

AN INCREASING PEAR DISEASE IN INDIANA. BY LUCIEN M. UNDERWOOD.

[ABSTRACT.]

Septoria piricala Desm., was first collected in the state by Dr. J. C. Arthur, in Tippecanoe County, in September, 1892. It was collected by the writer in Putnam County in October of the same year. Since that time its ravages are on the increase, and it has been seen in a number of pear orchards in central Indiana. The disease appears early in the summer and continues as long as the leaves remain on the trees. It manifests itself in the form of a series of brownish spots on the leaf where the chlorophyll-bearing tissue is destroyed by the fungus. On many leaves examined from one-fifth to one-half of the leaf was diseased. The effect was seen in the utter failure of the tree to produce fruit. In many cases it would be difficult to find a single leaf on a tree that was unaffected. It is evidently a good opportunity to introduce spraying with the usual Bordeaux mixture.

VALUE OF SEED CHARACTERS IN DETERMINING SPECIFIC RANK.

The purpose of this study was to see if sufficient differences existed in the seeds of plants to enable us to determine specific rank. The plants taken for this work were those of the family *Plantaginaceæ*, including the ordinary plantain. The seeds were examined as to color, shape, size, and character of surface. The seed coats were also studied to see if histological differences of classificatory value existed, while incidentally any striking features in cell contents or peculiarities in response to the action of various reagents were noted.

The seeds were first studied as to external characters, and it was found that according to color and surface they could be separated into three groups: *P. major*, *decipiens* and *eriopoda* being black; *P. maritima*, *Patagonica*, *pusilla* and *cordata*, brown, and *Virginica* yellow. By outline of cross section it was found that they could be separated into four groups. By the combination of these two groupings we find that each species has at least one characteristic that is not found in any of the others. *Virginica* and *Patagonica* resemble in cross section, but differ in color; *major* is easily distinguished by outlines; *pusilla* is different from all others in cross section; *major* and *cordata* resemble in cross section, but are distinguished by color and surface; *decipiens* and *eriopoda* are similar in cross section and color, but differ in the position of the hilum.

The seed coats are somewhat diverse in structure, showing five general types, but after comparing the results in all cases it is apparent that the species examined do not show sufficient differences to enable us, in all cases, to distinguish one from another. For while the seed coat of one species may be unlike all

others, and, therefore, readily distinguished, yet the second may be precisely like the third, thus rendering the seed coat valueless, on the whole, as a means of determining specific rank.

After a careful comparison of the results reached through these experiments, it is safe to say that the same harmony of structure exists in the seeds of species as in the leaf or the flower, while the same variety is found existing between seeds of different species. For although in the family under discussion each species resembles one or more of the others in some respects, yet it has at least one characteristic that is peculiarly its own. Thus *major* resembles *decipiens* in color, but differs from all the others in outline. *Virginia* and *Patagonica* are similar in cross section, but differ in color. And so on through the list studied, one may be distinguished by outline, another by color, another by cross section, or another by surface, yet the individual seeds of any one species are "as like as two peas." By these results we are impelled to the belief that the characteristics of seeds furnish as true an index to family, genus or species as do the leaf and the flower; and that it only remains for the botanist to school himself to read aright the lessons found in nature to be convinced that nothing is left to chance or accident, but that she has mathematical rules and chemical formulae to which she is as constant as the needle to the pole.

ADDITIONS TO THE FISH FAUNA OF WABASH COUNTY. BY W. O. WALLACE.

NOTES ON REPTILIAN FAUNA OF VIGO COUNTY. BY W. S. BLATCHLEY.

PRELIMINARY LIST OF THE BIRDS OF BROWN COUNTY. BY E. M. KINDLE.

Brown County lies about forty miles south of Indianapolis. Its boundaries correspond rather closely with natural features, and it may consequently be regarded as representing much more closely than counties usually do a faunal area. It has the geological distinction of being the only county in the state whose limits are confined entirely to the knobstone formation. The limestone hills of Monroe County approach to within a mile or two of the western boundary, while on the north and east, the southern limit of the drift corresponds approximately to the boundaries separating it from Morgan, Johnson and Bartholomew Counties. The county has a uniformly rugged and broken surface, which reaches the maximum