The tremendous destruction of game in California is well known, but few probably realized its extent until the actual figures were placed before them. When we read that 72,000 ducks were handled by one Game Transfer Company at San Francisco in the season of 1910–11 and 20,000 geese by another company in the preceding year, while the estimated number of these birds sent to market has decreased from 350,000 in 1911–12 to 125,000 in 1915–16, we can readily understand why there is serious apprehension as to the future of the game supply!

Ducking clubs and their influence upon the preservation of wild bird life come in for very careful consideration. It is freely granted that they provide and maintain better feeding grounds for the ducks while additional food is supplied in the form of "bait." Indiscriminate and illegal gunnery is prevented on the areas under the club's control and hunting is limited to a few days a week and to relatively few shooters. At other times the grounds form an admirable refuge for the birds.

On the other hand, the attractiveness of the protected grounds concentrates the duck population in a limited area where a very heavy toll is levied, and the shooting is done by highly trained marksmen with the best of weapons, and large annual bags result. And the authors consider that the extermination of the ducks is far more rapid than when they remain scattered over wide areas, and are hunted by gunners of varying skill.

Other topics connected with conservation are discussed in the same careful manner, while the treatment of the life histories of the various species is very full. Turning to the chapter on the Valley Quail we find, besides the description of the bird, nest, habits, etc., evidence to show that the males act as sentinels; while it is pointed out that the species lays more eggs than any other game bird and suffers corresponding mortality and means of controlling the latter are suggested. The relation of the species to agriculture is considered carefully and also the problem of hunting this bird for the market.

This is a work of reference which should be in every western library and one that should be available to conservationists the country over.

The publishers have done their part of the work admirably and the result is a very handsome volume, beautifully illustrated by sixteen color plates of game birds from paintings by Louis Agassiz Fuertes and Major Allan Brooks.

W. S.

SPECIAL ARTICLES

THE SUSCEPTIBILITY OF A NON-RUTACEOUS HOST TO CITRUS CANKER

CITRUS canker is a disease recently introduced into the Gulf states from Japan. At present attempts are being made to eradicate this disease entirely in those states, by burning trees on which infections are found, thus eliminating the sources of new infection.

The senior writer has shown[1] that citrus canker is not closely confined to the species of *Citrus* as hosts but affects plants of a large number of other genera of the Rutaceæ. It is believed that this work has been corroborated by workers in the United States.

More recently inoculations of plants outside of the Rutaceæ have been attempted. The lansones (*Lansium domesticum*) of the Meliaceæ, a tree cultivated in the Philippines for its edible fruit, was the first non-rutaceous plant employed. Needle punctures made through a suspension of *Pseudomonas citri* placed upon the actively growing midribs of leaves and upon the petioles and main stems of this plant have produced swellings which later cracked and erruptions of tissue have resulted. In some cases the swellings have been surrounded with the yellow halo typical of canker upon citrous hosts. Control inoculations made with river water under the same conditions have remained negative.

Pseudomonas citri has been reisolated from such lesions, the numbers of colonies in the isolation plates indicating that there was abundant reproduction of the organism in the lansones tissue.

[1] "Further Data on the Susceptibility of Non-Rutaceous Plants to Citrus Canker," *Journal of Agricultural Research*, Volume 15, No. 12, December 23, 1918.

Inoculations have been repeated several times and each time there was produced a reaction not shown in the controls. These results have been obtained both on potted trees and trees growing under field conditions. The experimental conditions were at the optimum for canker development with very favorable moisture environment and vigorously growing host plants. The results warrant the statement that *P. citri* upon stem tissue of *Lansium domesticum* produces a reaction not evidenced in control inoculations.

These results are recorded as of possible interest in throwing new light on the character of the canker organism. It is conceivable that a chain of circumstances in the field might produce extreme optimum conditions that would lead to infection of highly resistent host plants, which from observation under ordinary conditions would be regarded as immune. Lesions on such hosts then would be capable of serving as sources of reinfection to citrus plants.

H. Atherton Lee,
Elmer D. Merrill

Bureau of Plant Industry,
Washington, D. C.,
Bureau of Science,
Manila, P. I.

THE NEBRASKA ACADEMY OF SCIENCES

The program of scientific sessions of the meeting held in Lincoln on May 2 and 3, was as follows:

FRIDAY, MAY 2

Afternoon Session

The algal flora of some of the sandhill lakes: Elda R. Walker.
Corn adaptation studies: F. D. Keim.
The development of Cyathus and Crucibulum: Leva B. Walker.
Stem rust control through barberry eradication: E. Mead Wilcox.
Root habits of plants of prairies, plains and sandhills: J. E. Weaver.
Notes on Nebraska trees: R. J. Pool.
Bacteriology and pathology of influenza: H. B. Waite.
The seasons in 1918 from the standpoint of the zoologist: Robert H. Wolcott.
The mental testing for college entrance: Rufus C. Bentley.
Validity of the intellectual tests: Charles Fordyce.
The need of community educational and human welfare get-together clubs: G. W. A. Luckey.
Future world war: A. E. Sheldon.
Projection charts: H. G. Deming.
The state academies of science: D. D. Whitney.

Evening Session

The annual presidential address, by David D. Whitney, professor of zoology, University of Nebraska. Subject: "Recent progress in the study of heredity."

SATURDAY, MAY 3

Morning Session

Place names in Nebraska: Susan Harmon.
A coin display case for museums: E. E. Blackman.
Radioactivity in the high school: Floyd Doane.
A plea for elementary astronomy in the schools: W. F. Hoyt.
A new way of tracing cardioids: William F. Rigge.
Some electrical phenomena connected with rainfall: J. C. Jensen.
What weather makes a great wheat yield: G. A. Loveland.
The two great observatories in California: G. D. Swezey.
On a phase of chemistry in modern warfare: C. J. Frankforter.
Fat substitutes: Mary L. Fossler.
Automobile accidents: O. W. Sjogren.
Notes on personal experiences in the potash fields: J. E. Murray.
Oil shales of Wyoming: E. F. Schramm.
Potash surveys: G. E. Condra.

SCIENCE

A Weekly Journal devoted to the Advancement of Science, publishing the official notices and proceedings of the American Association for the Advancement of Science

Published every Friday by

THE SCIENCE PRESS

LANCASTER, PA. GARRISON, N. Y.
NEW YORK, N. Y.

Entered in the post-office at Lancaster, Pa., as second class matter