

one of these pink katydids, a male of the species *Amblycorypha oblongifolia* (De Geer), identified by Jas. A. G. Rehn, was sent to the Museum of the University of Michigan some months ago, by Mr. A. S. Austin. He captured the insect on Grosse Isle, in the Detroit River, some twelve or fifteen miles below Detroit, on August 12, 1906. This specimen is of duller colors than the ones figured by Scudder,<sup>1</sup> but is still a decided pink. The brown spots on the tegmina are fainter, twelve or thirteen in number, and less scattered than in Scudder's specimens, and are roughly arranged in two rows on the lower two thirds of the wings. The yellow flecks mentioned by Scudder are wanting.

The stridulating area, like that of Scudder's specimen, is brown except a small trapeziform area at the angle of the wing, which is pink. The eyes are brownish red, margined with yellow. The antennæ are yellow, inclined to brown in the distal half. The sides of the thorax, all of the coxæ, and the proximal fourth of the hind femora are tinged with green.

Besides this specimen there is also in the University Museum a female of the same species, without data, which has also duller colors than the female of Scudder's plate. This dullness can hardly be attributed to a fading in the preserved specimen, for the male was received alive, and up to the present time has preserved its colors perfectly.

Folsom<sup>2</sup> has been led to remark that these pink specimens are found in late summer, as if to suggest that the change may be at least in part due to seasonal influence. If this statement is meant to apply to adults only, the earlier dates, August 9 for one of Scudder's specimens and August 12 for Austin's, can hardly be considered late records. If the replacement occurs also in nymphs, of which I find no record in the accessible literature, then the earliest records

are comparatively late, and Folsom's suggestion is of some force. It would be gratifying to learn the dates of other unrecorded specimens.

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#### GYMNOSPORANGIUM MACROPUS

DURING the last few years the cedar rust has increased in abundance and severity in Nebraska and adjacent states. The disease has been so severe that it has threatened the life of the cedars in many places where they have been employed as wind-breaks around orchards or where they were adjacent to apple trees that were susceptible to infection.

Spraying experiments have shown that the disease may be at least partially controlled on the apple, but those who have cedars—and there are many in this section who value them as much as they do their apple trees—have been clamoring for assistance in saving them from the inroads of this fungus.

As a result of this demand careful observations have been made on the life history of this rust and spraying experiments are in progress. The work was started with the supposition that the spores of the cluster-cups on the apple leaves and fruit produced the cedar apples which matured in the autumn of the same season, but observations and experiments have not confirmed this assumption.

Observations made during the summer of 1906 showed that the first cluster-cups matured on the apple about the first of July in the vicinity of Lincoln. At this date only a very few cluster-cups were open and these were mostly on the fruit where two or more apples were in contact. A few days later young cedar apples as large as radish seeds were found to be present on the cedars. At Broken Bow, Custer County, the first mature cluster-cups were not observed until the eighth of July, and at that time cedar apples were found in abundance varying in size from one twelfth to one fourth inch in diameter.

Careful watch has been kept of the cedars during the present season. The first indication of the presence of the young cedar apples

<sup>1</sup> Scudder, S. H., 'Pink Grasshoppers,' *Entomological News*, Vol. XII., No. 5, May, 1901, pp. 129-131, and Pl. VI.

<sup>2</sup> Folsom, J. W., 'Entomology with Reference to its Biological and Economic Aspects,' p. 215.

was noted on the seventeenth of June. At this time the scale leaves at the points of origin of the apples were slightly lifted. On June 26, the young apples had increased in size so that they could be easily detected with the hand lens or even with the naked eye. All apple trees and other possible hosts were carefully examined and the rust spots showed at that date nothing but the spermogonia. They did not even show the characteristic hypertrophy of the under surface which precedes the formation of the cluster-cups, and the stage of development at present indicates that no mature æcidiospores will be formed until near the middle of July. This apparent retardation of the development over that of last year is to be explained by the general backwardness of vegetation due to the cold spring.

In addition to these observations I should mention that some small cedars were enclosed in glass houses during the spring of 1906. These houses were ventilated by means of windows provided with cotton screens to prevent infection from the outside. The first part of July they were examined and a few cedar apples were found, the small number being due presumably to the fact that conditions in the houses were very unfavorable for growth.

Considering these observations here recorded, two explanations suggest themselves:

1. The fungus is either perennial in the cedar, or

2. The æcidiospores of one season produce the cedar apples which appear in June of the next year and reach maturity in the autumn.

We have some evidence of a perennial character, especially in trees that are badly infected. In such cases it is quite easy to find new apples growing out from the side of old ones, or even from the middle of old ones. It is, however, quite possible that such cases represent new infections rather than the persistence of an old mycelium. The second explanation however seems more probable to the writer. If this is true the cedar is probably infected in the summer and autumn, but no evidence of the resulting cedar apples can be

noted until the next season when growth has been resumed. It would then require two full years for a cedar apple to develop. It remains for further observations to completely substantiate this view.

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#### A BLIGHT DISEASE OF YOUNG CONIFERS<sup>1</sup>

DURING the past spring there occurred in the large conifer nursery at Halsey, Nebraska, a very serious outbreak of "blight" of the needles of two-year-old seedlings of *Pinus ponderosa* and *P. divaricata*. The damage was very considerable, there being several hundred thousand of the trees affected. What is of more moment than the actual damage sustained, however, is the threatened danger to the many nurseries of the country which are engaged wholly or in part in the growing of young conifers for reforestation purposes. The present outbreak shows that the fungus causing it is capable of very serious and extensive attacks wherever it may happen to be present. The disease is characterized by a gradual dying back of the needles from the tip to the base. The fungus very evidently then proceeds into the stem of the affected tree and finally kills the entire plant. In the specimens of diseased trees examined by the writer no fungous fruiting bodies could at first be detected; upon remaining in a moist chamber for a few days abundant black pustules broke out upon all of the dead tissues of the attacked needles. These were found to be exuding masses of spores of a species of *Pestalozzia*. The pustules occurred universally upon all dead parts and no other organism thus accompanied the disease; it seemed apparent at once that the *Pestalozzia* was closely connected with the trouble. Pure cultures of the fungus were made and then used in making inoculations upon healthy seedlings of *Pinus ponderosa* in the greenhouse, which were about one month old. The inoculations succeeded, causing the typical disease in plants which

<sup>1</sup>Published with permission of the Secretary of Agriculture.