

SCIENCE

VOL. LXVIII

AUGUST 17, 1928

No. 1755

ENTOMOLOGY¹

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SCIENCE: A Weekly Journal devoted to the Advancement of Science, edited by J. McKeen Cattell and published every Friday by

THE SCIENCE PRESS

New York City: Grand Central Terminal.

Lancaster, Pa.

Garrison, N. Y.

Annual Subscription, \$6.00. Single Copies, 15 Cts.

SCIENCE is the official organ of the American Association for the Advancement of Science. Information regarding membership in the Association may be secured from the office of the permanent secretary, in the Smithsonian Institution Building, Washington, D. C.

CONSERVATISM of thought is justified up to a certain limit. Beyond that limit it is harmful. And it is just the same in everything. Conservatism in medicine has delayed the adoption of many useful ideas, but at the same time it has prevented the general adoption of many foolish ideas. Conservatism in education is perhaps the greatest stumbling-block to progress. Science has had hard work in its efforts to establish itself in educational curricula. Granting that it is now so established, conservatism still plays a most important part in the determination of the relative values of the scientific subjects taught. And in each science, conservatism—custom—still insists that certain aspects shall be stressed and certain others slighted.

Thus it is in zoology. In the teaching of this subject, since it began to be taught in the colleges and universities, entomology, by far the most important part of this science, has been slighted. In terming entomology the most important part of zoology, I do not wish to underestimate the very great value of those zoological studies that relate to how we as animals ourselves came to be; but to the dominant place that the class Insecta holds in the whole animal kingdom.

I see the time coming, however—perhaps it is almost here—when the full importance of entomology will be realized and when those educational institutions which long ago uncloistered themselves from the dominance of the dead languages and higher mathematics will still further broaden their teaching to rank entomology as a study of prime importance. Many things encourage me in this conclusion. A striking phrase has recently come to my attention. It was written by a professor of zoology in one of the most important universities in the United States—a man of broad training, a man of the present dominant school in zoological instruction. It reads as follows:

In time this may become the age of man, the most highly developed mentally of the vertebrates, but at present he is only beginning to dispute the ascendancy Arthropod series.²

In these words Dr. Allee has very cleverly put a rapidly growing idea and one which for all these years

¹ Presidential address, Fourth International Congress of Entomology, held at Ithaca, N. Y., August 12-18.

² W. C. Allee, "The Evolution of the Invertebrates," Chicago, 1926.

has been unappreciated and never quite so well formulated. It is a startling thought to egotistical humanity that this is not the age of man; it is the age of insects; that man is a newcomer; that he is as yet an experiment, and that the same may be said of his immediate and in fact of his very remote ancestors—of the whole vertebrate series.

And why, with all this coming to be more generally realized, even with the teachers (Dr. Allee is associate professor of zoology in the University of Chicago), is there not a teaching reform—why is not entomology given a vastly greater importance in the leading educational institutions? This question has been asked insistently in Germany recently by Horn, Reh and others, and in fact it has been asked by Walther Horn ever since 1912. One answer may be put in the form of a question: Where are the teachers? Teachers must be taught before they can become teachers. And those teachers that come from the great zoological laboratories can teach little but what they have been taught, and they have not been taught entomology.

Even those who admit the very great importance of the subject, if they have looked into the matter at all, must be amazed by the enormous field of entomology—it is a whole world of its own. After a long life spent largely in its study, I find myself, for example, vastly more ignorant than I thought I was forty or even fifty years ago. Perhaps a more or less dim realization of the tremendous scope of entomology has deterred some competent workers.

I can imagine the predicament in which my English friend, Dr. George H. Carpenter, found himself when he was asked recently by Professor J. Arthur Thomson to write a book on the biology of insects, to appear in a series of which the other volumes already published had such titles as "The Biology of Birds," "The Biology of Mammals," "The Biology of Spiders." Carpenter did the book, and it is a remarkably good book; but he was apparently limited to five hundred pages and had to state apologetically in his preface that he was obliged to omit many subjects. As a matter of fact the volume contains fourteen chapters. A book of equal size (500 pages) could have been written under each of these chapter headings; and even then, I am sure, my conscientious friend would have had the feeling that he had hardly done justice to the subject.

It will probably occur to you that it is not necessary to tell these things to an international congress of entomologists. But I contend, on the other hand, that it is the duty of the president of such a congress to appreciate most fully, not only the honor that has been paid to him in his selection for the important office, but also the importance of the congress and its deliberations, and to formulate this importance in the

best phrases at his command. In fact, this has already been done in an authoritative way by Professor Lameere in his admirably sound and broad address as president of the first of these entomological congresses at Brussels in 1909. He showed clearly the ample reasons why the international congresses of zoology did not satisfy the entomologists and why they could not satisfy them. Zoologists, strictly so called, he said, are usually strangers to entomology and their preoccupations are usually entirely different from those of the entomologists. Of course, he was speaking largely of Europeans, but what he said holds well for the rest of the world. The professors of zoology and their assistants and students are very rarely indeed entomologists. He makes the interesting statement that if you put these men on the seashore they are entirely in their element and can discuss at length the animals found there; but take them into your garden, and they will tell you that the insects existing there in very great numbers are almost entirely unknown to them.

I used to wonder in this country why the teacher of zoology, at an inland institution a thousand miles from the seaboard, should insist that his laboratory students should devote themselves for hours upon hours to the study of pickled sea-urchins or something of that kind when they were surrounded by instantly available living material in the shape of Insecta with which many important life problems could be studied. I quite agree with Lameere in his statement that the entomologists are almost as distinct from the zoologists as the zoologists are from the botanists and that they have accumulated an amount of science at least equal to these other groups. I further agree with him, and very heartily, in the statement that, whereas no one thinks of disputing the separation of the biologists into zoologists and botanists, there will be great advantages in establishing three categories, giving entomology an importance at least equal to that of botany or to the rest of zoology.

Having made these statements, I have relieved my mind for the moment on a subject which must be advanced strenuously at every opportunity if entomology is to gain the recognition it deserves.

The three presidential addresses that have been given before the three international entomological congresses have differed widely in character, and yet each one was admirable in its way. Professor Poulton at Oxford after a delightful introductory talk in which he spoke especially of Oxford, the Hope collection of insects, and of Westwood and Henslow and Huxley, devoted the main part of his address to the subject of specific change in relation to geographic distribution and to the organic environment, basing his discussion largely upon a series of *Papilio dar-*

danus, a subject of broad biological interest which, although the illustration was drawn from entomology, applied to principles extending through all of zoology and of botany as well.

Three years ago, at Zurich, Professor von Schulthess adopted still another plan. Very appropriately, he spoke of the long postponement of the congress from 1912 to 1925 and of the World War which interrupted the proposed third congress at Vienna in 1915 and put off all congresses for many years. He then spoke of the city of Zurich and of the historical development of entomology in Switzerland from the time of the publication of Sulzer's work in 1761 (fourteen years before Fabricius' first publication). Doubtless this third president, facing the long Zurich program, deemed it best measurably to efface his personality by shortening his remarks. It was a matter of regret for those of us who were present that he did not speak at greater length and give us some of the big ideas he has gained in a lifetime of work. His known standing and his impressive and delightful personality made us all wish to hear more from him, but perhaps his decision was the wisest, and the present speaker is much inclined to follow his example.

It is not needed that I should speak of American entomology. Most of us here are Americans. Those who come from other countries are men of wide reading and know of the sound work done here by an older generation, including Leconte, Horn, Scudder and Packard, and they know of the rather remarkable developments of economic entomology in the United States. But we are meeting in a university which was one of the first great institutions of learning to teach entomology as a distinct subject and to give it a measure of its appropriate rank. In this country at least, Cornell University will always be remembered by entomologists for this fact. And the man who, from the very start in 1874, conducted this invaluable teaching work, J. H. Comstock, lives here. America is so young that few shrines have come into popular recognition. There is one at Mount Vernon, the home of Washington; and there is the memorial in Washington to the great emancipator, Abraham Lincoln. The study of entomology seems a very small thing when we compare it to the causes represented by these two of our national heroes, but who shall say that in the future, when the vital importance of insects as affecting the well-being of humanity shall have become fully realized, this spot shall not become in a way a shrine where entomologists will gather in token of their respect to the first great teacher of entomology in America?

Very possibly you expect that the present speaker will touch upon the subject of economic entomology, a branch of our science with which he has been occu-

pled for many years. The great support that has been given to entomological work with the practical end in view, perhaps notably in the United States, but with rapidly increasing strength in other countries, has not only encouraged the development of many strong workers who have brought about highly valuable results, but it has shown these workers in a very forceful way the basic value of the labors of those ardent entomologists who have been carried away by the fascinating scientific interest of other aspects of the science. It is in this way that more and more support is being given to work in entomology as a whole. It has had its effect upon college laboratories, upon museums and upon entomologists everywhere. The science through all its innumerable ramifications is acquiring a solidarity which means very much for the future—for the broadest recognition of its importance.

And so the members of section 5 (applied entomology) will continue to look upon the eminent members of sections 1, 2, 3 and 4 (morphology, anatomy and physiology; systematics and geographical distribution; nomenclature and bibliography; biology and evolution) with a deep respect, perhaps tinged with awe. The members of these sections, dealing as they do with "pure" science, will, I trust, look to the section-5 men as useful members of the congress who perhaps more than the others are helping to reform the old ideas of entomology and are bringing public appreciation and public funds to its support.

To those of you who come from the older countries for the first time we bid especial welcome; and we trust that you will return with a good opinion of us. We have been accused of self-consciousness; but we are young, and all young people are self-conscious. We have been accused of pride of achievement; but all young people who have a well-founded pride are very frank in expressing it. Our faults, then, are the faults of youth; and our accomplishments are those of ambitious, energetic youth, tempered and guided by the learning, experience and culture of the older countries.

L. O. HOWARD

UNVERIFIED GEOGRAPHIC RANGES

THE European conception of American geography has been a perennial source of humor to Americans, just as some American idiosyncrasies often supply amusement for the European. When, for instance, a correspondent in Leningrad asks me to "run out to Saskatchewan," where Bourgeau once collected an interesting plant, and secure for him living material, or when an English botanist requests for comparison growing specimens freshly collected for him in northern Newfoundland and western Alaska, we naturally