great (less than 35°), and one must be careful not to increase the moment of inertia of the stick by the addition of a heavy cup at C. The prop PR should be so placed that it does not impart an upward motion to AB when struck.

The motion offers an interesting problem of analysis to the student of mechanics. In the case of a uniform stick where the center of percussion for axis A is at P (AP = 2/3 AB) the acceleration of P along its circular path is g cos θ; therefore the tangential acceleration of the end B is 3/2 g cos θ. The *vertical* component V of the end B is 3/2 $\cos^2\theta$; hence when $\cos^2\theta$ is greater than 2/3 the vertical component of end B is greater than *g*. This condition is satisfied for all angles θ less than 35°, in which case a ball placed at B will not fall so rapidly as the stick and the ball may be made to plummet directly into the cup. Obviously, in the case of a tall chimney, the heavy construction of the lower portions brings the center of percussion P closer to the base and exaggerates the effect which is demonstrated in this simple case of the rotating stick.

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ORIENTAL PLANE TREE DISEASE

IN a study of the Hyphomycetes in North America[1] I called attention to a species of *Acrosporium* (Oidium) attacking the leaves of *Platanus orientalis* L. in Pittsburgh. Without specific name, the following description was given: Amphigenous, white, effused, forming a dense stratum on the leaf; mycelium branched, interwoven; sporophores erect, single, septate; spores smooth, ellipsoid, granular within, 25–27 × 40–50 μ.

During the past three years, I have collected the same plant on the same host in Philadelphia, Atlantic City and near Gettysburg. The plant attacks both the young and the older leaves. The leaves are disfigured and made unsightly. A white floccose stratum covering the entire leaf or part of the leaf readily distinguishes the fungus. When the plant is once known it can be recognized at a distance of several hundred feet. It may become a dangerous shade tree disease. The fungus belongs to the genus containing the conidial stages of the Erysiphaceae. I have not been able to find the perfect stage of this particular plant.

Mr. John A. Stevenson, mycologist in the Department of Agriculture, Washington, D. C., to whom specimens were sent, has compared the specimens with material in the Washington Herbarium. It seems to agree with a plant described from Louisiana on *Quercus* and also from West Virginia on *Platanus* under the name *Oidium obductum* Ellis and Langlois.[2] Mr. Stevenson also calls attention to the fact that Salmon combines *Oidium obductum* with *Phyllactinia corylea*, as variety *angulata*.[3]

The name of this fungus is still uncertain. Specimens of the conidial stage to determine its distribution and of the perfect stage, if found, will be gladly received.

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PIGMENTS OF THE OAT COLEOPTILE

THE light-growth and phototropic responses of *Avena sativa* coleoptiles are evoked almost exclusively by wave-lengths below 550 mμ.[1,2] The spectral sensitivity rises sharply at about 500 mμ and appears to possess at least two maxima, at 430–440 mμ and at 465–480 mμ.[2] It is probable that light influences initially a pigment, the absorption spectrum of which exhibits similar properties. This type of spectrum is characteristic of carotenoids.

In oat seedlings of the "Victory" strain (Siegeshafer), grown in darkness, the first leaf is yellow, due to carotenoid pigments, while the coleoptile appears to be quite colorless. Ethanol or ethanol-ether extracts of several hundred coleoptiles, however, are light yellow. Their pigments, partitioned between 90 per cent. methanol and benzine, separate into the familiar epiphasic carotene and hypophasic xanthophyll fractions. Estimated colorimetrically, from 0.5 to 0.9 γ of xanthophyll, and from one seventh to one third as much carotene, were obtained per 100 coleoptiles, 1.5 to 3 cm in length.

In groups of seedlings which had been exposed intermittently to red light, chlorophyll developed in the first leaf. In these cases small quantities of chlorophyll were found also in the coleoptile.

The *Avena* coleoptile therefore possesses the same pigments as the leaf, though in much lower concentrations. Its photosensitive system, like those of all other plant and animal organs so far investigated, is associated with the presence of carotenoids.

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FLOOD CONTROL IN CONNECTICUT

MUCH serious thought has been given to the matter of preventing destruction by floods in the Connecticut Valley, especially since the bitter experience of 1936. One plan of control, a study of which has been di-

[1] *Mycologia*, 5: 58–59, 1913.
[2] *Jour. Myc.*, 6: 35, 1890.
[3] *Ann. Mycol.*, 3: 493–505, 1905.

[1] A. H. Blaauw, *Rec. trav. bot. néerl.*, 5: 209, 1909.
[2] F. Bachmann and F. Bergann, *Planta*, 10: 744, 1930; E. S. Johnston, *Smithsonian Misc. Collec.*, 92: 11, 1934; C. Haig, *Biol. Bull.*, 69: 305, 1935.