



Presented to M.S.C. by
Arthur B. Holman.
With class of 1890.

Lecture in Forestry.

DELIVERED BY WILLIAM J. BEAL, M. S., PH. D., B. A., M. A., B. S.,

*Member of State Forestry Commission, of American Association for the
Advancement of Science, &c., &c., &c., &c., &c., &c.*

This morning I will first take up the distribution of the flora of Michigan. There is a little plant, *Cornus Canadensis*,—so high— which follows the white pine. Now we are just at the southern boundary of the pine region; a few scattering pines are found down as far south as Holt. There are 90 species of trees in Michigan, and but 10 species in Great Britain, though Michigan has but two-thirds as much area. The effect of the Gulf Stream is to modify the conditions of growth found in England. The oaks there have thick, short trunks and very large, spreading tops. Up north of here, through Crawford and Oscoda counties, we find the jack-pine plains. The Forestry Commission is studying how these plains may be made productive. We are just at the northern edge of the growth of the Kentucky coffee tree, the pawpaw and the tulip tree, *Liriodendron tulipifera*.

The glacial period, which took place some thousands or hundreds of thousands of years ago, had a surprising effect upon the distribution of plants through Michigan. Greenland at that time was warm and the glaciers crowded the flora farther and farther south until the most of it perished at the edge of the sea. There are found some twenty species of arctic plants on the top of Mt. Washington, the Rocky Mountains and in Labrador, which retreated there when the glaciers melted. The glaciers once covered Michigan; which must have made it cold for plants.

It is queer how people got fooled by the vegetation they found when they emigrated to Australia. They thought all of the pears were of wood and had their stems attached to the big end, and that

the cherries had pits on the outside. They didn't know much about Botany.

In this locality we have 42 species of trees large enough to take account of. Our oaks are very large and we find poplars springing up in abundance after forest fires. But I see I am rambling.

It is a curious fact that as we go towards the equator the number of species becomes rapidly increased. We find only a few stunted lichens in Greenland, with some willows, while along the Amazon there grow 6,000 species of trees. There is much rain present in the latter regions; this accounts for the large growth of forest. Spain has but few forests. Professor Sargent claims that the amount of rain fall is completely independent of the extent of the forest. Where we find an annual rainfall of less than twenty inches no forest exists. I don't subscribe fully to what he says. It is in direct opposition to the theory advanced by Dr. Marsh. Dr. Marsh didn't pretend to be a scientist but was an observer and wrote what he saw.

The island of St. Helena has had over twenty species of plants not found in any other portion of the world; this may be owing to its distance from Michigan and the rest of the world.

There are a few things, which we cannot explain in this discussion of the geographical distribution of the sylvia of Michigan from the data before us. We don't know why the true heaths do not exist here; we don't know why oranges were native to China alone.

The jack-pine has a neat contrivance of its own to prevent its being exterminated by forest fires. Its cones are hard and—the bell rings and I will go on from here to-morrow.