ical activities, combination with avidin, activity in stimulating the aspartic acid deaminase system, behavior on paper chromatograms as determined by bioautographic procedures, behavior toward commercial enzymes, and rates of hydrolysis.

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The Function of the Cups of *Polyporus conchifer*

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No special significance has been ascribed previously to the curious cup-shaped structure developed at the base of the fruit-body of *Polyporus conchifer* (Schw.) Fr. Growing upon dead branches of elm, the fungus is widely distributed in North America. As generally collected in the autumn, the fruit-body is small, white, grey, or pale-brown, thin-textured, and shelving. The fertile pileus is usually semicircular or kidney-shaped in outline and about 1×4 cm in size. The underside of the flat pileus bears a layer of pores within which basidia are developed.

At the base of the fruit body on the upper side is a small vaselike structure, 4–6 mm in diameter and 5 mm deep. This has generally been described as "sterile," and, as far as the present writer has been able to discover, only Lloyd (*1*) has ever commented upon the unusual nature of a polypore which produces cups in addition to the regular shelving pileus.

It appeared probable that the cups of *Polyporus conchifer* might serve to disperse some kind of reproductive structures and be similar to the splash cups of the Nidulariaceae, liverworts, and mosses to which attention has been drawn recently (*2*). Observations just completed have revealed that special spores are, in fact, disseminated by raindrops falling into the cups of *P. conchifer*.

Fruit-body formation begins during the late summer with the development of the cupulate portion. The cups always grow only on the upper sides of elm branches. In the autumn, the flat pore-bearing portion develops as an outgrowth from one side of the cup. The fungus discharges basidiospores throughout the autumn, but by spring the flat pileus has broken away from the cup entirely. The cups without their spore-bearing pilei are remarkably like those of *Crucibulum vulgare* Tul.

Cups examined from early February 1951 at intervals of 2 weeks until July were always empty, whatever material they had contained evidently having been dispersed. On August 10, large numbers of new cups were found in several stages of development. Some new cups grew from within the old, but most of them developed independently. Every new cup collected at this time contained small dark-brown granules of various sizes, mostly split off from the inside of the cup at the base of the youngest cups, but formed from the inner rim of older cups.

When a drop of water was placed in a fungus cup under the binocular microscope, the dark masses were seen to swell rapidly and almost instantly. One would judge that some hydrophilic colloid is present, because of the rapidity with which the dark masses absorb water. The contents of the cup became cloudy as absorption of water progressed, and when the cloudy drop was transferred to a slide and examined it was found to consist of a suspension of countless minute rod-shaped spores, 3 μ in diameter and 3–8 μ in length.

Transferred to a hanging drop of nutrient agar, the spores germinated in 24–36 hr at room temperature, and the germination percentage was very high. Very young germ tubes bore clamp connections, from which it seems likely that the spores are binucleate. Although the actual process of their formation has not yet been studied, their occurrence mostly in chains and their rod shape suggest that they are oidia.

By allowing small drops of water to fall 8 ft into fresh cups in the laboratory, oidia were observed to be splashed as much as 4 ft from the cups.

It is clear that the cups of *Polyporus conchifer* are special organs for the dissemination of oidia by rain. This occurs mostly before the shelf portion of the fruit body has formed and therefore before basidiospore discharge has begun. The reproductive period of the fungus is thus greatly extended: oidia are splashed from the cups in summer, and basidiospores are shed from the pilei in the autumn.

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Volatile Silica Affecting Plant Ash Analyses

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In a study on the mineral metabolism of plants, the following experiment was performed. Three g of the seed of a kind of turnip, *Brassica ceruna*, were spread on moist filter paper, 11 cm in diameter. The paper was supported in a moist chamber by 4 horizontal

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