

PAST AND PRESENT INTEREST IN ILLINOIS
TREES

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INTRODUCTION

In connection with the work of the State Natural History Survey of making an authentic list of native Illinois trees and writing some notes upon them, we had occasion to look up pressed specimens of trees in the herbaria of the Field Museum of Natural History, Chicago, and of the University of Illinois. We found this examination of considerable interest, not simply because we were able to see specimens which had actually been collected, but for the contact it afforded with the work of early botanists and scientific men of this state and others.

So impressed were we with the care and thoroughness with which these collectors did their work for the mere love of it that it suggested the subject of this paper, "Past and Present Interest in Illinois Trees". Since the subject matter is perhaps not suited for presentation in a state bulletin, we thought it might be of interest to the members of the State Academy of Science and others. This chronological outline of attempts to classify plants and especially trees is by no means complete but merely suggestive. It would be an interesting and worthwhile piece of work for someone to present a brief biographical sketch of each collector. This is a task which might well be considered by present day botanists who owe much to the painstaking care of these early investigators.

A. *Past Interest in Trees.*

As early as 1794 Andre Michaux, a distinguished botanist of France (Thwaites, 1748-1846), visited Illinois in search of plants which were to be sent home to enrich the gardens and pleasure grounds of his own beautiful country. The elder Michaux made his travels into Kentucky in 1793-1796, and his son, Francois Andre Michaux, traversed the wilderness west of the Alleghenies in 1802. The journal of the elder Michaux re-

records "the impressions of a man of unusual intelligence, who had learned by long practice to use his eyes to good advantage and to write down only what he saw." In 1803 there was published in Paris his "Flora-Boreali-Americana" written in Latin by Richard from the plants which Michaux had collected in America. A number of plants are set down as having been found in "regione Illinoensis".

Some of the notes found in Andre Michaux' journal about the medicinal and other values of trees and shrubs are of interest, from which we have selected only a few:—*Liquidambar*. (now the red gum.) "A Frenchman who traded among the Cheroquis savages cured himself of the itch by drinking for ten days a decoction of chips of that tree which he called copalm and which is the true *Liquidambar*."

Celtis occidentalis—Hackberry.

"The 7th of November confirmed my opinion that the second bark of *Celtis occidentalis* (called in the Illinois country Bois connu and toward New Orleans Bois inconnu) is an excellent remedy for curing jaundice; a handful of the roots or leaves of *Smilax sarsaparilla* is added to it; it is used for about eight days as a decoction."

Padus virginiana (*Prunus virginiana*)

"In making wheels for vehicles the workmen use the wood of *Padus virginiana* for the felloes, elm for the naves and white oak for the spokes."

Cuercus—Oak.

"Having nothing to do on January 2nd. I made ink with gall nuts which I gathered on the oaks in the vicinity of the spot where we camped. It was made in less than five minutes and will serve me as a sample."

Benzoin Benzoin—Spice Bush.

"I had supped the previous evening (Wed. Feb. 10, 1796) on tea made from the bush called Spice Wood. A handful of young twigs or branches is set to boil and after it had boiled at least a quarter of an hour sugar

is added and it is drunk like real tea. This beverage restores strength and it had that effect for I was very tired when I arrived. This shrub is the *Laurus bensoin* (Linn.). The Illinois French call it Poivrier and the hunters season their meat with pieces of its wood."

Nuttall (1821) has many references to trees found in his journey down the Ohio and up the Mississippi river to the "Arkansa Territory". We can only quote one of these, although they add to our knowledge quaint uses of some of our trees:

"Gymnocladus dioicus—Kentucky Coffee Tree.

Among the trees we still continued to observe the coffee bean (*Gymnocladus canadensis*) now loaded with legumes, the seeds of which when parched, are agreeable to eat but produce a substitute for coffee greatly inferior to *Cichorium*."

J. A. Lapham, of Milwaukee, Wisconsin, made journeys into this state as early as 1836 and published a catalogue of the plants of Illinois about twenty years later (Lapham, 1856). Dr. George Engelmann, of St. Louis, after examining collections made by Mr. Robert Kennicott, Mr. Emil Claussen and others exhibited at the State Fair in Chicago in 1835, said: "It seems that there are 70 species in Illinois that attain the height and dignity of forest trees, including 12 or 13 species of oak. The rich bottomlands along the margins of the Mississippi, the Ohio and the Wabash afford specimens of the noblest and most gigantic trees of the great valley of the west." Mr. M. S. Bebb added several species to Lapham's list from northern Illinois.

The idea of making a reliable list of trees with their local occurrences in the state was suggested by Frederick Brendel (1858). He urged that the members of the Natural History Society and others should unite in an effort "to ascertain the northern and southern limits of trees and that a paper on the subject should be published in the Transactions of the State Agricultural Society." In accordance with this suggestion men from different parts of the state did report upon the trees found in their county, and we find that Samuel Bartley,

of Murphysboro, and Mr. C. Thomas of Marion, made such observations in Jackson and Williamson counties. With the idea of assisting in this work Dr. George Vasey, of Ringwood, published an article in Emery's Journal of Agriculture and Prairie Farmer in 1858, giving explicit directions for the pressing and mounting of plants.

Frederick Brendel (1858) read a paper before the Natural History Society at Bloomington on "Forests and Forest Trees", in which he listed the trees found in Illinois and compared the number with that found in Europe. After enumerating the six conifers which are found today in the state he says: "The bulk of our woods is composed of more than 60 species of trees with deciduous leaves, amongst which we have 40 of large size. The constituents of the copses are about 40 different shrubs. Compared with European woodlands this is a large proportion. In all Europe north of the Alps we count scarcely more than 30 different species of large forest trees."

Mr. Brendel (1858) also published an article on "The Trees and Shrubs of Illinois" and followed this up with two others, both very well illustrated, the first on the oaks in which their specific gravities were given, and the second on the beech, the elms, the hackberry and the mulberry. Both combined give an accurate and well written account of the trees of that period, and the same descriptions could well stand today.

We find also that the early geologists under the head of agriculture reported upon timber in some of the counties in addition to soils, building stone, limestone and clays. Dr. Worthen (1866), the first Director of Geology, made some very detailed observations about trees in their relation to geology and soils as observed in St. Clair, Madison, Hancock, Hardin, Pulaski, Massac and Pope counties.

Harry N. Patterson in 1874 published a list of ferns and flowering plants near Oquawha and (1876) published a catalogue of the plants of Illinois. In this 709 species were enumerated, of which 654 were found growing within three miles of Oquawha, Henderson County.

Burrill and Flagg (1878) made a list of the plants of Illinois and among the notes are many concerning trees. One interesting fact mentioned is the occurrence of American chestnut (*Castanea dentata*) over a tract of some 80 acres at Olmstead, Pulaski County, classed as native. It was from this grove that Mr. B. T. Gault, of Glen Ellyn, secured in 1900 a photograph of a tree about four and a half feet in diameter and prepared a wood specimen from one of its branches about three inches and a half in diameter. This specimen, along with others, was presented by Mr. Gault to the University of Illinois. This was the same place also where Chestnut was observed by Mr. William Trelease (1917) and where specimens were collected by the Forestry Survey party in the summer of 1924. Mr. Flagg, who assisted Prof. Burrill, said concerning his collaboration that "he was no botanist but was simply working from a practical standpoint and endeavoring to show the possibilities of plant culture, agricultural and horticultural, in Illinois."

The following is a list of those whose names have appeared most often on the herbarium specimens which we have examined:

- M. S. Bebb, Fountaindale, Winnebago County.
- Dr. George Vasey, Ringwood, McHenry County.
- Rev. E. J. Hill, Englewood, Cook County.
- Dr. Frederick Brendel, Peoria, Peoria County.
- Elihu Hall, Athens, Menard County.
- Dr. Jacob Schneck, Mt. Carmel, Wabash County.
- Robert Ridgway, Olney, Richland County.
- E. H. Hill, Chicago Heights, Cook County.
- T. J. Burrill, Champaign and Bureau counties, Urbana, Illinois.
- Harry N. Patterson, Oquawha, Henderson County.
- W. E. Andrews, Carlinville and Taylorville, Macoupin and Christian counties.
- Frank C. Gates, Carthage, Hancock County and Urbana.
- Virginius H. Chase, Wady Petra, Peoria County.
- Agnes Chase, Glenwood, Cook County (and Peoria County).
- George P. Clinton, Champaign County, Urbana.
- H. Welch, Mascoutah, St. Clair County.

Rev. John Davis, Hannibal, Mo. (who collected in Pike County, Illinois).

Dr. J. T. Stewart, Peoria and Normal.

I. S. Raymond, Villa Ridge.

C. F. Millspaugh, Chicago.

L. M. Umbach, Naperville, Northwestern College.

B. Present Interest in Trees.

Present interest in the subject of trees is by no means wanting among systematic botanists, ecologists and the general public. That people want information about trees in Illinois is indicated by the numerous requests which have been received for information on the academic as well as the economic side. The interest in trees from the standpoint of the plant association has received stimulation by the work of such men as Pepon, Ridgway, Cowles, Fuller, Waterman, and McDougall in Jo Daviess, Richland, Cook, LaSalle, Lake, Vermillion, and Champaign counties and the many botanical excursions into southern Illinois led by such enthusiasts as Dr. Cowles of Chicago, Miss Steagall of Carbondale, and Prof. Bonnell of Harrisburg. Many papers on trees have been published within the last five years in the Proceedings of this Academy. Just at present, besides the publication planned by the Natural History Survey, we know of at least two other books on trees which will be published within the next few years, besides two county reports on ligneous plants and a pamphlet on the trees of the Chicago region. All of this indicates that within the next few years the subject of trees in this state will be adequately covered, and not only the botanists of other states can find the information for which they may seek but those in our own state interested from the standpoint of nature study alone will find simple tree descriptions suited to their purpose.

The foresters of the Natural History Survey have uncovered many interesting facts about the life and growth of trees since the summer of 1921 which are to be presented soon in the form of bulletins. Some preliminary facts may be of interest.

According to a careful inventory there are about 90 native trees in this state. This number has been arrived at by omitting doubtful varieties, those which may not reach tree size and those which are doubtful because of changes in nomenclature since collections were first made in the state. Since as many as four or five different names have been given to trees which were collected in 1875 and minor differences have added new varieties, the difficulty of making a correct list can be appreciated. Some of these points have not even been settled among the botanists themselves.

Out of this total of 90, 84 are hardwoods and 6 are softwoods or conifers. There have been actually collected 18 oaks; 7 white, 9 black and 2 willow oaks. There are 7 hickories, 6 ashes, 4 each of birch, maple and elm, 3 locusts and 2 hackberries. Seventy-three species native or once native have been reported from Richland County alone by Robert Ridgway, of Olney, Illinois, but he has considered refinements in the making of varieties which the ordinary person would find troublesome, so that for practical purposes the number may be somewhat less than this. Miss Alice Kibbe reports 53 species from Hancock County and Prof. W. B. McDougall lists 30 species as native to the University Woods, Urbana, after omitting all of the *Crataegi* except *Crus-galli* and *mollis*.

The largest living tree measured in the state was a burr oak in the Brownfield woods near Urbana, which was $15\frac{3}{4}$ feet in circumference at a point $4\frac{1}{2}$ feet above the ground and 104 feet in height. A close second to this was another burr oak in Union County which was slightly over 15 feet in circumference at the same point, which made very close to 5,000 feet of lumber and was 220 years old. The oldest tree stump counted in the state had 330 rings, a tupelo gum in the Cache River bottoms. Among the trees added to the list before known for the state by looking over herbaria and by collections actually made in the field, are the yellow birch, the water hickory and the willow oak.

As to growth, the most rapidly growing species in plantation was catalpa in Starke County, 13 years old, which had averaged 160 cubic feet per acre per annum; the fastest growing not in plantations was the cottonwood

near a levee and a mixture of soft maple, sycamore and ash near a drained lake at Havana which has produced 140 cubic feet each or about a cord and a half of wood per acre per annum. The slowest growth recorded, unless it be for post oak on post oak flats, was for a growth of white and other oaks on a hillside in Union County which had never been thinned except by natural processes and which had added 16 cubic feet per acre per annum.

Thus it seems possible for the forester by actual measurements and computation to correlate cubic feet or even pounds of wood per acre with different soil types and thus tell with reasonable certainty what wood crops are most liable to pay a profit on the different classes of soil just as the farmer can estimate his crops in tons or bushels per acre. Thus facts which are of interest to the general public such as the number of species, size, and age of trees in the state can be supplemented by facts which are of far reaching significance to the timber grower and those interested in land utilization—answering the questions of how much timber can I expect in a certain number of years and will it pay to grow it? And after all, these are the questions which are worth while considering, and upon the successful and accurate answers to which depend whether or not the private owner, under equitable systems of taxation and reasonable safety from fire and other hazards, can afford to enter into timber growing as a business.

TREES OF THE LOWER WABASH VALLEY OF ILLINOIS AND INDIANA

According to Robert Ridgway (1872, '82, '83, '94), who has written several articles on the trees of this region, it was remarkable both for the large number of species represented and the magnificent proportions of individual trees. He says that in one square mile of woods there was a grand total of more than 70 trees, not including several of the larger shrubs. Many of them were described and measured by Mr. Ridgway for Professor Sargent's report upon the forest trees of North America for the tenth census, and these notes have been published in a series of articles. He was assisted in

making the measurements with the tape on felled trees and with the hypsometer on standing trees by Dr. Jacob Schneck of Posey County, Indiana. The number of indigenous trees in the Lower Wabash Valley from the mouth of the White River southward was around 107, while a number of shrubs such as witch hazel, spice bush, and sumach reached the height of 30 feet. The largest trees were the sycamore, tulip poplar, pecan and sweet gum, all of them being over 175 feet tall and one tulip even reaching 190 feet. Mr. Ridgway in 1875 measured a sycamore on the Indiana side of the White River within three miles of Mt. Carmel, Illinois, which had a height of 160 feet, a circumference above the swell of the base of 38 feet and a crown spread of 134 feet. This was undoubtedly the largest tree east of the Rocky Mountains.

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