gradual but rather rapid acclimation in corn? If such qualities do not arise in nature by or through gradual accumulation in association with constant crossing, how then did the first gene or unit of character arise? How did the first plant become resistant for any character?

I write simply to suggest that it is well for plant physiologists, ecologists and plant breeders to hold the open mind over against the thought of "Once a gene, always a gene."

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MECHANISM OF BUFFER ACTION IN SOILS

WHILE working on "The Rôle of Pectin in Jelly Formation" it was found that the buffer action of the pectin solutions was due entirely to the impurities in the solution and not to the colloidal properties of the pectin.

It previously had been assumed, while outlining the method for the attack of the problem involving a fundamental study of the mechanism of buffer action in soils, that the buffer action exhibited by certain types of soils was, for the most part, due to the colloidal content of the soils. This assumption was based on the fact that soils high in colloidal matter showed considerable buffer action while soils low in colloidal matter showed scarcely any buffer action.

In view of the results obtained with pectin solutions the plan of attacking the soils problem was changed so that now an attempt is being made to attribute the buffer action exhibited by the several soils to the impurities held by the colloidal fraction, perhaps by electrostatic attraction, double decomposition or neutralization of alkali with an acid or *vice versa*.

Some preliminary work has been done, using a Portsmouth loam, high in organic material. The colloidal fraction was separated and electro-dialyzed thus removing the greater part of the iron, aluminum, manganese, calcium, magnesium, sodium, potassium and other elements, as well as sulphates, phosphates and other acid radicles. As the electro-dialysis progressed samples were frequently withdrawn and their buffer action determined. It was found, during this preliminary work with this particular type of soil, that as the impurities were progressively removed from the colloidal organic fraction of the soil, the buffer action steadily decreased until, the impurities becoming negligible, the sample exhibited scarcely any buffer action.

As a result of this preliminary investigation the work is being continued, using various soil types with the hope of obtaining data sufficient to substantiate the claim that buffer action peculiar to soil types laden with colloidal material is not due directly to the colloidal properties of the soil but rather to the salts, metallic or acid radicles that are held by the colloidal fraction.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

A METHOD FOR OBTAINING INFECTIVE NEMATODE LARVAE FROM CULTURES[1]

CREEPING eruption, a human skin disease frequently encountered during the summer in some of the Southern areas of the United States, was shown by Kirby-Smith, Dove, and White[2] to be caused by third-stage nematode larvae. Later White and Dove[3] demonstrated that dogs and cats are concerned in the causation of the disease.

Much culturing has been necessary in the search for the adult worm of the causal parasite and in other studies in which infective larvae have been used. The useful Baermann apparatus was first employed to recover the infective larvae from the cultures. Later a still simpler method was devised which reduced very materially the time required. This latter method has been employed for a year and a half and has proved to be entirely adequate for the problem. An outline of it is given in the present article.

The method makes use of the fact, often observed, that the larvae of a number of parasitic nematodes as they approach the third larval stage and the close of the free-living period tend to migrate from the medium in which they are growing. The apparatus traps many of the migrating worms.

Convenient and sufficient equipment consists of crystallizing dishes 125 to 150 mm. in diameter, watch-glasses slightly larger than these dimensions respectively, Petri dishes 100 to 125 mm., test-tubes 20 by 150 mm., filter papers 9 to 12 cm., a spatula with a 4-inch blade, a test-tube rack, a three-quart boiler with cover, animal charcoal, and sterile water. Brief steaming in the covered vessel suffices for all sterilization that is needed.

The charcoal and the feces are properly mixed conveniently in one of the larger watch-glasses and transferred to the half of a Petri dish, with a moistened

[1] Read before the Washington Helminthological Society, April 16, 1927.

[2] Kirby-Smith, J. L., Dove, W. E., and White, G. F., "Creeping Eruption," *Arch. Dermat. and Syph.*, xiii, Feb., 1926, 137–173.

[3] White, G. F., and Dove, W. E., "Dogs and Cats Concerned in the Causation of Creeping Eruption." Official Record, U. S. Dept. Agr., Oct. 27, 1926, *V*.