

Mr. Ensign gave a very interesting talk on the contributions of entomologists to agriculture.

The following officers of the society were elected for the 1927 session:

President, W. W. Yothers; Vice-President, T. H. Hubbell; Secretary-Treasurer, E. F. Grossman; Editor of the Florida Entomologist, J. R. Watson; Associate Editor, Wilmon Newell; Business Manager, A. N. Tissot.

Messrs. E. W. Berger, Goodwin, Gray, Grossman, Hubbell, Merrill, Nolan, Stone, Tissot, and Watson attended the regular meeting of the society, February 10, at 4:00 p. m. in Science Hall. Mr. M. R. Ensign was elected to membership and Drs. W. M. Barrows and H. T. Fernald were elected to honorary membership.

The society enjoyed a symposium on the meetings of the A. A. A. S. at Philadelphia and Southern Agricultural Workers at Atlanta. Messrs. Goodwin and Watson led in the discussion and many topics of interest were brought before the meeting.

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February 24. The Society met in Professor Gray's laboratory in an especial evening meeting in honor of Dr. W. S. Blatchley of Dunedin and Indianapolis, an honorary member of the Society. Dr. Blatchley gave the members a very interesting account of his trip to South America, from Brazil to Peru. The general aspects of the insect fauna of the drier parts of South America seem to be very similar to those of the southwestern part of the United States.

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March 10. The Society met in Science Hall at 4:00 p. m. Professor John Gray gave an interesting and instructive talk on his Christmas vacation trip to Cuba where he visited the main educational institutions as well as plantations. Prof. Gray found the science laboratories of Cuba well equipped.

E. F. Grossman, Secretary.

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#### FACTORS DETERMINING NORTHERN LIMITS OF *ANTICARSIA GEMMATILIS*

*Anticarsia gemmatilis* is a noctuid moth whose caterpillar, commonly called the velvet-bean caterpillar, feeds extensively on velvet beans, *Stizalobium* sp., and also on soybeans, kudzu,

cannavalia and peanuts. The moths first appear in north central Florida, usually between the last of June and middle of August, and are to be found until January, altho their numbers rapidly diminish after November. The larvae have never been taken further north than Georgia and South Carolina. But the moths have been taken as far north as Ontario and have sometimes been quite abundant as far north as Pittsburgh. These captures in the northern states have all been in the autumn, from the last days of September into November, and undoubtedly have been migrants from the Gulf states. The ability to reach such far northern states as Canada is due to their longevity. Some moths kept in a case, 4' by 4' by 5', and fed on moistened sugar kept for five weeks. Doubtless under more natural conditions they would live even longer.

The object of this paper is to give the results of our inquiry into why it is not able to permanently establish itself in northern Florida and other southern states. This is not due to the direct action of cold. November 21, 1914 the temperature at Gainesville fell to 22 degrees, yet pupae lying exposed on the surface of the ground were not injured and moths were flying about as soon as the weather moderated. This is the lowest temperature the pupae will ever be exposed to under natural conditions in this latitude. But a heavy frost kills all the host plants of the larvae of this species, namely velvet beans, soybeans, kudzu, cannavalia and peanuts.

The pupal period is from ten to eleven days in September, but as the weather becomes colder it is lengthened until in November it is 21 days; and two individuals which pupated on November 20 and 21 respectively emerged on January 7; 47 and 48 days respectively.

The inability of the insect to permanently establish itself in northern Florida is due to its inability to tide over the starvation period of the caterpillars. In other words due to its inability to lie dormant during warm spells, in mid-winter. A 50 percent increase in the length of its pupal life would enable it to tide over this starvation period. In view of the immense lengthening of the pupal period during the cold weather, amounting to five times the period during warm weather, a rather small further lengthening would suffice.

Many laws have been promulgated to account for the geographical distribution of organisms. Among the factors which

have been considered important as limiting the distribution of organisms, the direct effect of temperature has been a favorite; such as the absolute, minimum, summation of effective temperature, etc. For most organisms most of these explanations are too simple. The factors limiting the distribution of an organism are doubtless varied and complex. In the case of *Anticarsia gemmatilis* the northern limits of its permanent range are determined not by the minimum temperature of the weather acting directly on the organism, not by any summation of effective temperatures, not by any direct action of the cold whatsoever, but by the effect of cold on the host plant of the larvae. Even this would not be effective were the insect able to remain dormant during comparatively a few weeks in winter. A comparative slight lengthening of its pupal life would enable the insect to do so.

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#### OBITUARY

We have just learned of the death last May of Dr. Henry G. Branham of Deep Spring, Okahumpka, Fla., a member of our Society. Dr. Branham will be remembered by our readers as the author of a paper in our issue of August, 1925, on "Reclaiming Eden," a narrative of his successful attempt at controlling mosquitoes, largely by the use of top minnows, on his place at Deep Springs. The editor has visited his place at Deep Springs and was agreeably surprised at the degree of control achieved, and much interested in the methods used. Dr. Branham was during the World War an officer in the medical department of the American Expeditionary Forces in France.

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#### ADDITIONS AND CORRECTIONS TO THE LIST OF THE CRAMBINAE OF FLORIDA

By GEO. G. AINSLIE

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Soon after the publication of my article on the Crambinae of Florida (Fla. Ent. 6:49-55, 1923) my attention was called by Mr. D. Marston Bates to Grosbeck's paper on the Lepidoptera of Florida (Bul. Am. Mus. Nat. Hist. 37:1-147, 1917) a publication which in some way had completely escaped my knowledge. Since I stated in my paper that several of the species in Grosbeck's list had not previously been reported from the state, it is only fair that this correction be made. Dr. Dyar's *Crambus trip-sacas* was also omitted from the first list.

In addition, Grosbeck records three species not in my list, thus increas-