but the opinion that the available facts point toward that conclusion is advanced with some assurance.

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THE TOXICOGENIC AND TOXINIFEROUS INSECT[1]

THE increasing recognition of purely toxic effects of insect feeding as contrasted with those wherein a virus is concerned suggests the desirability of terms to describe those insects whose feeding results in pathological effects not ascribable to mere mechanical injury and not fulfilling the criteria necessary to establish the presence of a virus.

Possibly the simplest cases of such effects are to be found in the leaf spotting caused by the feeding of scale insects and leafhoppers. The leafhopper burns are more complicated, since the symptoms are not localized at the insects' feeding points and there is evidence of some diffusion of the toxic principle.

Systemic toxic effects are more rare, but psyllid yellows of potatoes and mealybug wilt of pineapples are cases in point.

Although these several types vary greatly in complexity, one characteristic is common, *i.e.*, all are specific toxic effects and the capacity to produce them is inherent in the insects concerned. These insects may therefore be described as "toxicogenic" species. A toxicogenic insect may, however, not always be capable of secreting toxins, since such toxins may only arise as a result of specific or limited nutritional conditions. To describe the active toxin-secreting condition of a toxicogenic insect the term "toxiniferous" is proposed.

This latter term was first used, without amplification, in a recent paper, "Mass Action Phenomena in Mealybug Wilt,"[2] to describe the mealybug species, *Pseudococcus brevipes* (Ckl.). The more restricted use of the word "toxiniferous" and the introduction of the term "toxicogenic" will serve a useful purpose in the clarification of these concepts.

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VAGAL AND SYMPATHETIC ENDINGS IN THE RABBIT INTESTINE[1]

WE have previously reported[2] that section of the vagi and the splanchnic nerves below the diaphragm does not alter the response of excised segments of the small intestine to epinephrine, physostigmine, acetylcholine, nicotine or barium or to electrical stimulation of the mesenteric nerves. These observations afforded evidence for the preganglionic nature of the splanchnic and vagus fibers to the intestinal muscle. Further experiments have now shown that cutting the mesenteric nerves, with subsequent degeneration of the fibers, sensitizes the longitudinal muscle coat to the inhibitory action of epinephrine. Responses of the muscle to nicotine, physostigmine, acetylcholine and barium were unchanged. Thus has been obtained pharmacological confirmation, approaching proof, of the anatomical studies of Johnson[3] indicating that the vagus nerves end on the ganglion cells of the Auerbach system; the axones of these ganglion cells therefore constitute the postganglionic fibers of the vagus pathway to the gut muscle. The sensitization of the muscle to epinephrine as a result of sympathetic fiber degeneration indicates that the sympathetic fibers in the mesentery end directly on the muscle and are not relayed through the Auerbach ganglia. It is a well-known fact that smooth muscles are sensitized to epinephrine by degeneration of their postganglionic sympathetic nerve supply. Conversely, physostigmine response of the iris disappears, following degeneration of the postganglionic fibers, but not of the preganglionic fibers of the ciliary ganglion.

These experiments firmly establish the vagal nature of the cells of Auerbach's ganglia of the rabbit but do not rule out their possible secondary rôle for local reflexes in the intestine.

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LATRODECTUS GEOMETRICUS KOCH IN SOUTHERN FLORIDA

THE presence of the black-widow spider, *Latrodectus mactans* Fab. in Florida has long been recognized. It has not been particularly abundant in southern Florida, but specimens are taken with regularity, and occasionally word is received from some physician that a patient suffering from the bite of this spider has been treated by him.

Early in September, 1935, several spiders with cocoons were collected in their nests on one of the university buildings by certain students engaged in making repairs. A study of these specimens by the writer indicated that they belonged to the genus *Latrodectus,* but variations in markings, the presence of a variable amount of buff or brown in the general coloration of the specimens and the larger, tuberculated egg

[1] Published with the approval of the director as Miscellaneous Paper No. 17 of the Experiment Station of the Pineapple Producers Cooperative Association, University of Hawaii.

[2] *Ann. Ent. Soc. of America,* 28 (3): 396–403, September, 1935.

[1] Supported in part by grants 194 and 236, Committee on Scientific Research, American Medical Association.

[2] F. S. Modern and C. H. Thienes, *Jour. Pharm. Exper. Ther.,* 51: 128 (Proc.).

[3] S. E. Johnson, *Jour. Comp. Neur.,* 38: 299.

case, together with other differences, led him to believe that they could not be *L. mactans* as known in this region. Other additional specimens were taken outside the building, usually on doors or under window sills, and some of these were sent to Dr. W. J. Gertsch, of the American Museum of Natural History, for identification.

They were classified by him as the first records of *Latrodectus geometricus* Koch to be taken in the eastern part of the United States. Dr. Gertsch states that they are tropicolitan in distribution and cites records of their occurrence as the dominant form of *Latrodectus* in Brazil, of their abundance in the West Indies, in Africa, and of their occurrence in California.

Within the past few months Mr. Henry Louis and Mr. John Carroll, students in the botany and zoology departments of the University of Miami, have taken numerous specimens of this species in various localities in the Miami region.

The abundance of the species would indicate that it is perhaps the dominant form of *Latrodectus* in southern Florida. While Dr. Gertsch in a personal communication quotes Drs. Brazil and Vellard as regarding its venom as of almost equal potency with that of *L. mactans,* he also quotes them as believing that, despite the inconclusiveness of their experiments, the venom of *L. geometricus* may be less active.

Our observations so far agree with theirs in that the species appears to be less aggressive than *L. mactans.* Indications point to a far greater activity of this species at night than in the daytime.

The writer can not at this time be certain that some records of persons being bitten by the "black-widow" in this region may not more correctly indicate that they have suffered from the venom of *L. geometricus.*

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SCIENTIFIC BOOKS

The Pioneer Century of American Entomology. By HARRY B. WEISS. Published by the author. New Brunswick, N. J., royal 8vo., pp. 320, $4.25. Edition limited to 150 copies.

DR. GEORGE SARTON and the increasing number of people interested in the history of science will like this book because it is admirably done. It seems rather a pity that some commercial publishing firm did not print it, because then the book would have had fifty or more illustrations. But they all thought that it would not be profitable. The University Presses wanted the book to be subsidized, and the foundations had no funds. This, Mr. Weiss tells us in his "postface"; but obviously he was very sure of the usefulness of the book on which he had put so much time and work that he, with great enterprise and I think with much wisdom, published it himself. He did this by having the book beautifully mimeographed, printed an attractive title page and had it all bound in a solid, very attractive binding of brown cloth with gilt lettering, so that it looks mighty well on one's shelves. But many of us will not put it away on our shelves—we'll keep it on our desks for reference and for very careful reading.

I believe it to be true that the younger men in this and other branches of biology to-day are not especially bookish; at all events they are not precisely "book-minded." Several old professors with whom I have talked recently have told me that this is true. And as for young men who spend hours in the library looking up the things that men of their grandfather's generation did—they do not exist nowadays. Take Weiss in New Jersey, Essig in California, Wade in Washington, S. W. Geiser in Texas and T. S. Palmer in Washington—all of whom occur to you at once, and then try to think of others of the same turn of mind. I can't do it. Perhaps you can.

It is true that these five men have all reached a certain age. I am sure that other men, as they grow older, will measurably take their places. Weiss comments delightfully on this age question. He says in the closing sentence of the preface: "And so this book has been written, if you please, because I have reached a certain age. It was unavoidable."

The author covers his ground in twelve chapters, beginning with "Entomology in the Accounts of early Travellers," and carrying it on by periods ending with 1865; and then he adds chapters on entomology in the agricultural periodicals of the period, on scientific societies and journals, some notes from Canada, and on entomology in Europe during the pioneer century in America. After this last chapter come the acknowledgments, a "postface," a bibliography and a very competent index.

One beauty of the book is that he tells us a lot of things that we wanted to know and that we didn't know how to find. For example, when I was in my very early twenties, I wrote a long chapter in the big report on cotton insects published by the U. S. Department of Agriculture in 1879. This chapter was on the past history of the "cotton worm" and it went way back into the 1700's and quoted many men. Ever since that I have wanted to know about Thomas Affleck and D. B. Gorham and Dr. W. I. Burnett, and a lot of other early men who had published their speculations. Here, wherever possible, Weiss has given us full in-