

the study of a powder it may be stained differentially to correspond with the staining which can be employed upon various sections made of the original crude material, it becomes much easier to refer the minute granules and fragmentary elements to the tissues from which they originated.

There are two ways by which we may produce differentially stained powders for microscopical examination. The first and simplest is to make thick ($\frac{1}{2}$ - $\frac{1}{4}$ mm) transverse sections of the tissues to be studied. These may then be stained in the usual manner, after which they are triturated in a mortar to a No. 60, 80 or 100 powder, as the case requires. Such powders are differentially stained in a satisfactory manner, but the fragments and cell masses often show truncated ends, due to sectioning, which are not found in powders produced wholly by grinding.

While the above process is an aid to the proper understanding of powders it is not of direct service in the great number of cases in which the microscopist is required to determine the identity and purity of powders. In such instances any staining method to be of service must enable the operator to differentially stain the powders directly. This may be accomplished by placing about $\frac{1}{4}$ or $\frac{1}{2}$ gm. of the powder in a glass tube (50 to 60mm long and 10 to 15mm in diameter), one end of which has been closed by tying over it a piece of closely woven white silk cloth. Resting on this cloth bottom the powder may be treated with the various bleaching fluids, washed, double stained, dehydrated and cleared for mounting by allowing the tube to stand in watch glasses into which the stains and reagents have been poured. In this way a number of powders each in a separate tube may be treated at the same time. Owing to the great capillarity of fine powder it may often be necessary to promote the drainage and washings by blowing on the free end of the tube with the mouth; in this way it is possible to make rapid transfers from one reagent to another.

CRYPTOGAMIC COLLECTIONS MADE DURING THE YEAR.

BY M. B. THOMAS.

During the past year some very interesting collections of cryptogams have been made in the local flora of Montgomery County.

These have been studied with special care and added to our already very complete list of the plants of the local flora. Very careful notes have been secured as to the distribution, variations and other important questions connected with the plants as collected.

During the early part of the year, in connection with the work in forestry, a collection was made of the fungi injurious to timber in our locality. The number of species was not as large as could reasonably be expected, and it seems that most of the devastation by fungi in our native forests is produced, in the main, by a very limited number of species.

Some additions have been made to our list of algae and a few to the collection of mosses. The latter list now includes 39 species.

Our most important contribution to the State flora is in the slime moulds.

During the past summer two students, Messrs. H. H. Whetzel and A. A. Taylor, devoted much time to this group. The result is an addition of 31 species to our list presented to you two years ago by Mr. Olive. This now gives us a total of 77 myxomycetes in Montgomery County. In addition to this we now have on hand some material not yet worked over, and doubtless several species in this are not included in our list. This is all the more interesting when we consider that our county is not particularly adapted to these forms of plant life and that the number reported is nearly two-fifths of the whole number found thus far in the United States.

The additions to the list are as follows. The classification used is the one presented by Lister in his *Mycetozoa*.

Order *Ceratomyxaceae*.

Ceratomyxa mucida Schroet.

Order *Physaraceae*.

Physarum polymorphum var. *obrusseum* Rost.

Physarum calidris Lister.

Physarum newtoni Macbride.

Physarum compactum Lister.

Physarum globuliferum Pers. (Bull).

Physarum galbeum Wingate.

Chondrioderma spumarioides Rost.

Order *Didymiaceae*.

Didymium dubrum Rost.

Didymium farinaceum Schrader.

Order *Stemonitaceae*.*Stemonitis tenerrima* B. and C., Morg.*Stemonitis smithii* Macbride.*Stemonitis webberi* Rex.*Stemonitis confluens* Cook and Ellis.*Comatrichia obtusata* Preuss.*Comatrichia persoonii* Rost.*Comatrichia laxa* Rost.*Lamproderma arcyronema* Rost.Order *Reticulariaceae*.*Enteridium rozeanum* (Rost) Wingate.Order *Heterodermaceae*.*Lindblandia tubulina* Fries.Order *Lycogalaceae*.*Lycogala exiguum* Morg.*Lycogala flavo-fuscum* Rost.Order *Arcyriaceae*.*Arcyria incarnata* Pers.*Arcyria oerstedtii* Rost.*Arcyria digitata* (Schw) Rost.*Arcyria ferruginea* Sauter.*Arcyria cinerea* (Bull) Pers.Order *Trichiaceae*.*Hemitrichia intorta* Lister.*Hemitrichia karstenii* (Rost) Lister.*Trichia rubiformis* Pers.

EXPERIMENTS WITH SMUT.

BY M. B. THOMAS.

On two previous occasions I have reported to the Academy some special progress made with experiments with formalin as a fungicidal agent.

The first report included the results of a series of experiments upon the effects of formalin in different strengths of solution, with varying periods of time, on the germinating power of a number of cereals.