

while the remainder of the State ranges from 700-1,100 feet above sea level. A single instance illustrates the point. *Solidago latifolia* L. is found abundantly throughout the State, with the exception of the extreme southwestern counties. It is found, however, in the higher land a little to the west in Illinois, and a little to the south. Other forms occur which indicate that even a slight change of elevation may at times enter as a very positive factor in distribution.

I ask the botanists of the State in their future study of composite forms to devote more time and care to ecologic observations, since by this means only can our State flora be made of such nature as to be readily correlated with work done in other parts of the country. Many lists are a weariness to the flesh, but ecologic facts do good as a medicine.

ADDITIONS TO THE PUBLISHED LISTS OF INDIANA CRYPTOGAMS. BY LUCIEN M. UNDERWOOD.

The following plants, mostly collected during my connection with the State Biological Survey, have not been reported as growing in Indiana, and may properly be noted in this connection. All are represented by specimens in my herbarium:

UNREDINEÆ.

Aecidium Cyparissii DC. On *Euphorbia commutata*, Montgomery, 5, 1895 (Olive).

Coleosporium ipomoeæ. On *Ipomoea pandurata*, Tippecanoe, 9 1895 (Arthur).

THELEPHORACEÆ.

Corticium atularium B. & C. Putnam, 10, 1892.

Corticium calvum Fr. Putnam, 5, 10, 1893; 12, 1894.

Corticium cinereum Pers. Putnam, 12, 1891.

Corticium filamentosum B. & C. Putnam, 10, 1892; 12, 1894.

Corticium lacteum Fr. Putnam, 6, 9, 1893.

Corticium lividum Pers. Putnam, 5, 10, 1893.

Corticium ochraceum Pers. Putnam, 10, 1891.

Corticium portentosum B. & C. Putnam, 10, 1892.

Corticium rubropallens Schw. Putnam, 10, 1893.

Hymenochaete fuliginosa (Pers.) Lev. Putnam, 12, 1894.

Hymenochaete purpurea Cke. & Morg. Putnam, 9, 1893.

Peniophora cinerescens (Schw.) Sacc. Should stand in place of *Hymenochaete cinerescens* previously reported. Putnam, 10, 1891; 12, 1894.

Stereum coffeatum B. & C. Putnam, 12, 1891.

Stereum hirsutum (Willd.) Fr. Putnam, 10, 1893; 12, 1894.

Stereum ochraceoflavum Schw. Vigo, 10, 1893.

Thelephora tephroleuca B. & C. Putnam, 7, 1894 (*Melia* Ellis).

AGARICACEÆ.

Collybia zonata Pk. At the foot of a maple, Putnam, 8, 1896.

LYCOPERDACEÆ.

Gcaster fimbriatum Fr. Putnam, 11, 1894.

Lemanea catenulata grows in abundance, forming fringes on the rocks above the upper fall (Eel River Falls, Owen County), where I collected it in May, 1893. According to Dr. Atkinson this species has not before been reported from America. Its *Chantransia* stage is still a desideratum. The plant was distributed in Setchell, Holden and Collins: *Phycotheca Americana*.

Additional Hosts for Indiana fungi previously reported.

Carex Pennsylvanica (*Puccinia caricis*). Montgomery, 5, 1895 (Olive).

Galium aparine (*Puccinia galii*). Montgomery, 5, 1895 (Olive).

Ipomoea nil (*Albugo ipomoea-pandurina*). Tippecanoe, 9, 1895 (Arthur).

Phaseolus diversifolius (*Uromyces appendiculatus*). Tippecanoe, 9, 1895 (Arthur).

Columbia University, 26 December, 1896.

CHANGES IN THE PITH CELL PRELIMINARY TO THE DEVELOPMENT OF CAVITIES IN THE STEMS OF SOME GRASSES. BY GEORGE J. PIERCE.

THE BACTERIOLOGICAL FLORA OF THE AIR IN STABLES. BY A. W. BITTING AND CHAS. E. DAVIS.

During the first five months of the present year a study was conducted to determine the number of bacteria found in the air in stables and to determine whether a relationship existed between the number of germs found in the air and the sanitary condition of the place.

Ten barns and stables were selected, representing fairly well good, average and poor sanitary conditions. Fifteen tests of the air were made inside the buildings with Hesse's apparatus and a corresponding number of tests made on the open air at the same time. The average number of colonies developed per liter from the air inside the stables was 86; the average number of colonies developed per liter from the air outside the stables was 27. Thirty tests were made by Petri dish exposures for two minutes each in the air inside the stables and fifteen tests