

This past winter preparations for a migration test under control conditions were made by raising from seed young apple trees in a greenhouse safe from any possible infestation of the "woolly aphid."

This spring elm leaf curl was obtained from the south and the emerging winged forms were caged over apple seedlings while depositing their young. As a result, the progeny, a fine lot of nymphs that are growing along creases where the thin bark is scaling back, in the axils of the leaves and on exposed roots of the apple seedlings, covered by a typical flocculent white secretion, would be pronounced "woolly aphid of the apple" by any nursery inspector.

Though several kinks in the life cycle of this important species remain to be deciphered, the synonymy of *Schizoneura lanigera* Hausman (*S. americana* Riley) is the chief step in their solution. If the American species on elm is the same as the European species, our orchard pest, the woolly aphid, will revert to the name *Schizoneura ulmi* Linn.

Extended tests for the range of food plants of this species are under way, the reception of southern specimens adding about two months to the time possible for experimentation with the progeny of the spring migrants; which as they will be treated in detail later, need not be further indicated in this preliminary note.

EDITH M. PATCH

MAINE AGRICULTURAL
EXPERIMENT STATION

A METHOD FOR THE REMOVAL OF THE TOXIC
PROPERTIES FROM COTTONSEED MEAL
A PRELIMINARY REPORT

IN our studies upon cottonseed meal intoxication we have used a method of treatment which has rendered the meal non-toxic to rabbits. We desire to test the treatment further with other meals and with other classes of animals, and we desire also, if these experiments result favorably, to devise a method by which the treatment may be used upon a commercial scale. As it will take some time to carry out these experiments we

wish to make this preliminary publication and to request others who are engaged in cottonseed meal studies to repeat our work so that the method may be thoroughly tested before being offered for use for commercial purposes.

Our experiment was as follows: 630 grams cottonseed meal previously extracted with gasoline were boiled on a water bath for two hours with 2 liters of alcohol to which had been added 40 c.c. of an aqueous solution containing 20 grams of NaOH, previous experiments having shown that this amount of NaOH was a little more than enough to combine with all the meal. The mass was filtered while hot, washed with hot alcohol and dried. 14.6 grams corresponding to 15 grams of meal were fed daily since March 18, 1912, to each of six rabbits averaging 1,992 grams in weight. These rabbits are all in good condition to-day (April 25, 1912) after 39 days' feeding, but have lost upon an average 134 grams. The feed eaten corresponds to 7.5 grams of cottonseed meal daily for each kilogram of initial weight of rabbit or a total of 292 grams per kilo for the 39 days.

Previous experiments with rabbits have shown that 7.7 grams of cottonseed meal fed daily per kilogram of initial weight of rabbit is fatal on an average after 13 days' feeding or a total of 100 grams per kilo of initial live weight. Our feed No. 189 has run for three times that period, the daily feed is practically the same and the total amount consumed is nearly three times as great. From this we conclude that the alkaline treatment very greatly diminishes if it does not entirely remove the toxic properties of the meal. This feed contains 1.70 per cent. of sodium instead of 0.04 per cent. as in the untreated meal. The beneficial effect of the alkaline treatment may be due to hydrolysis, or to the formation of a sodium salt, or to some other change not yet determined definitely.

We request that those who repeat our work follow the method closely, except to use 40 grams of NaOH instead of 20 grams.

We wish to acknowledge our obligation to Mr. R. S. Curtis, animal husbandman, and to

Dr. G. A. Roberts, veterinarian, both of this station, for their valuable assistance and co-operation.

W. A. WITHERS
B. J. RAY

NORTH CAROLINA AGRICULTURAL
EXPERIMENT STATION,
RALEIGH, N. C.,
April 25, 1912

SOCIETIES AND ACADEMIES

THE ACADEMY OF SCIENCE OF ST. LOUIS

THE Academy of Science of St. Louis met at the Academy building Monday evening, April 15, 1912, President Engler in the chair; an attendance of 65.

Professor A. S. Langsdorf, of Washington University, addressed the academy on "Transient Electrical Phenomena." The analogous conditions in various forms of mechanical systems and electrical circuits was shown and this was followed by a discussion of oscillating currents that may be produced in a transmission line. The necessity for guarding against excessive and dangerous voltages and currents arising from oscillation was pointed out, particular attention being given to the conditions obtaining in a transformer at the moment of switching such a device on to the live current. Finally the short circuit conditions in large alternating current generators was described so that dangerous rises of voltage accompanied by a rush of current could occur and the measures employed to prevent this condition were explained.

Dr. Charles H. Turner gave an illustrated account of "Results of Recent Experiments on the Homing of Ants." The results of the various investigators on the behavior of ants was divided into four groups and briefly discussed. About ten years ago the author began a series of experiments on ants and the main purpose of this paper was to compare the results obtained with those of Cornetz and Santsei. After a detailed comparison the final conclusion from all these experiments was summed up as follows: "Ants are much more than reflex machines; they are self-acting creatures guided by memories of past individual experience. These associative memories are usually complexes of sensations contributed by several different kinds of sense organs and include an awareness of distances and of direction."

Dr. Arthur E. Bostwick, of the St. Louis Public Library, read a paper on "Atomic Theories of Energy."

Professor Wm. H. Roever, of Washington University, exhibited and explained "A Mechanism for Illustrating Lines of Force."

THE Academy of Science of St. Louis met at the Academy building Monday evening, May 6, 1912, President Engler in the chair.

Professor J. F. Abbott talked on "The Water Boatmen, an Unexplored Corner of the Insect World." After giving an account of the systematic position of the water boatmen, Professor Abbott discusses their development from the egg to maturity, a particularly interesting feature being the deposition of the eggs upon the bodies of crayfish.

Dr. Charles M. Gill gave an illustrated talk on "Recreation Studies in Estes Park, Colorado." The ascent of Long's Peak was described and some of the more interesting glaciers discussed. The necessity of protecting the natural conditions of Estes Park, for which a bill is now pending before congress, was referred to.

Mr. Frederick Hecker, of Kansas City, discussed the "Microscopical Study of Living Organisms and their Growth Rate," following it with a demonstration of the technique involved.

THE Academy of Science of St. Louis met at the Academy building Monday evening, May 20, President Engler in the chair.

Dr. A. S. Pearse, of St. Louis University, gave an illustrated talk on "Fiddler Crabs" with particular reference to the color variation in the forms found at Manila, P. I.

Mr. Phil Rau read a paper on the life history of the "Devil Horse." After giving a detailed account of the anatomy of the devil horse, or praying mantis, the author described the character of the egg case, the emergence of the mantis from this case and the carnivorous habit of the insect. As the result of his series of experiments made to determine how and why the colors of the mantis change, Mr. Rau found that the green nymphs are capable of changing to a dark gray when the environment is dark and when once the gray color is acquired it is permanent despite any environmental conditions. Green insects in all probability remain green indefinitely if the environment is favorable to that color. The paper concluded with some observations regarding the mating habits of the mantis and a detailed description of the making of the egg case.

GEORGE T. MOORE,
Corresponding Secretary