Thesis.
The Trees of Haverford Campus

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I illustrated Flora of the northern states and Canada.

Forestry in Minnesota.

History of Haverford College

The Woods and By-ways of New England

Our Native Trees.

Studies of Trees in Winter.

Trees of America and various other text-books on general Botany.
The Trees of Haverford Campus

"And this our life, exempt from public haunt,
Finds tongues in trees, books in running brooks,
Sermons in stones, and good in everything."

Nature had endowed Haverford College with the charm of its magnificent trees and shrubs; yet those who love to admire their beauty and to linger in the cool of their "Academic Shades" might breathe a silent vote of thanks to William Barvill, for it is to him that Haverford owes much of its present
beauty and attractiveness.

The Haverford lawn, of forty acres, was planted in 1833. In its northwest corner were five or six acres of original forest, and to the south of this flourished a very extensive vegetable garden. Skirting this garden was a gravel walk, which was overarched by a lofty arbor of grape vines, the donation of three of Haverford's generous founders. West of the arbor, stood the spacious greenhouse. This was erected in 1838 and contained, besides many rare plants, a magnificent Banksia rose, reaching to the roof and
filling the building with a
delicate odor from the hundreds
of clusters of its straw-colored
blossoms. The Triumph of
Luxembourg and other rare
roses, were scattered among
white and red japonicas and
smaller flowers.

In 1855 this structure
took fire and was
destroyed, leaving us
only a stone arch, around
which many vines
have twined their fibres,
as if they were help-
ing this last relic
of Faverford’s past
horticulture to withstand
the tempests of the
future.
One of the most interesting of trees, which adorns the campus, is the Kentucky coffee or Stump tree. This variety is widely distributed, but quite rare. It is not found in New England.
but ranges from New York to Arkansas and Indian Territory. Its most peculiar feature is, that it is entirely destitute of small spray; its smaller branches being thick, blunt, clumsy and lumpish. Other trees lose their leaves, but their twigs and branches bear the buds, which give the promise of beauty for the coming year. But the Kentucky Coffee is so devoid of these, that the French in Canada named it “blicot,” the dead tree. The generic name, Gynnocladus dioicus, comes from two Greek words meaning, naked branches. The wood is heavy,
but not very strong; it is very durable in contact with the ground and takes a fine polish, being used in the manufacture of cabinets.

When Kentucky was first settled, the pioneers used the seeds of this tree as a substitute for coffee; in this way it received its name.

Some people do not think that the European larch adds to the beauty of a lawn. It is a tree which terminates in a spike. In the spring it becomes green long before our native trees, and in mid-summer it assumes a dingy, lifeless hue, keeping this appearance until the following
year. Yet it is a finer tree than the American species, and as it prefers loose, well drained soil, it flourishes where our native tree would die.

From the above photograph, one can see the general contour
of this tree. Its contrast to the deep shade of the oaks makes a very striking effect.

Many interesting stories are in existence concerning the durability and incendibility of its wood. Julius Caesar wished to set fire to a wooden tower before a castle, in the Alps. He heaped logs of larch around it, but these could not be made to burn. "Robusta laris igni impenetrabile lignum."

Evelyn, one of the first English writers, gives an account of a boat, made of cypress and larch, which was found under twelve fathoms of water. It had lain there four-
- ten hundred years, yet was quite hard and sound. These accounts show that this tree is extremely valuable and makes up by its merits what it lacks in grace.

There are two young trees, directly in front of Founder's Hall, which are called the Ginkgo. They are members of the Poplar family, but do not belong to this country. China is their native land. From there they were brought to America by way of Japan and England. Its leaves closely resemble those of the maidenhair fern. In its native land it attains gigantic proportions, and
bears a fruit, which, when ripe, has a very disagreeable odor. The nut of this resembles a large plum stone, and in Japan is considered quite a delicacy. The young tree is quite slender and wiry; the branches showing a tendency to grow close to the trunk, but when it reaches a sufficient age, they grow into a horizontal position, resembling those of the spreading oak.

There are two species of flowering dogwood, on the campus; the red flowering and the white flowering, the latter being the most beautiful. It was cultivated in
Britain about the year 1731, but does not thrive so well there as in this, its native country. The trunk of this tree is covered with a blackish bark, which has a choppy appearance. This may be substituted for galls in the manufacture of ink. From the bark of the more fibrous roots, the Indians prepared a scarlet dye. Its beautiful flowers, which appear in May, "robe the tree in white, like a full-blow'd apple tree," and render it one of the fairest ornaments of
the American forests.

The wood is hard, heavy and fine grained, taking a splendid polish. The sap-wood is perfectly white, while the heart-wood resembles the color of chocolate. It is
used very extensively where strength and durability are desired.
The fruit is sometimes taken as a tonic, and it affords many a dainty repast for various species of birds. The poison dogwood, of the swamps, is often confused with the white flowering variety and it casts an undeserving shadow over this beautiful tree.

The Catalpa Tree or Indian Bean. This is a native of the West Indies, North America, Japan and China. It is frequently to be found along river banks and in moist shady places. In height it reaches from sixty to eighty feet. Like the Horse-chestnut, it has the distinction of
bearing the most showy flowers, of all our ornamental trees. These bloom in the last of June or early in July, and cover the tree so thickly as almost to conceal the full grown leaves. At a distance they appear to be pure white, but on closer inspection the individual corolla is seen to be spotted with purple and gold; this attracts the wandering bee, which is so necessary for the fertilization of the flower. Each flower has its own stamens and stigma and we would naturally think that the pollen should fall upon the stigma, but this is not the case. The
lobes of the stigma remain closed, until after the anthers have opened and discharged their pollen. After they have withered, then the stigma opens and invites the ever-useful bee. The leaves of this tree are also very curious. They are large, heart-shaped and bright green and secrete nectar by means of groups of tiny glands in the axils of the primary veins. This is very unusual. Its wood is very durable in the ground and is becoming extensively used. The tree grows rapidly, increasing an inch a year in the diameter of the trunk.
Thus increasing its value many fold.

The Hemlock, Tsuga canadensis, is one of the most beautiful of the coniferous evergreens. The principal branches are small and short, with very slender terminations; in this respect it differs from all other spruces. The multitude of these slender sprays, and their rows of delicate leaves, cause the beautiful wave-like motions that characterize the foliage of this tree, when moved by the wind. The leaves are of a light green on their upper surface and of a silvery whiteness beneath. The branches
of the Hemlock are very numerous, perfectly horizontal and remarkable for the absence of those regular whorls that distinguish other trees of this family. These branches lie one above another, each bending over at its extremities, upon the surface of those below, in this way they resemble the feathers upon the wings of a bird.

The bark is of a reddish brown, that of the young tree being smooth, somewhat resembling that of the Balsam Fir. The Hemlock is found mostly in the coldest regions of America. It begins to appear about Hudson's Bay, where it fills the forests, and in Nova...
Scotia, Maine and Vermont it constitutes three fourths of the evergreen woods. It is seldom seen in the middle and Southern states, except on the Alleghanies.

The Sweet Gum-tree, Liquid-amber, grows from sixty to one hundred and forty feet in height. Its star-shaped leaves suggest the Sugar maple, while its fruit-balls resemble those of the Buttonwood. The distinguishing features of this tree are its peculiar branches and twigs. The bark attaches itself to these in thin plates, which are fastened edgewise, giving to the whole tree a very queer
appearance. Its home is east of the Alleghenies, and in the basin of the lower Mississippi. In ancient times it was a habitat of Alaska and Greenland. The flowering horse chestnut is one of the most beautiful trees on the campus. It is a native of Greece and began to be
cultivated throughout Europe in the seventeenth century. In the spring its foliage becomes extremely dense, giving to the tree a conical shape as shown in the above photograph.

A tree which is often seen about lawns is the Norway maple. It extends in Europe from Norway to Switzerland. Its leaves are very similar in form to those of the Sugar maple, but are thicker and darker in color. In the autumn they remain upon the tree longer than those of our native maple, but do not assume any variety of tints. The petioles are long
and when broken exude an acid milky sap, which quickly coagulates. This makes the tree easy to determine.

The most beautiful of European maples is the sycamore maple. It is not suited to our climate, becoming either stunted or short-lived. Its leaves resemble those of the Norway maple except that they are darker in color. It is native to central Europe and was brought into England at the time of Queen Elizabeth.

The chestnut is such a common tree, that I need not go into its details here. It is ranked among the largest
of our forest trees and sometimes has foliage as dense as that of the Horse chestnut.

The Chestnut-oak is a tree varying from thirty to over one hundred feet high, having a narrow, rounded top. The bark is scaly and a light silvery gray. The leaves are the main property by which to recognize this tree; they are alternate, four to seven inches long, and two to five inches broad. Oblong or lanceolate, wedge-shaped or rounded at the base. They are also toothed, the teeth being acute or rounded, each tipped with a small glandular point; the apex is acute or acuminate. They are
thick, light green above and pale, often silvery white and downy below. The mid-ribs are stout and yellow, the primary veins being very conspicuous. In autumn these leaves turn deep yellow and scarlet. This tree is abundant throughout the Mississippi Valley and reaches its greatest size in southern Indiana and Illinois.

A common tree and one which reaches gigantic size in lower Ohio is the White Oak. The bark is usually an ashen gray and is shallow fissured and scaly. The leaves are five to nine inches long and three to four inches wide.
They are oblong or obovate and are usually seven lobed with both lobe and sinus rounded; the former being destitute of a bristle at its apex. The White-oak is becoming quite scarce and unless replanted, it will before long disappear.

The Black Oak probably received its name from the color of the barks of the trunk, which is quite black. The leaves are deeply divided and are borne on rather long petioles, which are bent down at first, but soon spread out from the branches. The peculiarity of these leaves is, that they remain upon the tree all winter and do
not fall until they are pushed off by the growing buds of spring. The acorn is quite small and sits in a deep cup. It is a reddish brown in color and very bitter to the taste.

The Pin Oak is very common in the South and West and is easily distinguished from the other members of the Oak family, especially in winter. Most oaks have far-reaching lateral branches, which divide a short distance at the trunk, but the Pin oak carries its main stem to the top of the tree, and the lateral branches grow from the trunk, forming a pyramidal
head. Michaux says, "Its secondary branches are much more slender and numerous than is common on so large a tree, and are so intertwining as to give it at a distance the appearance of being full of pines. This singular disposition renders it distinguishable at first sight, in winter, and is perhaps the cause of its being called Pin Oak." Its bark is rich in tannic acid.

There is a species of English oak, on the campus, which has not as yet been acclimated to this country, so it is hard to tell if our climate and temperature will be beneficial to its growth.
The Willow Oak ranges from southern New York to Florida and is also found in the southwestern states. It is a queer specimen of the Oak family, because its general appearance resembles that of the Willow.

The Norway spruce is one of the finest trees that clothe the high altitudes of the Alps. In Europe it grows to a great height and its timber is extensively used. Those in this country are nearly all young and are used mainly for ornamentation. It has a beautiful spiny-top, and the branches, which sweep downward in long curves,
give the tree every characteristic
of grace.

When summer wanes,
then the frost begins to sting
each leaf, and it brings upon
them that beautiful glow
which makes the woods
ready with their autumnal
blushes. The ash during
the early part of October is
one of the most beautiful trees
of the forest. It is only sur-
passed, in its variety of tints,
by the maple. The tree itself
is remarkable for its general
meat effect and regularity of
proportion. Although resembling
the Hickory in many points,
it seldom displays any
conspicuous breaks in its
outline. It is a majestic tree, but does not increase in picturesqueness with old age, the foliage becoming scant and its branches assuming disagreeable forms.

The Beech is not so graceful as the Elm, nor so lofty as the Pine, nor so stately as the Oaks; yet we may say that it possesses that dainty lady-like beauty, which in the winter makes it as a beautiful flower, rising among dead vegetation. Its clean gray bole, its polished brown stems, and its slender, pointed, lance-like buds, give it a characteristic which cannot be mistaken.
This tree often forms forests of considerable extent, because in the first place, it has suckers; in the second, it makes a shade so dense, that it is impossible for the young of other trees to survive. It also has the property of adapting itself to environment, flourishing on the bottom lands and climbing the mountain slopes. There was a firm belief among the Indians, that this tree was proof against lightning, and it has been recently shown, by scientific investigations, that trees rich in fats repel electricity more readily than those
which are poor in the same substances, as the Oak, Yellow Poplar, and Maple. The wood is hard, strong, and takes a fine polish, being extensively used in the arts. In the old tree, where the heart-wood predominates, it is red, and in the sapling it is white; this gave rise to the wrong impression that these were a different variety of tree. The Beech is prominent in ancient literature because of its shade and the power of its wood to retain water. In Burgal, the heroes were wont to recoupate under the wide spreading Beeches.
"Beneath the shade which becken
boughs diffuse,
you, Sitrus, entertain your
sylvan muse."

"Here at the foot of yonder
nodding beech
that breathes its old fantastic
roots so lugubriously
his restless length at moonlight
he would stretch
and more upon the brooks
that bubbled by."

"In becken goblets let their
beverage shine,
cool from the crystal spring
their silver wine."

The most popular of cultivated
beeches is the Purple beech. These trees are believed to be descended from a tree discovered in the last century in a forest at Slumberia. It is supposed to be about two hundred years old and is still alive.

Haverford has a Fern-leaved beech, which is a very rare variety of this tree. As its name suggests, it has leaves resembling those of the fern. How it is nothing more than a bush, but it has every prospect of becoming a beautiful tree.

The Purple-leaved weeping beech, with its gently bowed head, also adds to the beauty of the campus.
The Tulip tree is called a popular because of the fluttering habit of its leaves. This tree, in the forest, reaches to a gigantic size, being often one hundred and ninety feet high. The bark is smooth, until the trunk reaches seven or eight inches in diameter, then it begins to crack; the depth of the furrows being in proportion to the age of the tree. The leaves are formed differently those of most trees. The leaf buds are composed of scales, closely placed together; in the spring these are distended by the growth of the leaves, that they close, till they finally fall off.
These leaves are very unique in shape, being six to eight inches broad, borne on long petioles, alternate, somewhat fleshy, smooth and of an attractive green color. They are divided into three lobes, the apex being cut off at the end, in a way peculiarly its own.

The flowers of this tree are large and quite brilliant. Their general color is greenish yellow, through which is sprinkled dashes of red and orange. They do not droop from the spray, but sit erect.

The wood is commonly known as popular and whitewood, and it is, to a great extent, taking the place of white pine.
in the arts. The tulip tree is plentiful but not abundant; it reaches its finest proportions in the valleys of the rivers flowing into the Ohio.

Haverford is well supplied with trees which belong to the coniferous variety. Some of these are the Golden Retinospora, the Silver Retinospora, the Retinospora Spumosa and the hardman’s fir. These trees are not only attractive in summer, but in winter they lend their brilliant green to breaks the monotony of sleeping nature.

In February twenty-first 1902 there occurred a sleet storm which was very disastrous.
to the trees in its immediate vicinity. The peculiarity of it was this: about two hundred feet or so from the ground the temperature was above freezing while below this the mercury registered about 29°F. The rain which was falling would not freeze until it struck, but then it would be immediately turned to ice. All night long continued the crack of breaking limbs and the rush and roar of falling branches. The next day dawned with a cloudless sky and the night which greeted the students of Haverford College was one which will always be remembered by them as most heartrending,
yet beautiful. The lane of maples which leads to the college gate suffered a great deal from the storm as can be seen from the following photograph.

By far the most beautiful tree, which enhances by its
shade the attractiveness of Haverford campus, is the Sugar maple. It ranks among the finest of American trees, and makes up a great part of the native forest of New England and the middle states. It has no definitely defined shape, but assumes that which gives the tree its required amount of sunlight. Sometimes in the forest, it rises seventy feet without a branch; when growing in the open it develops a great cylindrical column, while its head often assumes the shape of a dome. The maples seem to suffer more than any other
tree, in the storm, which I have spoken of before.
The Silver maple is found abundantly throughout the valley of the Mississippi. Its bark is light gray and sometimes, especially on old trees, reddish brown, being furrowed and the surface separating into large loose scales. The leaves come
out of the bud pale green and downy, but when full grown they are bright pale green above, and silvery white beneath. This tree in some respects suggests the elm. Its trunks divide and its branches have an upward and outward pose. It is a rapid grower and has the ability to adopt itself to a great variety of soils. Its foliage does not assume bright tints in the autumn.

The Walnut is one of the grandest and most massive of our nut bearing trees, often equaling in boldness and height the oaks or chestnut. The Greeks were lovers of this tree and dedicated it to Diana,
whose festivals were held beneath its spreading branches.
It is a well-known fact that plant life will not flourish in its shade; the explanation for this is that its fallen leaves decay and their astrigent properties are washed into the ground, destroying all vegetation.

The American Arbor-Vitae is a small tree resembling in its stony form the juniper. It is remarkable for the flattened shape of its leaves, and in its native woods it is barely ever without a mixture of yellow and faded leaves mixed with the green of its foliage. It likes cold, damp soils, and abounds on rocky shores of streams and lakes.
As the hawthorn is consecrated to the festivities of spring so the holly is sacred to those of winter. Its leaves are slightly scalloped and have short points at each point. It retains its leaves through the winter and these lose none of their brilliancy.

The strength of the trunk and limbs of the holly, and the delicacy of the small branches and twigs are sure to attract one's attention. Its massive trunk divides a short distance from the ground into numerous large, spreading branches, which stretch high into the air and support the multitude of drooping branches.
The Balsam Fir is the American variety of the silver fir of Europe. It has a bluish-green foliage, with a silvery under surface. The young tree is quite attractive, but when it advances in years it becomes bald and ragged looking.

Among the flowering fruit trees there are the double flowering white cherry, the double flowering pink cherry, the double flowering peach, the purple leaved peach and the double flowering crab apple. All of these trees are in their infancy until the exception of the last. Every spring it breaks forth in all of its glory.
A strange Japanese tree is the Hocksteria Japonica. This is situated in front of the gymnasium and can be recognized by its gnarled trunk; the bark is very rough and affords a splendid foothold for numerous lichens.
The Osage orange is very commonly used as a hedge plant. It is interesting on account of the peculiar fruit which it bears. This is heavily charged with milky juice, which oozes out when the surface of the fruit is slightly wounded.

The silver-bell tree may be ranked next to the flowering dogwood in the beauty of its blossoms. They bloom in May, and the clusters of drooping cream-white bells transform the tree into a great mass of white.

The slender makes a very pretty ornamental tree, where a deep shade is desired. Its nectar laden blossoms attract
The beech and it is due to this fact that the tree has been extolled by the poets. The weeping-willow with its beautiful bowed head and branches never fails to please the sight of even the most insensitive observer.
It is very famous in Asia, its native land, and is also abundantly planted in China.

The White Pine is the tallest and most stately of all our cone-bearing trees. Its branches are arranged in whorls, forming a series of stages one above another, and its tasselled foliage is in long silky tufts at the ends of the branches.

"Many voices there are in nature's choir, and none but were good to hear. Had we mastered the lulls of their music well, and could read their meaning clear; But we who can feel at nature's touch, cannot think as yet with her thought."

And I only know that the rough of the pine with a
spell of its own is fraught.

There are two varieties of forest trees on the campus; the Honey Forest and the Flowering Forest. The striking peculiarity of the former is the thorns which often cover the trunks and branches.
These spines are from two to six inches long and give a very formidable appearance to the tree. The flowering locust bears a bloom which has a sickening sweet odor. It is a tree of very rapid growth.
a thicket the effect of their foliage
is very pretty.

She looks upon nature with
more depth of affection when
we have learned to people all
the groves, hills and fountains
with their appropriate deities. The
stream that winds through
the valley is the more beautiful
when it proceeds, as it were, from
the urn of the naiad; and the
sounds that reverberate from
the hills produce a more
pleasant sensation when
we harbor to them as the
voice of the solitary echo; so
also as we love and venerate
the trees of Haverford Campus
when we can look past them
to the lands of their maturity.
where they are surrounded with a halo of mythology.