

The sierra consists of Cordilleras and inter-Andean valleys. The higher regions are spoken of as *punas*. Agricultural products of the sierra which are grown at moderate elevation and for the most part independent of irrigation are corn, barley and potatoes and similar crops. Descending the rivers toward the Amazon the valleys are fertile and productive, but upon entering the forest agriculture is meager because of the dense growth of vegetation which has not yet been dominated.

RALPH ARNOLD,
Secretary

THE BOTANICAL SOCIETY OF WASHINGTON

THE forty-seventh regular meeting was held in the seminar room of the Bureau of Plant Industry on Saturday evening, February 29, at 8:30 o'clock. Dr. George G. Hedgcock presented a paper entitled "Crown-gall of the Apple."

A summary was given of observations and studies on the apple crown-gall conducted during the past five years with large experiments in nursery plots and orchards containing nearly 100,000 trees; a part of this work was carried on under Dr. Hermann von Schrenk, at the Mississippi Valley Laboratory, St. Louis, Missouri.

The term "crown-gall" as applied to the abnormal growths on the apple tree, includes a number of forms. The two forms known as the "hard" and "soft" crown-gall are fairly distinct from the hairy-root forms. The latter may be considered for the present as a separate disease.

The crown-gall of the apple occurs in both the hard and soft forms in this country wherever apple trees are grown to a large extent; it is present on seedlings, grafted and budded trees; both forms are closely related to wounds and the formation of callus. Only wounded trees become affected with the disease, indicating that it may enter through the resulting callus, possibly through stimulation by a parasitic organism. The soft form of apple crown-gall is contagious to some extent, and is identical with the disease on the stone fruits, raspberry, blackberry, dewberry, rose,

pear and possibly chestnut and walnut. The hard form differs in texture and appearance from the soft, and is either not at all, or only slightly, contagious. It may yet be proved that in case of the hard form, the apple tree has been able to resist and largely overcome the disease by healing processes which lower the vitality of the parasitic organism causing it, and that the two forms have one and the same cause.

The disease is always injurious to the apple tree in case of the soft form, but the effect in case of the hard form may not always be injurious except where the disease encircles the tree, interfering with the circulation. In milder forms the tree may overcome the disease.

Certain varieties, as Wealthy, Wolf River, Yellow Transparent and others, are subject to the hard form of the disease. On the other hand, certain varieties, as Maiden Blush, Rambo, Red June, Minkler and others, are more subject to the soft form of the disease. The results from experiments indicate the value of selecting scions from healthy trees. Preventive and curative measures were suggested for the control of the disease.

This paper was illustrated with lantern slides.

Mr. W. F. Wight presented a paper entitled "Some European Botanic Gardens." The paper consisted of a series of illustrations taken by the speaker, showing scenes in nearly all of the leading botanical and public gardens of Europe, and were explained in detail by him. An account was also given of the work and administration of the Kew gardens.

HAVEN METCALF,
Corresponding Secretary pro tem.

THE PHILOSOPHICAL SOCIETY OF WASHINGTON

THE 647th meeting was held March 14, 1908, Vice-president Day in the chair.

Professor Frank H. Bigelow, of the U. S. Weather Bureau, read a paper entitled "Evaporation Studies at Reno, Nevada, and at the Salton Sea, Southern California."

In the preparation for an extensive campaign on the evaporation of water over large