The disease caused by the germ from the cultures did not coincide very closely with that from natural infection, and there is still doubt if the two be the same.

No preventive measures can be suggested with the limited knowledge of the disease yet available.

Device for Supporting a Pasteur Flask.

By Katherine E. Golden.

Notes on the Microscopic Structure of Woods.

By Katherine E. Golden.

Movement of Protoplasm in the Hyphæ of a Mould.

By Katherine E. Golden.

Description of Certain Bacteria Obtained from Nodules of Various Leguminous Plants.

By Severance Burrage.

(A preliminary study on the constancy of the distribution of bacterial species in definite species of leguminous plants.)

It has been quite thoroughly proven that several different species of bacteria may be found in the nodules of various leguminous plants. The following questions, however, have not, it seems to me, been definitely settled with regard to them:

Does the same species of bacteria always occur in the same species of legume?

Does the same species of bacteria always occur throughout all the nodules on the same plant of any species of legume?

Does the same species of bacteria always occur in the nodules of all the plants in a field planted with one species of legume?

Does the same species of bacteria occur constantly in the same species of legume year after year?

The following descriptions are merely the beginning of an attempt to investigate and answer these questons.

For much of the culture work, I am indebted to Mr. T. R. Perry, one of the students in Purdue University last year.

SPECIES 1.

Separated twenty times from the nodules of Trifolium pratense.

MORPHOLOGY.

Bacilli with rounded ends, occurring sometimes singly, but generally in pairs. These bacilli measured from .75 to 1 mu in width, and 2 mu in length. Examination of Zoogloea masses on agar shows a distinct capsule formation sometimes measuring 3 mu in width and 4 mu in length.

BIOLOGICAL CHARACTERS.

An aerobic, liquefying, motile, chromogenic bacillus, growing well at room temperature, but slightly better at 37½ C°.

On gelatin plates the colonies are large and white, liquefying the gelatin in a very short time.

A funnel shaped liquefaction occurs in gelatin stab cultures in about 15 days, and a distinct greenish fluorescence is given to the liquid portion, while a white precipitate sinks to the bottom of the "funnel." After all the gelatin is liquefied, a distinct green mycoderm is formed on the surface.

On the agar streak there is a thin, spreading light-green growth which imparts a distinct fluorescence to the agar. On older cultures, this growth thickens and forms a luxuriant zoogloea mass all over the agar. It is from such conditions that the capsule stage may be obtained. Upon potato a slimy, yellowish, dirty-brown growth takes place along the line of inoculation, which growth becomes darker with age.

Milk is quickly coagulated, and the whey takes on a greenish fluorescence. This milk, however, remains neutral.

In solutions containing nitrates, all nitrates are changed to nitrites in from five to seven days.

Glucose solutions are not fermented.

SPECIES 2.

Separated several times from the nodules of Vicia sativa.

MORPHOLOGY.

In crushed nodules the "bacteroid" appearance is quite common, while on the various artificial culture media these are rarely seen. Upon these media, they appear as bacilli with rounded ends, often united in pairs. They measure .8 mu in width and 1.5 mu in length.

BIOLOGICAL CHARACTERS.

This form is a faculative anaerobe, motile, non-liquefying, non-chromogenic. Grows well at the room temperature, and better at the body temperature. In gelatin stab cultures a line of very small colonies is formed along the line of puncture.

On agar plates the colonies appear in thirty-six hours, the surface colonies having a whitish appearance, while the deeper ones have a yellowish tinge.

The agar streak gives rise to a slimy, viscous, whitish growth, having no tendency to spread over the agar.

On potato, a rather restricted whitish growth takes place very slowly, and this growth is very slimy.

In solutions containing nitrates, after twenty days, a considerable portion have been reduced to nitrites, but not all, as there was positive test for nitrates as well as for nitrites.

Glucose solutions are not fermented.

Milk is not coagulated, yet is rendered strongly acid.

SPECIES 3.

Separated in several instances from nodules of Phaseolus nasus.

MORPHOLOGY.

Bacilli with rounded ends, usually united in pairs.

Measurement, 1.5 mu in width, 3 mu in length.

BIOLOGICAL CHARACTERS.

An aerobic, liquefying, motile nonchromogenic bacillus, which grows very slowly at the room temperature, but quickly at the body temperature. In gelatin stab cultures the liquefaction occurs in a straight line across the tube. The whole mass of gelatin becoming liquefied in 15 days.

On gelatin plates the colonies reach one-sixteenth of an inch in diameter, circular in outline.

On agar plates, the colonies are also about one-sixteenth of an inch in diameter, but are somewhat irregular in outline, and very finely granular.

On the agar streak, there is a luxuriant dirty-white, slimy growth, giving a very slight fluorescence.

On potato, there is at first a flesh-colored growth, later becoming a dirty white, and on the very old cultures, a brown.

Glucose solutions are not fermented.

Nitrate solutions give a fair test for nitrites after 24 days.

Milk is in no respect changed by this species.

SPECIES 4.

Found in several nodules on Trifolium hybridum.

MORPHOLOGY.

Bacilli occurring usually in pairs, rarely singly.

In the nodules, these bacilli measure 1.5 mu in width, and 4 mu in length. When taken from culture media they measure 1.75 mu in width and 5 mu in length.

BIOLOGICAL CHARACTERS.

This form is a facultative anaerobe, non-liquefying, non-chromogenic bacillus, quite actively motile. Grows better at the body temperature than at the room temperature.

In gelatine stab cultures there is a scattered growth of individual colonies along the line of inoculation, without liquefaction of the gelatin. An irregular button-like growth takes place on the surface of the gelatin. In bouillon rendered slightly acid, no growth whatever took place, while in neutral bouillon an abundant growth occurred.

On agar streak a non-spreading flesh-colored growth appears, and on potato a light lead colored growth follows the line of inoculation which becomes slimy after four days.

Glucose solutions are not fermented.

Nitrate solutions are wholly reduced to nitrites.

Milk is unchanged.

SPECIES 5.

Found in nodules on several plants of Trifolium reflexum.

MORPHOLOGY.

Bacilli usually arranged in pairs, rarely singly. They measure .5 mu in width, and 1.5 mu. in length.

BIOLOGICAL CHARACTERS.

This species is a non-liquefying, non-chromogenic, motile, facultative anaerobic bacillus, which grows very well at the room temperature, but not so well at the body temperature.

On gelatin stab cultures a few scattered colonies appear along the line of inoculation, and a button-like growth on the surface. The gelatin is not liquefied in two weeks.

On agar streak, a whitish growth follows the line of inoculation.

On potato the growth is a yellowish, lead-colored one, following the line of inoculation.

Glucose solutions are not fermented.

Nitrate solutions are completely reduced to nitrites in three days.

Milk is coagulated, but remains neutral.

Other species are now being worked upon, which have been separated from many other leguminous plants, including crimson clover, locust, small white clover, whippoorwill cow pea, black cow pea, and alfalfa.

A Few Mycological Notes for July and August, 1900, Wells and Whitley Counties.

By E. B. Williamson.

An interest in the doings which go on in fields and woods is natural to everyone, bearing, as all of us do, in our own brains, cells which still retain the impress given them as they developed and multiplied to gradually make man, by the cunning of his intellect, master of his environment. Interest is attracted most easily to those everyday, more conspicuous and beautiful objects, and those which have never been dangerous to man during the period of his later evolution. So at the present time we have popular illustrated works on birds, butterflies and