The Canadian Entomologist.

VOL. XLIX. LONDON, NOVEMBER, 1917 No. 11

POPULAR AND PRACTICAL ENTOMOLOGY.

GRAPHIC PRESENTATIONS OF ENTOMOLOGICAL FACTS.

BY HARRY B. WEISS, NEW BRUNSWICK, N.J.

In reading over various entomological publications, one is impressed by the growing tendency of authors to present their facts where possible, in a graphic manner. In support of this statement, it is only necessary to recall in various publications, the many charts showing curves of insect activity of one sort or another. There are many entomological authors, however, who have not adopted this forward step and in support of this, one has only to remember the numerous tables of figures so often to be found.

Many readers, when they arrive at a page containing detailed information in the form of printed tables, experience a sinking sensation and unless they are especially interested in the insect or activity in question, they are inclined to pass hurriedly over this part and seek a summary if one is to be found. It is realized, of course, that many entomological facts cannot be treated graphically, but on the other hand, many can but are not and to those who are not in the habit of using illustrative charts wherever possible in their publications, this paper is intended as a slight suggestion along such lines.

Much time and money is expended in the collection of entomological data and unless this material is presented in a clear and interesting manner, the maximum amount of benefit will not be secured. Not only is time saved for the reader by graphic presentations, but the facts are put before him in such a manner that they appeal to him more strongly, he remembers them better and it is less possible for him to draw wrong conclusions when quantitative facts are placed before him in accurate proportions. Such presentations do not as a rule require as much space as printed words. They do require more work of the author, but if the data are worth

collecting at all, they are certainly worth presenting in a manner likely to convince the reader, thereby obtaining the desired results.

The scope of this paper is purely suggestive and the following figures are of the simplest. If one starts only to think of the best way to present his facts, various graphic methods will suggest themselves to him and by placing himself in the position of the readers he is trying to reach, he can decide upon the best method to use. Graphic methods are used by banking houses, corporations, railroad companies, statisticians, engineers and many others in business and professional occupations, and there

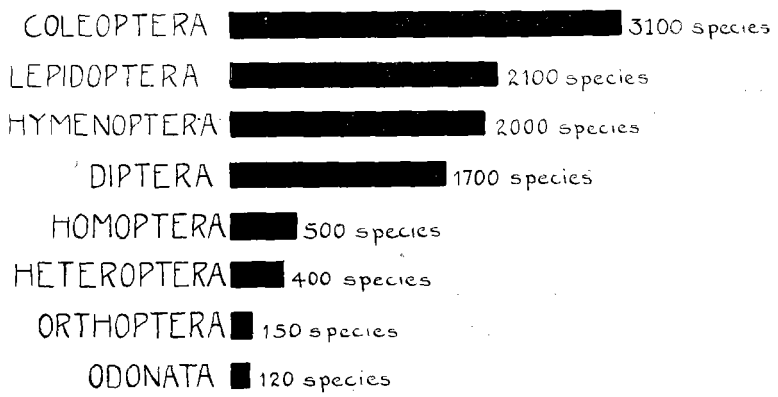

Fig. 29.—A comparison of New Jersey's Insect Orders.

is no reason why all entomologists should not use them wherever possible.

Figure 29 is a graphic comparison of the number of species of insects in some of the orders in New Jersey. Figure 30 is a similar comparison in which each order is represented by the sector of a circle. The bar method as shown in figure 29 is by far the most preferable. It is easier to read and the figures in round numbers at the right hand ends of the bars give the reader a chance to test the accuracy of the comparisons. All titles should be as full as possible and in large enough type to be easily read. Figure 30 is an example of the direct opposite of this. Many entomologists simply number their figures and have an explanation of the plate

at the end of their paper, and worse still is the practice of having the explanations scattered throughout the text. In many instances there is no real reason why the explanation and the figure

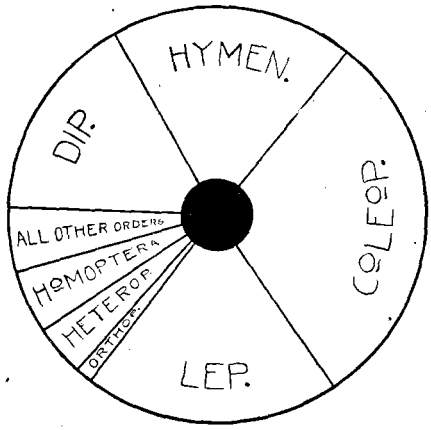

Fig. 30.

should not appear on the same page. An author fails to realize that all readers do not share his burning interest in the question treated, and unless he can command their attention, sometimes in spite of themselves, he is likely to lose their interest.

Figure 31 is a bar method of comparing percentages. An illustration of this sort is easily read, and the reader can grasp readily the fact that 48 per cent. of the species of insects in New Jersey feed on vegetation and that 16 per cent. are predatory, and so on. The words "on vertebrates" should have been replaced by "injurious to vertebrates," as the former phrase is somewhat misleading. The shading of the large sections of the bar might also have been made more dense, to bring them out better. A chart of this kind is much more effective than a mere printed statement of the facts. Many readers do not grasp printed figures easily, and if you desire to reach this class you must visualize the facts for them.

Figure 32 needs practically no explanation. It is simply a graphic method of placing figures or amounts before a reader and

making them easy to compare. This chart would have been more effective and useful if the figures showing the actual amounts spent in the states had been placed at the ends of the bars, and if

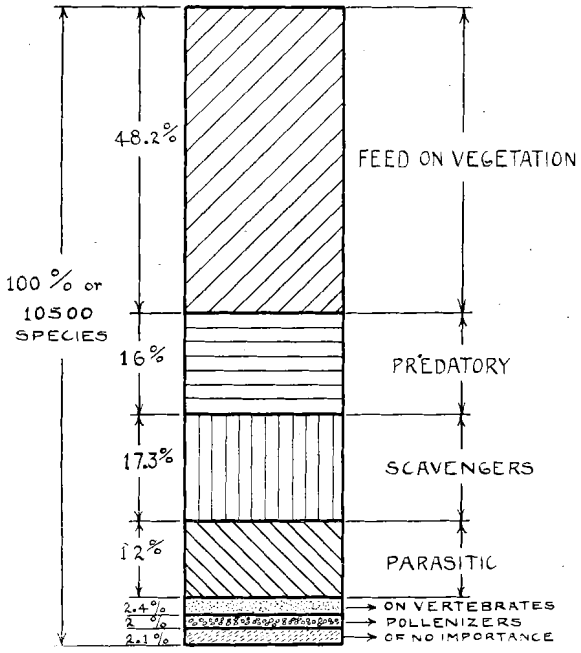

Fig. 31.—Activities of New Jersey Insects.

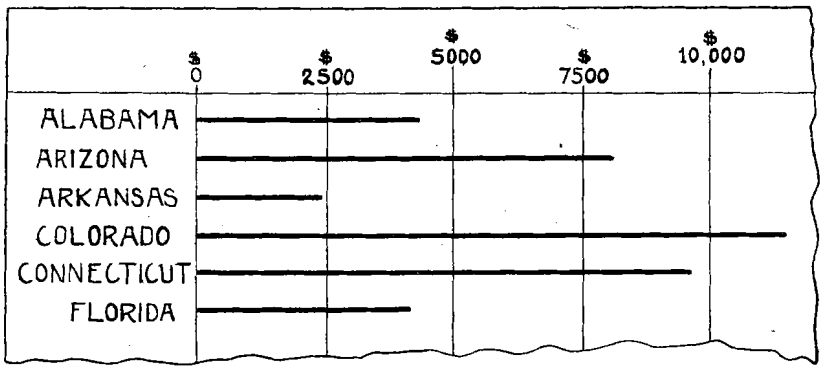

Fig. 32.—Money spent for entomological activities in 1912.

the figures in the horizontal scale were at the bottom. No importance should be attached to the amounts shown on this chart. They were taken from Prof. P. J. Parrott's paper in the Jour. Econ. Ent., Vol. 7, p. 57, simply for the purpose of illustration and should not be used without reference to Prof. Parrott's article.

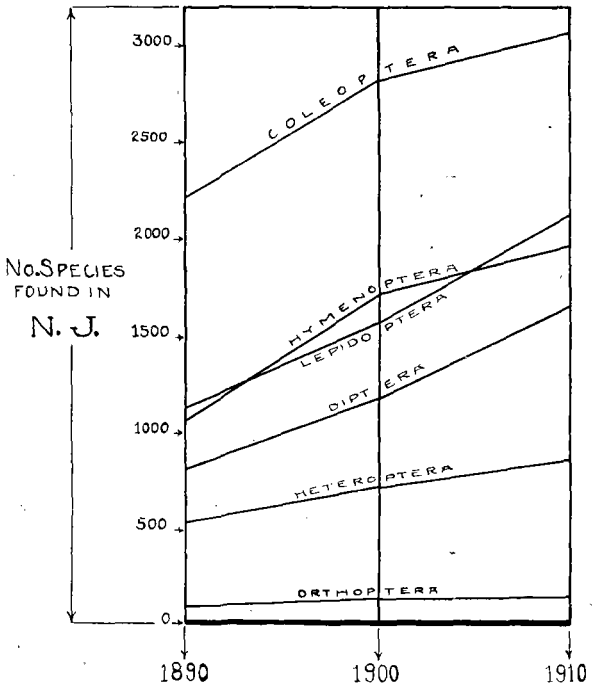

Fig. 33.—Additions to insects of New Jersey during 20 years (showing growth).

Figure 33 shows the growth, by means of comparative curves, in the knowledge of New Jersey's insects from 1890 to 1910 in ten year periods, this information having been obtained from Smith's Insects of New Jersey. The Coleoptera and Hymenoptera have run along somewhat parallel with respect to the number of additional species discovered during the twenty years from 1890 to 1910, and the largest part of this growth took place from 1890 to 1900. The Lepidoptera and Diptera show a steady upward trend, and the Heteroptera also, but at a slower rate. In charts

where the factor of time is considered, the earlier year should always appear at the left, and all vertical scales should read upward.

Figures 34 and 35 show map representations, which are common and convenient ways of charting certain kinds of information. Figure 34 illustrates the distribution by counties of two broods of

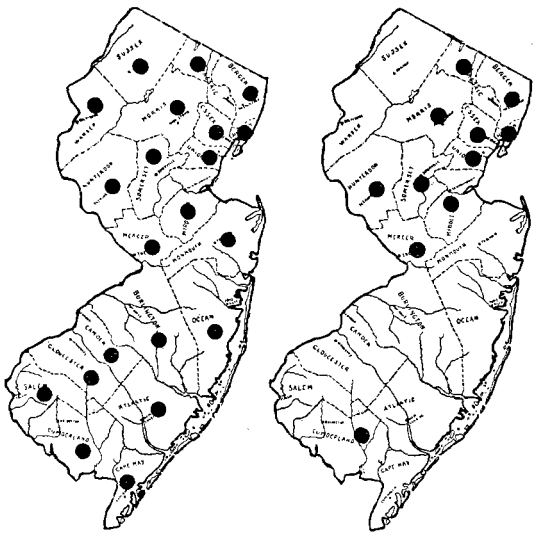

Fig. 34.

Fig. 35.

the Periodical Cicada in New Jersey. Distribution information should always be placed before a reader in a graphic way, as only in such a way can he grasp and visualize the material as a whole. Where necessary, the detailed printed information can accompany the chart, but it should never be used alone if one expects to convince the reader. Figure 35 shows the distribution of the nursery stock which entered New Jersey from other states during the fall of 1916. In order to bring the localities out more clearly, the dotted areas have been surrounded by heavy black lines. Both figures 34 and 35 are incomplete as to titles, which have been omitted purposely to show the ineffectiveness of such a procedure.

A good thing to remember in making graphic presentations and one which is often disregarded by entomologists, especially in their efforts to show the differences in yields between sprayed and unsprayed fruit trees by means of comparative drawings, is to have the presentation read from one dimension only and not to use areas and volumes which are so easily interpreted wrongly when quantities are represented. Inasmuch as many entomologists are familiar with curve plotting, no mention need be made of this method here, except to advocate its greater use. As stated before, this brief paper is merely suggestive, as are also the illustrations, which are not to be taken as examples, inasmuch as they are far from perfect. For a complete treatise on this subject, one is referred to "Graphic Methods for Presenting Facts" by Willard C. Brinton, published by the Engineering Magazine Company (New York City), a copy of which will be exceedingly useful to the entomologist who desires to present his material where possible in a convincing manner.

SOME PYRALID NOTES.

BY WM. BARNES, S. B., M. D. & J. MCDUNNOUGH, PH.D., DECATUR, ILL.

In a recent number of the Insecutor (Vol. V, pp. 69 *et seq.*) Dr. Dyar has given some valuable critical notes on the Pyraustids and other Pyralids as listed in our Check List; one of our purposes in publishing this list was to elicit just such new records from our North American fauna as Dr. Dyar gives; without published records species indigenous to the territory embraced in our list may long remain unlisted, known only to a few individual curators or workers, and we trust that others who have further new records may be prevailed upon to follow Dr. Dyar's example.

We are also pleased to adopt Dr. Dyar's references of several of our apparently new species to older names given to West Indian or Central and S. American material; based as they are on a study of the large collections from this territory in the National Museum they may be presumed to be correct; we had already expressed the hope (Contr. II, (6) p. 223) that workers more favourably situated than ourselves would endeavour to align our names with those from more southerly points, and Dr. Dyar's efforts in thus