NOTES ON AGRICULTURE AND HORTICULTURE.

PREVENTION OF SMUT IN OATS.

THERE is a large loss annually from smut in various crops and oats especially suffers. It was about twenty per cent. at the farm of the Ohio Station, and a fair estimate of loss for the whole United States is more than eighteen millions of dollars annually.

This smutting of the grain, as has long been known, is due to an invading fungus that produces vast multitudes of spores in the grains; in short, the grains are transformed or replaced by the fungus which in its final condition is mostly spores usually dark and dusty.

Prof. Selby shows by his experiments that the smut enters the seedling oat plant by spores adhering to the seed grain and may be prevented by the destruction of the spores attached to the oats before sowing. This may be done by immersing the oats in hot water at a temperature of 133° F. for fifteen minutes. This treatment likewise increases the vigor of the seed. It was also found that "soaking the seed for twenty-four hours in a solution of a $\frac{3}{4}$ per cent. solution of potassium sulphide made by dissolving $1\frac{1}{2}$ pounds of the salt in 25 gallons of water is equally efficient in smut prevention." Both the above methods of treatment apply to wheat, barley and other grains, with certain modifications to suit the particular cases.

BACTERIOSIS OF CARNATIONS.

BACTERIOSIS is a term now growing into general use for the disease in plants due to bacteria. There are several of these troubles caused by micro-organisms, but none more interesting to the mycologist than that of the carnation. Dr. Arthur and Prof. Bolley conjointly have issued the results of their studies in a neat bulletin (No. 59) from the Indiana Experiment Station.

This bacteriosis is widespread among carnations and while seated in the leaves checks the growth of the whole plant. The disease germs enter the plant through the stomates, punctures of insects or by dissolving a passageway in the cellulose through the action of an enzym. The methods of isolating the germs of the *Bacterium Dianthi* Arth. & Boll. n. sp. are given. A full page heliotype plate is presented of gelatine tubes and another of the appearance of a portion of a diseased plant. It is found that any variety of carnation may be affected, but weak and old plants are most susceptible. Other than members of the pink family of plants are exempt from this trouble.

Valuable practical methods of culture to prevent the bacteriosis have been found, the chief ones residing in the fact that the disease is favored by moisture. By keeping the foliage dry, by watering the soil between rows of wire netting arranged to support the plants the disease is largely prevented. The aphis should be kept off.

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CURRENT NOTES ON ANTHROPOLOGY.

RACE AND DISEASE.

SOME interesting studies on the relations of these factors in sociology have recently appeared from the pen of Dr. William Z. Ripley, who lectures on anthropo-geography in Columbia College. One is upon the problems of acclimatization, and may be found in the March and April numbers of the *Popular Science Monthly* It displays a thorough acquaintance with the literature of the subject, and is marked by a careful weighing of the numerous discordant opinions. It cannot be said that he reaches a satisfactory decision in favor of the possibility of acclimatizing the white race in the tropics, which is the chief practical interest of the inquiry.

Another of Dr. Ripley's papers appears