The trees of Indiana

E
Elliott
Thomas B

TRANSACTIONS
OF THE
INDIANAPOLIS
ACADEMY OF SCIENCES.

FROM
THE DATE OF ORGANIZATION

(DECEMBER 14, 1870,)

TO JULY 1, 1872.

NYBG LIBRARY
REPRINT COLLECTION

PUBLISHED BY THE ACADEMY
1872.

Notice
This material may be
protected by copyright law
(title 17 U.S. Code)

THE TREES OF INDIANA,

Being a statement of the Principal Indigenous Trees of the State, with some of their uses in the Arts and Manufactures and for Ornament and Shade. Submitted to the Indianapolis Academy of Sciences,

BY THOMAS B. ELLIOTT.

The following remarks, on a number of the most prominent woods of Indiana, are prepared with special reference to their uses in commerce and the arts, and for street planting and ornamental purposes.

So far as is practicable I have avoided technical and scientific description, and have endeavored to present the subject in a popular form.

The commercial value of the woods of Indiana is rapidly appreciating. The western border of the State is the extreme western edge of the precious hard wood forests of the Mississippi Valley. Indianapolis is situated nearly at the geographical center of these invaluable wood lands, and her eleven lines of railway intersect them in every direction, bringing to Indianapolis, for manufacture and distribution, more hard wood lumber than finds a market at any other city of the country. The statistics of railway transportation show that fully twenty-five per cent. of the heavy freight (fourth class and lower,) of all our railways consists of the products of our forests, and on several of the roads centering here more than one half the heavy carriage is of the various grades of lumber. Five new roads,

3/10/11 12.1 82.50 130871

the Indianapolis and Vincennes, Indianapolis, Bloomington and Western, Indianapolis and St. Louis, Cincinnati and Indianapolis Junction, and the Indianapolis, Peru and Chicago, and especially its new northern extension from Peru to Michigan City, all pass wholly or in part, through the richest timbered sections of Indiana and through forests as yet uncultured of its choicest timber. It is reasonable to believe that with the general distribution of cheap coal for fuel these treasures of choice woods may eventually, and we hope early, be used only as required for the various arts and manufactures, and that their wanton destruction for fuel and "clearing" may be abandoned as a ruthless waste of property.

This reform has already been commenced by several of the railroad companies converting their engines into coal instead of wood burners. It is estimated that the railways of Indiana consume annually the frightful amount of seven hundred thousand cords of wood—equal to about one hundred thousand car loads, thus devastating annually of its choicest treasures twenty thousand acres of land. At this rate the sure destruction of our forests is inevitable.

There is a routine, a fatalism, a blind disregard of ordinary business sense, on the part of our railway managers in thus destroying a material portion of their own revenue, amounting eventually to throwing away one-fourth of their annual receipts from freights. But this vandalism will not be continued; the policy of the roads is changing; lumber will become higher and coal cheaper, and the woods be saved, and new ones planted.

It is obvious to any statistician or good observer, that the immense timber wealth of Indiana can only be maintained by a well matured policy for the preservation of our remaining woods under legislative authority. The lives of trees and of men are alike worthy of protection by the law mak-

ing power. The same authority should award premiums, freedom from taxation, or other benefit, for the replanting of trees on the old fields and the cultivation of timber trees on the prairies on the northern and western border of the State. By judicious planting our climate will be improved, and our live stock, our waters, our farms, our gardens, and our fruit be protected. Besides, as a matter of investment for early returns, new growths will yield an annual income with less care and more profit than any staple crop.

If this is true so near the center of what is left of the grand primeval forests, how much more desirable replanting would be on the cleared and devastated lands of the eastern seaboard!

Our friend, Dr. Warder, of Cincinnati, Ohio, relates an instance of an old farm taken in hand fourteen years ago and planted with the *Robinia Pseudacacia*—common Locust. During the last summer there was cut from this plantation, timber which sold on the ground at the rate of eight hundred dollars an acre. None of the sticks counted more than twelve and fifteen rings of annual growth.

At the risk of some repetition, where different varieties of wood are required for the same purposes, we shall give a brief statement of the leading varieties of wood native to Indiana, and a portion of the uses to which they are applied. Among the synonyms below the last name under each head will be the one in popular use in this State.

Acer Saccharinum, Rock or Sugar Maple, Sugar tree—one of the most beautiful and majestic trees in our forests, growing from fifty to eighty feet in height, and from two to four feet in diameter. In open situations, with free exposure to light and air, it has always seemed to us the most beautiful of the round headed trees. The intense dark green of its compact foliage during the spring and summer, changes with the early frosts of autumn to all

shades of red and yellow, from a deep crimson to a light orange. The maple is well distributed throughout the State. No forest is complete without it. This tree is a slow grower, but in other respects deserves to be one of the most popular of our street and ornamental trees.

The *A. Saccharinum* is much valued for timber, owing to the extreme hardness and firm texture of the wood. It is also in demand for piano work, furniture of various kinds, including a great variety of chair stuff and for frames for heavy machinery. The fresh cut wood is of a white cream tint; when dry and polished it has a bright silken lustre. It is the favorite fuel in the timber regions, being preferred to all other wood except hickory. The grain is so compact that it takes a long time to season perfectly and is then much used for axletrees, spokes and mill cogs. An occasional peculiarity of this wood is the accidental arrangement of its fibres so as to make a beautiful variety when polished and finished so as to show the natural grain of the wood. In these cases it is used for panels of doors, cabinets, and for relief in contrast with the dark woods, as mahogany and black walnut.

The extraction of syrup and sugar from the sap of this tree is an important branch of industry in the "sugar groves" of the State in the early spring, beginning with the first flow of the sap, and ending only when it ceases to thaw by day and freeze at night. During the spring months these products are popular staples in the markets, and command higher prices than the best sugars and syrups from the cane.

A. dasycarpum—White or Silver Maple.

A. rubrum—Red or Swamp Maple—Soft Maple.

The above trees are well distributed on the rich soils of the State, and especially on the alluvial bottom lands. The wood is quite soft, easily worked, and is popular as

building timber. They are forty to sixty feet high, and of less diameter than the sugar maple. The soft maple is a favorite tree in this city for street planting, owing to its quick growth, its handsome crimson and scarlet flowers in the spring, and its graceful spreading branches, for the street we think it over estimated, as it lacks strength, its straggling arms require frequent heading in, and it is too weak to resist heavy winds.

Aesculus—Horse-chestnut, Buckeye.

Ae. glabra—Fetid or Ohio Buckeye.

Ae. flava—Yellow or Sweet Buckeye.

The Buckeyes are widely distributed through the forests of the State. Their size varies as widely as their distribution, growing from twenty to eighty feet in height. These much calumniated trees deserve a better reputation. The learned and unlearned unite in discrediting them for either use or ornament. Some authorities dispose of them by saying "of no use except for firewood." On the other hand, the wood is both too tough and soft for firewood, and of increasing use in many arts. They are among the earliest trees to put forth leaves in the spring; are lusty growers, and the wood is used in the manufacture of a large variety of the fruit baskets, wooden bowls, trays, boxes for engine journals, and other purposes where tough material, useless for most other manufactures, is needed. Polished and simply varnished, it has a satin finish and makes lovely inside window blinds. The Buckeye is not admired as a shade tree owing to its leaves falling early in the fall, and its propensity to throw out an unpleasant odor during the season of bloom.

Castanea vesca, Americana—Chestnut.

The growth of the chestnut is limited to small areas, principally on the hills of the southern central portions of the State. It is most frequently seen in Central and

Southern Indiana, especially in Washington and surrounding counties, and is reached by three of our railways. It is long lived, and rivals the oak in size and growth, but the fibres are more compact. Young chestnuts are tough, flexible and elastic, and contain but a small proportion of sap-wood. This wood is valuable for furniture and inside finish. As the annual growths are very large, it bears a fine polish, the color being lighter than ash, but of a different shade. It is also a superior saw timber for all heavy work. It is an ornamental tree of rare beauty, but like most of the nut trees, is tap-rooted, and does not readily bear transplanting unless taken from the nursery. It is much prized for its fruit, and the European variety (*c. vesca*) is largely planted in England for its nuts and timber. It is most valuable for rail timber, as it reproduces itself from the stump, and the second growth is the best.

Carya alba—Shell-bark or Shag-bark Hickory.

C. sulcata—Western Shell-bark Hickory.

C. tomentosa—Mockernut or Whiteheart Hickory.

C. aquatica—Water or Swamp Hickory.

C. porcina—Brown or Pig-nut Hickory.

C. micro-carpa—Small Fruited Hickory.

The above varieties are common and generally distributed throughout the State.

We regret to find that D. J. Browne, in his "Trees of America," (Harper & Brothers, New York,) a volume of more than five hundred octavo pages, omits all reference, not only to the hickory, but to all the other nut trees of America, including the beech and chestnut, and also to our indigenous pines. The hickory is a characteristic American tree, unknown in Europe, and no other tree east of the Atlantic can be used in many arts to the same advantage. It has no counterpart in Europe. The above six varieties of this invaluable wood reach this market from our own

forests. The hickory is the toughest and most elastic of the woods of Indiana. It is also one of the heaviest. It is useful in all the arts where strength, tenacity, flexibility and durability are essential. In carriages and wagons it is an indispensable material for spokes, felloes, hubs, shafts, poles and axles. Tool handles and other parts of agricultural implements are made from it. The inner lining of the bark is used for seats of chairs, and for baskets, and the young wood for splint brooms. The famous hoop-poles of Indiana are mostly of young hickory. It is the most popular of all the woods for fuel and commands the highest prices. It is the best heat-producing wood in America.

The fruit of the shell bark hickory is sweet tasted and edible, and well known in the markets. The larger varieties of the tree are handsome for shade and street, but it is tap-rooted, and not easily transplanted.

Celtis occidentalis—Nettle tree, Sugar Berry tree or Hackberry.

The hackberry is distributed abundantly over the central and southern portions of Indiana. It is a large tree, varying in height from forty to seventy feet, and in diameter from fifteen inches to four or more feet. There are a number of varieties nearly allied to the *celtis occidentalis*. It bears a berry much relished by young Hoosiers, and similar to the famous Lotus berry of the European species, (*Celtis Australis*). But we cannot learn that our boys find "the fruit so delicious as to make them forget their native country," which Homer states was the fascinating effect of eating the oriental berry.

The wood is white, changing to a greenish tint when dry, and is compact and fine grained. It is a weak wood when exposed to the weather, but is useful for inside work and bears an admirable finish in oil and varnish. It is

elastic and is used for chair bottoms, and the Indians formerly made baskets of its finely split fibres. It is a valuable rail timber. It is a hardy street tree but not ornamental.

Fagus ferruginea—American Beech.

This handsome large tree is found in all parts of the State, on rich and poor soils alike. It is a fine grained wood, and owing to its uniform texture and extreme hardness, is popular in the manufacture of a great variety of tools. It is also employed as a choice building timber. The liability to rot in damp situations, so much complained of as regards the European beech, is not a fault of the American tree. While the white beech is a light, tough, springy tool timber, the red beech is a bridge timber of rare excellence, and has no superior for sills and pillars for the support of weights. It is also much employed in cabinet work and some kinds of furniture, and in musical instruments.

It is but little used in the inside furnishing of houses, but there are few woods which have a finer effect when finished and polished so as to show the natural grain of the wood. It is one of our most abundant and cheapest woods, and ranks next to the hickory and sugar maple in value for fuel. It is among the most cleanly and beautiful of shade trees, but being surface rooted will not bear tramping. When this can be avoided the beech will amply repay all the attention that can be paid to it as an ornamental tree.

The "water beech"—*carpinus*—Horn-Beam—of small growth, is an extremely dense wood, stiff and strong, and ranks with the iron wood or horn-beam (*ostrea*) for levers or any use requiring strength and tenacity.

Fraxinus Americana—White Ash

F. quadrangulata—Blue Ash.

F. sambucifolia—Black Ash.

F. viridis—Green or Grey Ash.

ASH.—Of this light colored tough wood we have in this market an abundant supply, including the four varieties of white, grey, black and blue. The white and grey is largely used for flooring and alternating with black walnut, or other dark wood, is much used for wainscoting and the inside finish of houses, in oil or varnish, without paint. The toughness, elasticity and straight grain of this timber make it superior to all other woods with the exception of hickory, in the manufacture of all classes of machinery which have to sustain sudden shocks—for which reason it is in demand for carriage and wagon wheels, felloes and spokes; and also for various agricultural implements. The black ash is largely used in making baskets, and all the ashes are superior street shade and ornamental trees.

Gleditschia triacanthos—Three-thorned Acacia—Honey Locust.

A tall, but not large tree, with light foliage and large thorns, flattish at the base and tapering to a sharp point. The thorns are grouped in triangles one to three inches long. The tree is found generally on the rich soils. The bloom is quite fragrant. The acacia is much prized as an ornamental tree, and in the arts is approved as a magnificent finishing wood. Its thorns are used in the more primitive rural districts in place of buttons, and for fastenings for wool packages.

Gymnocladus Canadensis—Kentucky Coffee tree—Nicker tree—Stump tree.

Is a fine ornamental timber tree of good size. Height, forty to eighty feet. Blooms in the early summer. It ripens late in the fall a large indurated pod six to ten inches long and two wide, with seeds a half inch in diameter. It is a desirable street tree, but shoots from the root make it

objectionable for the lawn. The wood is hard, compact and tough, and is especially suited to inside finishing, for cabinet making or building purposes. It is not a common tree, being rather sparsely distributed through the central and southern portions of the State.

Juglans nigra—Black Walnut.

Juglans cinerea—White Walnut.—Butternut.

The original forests of Indiana were rich in these magnificent trees, and although the devastation has been immense, they are still freely distributed in all parts of the State, the black walnut being much the most abundant and most highly prized. The latter is among the largest trees of our forests, growing often to a height of eighty and ninety feet, and two to four and more feet in diameter.

The white walnut is a middle sized tree. The fruit of both trees is edible and much desired as good keeping winter nuts.

The reputation of the black walnut has been steadily growing year after year, and of the ornamental and useful woods it is now considered inestimable, and probably the finest wood in the world. In beauty and richness of color, grain and finish it has no superior, and is the prince of all ornamental woods. It is in active demand at constantly appreciating prices. Still the supply is immense, and if the wood shall hereafter be used only in the arts and manufactures, may be considered nearly inexhaustible.

Its uses for all kinds of choice furniture, musical instruments, ornamental work, and the inside finish of houses are well-known.

The white walnut is also a beautiful finishing timber of rare excellence. Some artizans in wood consider it better than the black. It is light colored, of a charming cream tint, susceptible of a high polish, of fine grain and easily worked. This variety is more rare, but the supply is fully equal to the demand.

Liquidambar Stryaciflua—Blisted—Sweet Gum—Gum Tree.

Is a handsome, large, fine growing tree. It takes its name from the juice which exudes when the trunk is cut. It grows sparsely in the southern central portions of the State.

The sweet gum is of but little use in the arts. The wood is tough and soft. It is used for fire wood, beetles, and as this soft wood has the peculiarity of bearing a good polish it is used for veneering for furniture and cabinet work. Under ground it lasts long, and is often used for posts and foundations.

Liriodendron—Tulipifera—Tulip-tree—White wood—Poplar.

A tall, symmetrical, beautiful tree, of the largest size. It is generally distributed, and common in all forests on the rich soils in the State. This is considered by mechanics and artizans in wood the finest building wood in the State. Although it is in universal request for all purposes it is still in abundant supply.

It is a favorite wood in house building, and in all structures where soft, easily worked, strong and durable wood is required. It is also used in all kinds of furniture, and is almost indispensable in chair bottoms, owing to the tenacity with which it resists splitting when the legs are driven in. It is a straight tree and a thrifty grower, and well adapted to our streets and for ornament.

Ostrya, Virginica—Hop-Hornbeam, Lever Wood, Iron Wood.

Is generally distributed in all parts of the State, but is not abundant. It is a slender tree thirty to fifty feet high and is the hardest and heaviest of all our woods. It is a popular wood for levers, and is used for the making of tools which require a close grain, and for all purposes requiring strength and stiffness.

Pinus, Strobus—White Pine.

The southern edge of the Michigan white pines extends into the northern border of Indiana, but the trees are generally of small growth and of little value as timber trees. They are used as nurseries for the supply of pines for the ornamental grounds of Central and Middle Indiana.

Platanus Occidentalis—American Plane-tree, Buttonwood, Sycamore.

This much calumniated but beautiful and picturesque tree abounds on the banks of all the streams in the State. The wood is not in great repute, but is still valuable for building, packing boxes, tobacco boxes, fencing, and many other purposes, and for cabinet work. It is not cleanly, but is otherwise a very desirable street and ornamental tree.

Populus Monilifera—Necklace Poplar, Cottonwood.

This wood is in large supply on the alluvial bottom lands of Indiana. It is a very rapid grower, and sometimes its shoots grow fifteen to twenty feet in a single season. The wood is light, soft, tough but not durable in moist situations. It is easily worked and not liable to swell or shrink. It is unfit for heavy work and for building timber, though frequently used for joists, scantling and upper timbers. It is a favorite with mechanics for trunks, packing boxes and small packages. It is the wooliest of woods under the saw, and will bend to any required shape and retain its position. It swells and shrinks and curls and warps badly, but is used in many arts where these defects are of little moment. It is a thrifty, fast-growing shade tree.

Prunus Serotina—Wild Black Cherry.

The wild black cherry is, in this State, a good sized forest tree, with a bitter bark much used in medicine. The close-grained reddish wood is less used in cabinet making

than formerly, and is not so popular, owing largely to the overshadowing popularity of the black walnut. It is still much prized, however, in furniture and in ornamentation of railway coaches.

Quercus Alba—White Oak.

Quercus Bicolor—Swamp White Oak.

Quercus Prinus—Yellow Chestnut Oak.

Quercus Rubra—Red Oak.

Quercus Obtusiloba—Post Oak, Rough or Box Oak.

Quercus Macrocarpa—Bur-Oak, Over-Cup or Mossy-Cup, White Oak.

Quercus Prinoides—Dwarf Chestnut or Chinquapin Oak.

All the above varieties of oak are in large supply in the various sections of the State—on the fertile uplands, in the hilly districts, and in the marshes. In the northern part of the State the oak barrens are the prevailing timber. In the middle sections the different varieties are distributed through the forests of other trees. On the hills in the central southern sections of the State the chestnut oak is famous for the commercial use of its bark in tanning. It is unnecessary to detail the uses of this wood as it is valued for nearly all purposes and can be fitted for any service. It is generally considered the most desirable of all the hard woods, and wherever strength, resistance to injury, and firmness and beauty combined are required, oak wood has always an early place. It is one of the most beautiful and picturesque of trees, but has a tap root and can not be transplanted without great care.

Robinia Pseudacacia—Common or false Acacia, Common Locust.

Robina Hispida—Rose Acacia or Bristly Locust.

The locust is somewhat sparsely distributed. The common locust is more frequent in the southern portion of the State, and the bristly locust has its *habitat* in all parts,

but not abundantly. The common locust is a valuable timber tree, but of late years in cultivated grounds and on the street is destroyed by the insect pest popularly called "the borer," and believed to be the larvae of the *cossus robiniae*, but a number of less known insects are also implicated in the devastation of one of the choicest timber trees on the continent.

Taxodium Distichum—American Bald Cypress—Southern Cypress.

Is found in the swamps of the lower Wabash and White rivers. It grows sixty to eighty feet high, and is the most durable of timbers. It is easily worked into plank for all purposes, but is mostly employed for shingles, pails, buckets and other wooden wares, and for posts and other purposes it is considered absolutely indestructible. Although it is called a solemn, funereal tree in the forests, it is upon the lawn the most beautiful of our fine leaved semi-evergreen trees.

Tilia Americana—American Linden, Basswood, Lin.

Tilia Netorophylla—White Linden, White Basswood.

Both varieties are somewhat rare in Indiana and irregularly distributed. Some specimens are probably to be found in every county—more commonly on the fertile soils. The Linden is a light, tough, springy, soft, elastic, white wood. Its flexibility makes it valuable for trunks, packing boxes, dash boards for wagons and carriages. It finishes white and is used in paneling and mosaic wood work. Its lightness makes it a desirable inner lining for furniture. It is a handsome large forest tree and is well calculated for the street, or for an ornamental tree in any situation.

Ulmus Americana—White Elm.

Ulmus Fulva—Slippery or Red Elm.

Ulmus Racemosa—Corky White Elm.

Ulmus Alata—Whahoo, Winged Elm.

All these varieties are bountifully distributed throughout the State. The most common are the white and the red. The white elm is a forest tree of the largest size and most vigorous growth. A. Michaux justly names it "the most magnificent vegetable of America." Its immense branching arms and beautiful foliage make it a great favorite in woods, parks, lawns or streets. There are few trees so tenacious of life, and it bears transplanting better than any other large tree. The elm is a servicable wood for timber where strength and toughness are required. The red and white elms are much used for frame timber, but are not in good repute for thin planks, as the boards twist and warp in drying, and shrink greatly both in length and breadth, but it bears driving of bolts and nails better than any other wood. The red is especially a strong, tough, light wood, much employed for stave timber and headings, and for the hubs and felloes of wagons. Hickory elm is durable for posts, beams, and for piles and plankings for wet foundations. Young elm is a favorite hoop-pole stuff.