

also well represented. In all 38 different families are included.

This summer's work must be considered as only the beginning of a systematic study of the flora of Shoshone County. Collections should be made earlier in the season, and there are

large areas in the southeast, north, and northwest parts of the county which have not yet been visited.

It is expected that the identifications will be completed in the near future after which the material collected will be on file in the herbarium of the Washington State College, at Pullman.

ABSTRACTS

Isolation of Fungi Associated with Brown Cubical Heartrots of Western Redcedar

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An investigation of the brown cubical heartrots of western redcedar in northern Idaho has been initiated in the Forest Pathology Laboratory of the University of Idaho. Although their importance is generally recognized, very little is known about them, and it is the ultimate purpose of the project to formulate control measures for the rots. The immediate work is concerned with a study of the etiology and symptomatology of the two types of rots, the continuous trunk rot and the pocket trunk rot.

A large number and variety of fungi

have been obtained in pure culture from many different rot specimens. Recent work on the initial stage of decay has resulted in three isolates, as yet unidentified, which may be suspected as possible primary agents of decay. It is interesting that their position of occurrence in relation to the rot and to one another suggests the possibility that a synergic or metabiotic action may be involved. Experiments are also in progress to test their saprogenicity, by making artificial inoculations with these isolates, both on western redcedar heartwood test blocks, and in sound living trees.

Some New Uses for the 2 x 2 Projector

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Either sections or whole mounts of rather large material, prepared by the usual histological methods and fixed to 2 x 2" slides can be used to great advantage in the projector.

Such materials as whole chick embryos, feathers, the sclerotic bones from a duck's eye, whole insects, cross sections of plant stems or entire small leaves may be used.

Histological details fail to show but in cross sections of an embryonic dogfish the relationship of the principal organs like nerve tube, notochord, gills, myotomes, and intestine can be seen very plainly.

A special slide carrier that I made

to carry microscope slides has proved practical but the shape of the slides makes them harder to handle than the 2 x 2" size. I have not yet tried making a water cell for small aquatic forms but plan to do so very soon.

The low cost, brightness and ease of manipulation make the 2 x 2" projector a very useful teaching aid, especially since it is so easy to make Kodachrome slides with a miniature camera and at least one supply house is making photomicrographic slides to order from stained histological material. I am continuing my experiments with large histological subjects in order to widen a field that looks very promising to me.

ABSTRACTS

Secondary Fungi Associated with White Pine Blister Rust Cankers

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A fairly large number of species of secondary fungi are found associated with western white pine blister rust cankers. Two of these secondary fungi (*Tympanis hypopodia* Nyl. and a *Dasy-scypha* species tentatively identified as *D. calyciformis* (Willd.) Rehm) are the most important from the standpoint of both frequency and distribution.

The secondary fungi exert some

measure of biological control over the blister rust disease. This effect is one not before fully appreciated. Very little control is exerted where white pines are already infected by the blister rust, but the spread of blister rust is probably considerably reduced by the action of secondary fungi in reducing the aecial sporulation of the rust.

The Action of Some Compounds on Malt Diastase Activity

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It was desired to ascertain the effect of some "minor elements" on the activity of malt diastase (amylase), especially in very dilute concentrations.

The starch preparation was purified by dialyzing in a colloidion bag against redistilled water. The same was done with the diastase preparation, to obtain it as free as possible of other ions. All water used in the experiments was redistilled.

The determination of the amount of starch in a solution was made with a photometer. This is a colorimetric method and the coloration is formed by the addition of IKI to the solution. This method was first described by Palohimo and published in *Biochemische Zeitschrift* in 1932.

To compare the solutions on the same basis, they were calculated to the same ionic strength by use of the Lewis & Randall formula:

c molal concentration
 z valence of the ions

$$u = \frac{\sum c_i z_i^2}{2}$$

For example $MnCl_2$ for a one molal solution

$$u = \frac{1}{2} \text{conc.} (2)^2 + 1 \times 2 = \frac{6}{2} = 3$$

The compounds used were $MnCl_2$, $ZnCl_2$, $FeCl_3$, H_3BO_3 and $CuCl_2$. With concentrations of .0003 ionic strength, $MnCl_2$ increased the rate of reaction the most and $ZnCl_2$ was next in order. $FeCl_3$, H_3BO_3 and $CuCl_2$ decreased the rate of reaction as compared to a solution which had no mineral compounds added, in the order given. With stronger solutions it was found that .3 ionic strength of $MnCl_2$ the maximum rate of reaction was obtained, and .0003 ionic strength of $ZnCl_2$ gave the maximum rate.