetrating, it is found that certain neglected characters, among which are the dimensional relations of certain structures, have great taxonomic significance. This is why it is often difficult or impossible to identify the species described by Linnaeus and Meigen. On the other hand the preparation of descriptions sufficiently complete to give not only what we now know to be useful, but everything that might conceivably be useful, is a practical impossibility. Good illustrations are therefore better than good descriptions.

When a knowledge of the colour of an insect and its parts is necessary for identification, a coloured illustration is of course better than a black and white illustration, even accompanied by a description. Colour is a quality and we cannot in practice, reduce it to something measurable. All we can do is to identify it with a particular specimen in a book of colours. It is obviously simpler and better to reproduce the colour in the illustration.

Furthermore, a good drawing is better than a good photograph. In the early days of photography amateurs presented their unfortunate relations with terrible caricatures, assuring them that the camera cannot lie. We know better now. In fact it is far more difficult to get an accurate photograph of a whole insect or of a complex organ requiring high magnification, than to get an accurate drawing. It may be replied that the artist sometimes eliminates important details. But the camera also does this and in addition it includes details that are confusing and entirely irrelevant.

Entomological articles in the field of morphology and systematics should therefore be accompanied by good drawings. If colour is of diagnostic importance, the drawings should be in colour.

The reproduction of drawings must also be considered. Nowadays the artist is usually obliged to make drawings that can be reproduced by the cheapest methods, for example, the zinc cut. This imposes on the artist a much too severe restriction on the use of the materials at his disposal and often prevents him from selecting those best adapted to his task. We shall not attempt in this short note to explore this complex subject in detail; but we must say that in our opinion nothing surpasses the results obtained from the really first-class lithographers. Admittedly, the process is expensive; but we feel sure that in the long run it pays. The preparation of illustrations for lithographic reproduction greatly facilitates the work of the entomological artist and the beauty of good lithographic plates is unsurpassed. This is very good for the morale of morphological and systematic workers.

We therefore venture to suggest to the authorities responsible for the illustrations of scientific papers the desirability of providing good artists to illustrate entomological publications, of giving them freedom to adopt the methods best suited to the material and of ensuring that the finest methods of reproduction are adopted. Few reforms would do more to stimulate work in the field of morphology and systematics which are, after all the basis of applied entomology.

W. R. THOMPSON