

of the timber country that the wood can not be gotten out. The company is in a difficult position and the scarcity of any material may cause it to close down or to be removed. The Casket Company uses annually \$38,000 worth of material, turning out a finished product worth \$58,500. The factory furnishes employment to forty persons, paying annually in wages, \$18,000. Most of the material is shipped here. There are prospects of another industry for the manufacture of wooden novelties for which there is claimed an excellent market. In order to have the desired capacity, about thirty men would be employed at first and if the venture proved successful the capacity and working force of the plant would be doubled. The principal woods used are the maple and beech, and the county still has a good supply of the latter.

Such industries contribute largely to prosperity of the county and whatever would tend to foster them in a proper way is promoting the general welfare. The reforestation of a sufficient area would make good timber available and not only prevent the removal of our present industries but invite new ones as well.

NOTES ON THE CLEAVAGE PLANE IN STEMS AND FALLING LEAVES.

MARY A. HICKMAN.

Adaptation to climate and environment is nowhere better illustrated than in the forest. Especially is this true of the temperate regions where adaptation is in response to the winter cold. The deciduous trees, instead of protecting their delicate leaf structures from the severe cold of winter, have formed the habit of dropping them and again putting out new leaves when the warm season returns. The deciduous trees have developed the working powers of their leaves to such an extent that the great surface exposure and delicacy of structure make it impossible to carry them through the winter, therefore, the necessity of the deciduous habit.

However, this habit of shedding is not confined to the leaves only, for many trees annually shed twigs and branches. The dropping of twigs and branches is probably to prevent too great a density of foliage. This last habit is not restricted wholly to the deciduous trees, for some of the conifers have the same trait.

This dropping is due, not to breaking, but to growing off by the formation of a cleavage plane between both the twig, petiole and the parent stem. Thus the reason for the scars left by the shedding.

In the shedding of stems, the cleavage plane is gradually developed across the fibro-vascular system separating the stem from the parent stem with the exception of the bark and a few layers of wood cells which are easily broken. The scar is virtually formed before the falling of the stem. Marked illustrations of this habit from the deciduous trees are



found in the family Salicaceae L. The branches and twigs begin to fall before the shedding of the leaves and continue throughout the period of leaf fall. The twigs shed are green, many bearing large winter buds upon their tips. Of the conifers, the *Tsuga Canadensis* Carr., illustrates this habit very markedly. However, their twigs, when shed, are dead.*

In the shedding of leaves, we find the formation of the cleavage plane the same as in the stem. The most common method is that of a separation between the petiole and stem, as shown by the scars on the stems.

* The Self-pruning of Woody Plants.—John H. Schaffner, Ohio Nat. L., 1902, pp. 171-147

This fall the attention of the writer was called to a peculiar case of variation found in the vine *Ampelopsis veitchii* L., native of Japan, but which has been introduced into America for ornamental purposes. It clings to the walls by its very numerous disk-tipped tendrils. The leaves on the younger branches of the vine are small and entire with dentate margins, but those on the older branches are sharply three-lobed or sometimes three divided.

In this plant we find a second cleavage plane formed between the petiole and leaf blade so that instead of the leaves falling in the usual way the blade is shed and the petiole remains attached to the stem until late in the winter.

Due to the difference in density of structure in the stem and petiole, it is difficult to secure satisfactory results in the formation and structure of the cleavage plane of that region. But when, as in this plant, there is a second cleavage plane formed between the petiole and blade, it is comparatively easy to trace. There is a breaking down and spreading of the tracheary tissue and the formation of a layer of small cells, causing a complete disconnection between the tracheary tissue of the leaf and petiole, as is demonstrated by the illustration.

SOME RARE INDIANA BIRDS.

AMOS W. BUTLER.

The following notes are supplemental to those presented at the meeting of the Academy in 1899, which were printed in the proceedings for that year:

PHALACROCORAX DILOPHUS FLORIDANUS (Aud.).

Florida Cormorant.—A bird of this species was killed September 28, 1902, at Morris Street bridge over White River, in the city of Indianapolis. It was obtained by Fletcher M. Noe.

PELECANUS ERYTHRONHYNCHIOS Gmel.

White Pelican.—Two were killed on White River April 25, 1902, by Harry Sappenfield. The locality is given as between the farms of Frank C. Lory and A. H. Taylor, in Knox County. It is reported the birds will be mounted. (E. J. Chansler.)