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With the Compliments of
JOHN ROBINSON,
Salem, Mass.

OUR TREES.

A POPULAR ACCOUNT OF THE TREES IN THE
STREETS AND GARDENS OF SALEM,
AND OF THE NATIVE TREES OF ESSEX COUNTY,
MASSACHUSETTS,
WITH THE LOCATION OF TREES, AND HISTORICAL
AND BOTANICAL NOTES.

BY
JOHN ROBINSON.

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TO
T. F. H.

"What is writ, is writ,—
Would it were worthier."
—[Childe Harold's Pilgrimage

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NOTE

These articles upon the trees of Salem and its neighborhood were prepared for the Salem Gazette from notes made during the season of 1890, and appeared each week in the columns of that paper through the summer of 1891. They have since been revised and some additional matter introduced for publication in pamphlet form, at the request of the directors of the Essex Institute.

They were written for popular entertainment and instruction at the request of the Editors of the Gazette; and, although arranged with considerable care, they are not intended as botanical essays and the writer would not wish to have them so considered by professional botanists. For convenience of referring to the time of flowering and other conditions of the trees the date of publication is given at the close of each sketch.

J. R.

Peabody Academy of Science,
Salem, October, 1891.

I.

INTRODUCTORY.

The writer has been asked by the Editor of the *Gazette* to prepare something of local interest in regard to plant life, and has chosen the trees for his subject because there has been of late considerable interest shown in them, and for the very good reason, too, that in many ways they are easy to write about.

The most common, most conspicuous, and most accessible of all plants are the trees, and the grasses and sedges. They form the great bulk of vegetation in temperate regions, and yet most persons know very little about them and very few of the individual plants which make up this great mass of vegetation by name.

Many excellent amateur botanists are familiar with even our rarer wild flowers and ferns, who never become acquainted with the grasses or the native and exotic trees. Of course nearly every one can tell an elm from an oak, or a willow from a pine, but the difficulty seems to be in telling the different oaks and pines apart—to distinguish the pines from the spruces, or the birches from the horn-beams, or to separate the many foreign trees in cultivation from the native species.

In comparison with the multitude of herbaceous plants with which one soon becomes familiar, the trees are not numerous; and a little observation will serve to fix nearly all of them in mind and add much

pleasure to town walks and country rambles. When a good example of some tree is found it should be carefully watched from the earliest warming up of its blood, so to speak, by the spring sun, through all its varying phases of bursting buds, flowering, fruiting and the falling of its leaves; for even ever-greens drop their leaves at certain times, until the winter state is reached. In this way and only thus can one be familiarly acquainted with our trees to know them anywhere and any time at sight. Method in observation is thus acquired which can be applied to other things in life.

By this out-of-door study much more satisfactory results will be obtained than by merely trusting to fit the leaves or flowers or fruit, it may be, of the tree to some book description; but book descriptions and good plates are valuable aids, although nature never will confine herself to the descriptions and plates which must be typical rather than universal in their scope.

Some of the best books to aid the student will be found in our Public Library in Salem. They include, —Emerson's *Trees of Massachusetts*, in two volumes with many colored plates; Dame and Brooks' *Typical Elms and Other Trees in Massachusetts*, which reproduces from photographs some of our noblest specimens of native and introduced trees; Newhall's *Trees of Northeastern America*, which gives outlines of the leaves of all of our trees; *Forests of United States*, being the ninth volume of reports of the tenth census by Prof. C. S. Sargent, and his greater work, *Silya of North America*, now in the course of publication.

There are other books and short papers which will be of interest to those looking up the trees, includ-

ing the account of the trees of Essex County and the Flora of Essex County printed by the Essex Institute some ten years since; and, in addition, summer or winter, dried specimens of the leaves and flowers of all of our trees, as well as the woods, may be seen at the museum of the Peabody Academy by those who are puzzled by book descriptions.*

Many persons suppose that the trees form a class of plants by themselves. Botanically speaking this is not true. An excellent idea of their distribution among the families of plants can be obtained by glancing at the descriptions of our native and introduced trees in Gray's *Field, Forest and Garden Botany*, where, of course, the families are arranged in their botanical sequence. Trees are included in each of the great divisions of the vegetable kingdom. For example, the maple and oaks among the exogens; the pines, spruces and junipers among the gymnosperms; the yuccas and palms among the endogens; and a number of arborescent ferns among the cryptogams. In our flora, the two last named classes are not represented among the hardy trees which, hereabouts, native and cultivated, are either exogens or gymnosperms — by far the larger number of them being either cone-bearing gymnosperms, as pines and spruces, or catkin bearing exogens, as the oaks, walnuts, hickories and willows. There are comparatively few of our trees which bear large and attractive flowers.

Collecting the data for these sketches has shown that Salem is a very good arboretum, although few

* A list of the books upon this and kindred subjects, on the shelves of the Public Library, was printed in the *Public Library Bulletin*, No. 1.

persons realize, of the trees natural to New England or long in cultivation here, that ninety per cent. of the number may be seen without going outside of the city's limits. Such is the case, however, and special nooks and corners can be named where there are opportunities for an afternoon's profitable study—Lafayette and Laurel streets for maples; Felt street for maples and introduced trees; Harmony Grove and Kernwood for oaks and hickories; Broad street cemetery for several scarce introduced trees, might be mentioned; and so on—but more of these places later. Outside of the city, Brimble avenue, Beverly, offers great advantages. It is accessible from railroad stations at either end, and being recently laid out directly through woods where there are an unusually large number of species of native trees, it is an excellent ground for dendrologizing.

In these sketches the trees will be dealt with in their botanical order, using the best established common name, but adding, in brackets, the botanical name given in the sixth edition of Gray's *Manual of Botany* for the benefit of those who may desire to look up the technical descriptions, or refer to plates in other works. The trees will thus be introduced in little family groups, and for each species examples will be cited in different parts of Salem, or its immediate neighborhood, in places easily found and where the trees may be readily observed by anyone who may care to do so.

MAY TWENTY-NINTH.

II.

THE MAGNOLIAS AND TULIP TREE.

One of the greatest dangers in writing upon any subject is that of repeating what has already been said. It is impossible to know what may have been printed in the local papers a generation ago, unless some kind friend remembering an article calls your attention to it. In regard to the trees doubtless many excellent accounts are practically lost for this reason. Mr. Foote has kindly given me notes of a number of articles in relation to trees printed in the Gazette from 1832 to 1845, which will be used in their appropriate places. In the first volume of the Institute Historical Collections Mr. John P. Andrews contributes a most carefully prepared census of the trees of the city, taken by streets, in 1859. It would be very interesting to compare Mr. Andrews' list with the trees to day, for it would show great changes. In 1859 there were 2651 trees in the city's streets, 1656 of which were elms, 353 were maples, and, strange as it may seem, next in number, 110 were cherry trees. The total disappearance of these cherry trees,—they were removed owing to the nuisance caused by the foraging of boys,—is a practical answer to those writers who advocate the planting of fruit trees in the public streets. Mr. Andrews gives but sixteen trees in all, including under general names all of the different oaks, maples, lindens, etc.

It is tempting to ramble among the old records and traditions, but the subject in hand will not be reached. It is said that Dr. Manasseh Cutler of Hamilton first called attention to the sweet magnolia (*Magnolia glauca*) in Gloucester, near where the present popular summer resort perpetuates the name and fame of the most northerly station of this plant. Its fragrant blossoms attracted him to the spot, and ever since it has been eagerly sought for its flowers and for transplanting into gardens.

One of the most successful attempts to grow the magnolia in Salem is seen in the large clump in the depressed garden in front of the pavilion at the "Willows," where it has flourished finely for several years. There are good specimens also in the shady corners of many gardens in the city. In the Southern States this magnolia becomes a tree and is evergreen, but with us it is a deciduous shrub. Why the magnolia should be found in Gloucester is a mystery. "The Hermit," a well known Gloucester character, a student and lover of nature, feels sure that it was brought from the South, Virginia perhaps, and planted in some old garden. By changes in the location of the settlement it was lost sight of, and, the woods growing up in the region of the deserted dwelling places, the plants were left to themselves and increased. Of course Gloucesterites will not admit this theory of its introduction, but, however it may have been, the plant remains one of the most interesting in the flora of the county.

There are several other magnolias, natives of Pennsylvania and the Alleghany mountain region to the southward, which are hardy with us. Among them the umbrella, great-leaved and ear-leaved magnolias, are

occasionally seen in gardens; and, in addition to the beauty of the plants when in flower, the fruiting cone,—often of a bright color, with, in many cases, the bright scarlet seeds protruding from it on all sides,—gives an additional attraction to these trees.

The cucumber tree (*Magnolia acuminata*) is the tallest. It is found growing wild even in New York State, and it seems strange that this tree is not more frequently met with in cultivation. A very good example of the species is now full of buds, or, perhaps by the time this is printed, in flower, in the yard of Mrs. W. B. Parker at 33 Pleasant street, the only one I have noticed from the streets in the city.

Among the foreign magnolias many horticultural varieties and hybrids are advertised in the dealers' catalogues. The Yulan or Chinese magnolia (*Magnolia conspicua*) seems to be the most popular. Dr. A. H. Johnson has a large one in his garden which each year makes a fine show from Winter street; for, unlike the American magnolias, their foreign cousins mostly expand their showy flowers before there are any leaves upon the tree. There is also a remarkably fine specimen in the yard of Mr. Geo. Hobbs, No. 15 March street, just beyond the bridge over the railroad crossing, and another plant in Mr. Webb's yard on Chestnut street flowered finely this year. The purple magnolia contrasts well with the creamy white blossoms of the Yulan, and is now just going out of flower in Mr. George Chase's garden on Lafayette street, where probably are to be seen a larger number of rare and odd shrubs and trees than in any other garden in Salem. Mr. Chase also has a tree, perhaps fifteen feet high, of the Japanese magnolia *hypoleuca*, whose flowers are among the most

fragrant of any of the genus. The tulip tree (*Liriodendron tulipifera*) which grows naturally from New York State and Ohio, westward and southward, is a near relative of the magnolias. Again Dr. Manasseh Cutler figures, as that eminent physician, politician and botanist will several times in these sketches. He knew more about the trees of this part of the country than any man living at the time, and recorded what he saw and the results of his studies.

Some years ago our ex-mayor, the late Nathaniel Silsbee, furnished me with the following note: Mr. Silsbee's father, Senator Silsbee, attended Dr. Cutler's school, and he, with Willard Peele, harnessed the horse and vehicle with which Dr. Cutler made his celebrated journey to Ohio in 1788. On his return, Dr. Cutler brought with him a tulip tree which he planted in his garden in Hamilton. That an observer and botanist like Cutler should bring a tree so great a distance which was already in cultivation is hardly probable. So it is natural to consider that, through him, this very beautiful tree was first brought to the attention of the people of our neighborhood. The largest tulip tree in Salem is the magnificent specimen in the garden of Mr. George Peabody on Washington square, which is conspicuous from Mall street. It measures eight feet and three inches in circumference at five feet from the ground, this being the smallest girth between its roots and branches. The tree is perhaps fifty or sixty feet high. It seems almost that this tree should have some connection with the tradition received from Senator Silsbee and it is to be hoped that something more of its history will some day be obtained, although Mr. Peabody only knows that it was a large tree in 1834. The tulip

tree in the garden of Mrs. George R. Emmerton on Essex street is nearly as high and measures six feet in circumference. It was planted by Miss L. Rawlins Pickman, prior to 1840, and allowing for its early growth the tree must now be seventy years old. Smaller trees, yet of good size, are in the gardens of Mr. George West, Lafayette street; Mr. A. W. West, Chestnut street, at the westerly side of the house; on Cherry street, in front of Dr. Robbins' house, No. 4; and in several other places. One fine tree in the rear of Mr. W. S. Nichols's new house, 150 Lafayette street, is a relic of the once noble garden and arboretum of E. Hersey Derby.

JUNE SECOND.

III.

THE LINDENS, TAMARIX AND SUMACHS.

The term tree is, after all, a purely arbitrary distinction. Where the line between a tree and a shrub should be drawn, opinions differ. Some of our shrubs are large trees in other parts of the world more favorable to their growth, as for instance the sweet magnolia, the scarlet fruited thorn, the laurel and the sheep berry; and cunning horticulturists have persuaded many prostrate plants to simulate little trees by training and pruning them.

Prof. Sargent settles the question for his works by admitting as trees only such species as grow from the ground with a single stem, either wholly or over a large portion of the area of their distribution. But it is not necessary to be so particular in these sketches, and there will be an inclination to let in some of the shrubs if they are of interest.

The barberry (*Berberis vulgaris*), so attractive along the sides of our old Boston turnpike, and found everywhere with us, is not known to most persons as an immigrant from Europe. It was brought here by the earliest colonists; and, like the wood-wax which makes our pastures gorgeous and famous every July, may have been included in the list of seeds brought to Salem by Endicott in 1629. Yet, as these plants never intrude upon cultivated soil, we may be grateful to him for both of them, pasture owners excepted.

Brown street is a good place to study the lindens, or lime trees as they are often called. There are two good American lindens (*Tilia americana*) in front of Mr Geo. H. Perkins' house, No. 26; a tree of the European linden (*Tilia vulgaris*) at the Snell house, No. 17; and trees of the broad-leaved, or Dutch linden (*Tilia platyphylla*) at Mr. A. B. Russell's, No. 18, and near the St. Peter's chapel door. The last named species may be distinguished from the others by the woolly leaves and young wood.

There is a very fine specimen of the European linden in front of Mr. D. A. Varney's, 31 Pleasant street, and two in the enclosure of Mrs. John Bertram's residence, on either side of the door, on Federal street. American lindens are growing by Mr. T. D. Williams' house on Essex street, and near the estate No. 1 on the western side of Buffum street. In fact, all three species are found throughout the city. "The Lindens" of Mr. Francis Peabody's estate in Danvers are, if I remember correctly, the European linden proper, and doubtless the finest in this region. It is recorded that these trees were imported from Europe, apparently with great care, packed in separate "sheets," by Mr. Robert Hooper, "King Hooper" as he was called, undoubtedly in 1770, when he built the residence which has so fortunately been preserved in all its architectural beauty. The trees are, therefore more than one hundred and twenty years old, an age which their appearance bears out when the unusually favorable conditions under which they have grown is considered.

There were removed in Beverly a few years ago, to make way for improvements,—too many of our

finest trees fall before their time for this reason,—six of the largest and finest European lindens in Essex county. They varied from just over eight feet to ten feet in circumference as high as one could reach to measure them above the ground. Full of years, these lindens resemble the English elms in general appearance. Both of our foreign lindens or limes are noted for the delicious fragrance of their flowers—a feature lacking in the American tree, which, in many other respects, is their superior with its larger and brighter green leaves.

I am told that the flowers of the American linden growing before the house of Mr. T. D. Williams are decidedly fragrant. As a rule the European lindens are the only ones of which the fragrance of the flowers would attract the attention of persons passing beneath the trees in the street, a fragrance which sometimes is almost overpowering.

The question of fragrance is an interesting one, and its extent, and in some cases its total absence, is unaccountable. In our rose gardens among the so-called hardy hybrid-perpetual roses, there may be two plants growing side by side of very similar appearing varieties, and derived, perhaps, from closely related original stock; yet one rose will be deliciously fragrant while its neighbor will possess no trace of fragrance whatever. Individual variation must account in many cases for fragrance, color and other characters of plants.

The “Unter den Linden” in Berlin has made the tree whose name it bears famous all over the world. Not daring to trust the guide books for information regarding it, and never having seen the street, I referred to a friend high in authority on the subject, but my ideal that

has served for years of the avenue associated with all of the festivals and pageants of the Prussian capital, is cruelly blasted. He writes: "Nearly all of the trees are the common European linden, although there may be among them some of the other species as they are found in the streets of Berlin. It will be hard to find uglier or more unsatisfactory trees than those in this famous street, which does not at all come up to its reputation. Most of the old trees are dead or dying and have been replaced from time to time by younger ones. The worst part of the Tremont-street mall in Boston Common is splendid in comparison with it."

In the order of their flowering the Dutch linden comes first, followed closely by the European, and the American last.* The fruit of these trees, in the form of little pills, falls to the ground late in the season and has served admirably its purpose as part of the *materia medica* in many a childish "pothecary shop." There are many fine specimens of the foreign lindens in Marblehead, Newburyport and Portsmouth—the largest specimen of the American linden noticed being near the Boardman house in Putnamville, and there is another in the yard of the Rogers house, on the main street, Wenham. Our native linden furnishes the bass-wood, a name by which the tree is most frequently called, or white wood. Or rather it used to do so; but now the white wood used by our carpenters is either from the cucumber tree or the tulip tree, and some persons are even innocent enough to accept poplar for white wood.

The tamarix or tamarisk trees are nearer relatives of the lindens than any other of our trees, although they

* The European and Dutch lindens were in flower June 30, 1891, the American Linden on July 21, just three weeks later.

appear much more like the cypress, a tree with which they have no botanical alliance. The European tamarix is grown in some Salem gardens as a shrub, but it is not perfectly hardy north of Washington, where it shows its great masses of blossoms in May or earlier.

The Chinese tree (*Tamarix chinensis*) is much finer and larger, throwing up its great waving plumes of pink flowers in August. An old tree of this species stands by the gate of Mr. Robinson's house, 18 Summer street, and there is one in Mr. Dugan's garden on Dearborn street. It is probable that all of the trees of this species in Salem have come originally from these two, as it roots readily from cuttings taken before the leaves appear in the spring. There is a fine Chinese *Tamarix* in the yard of the Peabody Academy of Science, conspicuous from the windows of the museum.

The once popular *Ailanthus* tree—tree of Heaven and Chinese sumach (*Ailanthus glandulosus*) as it has variously been called,—is now rarely seen. The disagreeable odor of the staminate flowers and a fancied unwholesomeness of the tree itself, besides the really practical reason of its tendency to spread everywhere by root suckers, has banished it. I have only seen one large *Ailanthus* near the street, the tree with a double trunk on Milk street near Andrew, but there is a smaller tree in Mr. Edw. C. Browne's yard at the corner of Broad and Summer streets.

The staghorn sumach (*Rhus typhina*) is so called on account of the resemblance of its wide forking branches, when denuded of their leaves, to the antlers of a stag. This resemblance is the more striking as the branches are covered with a velvet-like covering of close hairs. Under favorable conditions this sumach becomes quite

a large tree and possesses a tropical appearance with its long pinnate leaves. There are fine specimens in the grounds between the Pickering estate on Broad street and Chestnut street, and it is abundant on roadsides in this vicinity.

The smooth sumach (*Rhus glabra*) and the dwarf sumach (*Rhus coppalina*) grow in similar situations, but are more frequently met with in the region of Beverly and on the road to Chebacco pond through Hamilton, where the latter species grows in great quantities. The smooth sumach bears a more brilliantly colored fruit than either of the others, while the dwarf sumach may always be distinguished by its winged-margined leaf stalks.

To this genus belong the only plants in our native flora which are poisonous to handle. The poisonous sumach (*Rhus venenata*) is usually called dogwood, a name which belongs to a perfectly harmless genus of plants of which the beautiful *cornus florida* and the pretty bunch berry are members. It grows in low wet ground and is found at the left of the road to Chebacco pond, as you pass Beck's pond, and also on Brimble avenue, Beverly, near the northern end at the western side of the road.

The poisonous ivy (*Rhus toxicodendron*) takes several forms, as if purposely to deceive those who would learn to avoid it. Sometimes it is a strong self supporting shrub rising above stone walls or half attached to tree trunks, while at others it is a delicate vine with more triangular and lobed leaves running on the ground in the shade of some little copse. Both of these plants are gorgeous in the autumn and the unwary are too often lured by them to their great discomfort.

A good description of both plants, with cuts to illustrate the leaves, was published in Mr. Upham's Visitor, No. 9, last September. The smoke tree (*Rhus cotinus*) common in old gardens, belongs to this genus also. In Mr. Clark's yard, No. 8 Chestnut street, back from the street, is a curiosity in the shape of a buckthorn (*Rhamnus catharticus*) which has been allowed to grow at its will until it has formed a rather graceful tree some twenty feet high. This is the tree of the ordinary buckthorn hedges about Salem, in its natural state, and there are others in various parts of the city which having been allowed their liberty have made very respectable trees.

JUNE NINTH.

IV.

THE HORSE CHESTNUTS AND MAPLES.

The line drawn on the maps between Essex County and the region to the south of it is almost as distinctly drawn between the floras of these regions. The influence of the Gulf Stream renders the climate of southern New England warmer while that of the Labrador current renders our climate cooler. Our fauna and flora are thus more closely related to those of more northern regions, and we are prevented from cultivating with success many plants which are perfectly hardy as far north as Providence, R. I., and some even which succeed well enough at Brookline, near Boston.

The paulownia is one such, a showy tree resembling a catalpa. The beautiful varieties of Japanese retinosporas and maples (*Acer polymorphum*) come under this head, although in certain soils and situations they can occasionally be made to flourish, notably in Mr. Geo. Chase's garden, on Lafayette street, where there are fine examples of both maples and retinosporas, and just over the fence at the corner of Flint and Warren streets, Judge Brigham has a fine specimen of one of the red cut leaved forms of the Japanese maple. One of the most conspicuous illustrations of these forbidden trees is the holly (*Ilex opaca*). Abundant on the South Shore, it seems impossible to cultivate it here even with the greatest care. We have, however, three native shrubby hollies, one of which, under the name

of black alder, (*Ilex verticillata*) is a favorite winter decoration, the scarlet berries remaining on the stems after the leaves fall. Another, growing in swamps, (*Ilex lævigata*), bears the same beautiful berries, while the leaves turn bright yellow in October. The first is common along the roadsides, but the latter is rather inaccessible in such places as at Cedar Pond, Lynn, and by other swampy ponds. The ink-berry (*Ilex glabra*) has evergreen leaves and is a shrub,—hardly as tall as the others, however,—abundant in the Magnolia and Wenham swamps. The mountain holly (*Nemopanthes fascicularis*) is more tree-like and grows with the last two in low wet ground. None of these plants, except in rare cases the first, are found in cultivation, but they well deserve places in our shrubberies.

The horse-chestnut (*Æsculus hippocastanum*), was introduced in Europe during the sixteenth century, but not until much later, of course, in this country. It is known in the wild state in Greece. Its striking appearance and ready adaptability to various soils and climates have made it a great favorite. There is a famous row of these trees in Bushy Park, London, said to be the finest in England; and certainly one can recall more fine horse-chestnuts here than almost any other tree. Dr. Holmes, in his "Over the Tea Cups" series in the Atlantic, speaks of the fine horse-chestnuts he has noticed in Salem; and as his path in the city led him naturally by the fine trees by Judge Osgood's stable yard in Cambridge street, and the tree by the "Studio," at the corner of Summer and Chestnut streets, it is probable that these were in his mind when writing; the last named tree is about seventy-five years old and is nearly eight feet in circumference. There is a beautiful

tree at the corner of Pleasant and Bridge streets, but its symmetry has been impaired by the stringing of wires for the electric cars. There is also a fine tree in the yard of the Joshua Ward house on Washington street,—but it probably was not planted until after Washington made the house historic by passing the night there,—and there are many others in various parts of the city. In the yard of the Nichols house, No. 80 Federal street, and in front of the Chase house, No. 22 on the same street, are trees of the purple variety of the sweet buckeye (*Æsculus flava purpurascens*), one of the Ohio buckeyes. These are called here scarlet horse-chestnuts, and any one desiring to have this variety would do well to plant seeds from these trees, as they would be quite sure of hardy plants. There are on Boston Common several trees of a red-flowered horse-chestnut, which is a garden hybrid and closely resembles the common white horse-chestnut. It probably originated in some European garden.

Our maples are among the most attractive trees we have, either in cultivation or in the wild state. The first to flower is the white maple (*Acer dasycarpum*) which, with the red maple (*Acer rubrum*), flowers before the leaves appear—the other maples flowering with the leaves, or after the leaves have developed. The white maple has the most divided leaves of any of the maples, and is decidedly the most graceful among them in habit. There are many trees of this species in South Salem, near Mr. H. M. Brooks' house on Lafayette street, on Summit avenue, and elsewhere. There is one on Andrew street, on the southern side, the third tree from Washington Square, and a large tree stands near Mr. Davis' house, No. 70 Bridge street. It grows

naturally in Topsfield and elsewhere, always in the neighborhood of streams, and there are many fine white maples along the winding course of the Ipswich river. There are large red maples on Broad street above Pickering street, in front of Mr. G. F. Brown's house on Dearborn street, by Mr. Gallup's new house on Essex street, and on the corner of St. Peter and Church streets. As a rule the male and female flowers are borne on separate trees, and this accounts for the different appearance of the red maples at the time of flowering. On the fruiting trees the flowers are deeper red, and change gradually to the red conspicuous fruit, while the flowers on the male trees have a delicate feathery appearance and soon fall. In the autumn the leaves of the white maple turn yellow; those of the red maple red, or red and yellow.

The red maple, as a rule, is not a tall tree, but it often attains a great circumference of the trunk. A tree which stood by Norwood mills in Ipswich, some dozen years ago, was over fifteen feet in circumference at five feet from the ground, and a famous tree felled in 1876 near Gage's ferry in Bradford, measured by the Georgetown botanist, Mrs. C. N. S. Horner, was twenty-six feet in circumference at four feet from the ground, probably the largest tree in girth in the county, and one which should not have been sacrificed to the axe.

The sugar maple (*Acer saccharinum*), or rock maple, for it is the same thing, is found in almost every street, and with its rounded sinuses in the leaves can only be confused with the Norway maple (*Acer platanoides*); but the Norway maple shows yellow flowers just as the leaves appear, while the sugar maple

hangs out tassels all over the tree. This year, doubtless owing to the absence of rain at the flowering season, these tassels were very beautiful and remained on the trees a long time. One of the finest sugar maples in the city is in the garden of Mr. Nath'l Ropes, 318 Essex street, overhanging the street just at the west of the house, and there is another of great beauty in the lot at the corner of Fairfield and Lafayette streets, nearest the latter. The largest tree, probably, is at Mr. S. E. Peabody's, "Kernwood," on the eastern portion of the estate. It is a dense well proportioned tree, nine and one half feet in circumference. But the largest natural tree in the county is that on the Hooper farm in Boxford, which measures twelve feet in circumference and is nearly sixty feet in height. This old tree resembles those at the New Hampshire sugar groves, but is evidently past its prime. The fine row of sugar maples on Bridge street, before the residence of Mr. Jas. P. Cook, have shown signs of failing within a few years and it is quite probable that the sealing up of the roadway with block pavement and the broad brick side walk prevent any considerable amount of moisture from reaching their roots. From this cause many fine trees are lost in cities.

The striped maple (*Acer pennsylvanicum*) is found growing as a small tree in Swampscott and Chebacco woods, and there was once a large specimen at Harmony Grove Cemetery. I do not know of one in Salem now. Norway maples are found in St. Peter street, the Essex House yard on the western side, and there is one that has been, by careful pruning, made to retain a dense round head, at Mrs. Wm. McMullan's, No. 6 North street. There is a very fine Norway maple on the eastern

corner of Felt and Orne streets, the largest I have seen in Salem, and one nearly as fine west of the sugar maple referred to at Fairfield and Lafayette streets. This tree is easily distinguished by its fruit from the sugar maple, although on young trees and in shady situations the leaves resemble each other closely. The fruit, however, is larger than that of the sugar maple, and the "keys," a peculiar form of fruit borne by all of the maples, diverge widely from each other. The bark, too, on large trees, differs. On the sugar maple it is rifted, while on the Norway maple it is close with fine reticulations.

The sycamore maple (*Acer pseudoplatanus*) is an old-world tree long cultivated here. It bears flowers in long drooping clusters resembling those of the striped maple, but larger. There are many of these trees in the city, the largest being in the rear of Mr. George Peabody's house, on Washington square, and at Mr. George F. Brown's house, on the northern side of Dearborn street, the western tree. A remarkably large tree of the variegated leaved sycamore maple stands in the yard at the western side of Mr. F. H. Lee's house on Chestnut street. It shows at the base of the trunk the curious collar sometimes noticed on apple and pear trees, caused by an unequal growth of the graft and original stock, and indicates, of course, a grafted tree. The negundo, or box-elder, (*Acer negundo*) is found sparingly in Salem. There is one in Mr. Hutchinson's yard, 130 Bridge street. The largest I have seen are on Lowell street, Peabody, at No. 132, and there are several large trees between that number and 100. A walk up North street through Dearborn and Felt streets will give any one an opportunity to study the five maples found growing as street

trees, or in South Salem near Lafayette, Laurel and Linden streets they will all be found, and there are young trees of these maples on the Common marked with their respective names.

In the second volume of Prof. Sargent's *Sylva* of North America, at the Public Library, will be found Mr. Faxon's carefully executed drawings of all the American maples, showing the leaves, flowers and fruit of each species.

JUNE SIXTEENTH.

V.

THE LOCUSTS, APPLES, PEARS AND CHERRIES.

How do you define a native plant? is a question which has been asked. There seems to be an erroneous impression in some minds that plants which botanists term "naturalized," and which, like our wood-wax, butter-cups and white-weed, have established themselves and increase each year by seeds, must be considered as natives, very much as we speak of strawberries and tomatoes as natives, when we wish to distinguish those raised near home from the same fruit brought from New Jersey or Carolina. A native plant is established in a region by natural means and without the agency of man. Among our common trees, even among those which are undoubtedly natives of this country, there are several which have probably been introduced into Essex County by the early settlers or later. The tulip tree, catalpa, and black walnut are undoubtedly among these; and it is hardly less probable that the wild black cherry, button wood and locust must be added to the list, although they are found growing naturally in the region at the south of us from New York State to Alabama, and westward to Ohio and beyond.

The common locust (*Robinia pseudacacia*) has long been a favorite roadside tree and was introduced at an early date from Pennsylvania. Old trees, however, show signs of insect ravages, and this species is no longer so common about Salem as it was a generation

ago. The largest tree in the city, a little more than seven feet in circumference, is before the door of the Pickering mansion on Broad street. There is one in the field just below the base ball grounds on Bridge street, and several about "Paradise,"* at the bend of Mason street. There is also a very large tree, ten feet in circumference perhaps, in the yard by the house at Gardner's Farm. On the Forest River road there are many locusts growing where the fragrant blossoms are easily accessible to the public.

The clammy locust, (*Robinia viscosa*) is not so commonly cultivated. It is a native of the Alleghany mountains. It blooms abundantly, but its flowers are not fragrant, although otherwise rather finer than those of the common locust. There are several of these trees just going out of flower in the yard of Mr. Abbott's house, No. 4 Chestnut street. A third locust, the rose acacia (*Robinia hispida*) from the same region, is often seen in old gardens where it makes a small straggling tree. Its flowers are of a most beautiful rosepink color but not fragrant. The honey locust, or three-thorned-acacia (*Gleditschia triacanthos*), is a large tree common in cultivation. It is a native of Pennsylvania and the region beyond, and is known by its much divided leaves, its long branching thorns, and curious wavy

*The reference of the writer to "Paradise," at the upper part of Mason street, in Salem, will probably cause many of the younger generation to wonder why that region was ever so called. Fifty years ago this was the most beautiful section of Salem, and on Sunday nights it was a great thoroughfare for young men and maidens, as well as for older people. Mason hill, the tanneries and the Oil Factory were unknown then, and if the Carltonville settlement had been started it could only have been a short time before. The name "Paradise" was known and recognized, in every part of the city, as a peculiarly appropriate designation for the locality.—[Eds. Gazette.

black fruit pods, often a foot long. There is a tree of this species in Mr. D. A. Varney's yard, No. 31 Pleasant street, another at No. 10 Church street, and one by the New (Swedenborgian) Church on Essex street. The male and female flowers are on separate trees and hence only certain trees bear the long pods referred to. The one on Church street is a female tree—that by the Swedenborgian Church on Essex street is a male tree. I cannot see, however, that the female tree is inclined to have more and sharper thorns, as some wicked botanists have declared. This tree is often mistaken for a tamarind, to which it is botanically related and which it resembles in some respects. It has been asserted by one person that a sea captain in the family brought a tamarind from the West Indies, and to this day it is insisted that a certain honey locust is a tamarind tree. But of course no tropical tree would withstand our winters, nor does this tree bear tamarinds, and so there must be a mistake. The red-bud, (*Cercis canadensis*), a small tree bearing large quantities of lilac colored flowers close to the branches, before the large leaves appear, may be seen in the garden of the Tucker house, 129 Essex street, and at the rear of the museum of the Peabody Academy.

The golden chain laburnum (*Laburnum vulgare*) has been flowering in Mr. Geo. Chase's garden on Lafayette street, in the yard of the Mansfield house on Broad street, and at Dr. Mack's place on the hill back of Mason street, but it is not a perfectly hardy tree in this climate. Another tree, too seldom seen here and yet perfectly hardy, is the Kentucky coffee tree (*Gymnocladus canadensis*). There are two fine specimens in the garden just north of the house of the late Gen.

Wm. Sutton, now the Peabody Old Ladies' Home, and a larger tree in the old garden of the late John Lewis Russell on Lafayette street. There are a number of these trees also in the Public Garden in Boston.

Opposite the door of No. 46 Washington Square, just inside the common fence and overhanging it, is a small tree of the virgilia or yellow-wood (*Cladrastris tinctoria*). This tree bears fragrant blossoms resembling those of the locust. It is a native of the Alleghany mountain region, and often attains considerable size even in this neighborhood where it has been cultivated for many years. When not in flower this particular tree might be mistaken for an ash, and it does not seem to be in its best condition, for the soil and shade from the elms near it appear to be unfavorable to its growth. There is another tree of this species in Mr. Dugan's garden on Dearborn street.

There is no tree which for beauty of blossom can compare with the apple (*Pyrus malus*) coming as it does in a season of most perfectly contrasting spring green. A tree in Bott's Court, seen from Chestnut street, and the group of apples in Mr. L. E. Millea's place in Hathorne street, made as fine a show of blossoms this year as any trees in the countryside about Salem. A street car ride to Asylum and a ramble about the hill, or, for a more extended journey, a drive to North Andover by the way of the old turnpike and back by Boxford and Topsfield, should be put down as an annual field day at the apple blossom season, not to be omitted. The largest apple trees which I have noticed in this neighborhood, are two old ones in Putnamville, on the westerly side of the road beyond the Sears place. They are nearly 12 feet in circumference. The story of our

ancient pear trees (*Pyrus vulgaris*) has been told by Mr. Robert Manning (Proc. Am. Pomol. Soc. 1875) and their mention is hardly required here. Mr. Allen's tree on Hardy street, planted in 1640, but ten years later than the famous Endicott pear tree in Danvers, is probably the only one of very great age, remaining in the city, the Silsbee tree having been cut down several years ago to make way for Boardman street. There is a pear tree on the Pickering estate on Broad street, said to have been grafted on the day of the battle of Lexington, in 1775, which is now over five feet in circumference at five feet above the ground, and over seven feet at the point where it was grafted. There is a crab apple (*Pyrus coronaria*) on Brown street, and others in various parts of the city. This species and the many horticultural varieties of crab-apples are desirable on account of its fragrant blossoms. The European mountain ash (*Pyrus aucuparia*), a misnamed tree, for it bears no relation to the ash tree, is everywhere met with in cultivation, and quite often, too, in remote places where the seeds have been carried by birds. There is a large tree in Mr. A. W. West's yard, 12 Chestnut street, and a remarkably fine one, for so old a tree, in Mr. Hubbard Breed's yard, 83 Federal street. Mr. Foote has called attention to the great injury done to these trees by a severe storm some forty years ago, which probably accounts for the few trees of large size we have in the city. The American mountain ash (*Pyrus americana*) grows naturally at the north, but there are a number of trees planted about Beverly Farms. The leaves of this species are larger and the leaflets more pointed than those of the European tree, but the flowers and fruit are about the same.

Early in May, or even in April, the shad bush (*Amelanchier canadensis*) shows its conspicuously white heads in our swamps, notably the one at the east of the railroad between Salem and Swampscott. One form becomes a good sized tree, while another is always shrubby; but where they all go to in the summer is a mystery, for one never sees them then. The fruit is excellent eating, and the birds and bugs know it, for there is seldom one left for man to taste. It is strange that this ornamental and good fruit bearing tree has never been improved for gardens by the horticulturists. There awaits another native fruit for mankind as good as any we now use.

The hawthorns have been fine this season — Mr. Pickering's on Broad street, Dr. Lyman's on Washington square with its pink flowers, and still others. Several old trees growing in a neglected state at the rear of the old Derby farm, on Park avenue, were well worth a walk to see. Those most generally cultivated are varieties of the English hawthorn, (*Cratægus oxyacantha*) although some of the American species are occasionally seen. Our low wild cherry (*Prunus virginiana*), the natural food of the caterpillar, may always be known at this season by its denuded branches. There are some plants, however, opposite Mr. Allen's on Clifton avenue, which were permitted to flower. The wild black cherry (*Prunus serotina*), which the eminent botanist, Dr. Charles Pickering, always maintained was an introduced tree in the county, is never seen excepting in places where man has interfered with nature. There is a very large tree among the ever-greens just back of the corner of Dearborn and Felt streets.

The little wild red cherry, (*Prunus pennsylvanica*), common everywhere after the cutting or burning of woodlands, is an attractive roadside tree, and the beach plum, common at Plum Island, has made its way into the interior, along the walls, where it is said the stones have been thrown by farmers returning from their salt marsh haying trips. There is a good specimen opposite the horse railroad stables just beyond the Forest River Mills. Of the cultivated peaches and plums little need be said, for there are few of note in gardens, and probably none in the streets.

The cherry, once a popular street tree in Salem, has been relegated to yards and gardens. The trees which bear our June and July cherries often grow to great size. They have been evolved from the European tree (*Prunus avium*) and cherry trees in England sometimes reach the height of eighty or ninety feet. There is one very large cherry tree in a yard on Dodge street court, and a row of quite tall trees by the stone wall on Lafayette street, just beyond Loring avenue, which are evidently from stones accidentally thrown there. In Topsfield, Boxford and elsewhere, by old farms, one often sees clumps of low cherry trees with a profusion of flowers in May. These are the old fashioned cherries of our grandmothers' cherry pies; and a friend who is a judge in such matters assures me that they are not surpassed by any of the modern substitutes. The tree is known as *Prunus cerasus*.

JUNE TWENTY-THIRD.

VI.

THE CORNUSES, TUPELO AND WITCH HAZEL.

Among those who enjoy gathering wild flowers, but who are not familiar with their characteristics, a natural fear exists of handling plants which may be poisonous. The misuse of the name dogwood, by applying it to the poisonous sumach, has increased the fear in this neighborhood where the wrong name is used almost to the exclusion of the correct one. The name dogwood belongs to the cornuses, a genus, which, as previously stated, includes the pretty bunchberry, several shrubby species, and the tree known to most persons by its botanical name, *Cornus florida*. A fine specimen of this last named tree stood in the yard of Mr. James B. Curwen, on Essex street, but it unfortunately died some time ago. There are smaller specimens in several gardens in the city, and the tree grows naturally in the woods at Crooked pond, Boxford, and on some of the islands in Wenham swamp, where the large white bud-scales surrounding a bunch of small true flowers are conspicuous in the latter part of May.

The only other cornus which is tree-like in appearance is the *Cornus alternifolia* (it has no common name), which is abundant along most country roadsides—the nearest, perhaps, being on Essex street, Beverly, not far from the Montserrat station. All of the dogwoods have showy flowers, and are perfectly harmless to handle.

A few simple rules can easily be remembered, which will aid those who are not acquainted with our poisonous plants in detecting them, and at the same time prevent needless fear of the many beautiful flowers and berries common throughout the county.

Never put any portion of any plant in the mouth unless it is certainly known to be wholesome.

Have no hesitation in handling any plant that has beautiful or attractive flowers, berries, or fruit of any kind; for the two poisonous native plants have inconspicuous greenish flowers, mostly under the leaves, and, later, small bluish white berries close to the branches or hanging from them.

Beware of gorgeous red and yellow autumnal leaves on shrubs and climbing plants which are not known to be harmless. Our two poisonous native plants display the most brilliant autumnal colors of any species in our woods and by-ways.

The poisonous sumach resembles a group of young ash trees.

The poisonous ivy resembles the harmless woodbine. Its leaves, however, have but three leaflets while those of the woodbine have five.

There are no cultivated plants in our gardens poisonous to handle, so far as I am aware, except, perhaps, the little primula, commonly grown as a window plant in winter, whose sharp hairs on the stems and leaves often irritate the delicate portions of the skin of the hands and wrists of those who brush against the plants or gather the flowers.

A near relative of the cornuses is the tupelo (*Nyssa sylvatica*), a tree usually found in wet places, although sometimes on hillsides; yet, even then, indicating that

water is near by. There are several on Brimble Avenue, near North Beverly, and also on the Topsfield road beyond Putnamville. The largest near at hand is just back of some houses at the corner of Essex and Corning streets, Beverly, not far from the Montserat station. I think it is this tree, or at least one that was near this place, which Wilson Flagg figures in "Woods and Byways of New England," (p 63) and which he describes as being "near the 'Outlet' on the old Essex road in Beverly." It does not, however, appear to be the tree which he refers to as one regarded with superstition by the people of that town.

About the shores of Wenham and Chebacco ponds are several tupelos overhanging the water, and there is one quite prominent in the swamp near the Marblehead branch railroad, in the woods just beyond the Forest River Mills on the way towards Marblehead. The tupelo has its male and female flowers on separate trees, the leaves are shining green until October, when they turn a most beautiful red. It is, unfortunately, a difficult tree to transplant, and our nurserymen have sadly neglected it.

The witch hazel (*Hamamelis virginiana*) is a weak tree common in the woods at Beverly, on the roads in Lynnfield, Swampscott, and elsewhere. It is only conspicuous in October when the curious yellow flowers are fully expanded. Blooming thus in autumn the fruit is not perfected until the next year. When ripe the little nuts open at the end with a snap, and the seeds are shot forth as from a toy pop-gun. The tree is common enough, scattered through the woods, but it must be vastly more abundant elsewhere, or "Pond's Extract" cannot all be made from hamamelis.

The divining rods of the ore and water hunters are said to be made from the branches of this tree ; but in England one of the elms is called “wych elm,” and a hornbeam “witch hazel,” and their branches may be used there for a similar purpose. The efficacy of these witch-sticks will in all probability be defended by believers and laughed at by sceptics, as of old.

The liquidambar (*Liquidambar styraciflua*) is not perfectly hardy in this region, although some trees at the Henry Cleveland place in Danvers have grown well for a number of years. The leaves somewhat resemble those of the red maple, but they are more pointed. The fruit is a curious little ball bristling with beak-like points which enclose the seeds. It is a tree which ought to be experimented with here, as it is interesting in many ways.

JUNE THIRTIETH.

VII.

THE ASHES, CATALPA, AND SASSAFRAS.

With the discovery of America there came at once a desire to know something of its natural products, and even before the settlement of its northern shores the plants of the country were taken to Europe by explorers. This desire, of course, increased after the settlements were begun, and accounts of the country, its animals and plants, had been sent home to friends. In England, especially, are to be found numerous examples of American forest trees, many of which have been in cultivation for ornament much longer than they have here.

The shag-bark hickory was carried to England in 1629, the locust in 1640, the black-walnut and butter-nut in 1656, the red-cedar in 1664, the liquidambar in 1681, the white pine in 1705, one of the buckeyes in 1711, the white oak in 1724, the ash at about the same time, and many others soon afterward.

Of course many of our native trees were taken to other countries besides England, but, owing to the natural channels of commerce, they were chiefly carried to England and France. It is stated that the original locust tree planted by Vespasien Robin, for whom and his father John, herbalist to Henry IV., of France, the genus (*Robinia*) to which the locust belongs, was named, is still standing in the Jardin des Plants in Paris. The tree was planted by Robin in 1636 and shows evident signs of its great age.

The natural result of this early introduction of American plants into Europe, and the continued interest in them there, was that American plants could be obtained from English dealers before they were grown by our home nurserymen, who, curiously enough, neglected our own plants, the trees especially, and were satisfied to import their stock from across the water. There have also originated in English gardens many sports and hybrids of American plants, and these abnormal children of American parentage have come home to our gardens almost entirely from this source.

An American garden, or bed, is a common term used in Europe when referring to the class of plants known as the Ericaceæ, which includes the laurel, rhododendron, andromeda, swamp azalea and other plants, natives of this country. Many of these, with the varieties which have sprung from them, are now imported from England for our gardens. Oaks, walnuts and other trees have been re-introduced in a similar manner, and for this reason it often happens that a person will insist that a certain tree is European, when it is but the offspring of American parents returning to its native land.

But none of the plants of the Ericaceæ are trees in this region. The laurel becomes a tree at the south, and some of the southern tree-like rhododendrons are cultivated here as shrubs. The same may be said of another family to which the snow-ball, the cranberry-tree, and the elders belong. The sheep-berry, (*Viburnum lentago*) common in our woods, and the old garden snow-ball, however, are often quite tree-like although they are naturally shrubs.

The persimon (*Diospyros virginiana*) whose fruit requires a hard frost upon it to make it palatable, is

occasionally found in this region, but I do not know of one which fruits in Salem. There is a small tree, however, by the roadside on the Edmund Kimball place in Wenham.

Although the olive cannot be numbered among our trees, still familiar representatives of the family are numerous. The lilac (*Syringa vulgaris*) is often seen growing from a single stem in old country gardens, where both the purple and the white varieties are frequently cultivated. There is a very tall and old white lilac by the house of Mr. Henry Wardwell, No. 13 Summer street, and very large plants of the longer cultivated purple lilac are especially noticeable in Danvers and the Andovers. The privet, (*Ligustrum vulgare*) generally used for a hedge plant, becomes a tree when left to itself. There were a number of these in a yard on Federal street, near Beckford, but they seem to have disappeared before the hand of improvement. The fringe tree (*Chionanthus virginica*) is a small tree but very beautiful when in flower with its delicate white fringes hanging among the fresh green leaves. One in Dr. Johnson's garden on Winter street was in full flower about the middle of June.

There are three native ashes besides the introduced European tree, in Essex County, but the white ash (*Fraxinus americana*) and the European ash (*Fraxinus excelsior*) are the only ones which are frequently seen in cultivation. The mountain ash, referred to in a previous number of these sketches, it must be remembered, is not an ash but a member of the rose family and a relative of the apples, pears, etc.

The black ash (*Fraxinus sambucifolia*) is found growing naturally in wet places along North street,

Danvers, after passing the junction of Birch lane, the road leading from Mr. Whittier's place, and elsewhere in the county. This tree may be distinguished from the other native ashes by the leaflets which are toothed on the edges and which are close to the main leaf stem, while each leaflet of the white and red ashes stands on a little stem of its own where it joins the main leaf stem. The red ash (*Fraxinus pubescens*), with somewhat pendulous branches and slightly downy leaves and young stems, grows along the shores of the Ipswich river in Topsfield and other towns, and may be seen where the bridges cross that stream in several places. The only ones I have observed in cultivation are on the estate of the late Edmund Kimball in Wenham, at the side of the driveway to the house near the street. Nearly all of the ash trees in the streets of Salem are the white ash. There is one at No. 4 Chestnut street, several at the north-east corner of the Common near Pleasant street, and they are, in fact, met with in every part of the city. There is a remarkably symmetrical tree on Warren street near the old Treadwell estate, No. 41. The largest white ash which I remember as a street tree was one cut down at the time the lindens were removed on Cabot street, Beverly. It stood just beyond the lindens and was nine feet in circumference at six feet from the ground.

The European ash is often seen in cultivation. There are several on Felt street, the first tree on the eastern side of the street near Dearborn being one; and there is a good specimen in the Broad street cemetery, near the corner of Winthrop street, and just south of the Dodge and Fogg tomb. The weeping ash is a grafted variety of this species.

There are now considered to be two native species of catalpa, both showy and desirable trees. In Dr. Manasseh Cutler's journal (Vol. I, p. 74) is this entry : "April 13, 1779 : brought from Judge Oliver's two scions of the catalpa tree, a native of America which grows near the Ohio river." This was no doubt the western catalpa (*Catalpa speciosa*) which did not receive a name to distinguish it from the southern catalpa (*Catalpa bignonioides*) until quite recently. Judge Oliver's garden was where the Lynde Block now stands, on Essex street ; and, curiously enough, in Mr. Geo. Upton's garden (Mr. Upton's house is on Liberty street), which in 1779 was probably a part of the Oliver garden, there is to-day a fine tree of this western catalpa, but hardly more than thirty years old. The largest catalpa, and probably the oldest in the city, is the southern catalpa in the yard of the Misses Shepard's house, 25 Brown street. The tree was planted more than eighty years ago, by Mr. J. H. Parnell and now measures nearly nine feet in circumference.

There is a southern catalpa which overhangs the yard of the "Witch house" on Essex street, and there is another in Mrs. Emmerton's yard a few doors above. There is a curious tree, doubtless a sucker growth from an older tree of the southern species, in the enclosure of the Public Library on Monroe street.*

The Japanese catalpa, (*Catalpa kmpferi*), a small tree, has been introduced recently. There is a specimen in the garden of the Bertram estate on Dearborn street.

The sassafras (*Sassafras officinale*) grows on the

* The western catalpas were in full flower on June 30th this year ; the southern catalpas, however, not until July 20th.

eastern side of the Topsfield road within about two miles of that town, where there are several well formed trees. It is common in our woods as a small shrubby tree, and there is a large specimen among the other trees against the hill on the road between King's beach and Pride's Crossing. There are some at Kernwood, one especially of quite large size on the north-eastern portion of the estate. The only one I know of in the city proper is in Mr. David Pingree's garden. It is about twenty-five feet high and may be seen from Washington Square, across Mrs. Safford's garden, against the division wall. The largest sassafras in the county formerly stood in a field in Manchester, near the railroad. It was over eight feet in circumference, but it died of old age some years ago.

The sassafras may always be recognized at the distance by its peculiarly solid, dome-shaped head and the comparatively few leaves and branches lower down. It is much more abundant just south of us than here. Any one who is familiar with our trees, travelling by rail to Washington or Philadelphia, will at once notice the changed character of the woods after passing into southern Connecticut. The sassafras, the chestnut, liquidambar, tulip-tree, pin oak and tupelo, form the conspicuous part of the woodlands passed on the train, and these are trees which are either very scarce or altogether absent from the woods of Essex County and this part of New England. The sassafras is worthy of more attention than it receives, and the leaves, which vary from simple ovals to three lobed and mitten shaped on the same branch, are a curious study.

The wild spice-bush (*Lindera benzoin*) is a shrub common in our woods. It is covered with greenish

yellow flowers close to the stems before the leaves appear in the spring. This is a near relative of the sassafras.

JULY SEVENTH.

VIII.

THE ELMS.

It is much more difficult than one would at first suppose, to obtain accurate knowledge of the age of our older trees. Records are occasionally made of the planting of certain trees, but the age or size of the tree when planted is seldom recorded. Mistakes are often made in referring to the work, and in locating the tree itself in accounts given of it afterwards, and these accounts, too, are generally transmitted verbally from generation to generation.

With our trees, and in our climate, a nearly accurate record of the age of every tree is sealed up in its trunk where the circles of wood formed each year are clearly defined. When a tree is cut, therefore, if the wood is not decayed we may count the years of the tree's life almost with certainty. In tropical countries, where the difference between the growing season and that of rest is less marked, this cannot be done ; but here, where the alternation of summer and winter is so regular and the change so complete, these annual rings of growth are easily counted. Infrequently, either by the entire destruction of all of the leaves of a tree early in the season by insects, or possibly in case the early growth is completely arrested by drought, a second growth may take place the same season. This growth, however, rarely occurs, nor is it so clearly marked in the

wood; so that this factor cannot be said to affect, to any extent, the tree's record of its own age.

Attempts have been made to obtain the age of old trees of especial interest by cutting a small section of the wood from them in one or two places, counting the rings in the sections cut, and estimating the age by means of an algebraic formula based on the height of the tree and the diameter of its trunk. This method has, however, proved of no value in cases where it could be tested; and so we must depend on reliable records, average rates of growth known in trees of the same species, and the application of a great deal of common sense, in order to obtain an idea of the age of trees which we do not wish to destroy.

It would add very much to our present knowledge of the subject, if persons who have records of the age of large trees of any species would contribute such information, together with the correct measurement of the trunk circumference of the tree, to some well circulated botanical or horticultural journal. Statements of the habit of the tree, and the conditions favorable or otherwise under which the tree has grown, should also accompany such records.

Fabulous stories are told of the age of trees, most of which should be accepted with great allowance for error. The olive of Gethsemane, popularly supposed to be the tree referred to in the Bible and to have witnessed the vigil of Jesus, is still preserved. A picture, which certainly represents it as a very aged tree even for an olive, may be seen at the Public Library, in "Garden and Forest," (Vol. 1, p. 284), in which magazine are also many interesting tree portraits published from time to time, both of natives of this country and others.

Another tree, the cypress of Somma in Lombardy, is proved by records, it is said, to have been known in the time of Julius Cæsar, 42 B. C.

The greatest number of rings yet actually counted in any tree is 2100 in the case of a California "Big-tree" or redwood (*Sequoia gigantea*), and this record of the tree's own existence reduces materially the estimates of the age formerly attributed to these monsters of the forest. That any of our oaks are a thousand years old, as is often supposed, seems impossible. It is doubtful if any tree in Essex County standing to-day exceeds three hundred years in age, and it is quite possible that a less number would cover the years of the oldest.

The American Elm (*Ulmus americana*), also known as the white elm, may undoubtedly be placed as the most venerated and most popular tree for planting in New England. It is the most graceful, most varied, and upon the whole the most satisfactory tree we have. Mr. Dame, in the volume entitled "Typical Elms" (to be seen at the Public Library), gives pictures of two Essex County American elms. The first is the famous Hubbard elm on the farm of Mr. Nathan Foster at North Andover, near Boxford, which is the largest and finest tree in this neighborhood. Its trunk measures twenty feet and ten inches in circumference at five feet from the ground, and is, so tradition says, over 250 years old. It is, therefore, if this tradition can be relied upon, the oldest elm as well as the largest in Essex County. The Hale elm, in Boxford, a tree well known to be 145 years old, is thirteen feet and one half in circumference. The old William Jaques elm on Parker street, Newbury, is also figured in "Typical Elms." It is seventeen feet and three inches in circumference and is thought to be

178 years old. This elm is the same size as the Endicott elm, in Peabody, which was destroyed by a gale or lightning some years ago, and which was the most graceful elm in this region. There are large elms at the Woodbury farm in North Beverly, in Reading, in Newburyport, the Andovers, in Ipswich; and almost every town in the State has its noted elms. Those of the Connecticut river valley, however, are undoubtedly the finest and largest, taken as a whole. The oldest elms in Salem are probably the "Great Tree," or "Big Tree," in the centre of Boston street, and the tree by the house No. 23 Summer street. This last named tree is the finer of the two, and has, thanks to the care of the city's shade tree committee, been placed in condition, it is hoped, to last and be admired for many years to come. In regard to the former, Mr. C. F. W. Archer has called my attention to the fact that the records state that a great tree stood in the plain at the time the boundaries were made when the stone bearing the date 1707 was placed in Boston street. It would ordinarily appear that the tree was hardly large enough to warrant the supposition that it is one hundred and eighty years old, but it is growing in very poor soil, and has, perhaps, never had an epoch of rapid growth usual in elms; and it may, therefore, be as old as the record would indicate. It seems hardly possible that the tree originally on the spot should have died and another have been planted to replace it, for in that case, in all probability, some tradition would have descended of the fact. However this may be, it is an interesting subject for our local historians and one which I hope may receive their attention.

The tree generally admitted to be the most beautiful

in the city is the Bertram elm which stands in the Public Library grounds; and, strange to say, it is a comparatively young tree. It is fourteen feet and five inches in circumference at five feet from the ground, and yet it is positively known to be not over seventy years old and probably a little less. What favoring conditions have produced this remarkably rapid development is not known.

Mr. Charles Putnam, civil engineer, remembers that the tree shook and bent as he climbed into it when a boy. Mr. S. E. Peabody, whose younger days were spent in its vicinity, has accurate knowledge of the small size of this tree at about the same time, and Dr. Wheatland, some years the senior of these gentlemen, well remembers it as a stripling in Mrs. Wallace's yard. The age of the Bertram elm, therefore, may quite safely be placed at seventy years from the seed. In proof of the very rapid growth of the elm under favorable conditions, there is a tree in the rear of the museum building which is but eighteen years old from the seed. It is thirty feet high and the trunk is three feet and four inches in its smallest circumference, showing an increase of 2.22 inches annually. The rate of increase of the Bertram elm is 2.47 inches. Elms grow most rapidly during the first seventy-five years of their life. The rate of growth then decreases, and in elms of great age it is very slight each year. The four elms in front of the houses of Mr. Philip Little and Mr. Arthur W. West, on Chestnut street, were undoubtedly planted by Messrs. Nathan Robinson and Jona. Hodges, about 1804. They vary from nine and a half to ten feet in circumference at five feet from the ground.

The larger of the elms by Dr. Mack's house on

Chestnut street was planted by Mr. Henry Pickering, probably in 1814. It is as large as the largest of the four elms previously noticed, and none of these trees are nearly so large as the Bertram elm, which, as shown, is not nearly as old.

Dr. Henry Wheatland planted the elm at the residence of Mr. George Wheatland, the tree next above the Public Library estate, in 1838. It is now seven feet eight inches in circumference. At the corner of Buffum and School streets is a fine elm planted by Mr. Devereux Dennis, probably in 1804, and which measures nine feet in circumference. There is a very graceful weeping elm just beyond the almshouse on Salem Neck. Its beauty is the more remarkable when its exposed situation is considered.

It has been said that the trees on the upper portion of Lafayette street were planted within the line of the Derby estate, on account of some opposition to placing them in the street itself. The street was laid out in its present magnificent width at the suggestion of Mr. E. Hersey Derby in 1808. Mr. David Waters informs me that his father, but a short time before his death, while passing these trees, said that when a boy he was called by Mr. Derby to assist at planting them, holding the saplings while the workmen filled the earth in about them. Mr. Waters, senior, was born in 1796 and would have been twelve years of age when the street was laid out. The date of the planting of these elms, thus corroborated, may, therefore, safely be placed at 1808.

On the Common there appear to be elms of two ages. Those near the western gate are evidently older

than the majority of the trees around the Common. They were no doubt standing on the ground when the others were planted, although nothing is said in regard to this in the Essex Institute Historical Collection (vol. 4, p. 2), where Mr. B. F. Browne's interesting and exhaustive account of the Salem Common and the surrounding estates is published. When the Common was levelled in 1802 it was planted with the Lombardy poplar; but, as these trees proved of short-lived beauty, they were replaced by elms, ashes, etc., during the year 1817, and possibly the years following. We speak of the Common as being planted with elms; but, in point of fact, less than one-half of the trees in it are elms. It is much to be regretted that, when one of the elms has died, it has not always been replaced by another elm. Unwisely, however, maples and other trees have been planted in the places vacated by failing elms; and, unless immediate steps are taken to rectify this error, we are likely, at no distant day, to see the beauty and dignity of Salem Common give way to an ordinary plantation of maples and other trees entirely unsuited to this particular situation, for which place no tree can possibly compare with the American elm in desirability. The elm, too, absorbs great quantities of water through its roots, besides not producing a too dense shade. It is, therefore, a most valuable tree in low grounds, like our Common, where the soil would naturally be quite damp throughout the season.

The slippery elm (*Ulmus fulva*), whose mucilaginous inner bark used to be more in repute for certain mouth and throat complaints than now, is a native of the county. It is found in the woods of Wenham and Boxford. Mrs. Horner, our Georgetown botanist, has

privately pointed out one in that town; but a good botanist is too wise to publish the precise spot where it grows, for the juveniles in the community would soon strip this tree of its bark for the pleasure of chewing slippery elm free of cost.

The only slippery elm so far observed in Salem is on Hathorne street. It was planted by Mr. Alva Kendall, fifty years ago, and was probably obtained by him in New Hampshire. The tree, which is now nearly seven feet in circumference, is a remarkably fine representative of its species. Residents on the street state that this tree has always retained its foliage in perfect condition during seasons when all of the American elms near it have been stripped of their leaves by the canker-worms.

The English elm (*Ulmus campestris*), common in and around Boston, is a rare tree here. The only one of full growth, so far noticed on our streets, is on Lafayette street, just within the Derby estate, and directly opposite the southern line of Clifton avenue. There are two small trees, one of which, at least, is probably a garden form of the English elm, on the Common nearly opposite Williams street, and one typical tree at Mr. Jas. Dugan's, on Dearborn street. The English elm has not the graceful habit of the American tree, but it retains its leaves longer in the autumn. The branches may be said to grow upward while those of the American elm grow downward or bend over. The fruit or seed of the English is much larger than that of the American elm, it being almost the size of a ten cent piece.

I am told that the variety of the English elm having

the corky bark has been planted in Danvers to some extent. There is a very fine specimen of this tree in Mr. Dugan's place, planted about 1835 by the late John C. Lee, Esq.

The Dutch elm, also called wych elm and Scotch elm (*Ulmus montana*), is, in appearance, intermediate between the American and English elms. Its spreading habit is more like that of the American tree. The bark is not broken across like that of the English elm, which gives the trunk of that tree a checkered appearance, but, on the upper and smaller branches, it is lighter in color and almost smooth. The seeds closely resemble those of the English elm. There is a good specimen of the Dutch elm on Winter street, at No. 15, and another before the house of Mr. Jos. M. Parsons, No. 32 Lynde street. A small tree is on the avenue leading to Dr. Mack's house from Grove street, and there is one among the other trees on the eastern side of the street, in Danversport, just beyond the northern end of "spite bridge". There are rows of these elms at either side of the Congregational Church on Maple street, Danvers, which are said to have been raised or introduced by Mr. Joshua Silvester, whose name is, more than any other, associated with ornamental tree planting in Danvers, and to whose good offices the town is indebted for the beautifully planted grounds of the Peabody Institute.

There are two Dutch elms not far from the house of Dr. Morrill, in North Andover. This tree is also common around Boston, and there is a large tree marked with its name at the east of, and not far from, the soldiers' monument on Boston Common.

In an article entitled "The Woodlands" printed in

the "Nineteenth Century" for July, Sir Herbert Maxwell writes: "The * * * so called English elm is probably part of the inheritance left us by the Roman rulers. * * * The only native British elm is the wych elm, a common tree in the old forest."

JULY FOURTEENTH.

IX.

THE BOX TREE, MULBERRIES AND BUTTONWOOD.

In contrast to the elms, trees which rapidly attain great size, is the box (*Buxus sempervirens*) which is probably the slowest growing of all trees. We are familiar with the dwarf variety of this tree which is used so extensively in old fashioned gardens, in Salem and other towns in Essex County, as an edging for flower beds. The dwarf box sometimes grows to a height of three feet, and there was, on Pleasant street in Marblehead, some years ago, a garden famous in its day for the large box which grew there.

In Dr. Lyman's yard, on Washington square, is a fine specimen of the tree box. It arises from ten or more stems and forms a beautiful dense head eight feet in diameter and as high from the ground. In Mr. Robinson's garden, on Summer street, is a box tree known to be over thirty-five years old. The height of the tree is but four feet; it has always been perfectly healthy, and yet its single stem is but eight inches in circumference. It is just half the age of the Bertram elm, at the Public Library, whose trunk circumference is one hundred and seventy two inches, or more than twenty-one times as great. A catalpa, in the rear of the museum building, eleven years old, one third of the age of this box tree, is twenty-five inches in circumference, three times that of the box tree.

What has been said here, and in the previous sketch,

shows how little dependence can be placed upon the size of trees in attempting to determine their age. The dimensions of the trunk of a tree can only be used to make a comparative estimate of the age of trees of the same species, and even then it is of very uncertain value. Much more dependence must be placed upon the general appearance of the tree than is ordinarily supposed.

The box tree is a native of the Levant, and its very dense wood is of great value for the purposes of the engraver, no substitute as yet having been found for it. In its native habitat it sometimes grows to a height of twenty-five feet with a trunk six or eight inches in diameter.

The osage orange (*Maclura aurantiaca*), a native of the southwestern United States, is occasionally used here as a hedge plant. On the Page estate in Danvers, trees originally planted for a hedge have been allowed to develop, and have borne fruit which is quite large and which externally resembles an orange.

The nettle-tree, sometimes called hackberry (*Celtis occidentalis*), a tree which some one has described as "a small elm bearing wild cherries," grows in the Salem great pastures. There are two or three trees west of the mill pond, on the line of the new Madison Avenue. There are also small trees of this species on the sand dunes at the northern end of Plum Island, others on the road from Ipswich to the beach, and larger ones near the Towne estate in East Boxford.

The white mulberry (*Morus alba*), originally introduced from China, is found on Lafayette street, where there are two trees at the corner of Ward street,*

*One tree, since cut down, showed fifty-one annual rings of growth. It is said that these trees were planted by a Capt. Poole, about 1843.

and two more near the junction of Loring Avenue. There is one in Beverly near Centreville, and others on the Page estate in Danvers, and elsewhere. The "*Morus multicaulis*," over which such a furore arose many years ago when it was thought that silk culture might be introduced into this neighborhood, is a variety of this tree.

The Russian mulberry (*Morus tartarica*) has recently been introduced in Salem. Mr. Edw. S. Rogers has it in his garden; and a tree fifteen feet high, in the rear of the museum building, has fruited abundantly about the first of July for the past three years.

The red mulberry (*Morus rubra*) is an American tree and grows to large size. There is a fine tree of this species, six feet and three inches in circumference, in the garden of the Nichols estate on Federal street. This tree is just about one hundred years old. It begins to ripen its blackish fruit the first of July. There is a red mulberry of very striking appearance in Ipswich, in a front yard by the common, and nearly opposite the Heard estate. Its head is almost a perfect umbrella, and the trunk cannot be far from ten feet in circumference.

The black mulberry from Persia, common throughout Europe, is not, so far as I have seen, cultivated here. It is a small tree and its name is often used erroneously for the red mulberry. The fruit of either of these trees may be called black or dark red.

Half hardy varieties of the fig (*Ficus carica*) are cultivated here, and Mr. Robert Manning has succeeded in carrying a large plant through the winter, out of doors, in his garden on Dearborn street, by laying

down the branches in the autumn and covering them with earth. One of the oddest things and in the oddest place, is a seedling fig, self-sown, of course, which has taken care of itself through at least one winter in one of the pits covered by an iron grating at a cellar window of the Shepard block, on the corner of North and Essex streets. This plant well deserves to be cared for as a reward for its persistent attempts to live.

The buttonwood (*Platanus occidentalis*) is a tree which never appears to be in a state of good health here. The disease which weakens it is a fungus or mildew. It attacks the leaves when they first appear, and as it causes them to wither and fall the tree is obliged to produce a new crop of leaves later in the season. The buttonwoods on the Andrews estate, on Essex street, are ten feet in circumference, and one just below the car shops on Bridge street is of about the same size. Two trees before the Chas. Davis house on Cabot street, Beverly, just beyond the Gloucester branch railroad crossing, although not so large as those named, have usually made a better appearance than the Salem trees. There is, however, a fine buttonwood on Herbert street, near Derby, which stands before the "Briggs house" and is a picturesque and fitting companion to the old gambrel roofed edifice.

The home of the buttonwood is in the river bottoms of the Ohio and westward, but most of the older trees have disappeared from that region. It is humiliating to think that these fine trees are being cut down, almost exclusively, to furnish boxes for tobacco packing.

The buttonwood is the most massively effective tree in the eastern United States, when seen in its

native haunts with its towering trunk rising from an immense base. One tree on an island in the Ohio measured forty feet in circumference at five feet from the ground, and one of seven famous trees is said to have measured one hundred and fifty feet; but this may have been around the much extended base of the tree.

This tree is often wrongly called sycamore, the name of a species of fig (*Ficus sycomorus*), the wood of which was used by the ancient Egyptians for mummy cases. A very interesting article on the misuse of the name, together with illustrations of the buttonwood, will be found at page 349 of the second volume of "Garden and Forest." There is more reason, however, for calling our buttonwood plane-tree, for it belongs to the same genus as the European plane tree (*Platanus orientalis*), specimens of which are growing in the neighborhood of Boston. This tree closely resembles our buttonwood.

JULY TWENTY-FIRST.

X.

THE WALNUTS AND HICKORIES.

The object of giving a latinized name to plants is, of course, precisely that for which we give names to individuals ; and the naming is done in the same manner, in family groups. The scientific name of a tree is printed as our names are in the directory—the surname or generic name first.

But as plants have been named by many botanists who received specimens, perhaps at the same time, from collectors in different parts of the world, it has often happened that, unintentionally, the plant has received two or more names, while later it was found that the plants thus named were identical.

Then, too, after many plants resembling each other have been discovered, the distinctions by which the lines of the species, the genus and the family are drawn become more clear. Plants which were at first placed in one genus, were afterwards seen more closely to resemble another, and it has thus become possible to re-arrange the families and genera of plants in more natural groups.

Of course this causes some confusion, but it cannot be avoided until almost all of the plants in the world have been studied by competent botanists, who shall agree upon some exact rules by which plants shall hereafter be named and by which all old names shall be re-adjusted to conform to them.

But the scientific names are in perfect and satisfactory order in comparison with the so called common names of animals and plants. In every country, in each locality even, there is a different name for the common animals, the flowers and the trees. And what is more confusing, not only is the same tree known by a dozen different names in as many places, as we travel through the region of its distribution, but the name of one tree is frequently given to an entirely different one, as we pass from the region where it grows abundantly to another where it is rare or altogether absent. And yet its name is given to some other species which may or even may not resemble it.

In coming to this country, the early settlers brought with them the names of the common animals and plants with which they were familiar at home, and they at once applied them to other animals and plants in which they saw real or fancied resemblances. Thus it is, for instance, we have misnamed a pole-cat, a robin, a cowslip, a Mayweed, a sycamore, and many other animals and plants.

Local names add to this confusion. For the *Acer pennsylvanicum*, we have : striped-maple, moose-wood, striped-dogwood, false-dogwood, goose-foot maple, and whistle-wood, names given to one tree between the St. Lawrence and the mountains of Georgia. Some of these same names, too, are in turn given to still different trees and shrubs.

The walnuts and hickories are always confounded, and the species of both genera are usually called walnuts, indiscriminately. The fruit of the walnuts, as seen by examining the butternuts, and so called English

walnuts, for sale at our shops and stands, is more or less rough or irregular on the outside. The husk which covers the nut dries and breaks away when ripe, and does not show any lines, as does the husk of the hickories, along which to crack open at maturity.

Our hickory nuts are smooth and mostly angular, and the husks split from the top, along distinct lines, nearly or quite to their place of attachment, as the nuts ripen. In the walnuts, the smaller branches, when cut open lengthwise, show a pithy interior with little papery partitions, while the young branches of the hickories are quite solid and woody to the centre.

Of the walnuts, the butternut (*Juglans cinerea*) is a native of this region. There is a fine tree at the rear of the Pickering mansion on Broad street, rather more than seven feet in circumference, and one at the back of the Nichols estate on Federal street, six feet in circumference at five feet from the ground. There is another on Milk street near Pickman, one in the yard of No. 22 Pleasant street, and one overhanging the yard at the western side of the Silsbee house, No. 380 Essex street, from the Stearns estate.

The black walnut (*Juglans nigra*) is now, unfortunately, represented in Salem only by comparatively small trees. There is one at No. 13 Norman street, several young trees at the rear of the Brookhouse lot on Lynde street, and a tree in the yard of No. 9 1-2 Creek street.

The largest black walnut in this vicinity is on the grounds of Mr. F. W. Chever in Saugus. It is near the street, a few rods north of the soldiers' monument. The tree, which is in an excellent state of preservation, has a trunk circumference of thirteen feet at five

feet from the ground. This tree is said to be very old, and to have been brought from England, and hence it is supposed by most persons to be the so called English walnut. It is, therefore, an excellent illustration of the re-importation of American trees to America. The black walnut was one of the first American trees to attract attention in Europe.

The fine black walnut, perhaps fifty or sixty feet high, with a trunk three feet in diameter, cut down on the Dr. Treadwell estate when Mr. Eaton built his new house on North street, is represented by a section of its trunk in the museum of the Peabody Academy. As this tree was known to be seventy-two years old when felled, and was about nine feet in circumference at five feet from the ground, the rate of growth was 1.50 inches each year. Assuming a largely decreasing rate of growth after this age, a tree thirteen feet in circumference ought to be at least two hundred and sixteen years old, a fair estimate for the age of the Saugus tree, although tradition makes it older. It is, therefore, quite among the possibilities that Cotton Mather could have stopped to rest beneath the shade of the Cheever walnut on his way, on horseback, from Boston, to witness the witchcraft executions on Gallows Hill, in Salem, in 1692.

Another large black walnut was cut down when Mr. Richard Harrington built his house on Federal street. There are several large black walnuts in the neighborhood of Newburyport. The tree grows naturally throughout the central United States.

The English walnut (*Juglans regia*) is a native of Persia, but it has been cultivated in England for over three hundred years. It is not perfectly hardy here.

There are fruiting trees in Mrs. Chase's garden, No. 69 Lafayette street, in Mrs. K. T. Woods' garden on North street, in the garden in the rear of Dr. T. L. Perkins' private hospital on Federal street, and in the yard of Mr. G. P. Bray at 109 Bridge street.

On Lynde street, in the yard of Mr. S. W. Gardner's house, No. 4, at the rear of the new Odell Building, is a curious hybrid walnut, intermediate in character between the English and black walnuts. Although it is claimed that this tree and the one in Mr. Bray's yard were planted by the same person, and were supposed to be the same species, others dispute the claim. However this may be, the trees are not the same. The Lynde street tree is a hybrid walnut (*Juglans vilmoriniana*) which appears to have originated independently in several places. The tree which was first named is in the garden of M. Vilmorin, at Verriers near Paris, France, where, in accordance with a pretty French custom, it was planted by the grandfather of the present proprietor, a seedling tree, to commemorate the birth of a child. This tree is now about seventy-five years old. A picture and description of it will be found in "Garden and Forest" on Feb. 4th, 1891, at page 51. It is said that there are several hybrid walnuts in this country, in Virginia, and I think elsewhere.

A fine tree of this variety, now unfortunately cut down, on the Ben : Perley Poor estate in Newbury, it is said, came from Virginia stock. This was, so far as can be ascertained, the only other representative of this hybrid walnut in Essex County. The nuts of the Lynde street tree are generally imperfect, yet the tree is of good form and has fine foliage, although it is now somewhat restricted by the walls of the new building.

It is to be sincerely hoped that this unique specimen of hybrid walnut, which is now about sixty-five years old, may be allowed to live its life out and long serve as a good illustration of a tree not to be seen in its perfect state, perhaps, for hundreds of miles around.

The trees thus far named in this sketch are all walnuts, trees which grow throughout the temperate zone in almost every land. The hickory, however, is purely an American production. No hickory is known as a native of any other part of the world than the southern half of North America.

If those who are searching for a national emblematical plant, desire something absolutely American, a plant almost solely confined to the United States at that, they cannot do better than to take up with the hickory. But a friend suggests that, possibly, the recollection of "old hickory" may lead the discussions of the floral emblem into party controversies, and that those good Republicans now living who were ultra Whigs of an older time, might think the hickory too Jacksonian.

Of the hickories, eight species of which are natives of the eastern United States, we have the shag-bark (*Carya alba*), often called square walnut. It produces the best nut for table use among our hickories, and the tree may be at once distinguished by the curiously rifted bark which, if undisturbed on old trees, stands out from the trunk in every direction.

There are several shag-barks on Brimble avenue Beverly, at Gardner's farm in North Salem, and at the Loring farm. There is one by the pond near the entrance of Harmony Grove cemetery, one in "Paradise," on Mason street, and many at Kernwood. There are very fine trees at Boxford, Topsfield, and along

the Merrimac valley. A fine example of the shag-bark is given in "Typical Elms and Other Trees." The picture is of a tree in Topsfield.

The pig-nut (*Carya porcina*) grows at Harmony Grove, just beyond the receiving tomb, on the left; at "Paradise" on Mason street; at the Loring farm; the grove in South Salem; and there is a single tree on the western side of Park avenue, near the corner of Ocean avenue. The bark of this species is close and resembles that of an ash. The fruit on typical trees is pear shaped and smaller than that of the shag-bark.

The mocker-nut (*Carya tomentosa*) resembles the pig-nut somewhat, but the young leaves and stems are covered with downy hairs, and there are many more leaflets on each leaf, giving the tree a heavier appearance. It has been found sparingly in Danvers by Mr. J. H. Sears, who is very familiar with the woods in that region. The mocker-nut is common enough at the south of us, beyond Boston. Mr. Robert Manning has a tree in his garden which produced fruit in ten years from the planting of the nut.

The trees in the row along the wall separating the land of Mr. Almy and others from the Hemmenway property, are nearly all bitter-nut hickories (*Carya amara*). Some of the trees are nearly nine feet in circumference and it may be hoped that they will be preserved, as the species is rare in this neighborhood and the trees in this row are unusually large. They are not likely to be broken by nut collectors as the fruit is considered worthless.

The bitter-nut hickory is quite common in the north-western part of the county, and grows along North street, in Danvers, and in Topsfield. The foliage is finer than that of any other of our hickories.

In addition to these there is a tree, frequently found, intermediate in appearance between the^a pig-nut and shag-bark. The bark is rough but does not flake off, the leaves are quite resinously fragrant, and the fruit, although not so large as that of the shag-bark, is not pear-shaped like that of the pig-nut. This would seem to be a quite common natural hybrid hickory. There is a very fine tree of this variety at Kernwood, nearly seventy feet high, not far from the residence of Mr. J. E. Peabody.

One of the most favorable places to study the hickories is at Kernwood. When Col. Francis Peabody selected and improved that estate, half a century ago, with rare good judgment he took care to preserve the large number of hickories and oaks natural to the soil. They have remained undisturbed to the present time; and, being long-lived trees, the majority of them are likely to continue to improve in appearance, and to grow larger for many years to come. A natural growth of hickories of the size of those at Kernwood, well cared for during this length of time, is very rare in this region. The demand for hickory lumber is rapidly reducing the supply of large trees, for the species is confined to a limited region in North America. This collection will, therefore, before long, possess a scientific and economic value greater than that of almost any other group of trees in the neighborhood. It is certainly to be hoped that the same conditions which have preserved these trees for the past fifty years will act potently to preserve them for a century to come.

JULY TWENTY-EIGHTH.

XI.

THE BIRCHES, HORNBEAMS, CHESTNUT AND BEECH.

It would seem that the planting of trees in our streets was formerly done more by private individuals than now. It is the present tendency of the times to have affairs in general, which were formerly conducted by private enterprise, placed in the hands of city governments, and the planting of our shade trees forms no exception to this rule. Theoretically, this would be of great advantage. A city forester, skilled in his profession, would be supposed to have the entire charge of the department and control of all the trees, his work and expenditures being regulated by a committee of the city government or an outside board appointed for the purpose. Such an arrangement would insure the planting of suitable trees, and prevent the irregularities which now mar our streets, where all sorts of trees are planted in such a manner, and at such distances apart, as fancy dictates. Under a systematic management, entire streets would be planted with trees of one sort and of the same size, with here and there groups or single trees of other species whose effect would be most suitable for special situations.

Then, too, we should avoid the exceedingly unfortunate, not to say exasperating state of affairs, where one city committee, with the very best intentions in the world, sends its agents about the streets planting young trees and judiciously trimming old ones and protecting

them from injury and decay, while another department, or perhaps still worse, an outside corporation armed with a blanket authority from the Aldermen, is going about, often in the night time, lopping off branches and tearing our trees in every direction, to accommodate poles and insignificant little wires, which in most cases should be made to accommodate themselves to the trees. Practice, however, in cases like these, fails to conform to theory.

In the old days, when citizens were requested by the town authorities to plant shade trees, there appears to have been much local interest in the subject, as the articles recalled by Mr. Foote, in the columns of the Gazette some fifty years ago, testify. There are certain streets which owe all the fame they now possess to the good judgment and public spirit of private citizens. The beauty of Dearborn street, and the park-like character of its terminus and Felt street, are due to the private enterprise of such men as Messrs. Pickering Dodge, James Upton, Robert Manning, John C. Lee, John Bertram and Charles A. Ropes.* Lafayette street originated in the brains of the Derbys, and the

* It is our impression that Mr. Pickering Dodge, who was the original owner of what is now the Emmerton property at the foot of Dearborn street, gave the elm trees that were planted between the North bridge and Dearborn street, and we are informed that the late James Clark set them out. These trees grew to a large size, and eventually formed a beautiful natural archway, but they were destroyed when the street was widened. The fine maples in front of the estate of the late Ephraim Woods were planted by Mr. Woods, who was a nurseryman. He also later set out the trees above his house, at least as far as the Liberty hill road, if not beyond; but it is our impression that a part of this was done either under the auspices of the city, which had at that time begun to give attention to the subject, or by the combined effort of the neighborhood. At any rate, public attention had begun to be awakened upon the subject at about that time.—[Eds. Gazette.]

dignity and beauty of Chestnut street indicate the minds, mostly broadened by foreign travel, of the men who returned to Salem to build beautiful homes. As a more recent illustration, certain portions of Bridge street, and the streets turning from it towards Collins Cove, would to-day be uninteresting, hot and dusty had not our venerable bank officer and botanist, Mr. George D. Phippen, made them beautiful by planting trees in them at his own expense. And all these men who were amateur scientists, horticulturists, and lovers of flowers and nature, are nearly all men noted for their enterprise and success in business pursuits. They have been in fact our really "practical men."

The birches are trees which are not generally seen in our streets, but are more appropriately planted in yards and larger grounds.

The black or sweet birch (*Betula lenta*) grows in Danvers, and more abundantly in the northern portions of the county than in the southern.

The yellow birch (*Betula lutea*), with its dingy yellowish white and ever peeling bark, is frequently found on the outskirts of the city. There are several trees by the roadside in the low ground before reaching the "floating bridge" on the turnpike, and a number of trees may be seen in the grounds of the estates opposite Pride's Crossing, Beverly. It also grows along Brimble avenue, Beverly, and larger trees are found in the woods on the road from Manchester to Essex.

The common white birch, or gray birch as it is sometimes called (*Betula populifolia*), is a graceful but never large tree, everywhere met with in pastures and by roadsides, the first tree to follow the general clearing up of woodlands, or a fire. A very pretty row of

these trees grows along the walls of the fields at the northeast of the reservoir of the Salem water works in Beverly.

The paper birch (*Betula papyrifera*) is considered a rare tree in southern New England, for our county is about the limit of its distribution in this direction. It grows naturally in our "great pastures," at Naugus Head, around Wenham pond, Suntaug lake, Lynnfield, and more abundantly at North Andover and Georgetown. The only paper birch in our city streets is a fine specimen at No. 4 Arabella street, planted by Mr. G. D. Phippen many years ago. This is the tree which, growing at the north to great size, furnishes the birch bark for Indian canoes, and hence the name by which it is sometimes known,—canoe birch.

The European white birch (*Betula alba*) is very closely related to our common white birch, but it has rather smaller leaves with shorter points. There are trees of this species in Mr. Gilbert Streeter's yard, 106 Bridge street, and at Mr. A. W. West's, 12 Chestnut street. It is planted on Felt street and in the Broad street cemetery, the first and third, counting from the east, of a row of trees just at the bend of the roadway south from the High School building.

The weeping birch, often burdened in catalogues with the cumbersome name of "cut-leaved-weeping-white-birch," is probably a variety, of garden origin, of the European white birch. It is a very graceful, but it is thought not to be a long lived tree. There are fine specimens at Mr. J. N. Peterson's, No. 28 Buffum street, at Mr. Chas. Waters', Washington Square, at No. 97 Federal street, at Mr. Geo. Chase's on Lafayette street, and in several other places.

The only other birch likely to be met with in the county is the river or red birch (*Betula nigra*), but one name or the other is certainly a bad one, when *B. nigra* becomes a *red* birch. It is found at the northern end of the great pond in North Andover, at Pentucket pond in Georgetown, and elsewhere in the northwestern portion of the county. This species may be seen in its most beautiful condition at the bridge near Sutton's mills, on the Lawrence branch railroad, where the fine old trees overhang the Shawsheen river as it merges itself in the Merrimac. It is one of our most beautiful birches, and may easily be introduced by ponds and streams in private estates and parks.

Of our two native alders, the speckled alder (*Alnus incana*), is the more tree-like. The other, the smooth alder (*Alnus serrulata*), is always a shrub, in this region at least. Both are very common in low grounds such as may be found along the Salem and Boston turnpike and Brimble avenue in Beverly. The leaves of the speckled alder are more pointed and more coarsely toothed than those of the smooth alder which are broader at the apex and often quite resinous to the touch.

The European alder (*Alnus glutinosa*), with leaves more circular in outline, is occasionally planted in the neighborhood of Boston, but I do not know of any trees of this species around Salem.

The hop hornbeam (*Ostrya virginica*) is a tree which is sure to attract attention in July and August, when the white fruit, resembling the true hop, is conspicuous on the trees. The leaves are somewhat like those of the elm, but smaller, and the tree, which is never very large, has a close fitting yet rough bark. There are

trees on Brimble avenue, Beverly, on the Salem and Boston turnpike, in Swampscott by the line of the horse railroad to Marblehead, on the road from Peabody to Lynnfield, and elsewhere throughout the county. There is a tree in Harmony Grove cemetery near the receiving tomb.

The closely related iron-wood, sometimes called blue beech (*Carpinus caroliniana*), grows at Kernwood and in a wild state in various parts of the county. The bark of this tree is perfectly smooth and the wood very close grained and tough.

The chestnut (*Castanea sativa americana*), is now considered to be a variety of the European tree, and hence the third name signifying this in the botanies. There is a large tree in the rear of the Misses Williams' house on the Marblehead road, a small tree on School street among others near the street, and a fine specimen in the yard at the rear of the house on the southeast corner of Lafayette street and Ocean avenue. Large chestnuts may be seen at the opening of the road into the woods beyond the pumping station at Middleton pond, and near the Henderson place on the Lowell road, Peabody, and there is a typical spreading chestnut tree just over the hill back of the summer residence of Mr. E. F. Balch at Wenham. The fine old chestnuts in the Burley woods give an excellent idea of the appearance of these trees when planted closely. The chestnut grows rapidly and is one of the most beautiful trees in New England. It may possibly have been found growing naturally here in Essex county, as it is mentioned by very early writers as known in this region ; but it is more probable that it was introduced in this immediate neighborhood at an early date by the settlers.

The beech (*Fagus ferruginea*) is not found in our streets. There is a tree on the path by the water at Harmony Grove cemetery. It is not common in this part of the county, but those who frequent the Chebacco woods, or drive to Manchester by the Chebacco house, will remember the fine beeches near the stable, and the grove of young trees at the junction of the road to the lake, and that through the woods. The beech is abundant along the Merrimac river at North Andover and Lawrence.

The European beech (*Fagus sylvatica*) resembles its American relative strongly, as much so, almost, as does the chestnut its American prototype, and it seems rather strange that different specific names should be given them. It is not, however, so fine a tree as the American beech in any respect. There are several by the roadside near the Loring place at Pride's Crossing, and in the Broad street cemetery there is an excellent example of this tree. It is the second in the row of trees previously mentioned, at the south of the High School building.

The copper beech and purple beech are garden varieties of the European beech. There are purple beeches at Mr. Geo. Chase's on Lafayette street, Mr. Robert Manning's on Dearborn street, at Mr. Moses Ruggles' in North Salem, generally known as the Poor estate, at Harmony Grove cemetery, and several other places. The purple beech is undoubtedly one of the most striking and valuable additions to our collections of ornamental trees which the gardener has produced.

The copper beech is well shown in a fine tree in the yard of Mr. Edwin N. Peabody, at No. 41 Summer street.

There is a tree of the weeping or cut-leaved beech, also a variety of the European beech, in Mr. Ruggles' estate in North Salem. The most famous tree in this part of the country, among these garden varieties of the European beech, is the large fern-leaved beech in front of the Redwood Library building, at Newport, R. I.

AUGUST FOURTH.

XII.

THE OAKS.

The trees enumerated in this and the two preceding sketches, as well as those in the one to follow, all belong to a natural group, which Bentham in his British Flora sensibly calls by the simple name of the Catkin Family. The flowers of the trees in this group, or the male flowers at least, are in the form of catkins, either erect as those of the pussy willow or hanging down as the male flowers of the hickories and oaks. Although these flowers are not conspicuous in themselves, they are in the mass quite effective and very graceful.

Our oaks, including the one introduced species which is found in this vicinity, the English oak, are divided into two quite distinct classes,—the white oaks and the black oaks. The leaves of the white oaks have rounded lobes, and the acorns ripen the same season that the flowers are developed upon the new wood. The black oaks, however, require two seasons' growth to ripen their acorns, and their leaves have pointed lobes, usually with a little bristle terminating each lobe. In all of the species of oaks as well as the hickories and walnuts, the male flowers are very conspicuous, while the female flowers, borne on the same tree, are little green objects, often concealed in the axils of the leaves, and hardly noticeable.

The white oak (*Quercus alba*) which gives the name to its class, is a well known tree in Essex County.

There is one not far from the entrance of Harmony Grove Cemetery, on the high land, and another near the Peabody entrance. There are several at Kernwood, two being more than nine feet in circumference around the smallest portion of their trunks. There are a number on Brimble avenue, Beverly, where there are no less than five of our native oaks growing within a short distance. The Burley oaks, on the estate of Mr. G. A. Peabody in Danvers, are the best known white oaks, and as old as any in this region. The tree nearest the house, pictured in "Typical Elms and Other Trees," even after the loss of its longest projecting limb, which formerly extended a distance of seventy-five feet from the trunk, still shades a space eighty five feet in diameter. The trunk is about twelve feet in circumference.

The tree which most closely resembles the white oak, is the English oak (*Quercus robur*), of which the variety (*pedunculata*) having long stems to the acorns and leaves closely attached to the branches, appears to be the only form cultivated in Salem. The largest one in the city is on Winthrop street, opposite Prescott, it being more than six feet in circumference at five feet from the ground. There are other trees on Felt street and on the grounds of the Pickering mansion on Broad street. The oaks in the Charter street burying ground and those on Clifton avenue are of this species. This oak seems to have been quite extensively planted in Salem some fifty years ago and more. On the turnpike, by the Fay estate, are seedlings of trees which have sprung from the English oaks, among the other trees in that extensive plantation.

This variety is natural to southern England, and if

the northern form (*sessiliflora*) should be cultivated here, it might, possibly, prove a better tree for our climate.

The swamp white oak (*Quercus bicolor*) grows in the meadows by the bridges over the Ipswich river at Topsfield, and at the North Beverly end of Brimble avenue. There is a tree, one of the finest in Essex County before its lower limbs were cut to make room for a small dwelling house, in the yard of No. 31 Cabot street. It is to be regretted that so fine a tree, so far as known the only one in the city proper, and so near the street, could not have been carefully preserved. It had for years been a conspicuous object as seen from the trains passing over the mill pond tracks. The Pickering mansion, on Broad street, is said to have been framed from swamp white oaks growing upon the estate in 1651.

These are all of the species of the white oak class found here except the chinquapin oak (*Quercus prinoides*) which grows naturally at Topsfield and Boxford and other towns in that part of the county. This oak, however, is a shrub rarely more than six or eight feet in height.

The red oak (*Quercus rubra*) is one of our commonest forest trees. There is a fine young tree at No. 26 Norman street, and larger ones on the hill by Clifton avenue. There are several large trees at Harmony Grove cemetery, in the open space where spare stones are usually thrown in the older part of the grounds, and there are others near the receiving tomb. The largest red oak in Salem is at Kernwood, a little to the west of the residence of Mr. J. E. Peabody. It is more than twelve feet in circumference.

The scarlet oak (*Quercus coccinea*) has the most finely dissected foliage of any of our oaks. It grows at Peabody, Danvers, Topsfield, Brimble avenue, Beverly and elsewhere in the county. The sign "Dell Avenue," in Harmony Grove Cemetery, is attached to a scarlet oak.

The black oak (*Quercus tinctoria*) is intermediate in appearance between the red and scarlet oaks. It is common in our woods, and grows with the other oaks along Brimble avenue, Beverly. The only remaining oak on Oak street, appears to be a large black oak, and there are others at Harmony Grove near the red oaks, and in the grove beyond Clifton avenue. This is the oak whose bark is most largely used in tanning, and the inner bark yields the valuable yellow dye.

The only specimens I have noticed in this region, of the pin oak, or swamp Spanish oak, as it is sometimes called, (*Quercus palustris*), a tree very abundant in southern New England and New Jersey, are two trees on the Heard estate in Ipswich. They are just within the grounds on the street which passes at the rear of the estate. This tree has a graceful habit, and should be planted more than it is, for it would be a very desirable addition to lawns and parks.

The scrub, or bear oak, (*Quercus ilicifolia*) sometimes attains the size of a tree, although it is generally seen in dense shrubby masses by the roadside. It grows in poor gravelly soil and forms the bulk of the vegetation along the roadsides in parts of Peabody, Lynnfield, Boxford and other towns. This closes the list of the trees of the black oak class found in this neighborhood.

Why it is that the oaks are not more frequently used as street and ornamental trees, and for lawns and yards,

is a mystery. They are beautiful and wholesome trees, and are easily cultivated. The red oak is a comparatively rapid growing tree, and so are the black, scarlet and pin oaks. Wherever they have been planted they have invariably proved satisfactory.

The white oak is undoubtedly our most venerable tree. It is not, however, a rapid grower even in its youth. Emerson, after many careful comparisons, places the rate of growth of the white oak as one inch in diameter in five years after the tree is forty years old, with a somewhat greater increase before reaching that age. The largest white oak which I have known in the county, is in a pasture some distance in the rear of Mr. David Pingree's house in Topsfield. Measured in 1875 and again in 1890, the gain in circumference at five feet from the ground was eight inches. The tree was thirteen feet and seven inches in circumference, at five feet above the ground, when last measured.

Working with these figures, and making a proper allowance for a more rapid growth during the first fifty years of its life, the tree is made out to be two hundred and eighty-two years old. Taking Emerson's estimate and applying his rule for white oaks to this tree, it would be two hundred and fifty-eight years old. This last estimate may be the most nearly correct, for the difference in circumference in the measurements of this tree only shows its growth in extreme old age and is less, without doubt, than during any similar period of its life.

Averaging these figures, the tree would be two hundred and seventy years old in 1890, the fairest estimate of its age with available data. In this case the acorn from which this tree has grown germinated the very

year that the Pilgrims landed on Plymouth Rock. It was a sapling when the town of Topsfield was settled, a large and vigorous tree when the farmers around it answered the call to arms in the war of the revolution, and it has been spared from the axe to see this country from small beginnings become inhabited by sixty millions of people. A wonderful existence truly; not a fancy picture but the story of the actual life of one tree.

One of the five Francis Curtis oaks in Boxford—trees averaging twelve feet in circumference—recently cut down, gave evidence, by its rings of annual growth, of being one hundred and seventy-five years old.

A tree cut many years ago on Miss Susan Putnam's land, in Danvers, and which at that time was as large as any white oak in the county, showed two hundred and ten annual rings of growth, as counted by Mr. Sears at the time. These figures corroborate what has been said previously in these sketches, that there is probably not a tree in Essex County over three hundred years old. These estimates are farther corroborated by the fact that when shipbuilding was at its height along our coast, every merchantable oak, capable of producing ships' knees or stern posts, was cut and sold for this purpose, and it is only since the decline of shipbuilding that white oaks have been allowed to stand beyond their prime.

Nor is it reasonable to expect that these trees should not be cut. As a matter of business the farmer must sell his trees as well as his potatoes or his hay. A tree is ripe for the axe at a certain time, and unless it is preserved for its value as an ornament to an estate, it should be harvested. We should encourage the art of forestry here in New England and look upon our

woodlands as we do upon our fields, to be worked to produce the best crops to be sold at the best prices. When this is done there will oftentimes be more value in the wood lot than in the open land of the farm. Certain trees are especially adapted to succeed in New England. The woods of many of these trees are bound to be in demand by another generation for mechanical purposes and the arts. By encouraging the growth of such trees as the butternut, chestnut, hickory, and certain oaks and pines, and gradually causing these species to take the places of the less desirable trees in our woodlands, we shall add a direct value to our farms every year and have, when ready for the axe, a crop which will sell for other purposes than mere firewood.

If we are to have fine specimens of our trees for ornament and as examples for study and for enjoyment, we must look to it that the proper trees are planted in our streets, gardens and parks; and when planted that they are well cared for. And the parks themselves are in most cases yet to be established. Not only the little city squares and pleasure grounds for flying horses and fandangoes, but great restful forests, such as our fortunate neighbor Lynn has had the great wisdom to secure for its citizens' welfare for all time.* It is in such parks as these and in the private grounds of wealthy men of cultivation, who, fortunately for the

* Since this was written, the death has been recorded of Mr. Cyrus M. Tracy of Lynn. In the press notices of the event, it has been stated that to him the public are indebted for the initiatory steps and the enthusiastic appeals which led to the establishment of the Lynn Public Forest; and he has very properly been called the "Father of the Forest". He was a quiet, modest man, not possessed of vigorous health, nor had he the means at his command to further any schemes, or even to enable him to devote himself entirely to his favorite study of na-

good of the general public, are now establishing country homes and beautifying the grounds around them more and more every year in Essex County, that we must in the future look for the most noble examples of our trees.

AUGUST ELEVENTH.

tural history. But, a charming writer and pleasant speaker, persistently working for the object he so much desired to attain, he accomplished more for his fellow citizens, and there is more cause that he should ever be gratefully remembered by mankind, than hundreds of the world's famous men, whose individuality has forced itself upon public attention for conspicuous acts which are far less beneficent than his. His name should in some way be associated with the forest park he did so much to secure for his city.

XIII.

THE WILLOWS AND POPLARS.

The establishment of a board of trustees for the purpose of holding, by gift and purchase, spots of natural beauty and historic interest in Massachusetts, and for receiving funds for preserving them for the benefit of future generations, is one of the most important enactments of our legislature for the public good. Cities and towns, and societies, and public-spirited citizens, have done much already in this direction ; but, by the concerted action of influential persons throughout the State, attention will be more generally called to these matters, and we may hope to have more spots of scenic interest and more of the rare trees and fine sections of forest preserved for public uses, than it was possible to do before any organized attempt was made for this purpose.

We have been accustomed for years to wander at will in the woods, and over fields and seashore, without for a moment considering that the ground under our feet was private property, and that in the eyes of the law we were trespassers. But as wealth has increased, the natural desire for country and seashore residences has come with it, and we are beginning to realize that the day is not far distant when every fine hill, shady nook and ocean headland will be in private hands, unless secured before it is too late for public use.

The Essex Institute has for many years owned the famous "Ship Rock" in Peabody, otherwise this most interesting boulder, the largest in this region, would long ago have been blasted into foundation stones. This is one of the earlier efforts to preserve a natural object of interest. The fortunate possession of the larger portion of the "Neck" by the city of Salem, has saved for public use one of the few fine rocky headlands, between New York City and Eastport, Maine, and near any considerable cities, which the citizens can claim for their own, and from which they cannot be shut off by the fences of private owners, or to which an admission fee cannot be demanded by some money making corporation.

The white willow of Europe (*Salix alba*), the tree which has given the name to our but recently appreciated marine park, is an illustration of the trees brought to this country at the time of the settlements, which have made themselves so thoroughly at home as to appear to be natives of the region. It is the ordinary willow which we see by roadsides and watery grounds everywhere in the county. We are probably indebted to Mr. Israel Williams, Selectman and Chairman of the Board of Health at the opening of the century, for *the* "Willows." Tradition says he originated the plan for planting them as a shade for the patients at the hospital on the point, and a memorandum of the records handed me by his grandson, Mr. T. D. Williams, fixes the date of the planting of these trees with unusual exactness. The Board of Health was established through petition to the General Court in 1799. On April 11, 1801, it was voted by this body to set out forty trees. On May 11, of the same

year, it was reported by the Board that the trees had been planted. There are to-day, nineteen of these trees remaining, varying in circumference at five feet from the ground, from seven feet and nine inches to ten feet and ten inches, the average circumference of all of the trees being nine feet and six inches.

There are also many young white willows, perhaps twenty-five feet high, and in a fine healthy condition, in the private grounds of the Naumkeag Street Railway, planted at the time the road was extended to this point. They are behind the high fence beyond which few persons penetrate. Could that architectural monstrosity, the "Siege of Paris" building, be torn down, the long bowling alley removed to the rear of the lot, the high fences taken away, and the grounds laid out to correspond with those at the north of the main roadway, which was so judiciously done at the time of the removal of the row of restaurants by the city, the improvement would be immense. We all hope that this may be accomplished some day, either by the street railway or by the city, or by both co-operating, when the additional willows brought to view would make the name of the park even more appropriate than before.

There are several varieties of the white willow, and the trees common hereabouts are no doubt to be placed among these, rather than the type of the species itself. All of the willows have their male and female flowers on separate trees, and hence there is great opportunity for the intermingling of the pollen among the different species, by the bees while seeking honey, and many hybrids and varieties are constantly met with everywhere. Naturally, therefore, willows are among the

most difficult plants to separate into species. As they are generally propagated from time to time by cuttings from one tree, it often happens that entire rows of the European willows, as we see them by the roadside, or all of the willows in a district, it may be, are confined to one sex. I think that all of the old trees at the Willows are males. The tall willow at the parting of the Swampscott road on the turnpike, is a golden twigged willow, a variety (*vitellina*) of the white willow. It is, I believe, a female tree. The sexes of the willows can be determined in the spring and at that time only. The male flowers show golden yellow pollen on the catkins, while the female flowers are simply light green or whitish. There is an immense white willow at the Israel Putnam birthplace in Danvers, the largest in circumference which I remember, and Mr. C. A. Putnam measured a tree on the road from Newburyport to Amesbury, by the ship yards, which was over six feet in diameter. The trunk of this tree continues about the same size for many feet, an unusual thing for these willows, as they are generally pollarded a few feet from the ground, producing in time the grotesque old trunks, bearing fresh heads of foliage, as we commonly see them.

The brittle or crack willow (*Salix fragilis*), so called on account of the ease with which the twigs may be broken from the tree, a characteristic of many of the willows, is not commonly met with in this region. The willows on Park avenue, at the rear of the Derby mansion, appear to belong to this species, and they answer to the botanical descriptions of them in the English works. This is one of the European willows which have been long cultivated, especially in the

neighborhood of Boston. The leaves are somewhat longer and broader than those of the white willow, and, instead of having a slight hairiness on the under side, they are smooth and bluish white.

But the innumerable crosses among these willows and even with some of our native shrubby species, make it next to impossible to give satisfactory names to many of the willows met with in the older settled portions of the country, where these trees have been growing and reproducing for two centuries or more.

The weeping willow (*Salix babylonica*), although not a perfectly hardy tree in this climate, is often seen in a beautiful condition. There is one particularly fine but not very large tree in the Broad street cemetery ; in fact one learns to expect this tree in burial grounds and church yards, so long has it been associated with such places. There was a large weeping willow in the southwestern angle of the tower of St. Peter's church, said originally to have been a cutting from the tree at the tomb of Napoleon at St. Helena.

The only native tree-like willow we have in the county, although some of our shrubby species become trees in other portions of the United States, is the black willow (*Salix nigra*), the scythe-leaved form of which is common along streams and around ponds. There is a tree on our water-works road in Beverly, in the low ground at the foot of the hill, a few rods south of the watering trough, and there are some fine specimens, perhaps twenty-five feet in height, close to the stone bridge over the Ipswich river, at Topsfield.

The shrubby pussy willow (*Salix discolor*), the earliest of our willows to put forth its catkins in the spring, is common in low places by the roadsides.

The shining willow (*Salix lucida*) grows by the first pond on the Chebacco avenue, and with the silky willow (*Salix sericea*) by the brook on the Burley farm, Danvers, on North street Danvers, and at Topsfield, and in other places. The usually low growing willow, with very beautiful golden yellow male flowers, seems to have no common name. It is the *Salix rostrata* of the botanists. The basket osier (*Salix viminalis*) and the purple willow (*Salix purpurea*) are both occasionally grown for commercial purposes, originally from imported European plants. There are purple willows by the roadside on the turnpike near the glue factory, and at Swampscott near the railroad bridges.

There are several more shrubby willows in the county, but it seems hardly the place to describe them here. On many of the willows cones are often seen, especially noticeable after the leaves have fallen; these are the results of the stings of insects at the ends of young growing branches, and are in reality leaves, which, being arrested in their growth, have been crowded into a mass in the form of a pine or spruce cone. When opened early in the season the grub of the fly will be found inside.

Our smallest willow, which flowers when scarcely more than six inches high, is found in the cold bogs, in Boxford, the Andovers and other of the northern towns of the county. It is the *Salix myrtilloides*. But the extreme is reached in minuteness in the little alpine willow, *Salix herbacea*, of the White Mountains, of which perfect flowering specimens may be found, not larger than a single leaf of the great Putnam willow of Danvers.

A fine, tall growing shrubby willow (*Salix caprea*)

from Europe, with large erect catkins developing very early in the spring, has appeared mysteriously in gardens and yards, often to the surprise of the owners themselves. It is the result of the rapid growth of vigorous shoots from the roots or stock upon which the absurd little umbrella-shaped "Kilmarnock" willows, we so often see in yards about the city, are grafted. It is a much finer plant in every way for ornament, and one much prized just now for its early "pussies," and the loss of the little umbrella is therefore quite a gain.

The American aspen (*Populus tremuloides*) grows on the road at the north of Wenham pond and frequently in Danvers, Topsfield and elsewhere. This and the large toothed aspen (*Populus grandidentata*) and the European white poplar (*Populus alba*) have the stems of their leaves flattened in the opposite direction to that of the blade of the leaf. This accounts for the rapid motion of the leaves of these trees even with the slightest breath of wind. There is a large toothed aspen planted at the rear of Plummer Hall, and a natural group of them on the western side of the road turning from the turnpike to Swampscott.

The white poplar, a common tree introduced from Europe, rapidly grows to large size. There is a tree about sixty years old at Mr. Robert Manning's on Dearborn street, one on Pearl street, near Bridge, and another, over eleven feet in circumference, before the old Forrester house, No. 120 Derby street, near Curtis.

The Balm of Gilead (*Populus balsamifera candicans*), only known in the female state, is a variety of a native northern poplar. There are trees on Lafayette street,

near Porter, at the foot of Conant street, on Derby street near Phillips wharf, and in many other places. The largest Balm of Gilead in this neighborhood was in the yard of the old Silsbee house on Daniels street. It was more than fourteen feet in circumference, but the storms broke its limbs and most of the tree has been cut away.

The stiff Lombardy Poplar (*Populus dilatata*) once grown everywhere, is now but rarely seen except in a state of decay. Our Common was originally planted with these trees in 1802 from nurseries on the northern side, in the vicinity of Winter street. But, fifteen years later, the trees were found to be of little value for ornament and they were replaced by elms. There are wrecks of Lombardy poplars on Loring avenue, beyond the Marblehead branch railroad crossing, near the Willows, and on the Newburyport turnpike in various places. There are two trees on Davis street, Beverly, and one near the railroad, back of Bridge street. The fancy for these trees has revived of late, and many have been planted at Revere beach and in Beverly. Possibly they may do better in sandy soil, but it is doubtful if the experiment is successful.

The finest of the genus, the necklace poplar (*Populus monilifera*) a native of the western part of this State and a common street tree in New Jersey and in Philadelphia, is rarely seen here. There are two magnificent specimens on Boston common, in the low ground at the south of the soldiers' monument. It has been planted near some of the new summer residences at Marblehead, where the young trees already make a fine appearance. The persistent planting of the Balm of Gilead, the white and the Lombardy poplars, and the

total neglect of the fine necklace poplar, is one of the curious anomalies in tree culture in this region.

The willows and poplars are well known to be among the trees most easily reproduced from cuttings, in striking contrast to such trees as the oaks, hickories and elms. So readily do willow branches take root, that we often hear of trees said to have grown from willow canes cut for use on some walk and left, thrust into the ground, when no longer needed. About ponds and along the rivers the willows are especially abundant, even the introduced species. This no doubt arises from the growth of branches broken off during the storms of winter, which are washed about and half covered with soil in the spring, when they at once become rooted and soon form trees.

AUGUST EIGHTEENTH.

XIV.

THE PINES, SPRUCES, FIR AND HEMLOCK.

All of the trees so far considered in these sketches are, in the botanical classification, found among the exogens. They have broad leaves with netted veins, and true flowers from which seeds are produced. The gymnosperms, however, although the manner of the growth of their wood is the same, do not bear flowers which can be termed perfect. Their flowers have a relationship to the so-called fructification of the ferns and club-mosses, and their leaves in most instances, at least, are needle-shaped and remain upon the tree through more than one season. Another striking feature of the class is, unless suffering from some injury, the trees have a leading shoot ever growing upward, and even if cut off, this shoot will often be replaced by the up-turning of a side shoot. The effect of this habit is to produce trees which grow in the form of a spire in their natural state. The fruit of the gymnosperms is usually a cone, and hence the name conifers, which is often given to this class of plants. But some of the plants in this class bear berries, and some nut-like fruits; yet even these seemingly different forms have a botanical relationship with the cones of the pines and spruces. The name evergreen is often applied to the coniferous trees, but it is unsuitable; for larches, the bald cypress and the ginkgo tree shed their leaves in the autumn, and we have besides, common plants,

such as the laurel, the box tree and the ink-berry, which are evergreen and which do not belong to this class.

Most of the pines, including all which grow hereabouts, require two years to ripen their seeds. The flowers are of two sorts borne on the same tree. The male flowers are generally on the lower branches of the tree and they produce the pollen in great masses, which is swept away far and near by the wind. It is this wind-borne pollen which, drifting into little piles and floating on ponds and streams, often at great distances from the pine forests, is popularly known as sulphur showers.

The female flowers are usually at the top of the pine trees. They stand erect until fertilized by the pollen which must be blown upon them. They then turn down, growing but very slightly until the spring of the next year. Their development after this is quite rapid; and the seeds, of which two are hidden beneath each perfect scale of the cone, are usually ripened by the middle of September. This method of flowering and producing fruit is essentially the same in all of the species of plants of the class to which the pine belongs.

Our white pine (*Pinus strobus*) is the finest among the pines of this region. It forms the larger portion of the coniferous woods in the county and is hardly equalled in economic value by any other pine. The tall tree among the other trees in the grounds of the old Derby estate on Lafayette street is a white pine; but, of course, this specimen does not do justice to the species. The largest pines in the county were cut, so I understand, in Georgetown a few years ago. There were but few of these trees and they were not far from

twelve feet in circumference, retaining this measurement for a distance of some thirty feet up their trunks. There is an immense pine, with a trunk circumference quite as great, now on the land near the Hooper farm in Boxford; but its leading shoot was injured when young and the tree has in consequence produced three distinct heads. It is a very imposing tree, however, to stand beneath, and it is well worth a tramp to inspect it. This pine is pictured in "Typical Elms and Other Trees." There are some exceedingly characteristic white pines, although not large trees, on the Pickman estate, Beverly, in the grounds near Hale street, and there are fine white pines on the roadside near the Saltonstall and Ives estates in Lynnfield, within sight of the pond and not far from the hotel.

Such white pines, more than two hundred and fifty feet high and six feet in diameter, as are recorded by Emerson as growing in New Hampshire and Maine, will probably never be seen in New England again; and, in Essex county, it is doubtful if pines will ever be allowed to attain the dimensions of those lately cut in Georgetown. The age of the Georgetown pines could not have been much more than one hundred and twenty-five years when they were felled, for one of the largest trees, cut some years ago, showed about that number of rings of annual growth, when counted by Mr. Sears at the time. It would be safe to say that the Boxford pine is about the same age. The tall pine near the house at the "Donation Farm," as it is sometimes called,—the Treadwell estate at Topsfield, belonging to the Essex Agricultural Society,—is about one hundred years old. Aged persons living thirty years ago remembered both the

Georgetown pines when they were too small for timber, and the Topsfield pine at the time planted.

There are some fifty white pines in a grove on the same farm, which, I am told by Mr. John Gould, the town clerk and local historian of Topsfield, were planted by Mr. Enos Easty in 1830. They are on the easterly side of the Newburyport turnpike road and many of the trees are nearly seven feet in circumference at five feet above the ground. The average girth would be about six feet for all of the trees.

There are some curious local names given to pines in Essex County. A "bulled pine" is one, as well as can be ascertained, which, when young, has been injured by cattle browsing in the field where it grew, thus causing the tree to produce an irregular head and become otherwise mis-shapen. Of this sort the great Boxford pine is a mammoth example. A "pumpkin pine" (pronounced punkin) seems to be applied to trees which, growing under certain conditions, have produced a soft wood easily cut and carved, after the nature of the flesh of the pumpkin.

The trees in the most northerly of the two groves on the border of Wenham pond, on the westerly side of the road near the Waters estate, are nearly all white pines. The trees in the more southerly grove, however, are almost exclusively of the pitch pine (*Pinus rigida*). This tree is in no way so valuable as the white pine, still it can be made to grow where many trees would fail to endure. This pine is abundant on the road to Swampscott leading from the turnpike.

The red pine (*Pinus resinosa*) is a beautiful tree when growing naturally, as it may be seen in Boxford near the swamp beyond Crooked pond. There are

two red pines in the Broad street cemetery, near the Summer street gate, at the right of the path. This tree is sometimes called Norway pine, a very misleading name.

Our native pines may be distinguished by counting the leaves in each little bundle. Those of the white pine are in fives, the pitch pine in threes and those of the red pine in twos.

There is a good specimen of the Austrian pine of Europe (*Pinus laricio austriaca*) in front of Mr. F. R. Kimball's residence on Washington square; there is another in the Howard street cemetery, near Bridge street, and several at Dr. Mack's farm on the hill in North Salem. The leaves are in twos like those of the red pine which the Austrian pine closely resembles.

The Scotch pine (*Pinus sylvestris*) of Europe is grown occasionally in Salem. One may be seen on the turnpike just before reaching the Sutton road on the right, and another on Lynde street, at the rear of the house recently occupied by Rev. Mr. Franks, and there are others at Mr. Robert Manning's and at Mr. Dugan's on Dearborn street. The leaves of this pine also are in pairs.

The black spruce (*Picea nigra*) is a native of the county, growing near the Chebacco ponds, in Pine Swamp, Ipswich, and in various parts of the county. It is not an attractive tree. There is a specimen in the yard of Mrs. G. W. Rogers' house, 128 Federal street. A black spruce, just back of the houses on the main street in Wenham, blown down a few years since, measured over six feet in circumference and was more than ninety feet in height. It was planted, together with other trees, by Dr. Kilham, at the early part of this

century. The tree had been a conspicuous landmark for years and its loss is much to be regretted

The white spruce (*Picea alba*) is a finer tree. There are good specimens on the bank before the Waters house at Wenham pond, growing in a position in which it would be hard for most trees to thrive. This tree is occasionally seen in yards in this neighborhood, but most of the trees are small. There is one near the sidewalk at No. 62 Lafayette street. The white spruce grows naturally in northern New England, on the Cliffs at Mount Desert, and at other exposed points on the Maine coast.

The Norway spruce (*Picea excelsa*) from Europe is one of the most frequently planted among the coniferous trees. In favorable situations, and until the trees are about fifty years old, they are graceful and dense, but after that they fail. There are fine examples on the Charles A. Ropes estate and in the grounds at the corner of Felt and Dearborn streets in North Salem, and single trees are growing in many parts of the city. Its habit is more graceful than either of our native spruces.

The balsam fir (*Abies balsamea*) is oftener seen in the country towns than in cities. There is a very tall tree on Lowell street, Peabody, another in a yard at Beaver Brook by the horse car tracks and near the Newburyport turnpike, and there is a tree, but not so large, in Harmony Grove Cemetery near the Peabody entrance. To those who were familiar with this tree and had seen thousands of acres of it growing in New Hampshire and Maine, and knew the contempt in which it is held by owners on account of its uselessness for fuel and mechanical purposes, the fad for "pine pil-

lows" a few years since was amusing. At the time the broken branches were selling in Boston and Salem at fifty and even seventy-five cents by the pound, good sized trees of the same species could be purchased for ten cents, almost anywhere north of Concord, N. H., or Portland, Me.

The hemlock spruce, or hemlock as it is generally called (*Tsuga canadensis*), is our most beautiful cone bearing tree and fortunately still abundant in natural groves. It is a tree which every one knows at sight, for it is perfectly distinct in appearance, even in the distance, from any other tree we have here. The roads through the woods from Pride's Crossing and Montserat are often bordered by hemlocks, in some places growing so thickly as to darken the way even on sunny days. In the city, in several places, this tree has been used for hedges, and there are, besides, single trees at Mr. Dugan's on Dearborn street, at the rear of the Sanders estate on Sewall street, and at "Paradise" on Mason street, but none are large. Spruces may readily be distinguished from firs. The spruces shed their leaves when dried while the scales of their cones adhere together. Firs retain their leaves when dried while the scales of their cones fall off.

The spruces, balsam fir and hemlock, all ripen their fruit from the flowers in one season. Even the Norway spruce requires but one summer to perfect its very large cones; four times the size of those of the red pine, which require two years to come to maturity.

AUGUST TWENTY-FIFTH.

XV.

THE LARCHES, CEDARS, GINKGO AND YEW.

The length of time that coniferous evergreens will retain their leaves varies much and is controlled, not only by the habit of the species, but also by the conditions under which the individual tree may be growing. This applies to all plants which are evergreen as well as to the coniferous species. Rhododendrons, growing naturally in the mountains of North Carolina, in deep soil and a comparatively even temperature, may hold their leaves for seven or eight years; but the same plants removed to our climate and left to care for themselves under unsuitable conditions, with the dry heat of our summers and the drier cold winds of our winters, would not, perhaps retain their leaves more than three or four years, even if the plants themselves did not die.

It is an easy matter to count the nodes of annual growth of evergreens where the leaves are still attached, especially on the coniferous trees, and thus ascertain exactly the number of years the leaves have remained on them. The leaves of the spruces and firs will be found attached to branches several years old, and I have counted those of the Austrian pine back for five seasons. The leaves of the white pine fall in the autumn, at the same time those of the broad-leaved trees are falling; the leaves of one season's growth, however, remaining on the tree through the winter and

until the succeeding autumn. The leaves which we speak of as such are not the only leaves which these trees have, for the true leaves of most of the conifers are represented by little scales, from the axils of which the bundles of longer leaves, the conspicuous leaves of the tree, are produced.

While the spruces and firs usually retain their leaves for a number of seasons, and some of our pines for a shorter period, the white pine at least for but two years, the larches, on the other hand, drop all of their leaves each autumn, but not until they have turned quite a bright yellow, after the manner of the leaves of the maples and hickories.

The American larch (*Larix americana*) or hackmatack, as it is sometimes called, grows naturally in swamps in Essex County. It is found in Wenham in some of the wet depressions among the hills on the road from the meeting-house to Asbury Grove, and it is also frequently met with in the great swamp in Wenham, as well as in the towns of Boxford, Middleton and Ipswich. There are, in Salem, trees of this species at Mrs. George R. Emmerton's on Essex street, at the rear of the stable; in Mr. James Dugan's garden on Dearborn street, and a curiously distorted specimen by "The Studio" at the corner of Summer and Chestnut streets.

The European larch (*Larix europea*) has often been planted for ornament. The leaves are longer and the cones larger than those of the American larch, and the habit of the tree with its drooping branches is much more graceful. There are beautiful specimens planted with the Norway spruces in the grounds near Felt street, and others in the Bertram estate on Dearborn street. These last named trees, together with many

others on the estate, were planted by Mr. Pickering Dodge, who has been previously referred to as contributing greatly to the sylvan adornment of North Salem.

The senior of our physicians, Dr. George A. Perkins, an excellent botanist, and, even in his earlier years having a scientific turn of mind, assisted Mr. Dodge in laying out the grounds and allotting the trees their places. This occurred in 1837, and the doctor has actually lived to be able to walk beneath the shade of these trees for fully one-third of a century,—a good refutation of the assertion that we do not plant trees for our own advantage, but wholly for the benefit of others, as some writers would have us believe.

There are a great number of European larches on the Fay estate near the floating bridge, planted with other trees, as an experiment in economic forestry, by the late Mr. Richard Fay. This plantation has now every appearance of a long standing growth, and has been the subject of papers on forestry and for discussions at public meetings.

The most famous European larches in this neighborhood are those on "Larch Row," in Wenham, and on the estate and before the old house, formerly the farm and residence of Col. Timothy Pickering. The eminent botanist and a grandson of Timothy Pickering, the late Dr. Charles Pickering, informed me that these trees were imported from England in the early part of this century. They were perhaps five feet high and were packed in boxes, and were planted at the time where they now stand. They have remained like sentinels for eighty years, conspicuous in the landscape, and, although now somewhat beyond their prime, they

passed through the great ice storm of January, 1891, sustaining comparatively little injury. A photograph of the trees near the street, made directly afterward by Mr. Benjamin H. Conant of Wenham, is one of the finest pictures taken by any one to show the effects of this storm in our vicinity.

The introduction of the European larch by Col. Pickering was the means of establishing this tree as a favorite in Wenham and its neighborhood, for they are often met with there in yards and gardens, the supply being derived chiefly from seedlings, the offspring of the Pickering larches.

The bald cypress (*Taxodium distichum*) on Broad street, in the yard of the Mansfield house, No. 27, is, so far as I can learn, the most northerly individual of the species growing in New England. The tree is about fifty feet high and is six and one half feet in circumference at five feet from the ground. It was planted about 1840 by Mr. Stephen Driver, a lover of all that was interesting and beautiful in the vegetable world. This tree is now in a perfectly healthy condition. There is a larger but less graceful bald cypress on the Derby estate, near the little pond. It is eleven feet in circumference, and was probably planted about one hundred years ago. This is the tree which, in its natural habitat, the deep swamps of the southern United States, produces those wonderful protuberances from the surface roots known as "knees," the cause and significance of which no one has, as yet, satisfactorily explained. There are two of these trees before the United States mint, and a large and celebrated one in the Bartram garden in Philadelphia. It is occasionally planted for ornament, especially in the southern states. For some unknown reason this tree,

in cultivation, is often thought to be a cedar of Lebanon, and it is possible that unscrupulous dealers have sent it out with that name. Like the larch, the bald cypress sheds its leaves and, besides, the little branches to which they are attached each autumn.

The white cedar (*Chamæcyparis sphæroidea*) inhabits cold swamps in Essex County, usually growing in dense masses. There is such a group by the road at the northern end of Wenham pond, and there are larger trees to be seen just after entering the woods at the northern end of Common street, Beverly. It is found in the swamps between Essex and Manchester, and in Georgetown and many other places. A swamp in Greenland, N. H., is the most northerly station that I have noticed for this tree, but it is said to grow in southern Maine.

Passing northward, at the point where the white cedar ceases to grow, the arbor-vitæ (*Thuja occidentalis*) appears, taking its place throughout Maine and Canada. It is called by the people of the region where it grows white cedar. For this reason endless disputes arise as to which name is the correct one, and which tree is intended when white cedar is mentioned. There are good specimens of the arbor-vitæ in the Summer street and also the Howard street cemeteries, and the tree is often grown for ornament in country yards and for hedges. The bundles of bean poles one sees in the lumber yards of the Messrs. Langmaid and Mr. Fairfield on Derby street, usually with a tuft of green at their tops, are nearly always young, closely grown trees of the arbor-vitæ.

The red cedar (*Juniperus virginiana*) grows from Maine to Oregon and Florida. It is the most widely dis-

tributed of any American tree. With us it is tough and grows slowly, but in Florida it produces the beautifully clear red cedar so familiar to us in the best "A. W. Faber" lead pencils. The tree is rarely found here over thirty feet in height or more than one foot in diameter. It grows everywhere on the hills of Essex county. There is a small tree on Cabot street, and another in the yard at the eastern side of the house of the late John P. Andrews, on Essex street. Mr. J. J. H. Gregory states in "Garden and Forest," that nine red cedars cut in Danvers for posts, and measuring about three feet in circumference at the base, were shown, by counting the rings of annual growth, to average seventy-five years.

The common juniper (*Juniperus communis*), grows in great circular masses in the sterile soil of our hill-sides and pastures. It is sometimes called savin, a name also given to the red cedar, but which properly belongs to the *Juniperus sabina* of Europe, only represented in this country by a prostrate variety, common in northern New England and Canada, and sometimes cultivated in gardens. Our juniper is more attractive to the botanist than to the farmer, and makes a most excellent evergreen for Christmas decorations, as it holds its rigidity and does not shed its leaves as the spruces and hemlock do when dry—and, besides, the owners are only too glad to have it taken away. The berries of this plant, which require two years to ripen, furnish the peculiar flavor to gin, a liquor more popular in Europe than here.

The only specimen of the true English yew (*Taxus baccata*) of which I have any knowledge as growing in Salem, is the tree just inside of the fence at the westerly corner of Hathorne and Broad streets. It was

planted in 1848 by the late Mr. C. M. Richardson, and is now about fifteen feet high, with a trunk six inches in diameter. We have a prostrate yew (*Taxus canadensis*) which closely resembles this, in the deep, cold woods of Essex, Boxford and elsewhere, but it never becomes a tree. The Richardson yew is the same species as the tree associated with so many historical sites in England, and is thought to attain greater age than almost any other tree.

The ginkgo tree (*Ginkgo biloba*) from China, sometimes called the maiden-hair tree on account of the resemblance of its fan-shaped leaves to the leaflets of the maiden-hair fern, is occasionally seen in gardens. Mr. James Dugan has one in his place on Dearborn street, there is another in the garden of the house occupied by Mr. A. H. Warner, No. 77 Lafayette street, and there is a small tree in the rear of the museum of the Peabody Academy. It is interesting as being the only tree we can cultivate here, of this family, which bears broad leaves. They also turn yellow and fall in the autumn. There are a number of ginkgo trees in the Boston Public Garden, and one, probably over seventy years old, on Boston Common. The male and female flowers are borne on separate trees.

The larches bear cones very much like those of the pines and spruces, and the arbor-vitæ bears a cone, although very small. The other trees named in this sketch either bear nut-like fruits, as those of the bald cypress and white cedar, and which may be considered as cones with very dense scales, or a berry-like fruit, as those of the red cedar and yew. The fruit of the yew is bright red, and when ripe, pulpy and pleasant to the taste. There seems to be a difference of opinion as to the wholesomeness of this fruit, and it would be just as

well to avoid eating it, although it is quite tempting. In some places this plant is called ground hemlock.

There are in gardens in Salem a number of trees belonging to the family described in this and the preceding sketch, chiefly of oriental origin and of recent introduction, which have not been mentioned, as they are comparatively rare and would be of special interest only to botanists. Mr. George Chase, of Lafayette street, has given considerable attention to such trees, and an examination of his collection would, no doubt, be allowed to those particularly desiring to do so. Mr. Robert Manning has a number of unusual trees also, and others are scattered over the city. Mrs. John C. Phillips, on the estate at Wenham pond, has the largest collection of coniferous trees in this neighborhood. They are chiefly in economic plantations, and the largest trees are perhaps ten to fifteen feet high. For the botanist, however, the most extensive living collections in the United States, of trees of this class, are available for study,—those of Prof. Charles S. Sargent at Brookline, and Mr. H. H. Hunnewell of Wellesley, whose hospitable gates are ever open to all who are students or lovers of these interesting trees. The student of trees of the next generation will have the benefit of the large collections of the Arnold Arboretum, at West Roxbury, located in the system of Boston's great park scheme. This collection is gradually assuming form; and, although now of great interest on account of the large number of species grown, will, in the course of time, exhibit characteristic living specimens of every tree from every portion of the globe that will endure the climate of New England.

SEPTEMBER FIRST.

XVI.

SUMMARY AND NOTES.

In closing this series of sketches of the trees in the vicinity of Salem, it may be well to add a few notes made on various points as the accounts of the trees were published.

Rather more trees have been recorded than was to be expected at the outset, the additional species, which a careful examination of the trees in the city brought to notice, being chiefly from the western and southern states and foreign countries. Some shrubs, too, belonging to the same families as the trees described, naturally came in for attention.

A fair enumeration of the species and varieties of the trees and shrubs, of which specimens have been definitely located, would make the total number one hundred and fifty, of which fifteen are shrubs. Of the trees, fifty-six are natives of Essex County, thirty-two come from other portions of the United States, chiefly from the Alleghany mountain region, and forty-seven are from foreign countries, either Europe, China or Japan. A few species are also referred to in a general way which are not grown here, or can not be on account of the climate, and these, of course, are not included in the enumeration. Nearly all of the trees described are growing within the geographical limits of Salem, the remainder within the neighboring towns of Essex County. All are accessible to those persons who may desire to study them.

Mrs. Stephen P. Webb, now residing in Brookline, distinctly remembers the great storm of 1815, during which the famous Derby summer house on Castle hill was blown over, and half of the Endicott pear tree in Danvers was torn off. She tells me that many of the trees in the neighborhood of Chestnut street, where she then lived, were uprooted and otherwise injured. A number of these trees were Lombardy poplars. Some standing before the houses of Messrs. Philip Little and Arthur W. West were wrecked at this time; and so it would appear that the elms now standing in the same situations were planted after this storm, which must have had a marked effect upon the older trees in our streets. Mrs. Webb also recalls a row of Lombardy poplars on either side of a walkway leading to the school building which stood back of the estate now occupied by the residence of Dr. O. B. Shreve. These facts show how extensively the Lombardy poplar was planted in Salem during the early portion of the present century, and this storm marks the date of the change from that tree to the American elm as a general favorite for our streets. It will be remembered that the change was made from poplars to elms, on the Common, at this time.

While examining the trees in the city, which has been done with some care, several curious things have been observed, of which some account is not out of place here.

In two or more instances, our common woodbine or Virginia creeper (*Ampelopsis quinquefolia*) has taken complete possession of trees, replacing their entire foliage by its own. There is one such case in the yard of Mr. Walter S. Dickson's house, at the corner of Mason and North streets, where a pear tree appears to be the

victim of the vine's embrace, and in the yard between houses of the Messrs. Phippen, Nos. 118 and 120 Bridge street, a tall spruce supports the graceful creeper. Growing in this manner, the ampelopsis appears to have more brilliant coloring in the autumn, or it may be that the colored leaves show to greater advantage when thus hanging free, than when held against a wall by trellis work. The vine covered tree at the north-west corner of Charter and Liberty street, in Mrs. Chaney's garden, has always seemed to show its coloring to the greatest perfection, and it is one that has annually been admired.

A parasitic plant grows upon and derives its nourishment from the host-plant to which it may be attached, as in the case of the native mistletoe, which grows upon various species of deciduous trees, even as far North as New Jersey. A common parasite here is the dodder (*Cuscuta gronovii*) whose waxy stems and little clustered flowers may be found just at this season on the golden rods and other tall plants in moist fields.

But the street trees act as hosts for other plants than parasites—we cannot with exactness term them epiphytes even, for trees are not the natural home of these plants. Epiphytes are familiar to us in green-houses, and many species of orchids will serve as illustrations. They are attached to trees in their native haunts, but they do not derive their nourishment from the sap of the tree, for they only are lodged upon it for convenience, as a bird might build its nest there to be out of the way of harm.

On Chestnut street, for years, a mountain ash grew in the fork of the branches of an elm in front of Rev. E. B. Willson's house, and another is still growing, I think, on a tree farther down the street.

The old Hubbard elm, at North Andover, has for years supported a currant bush, whose fruit I have gathered, and there is another growing under similar conditions in a tree on Hathorne street. Mr. Browne has noticed a fern growing in an elm on Broad street, and in many of our street trees may be found clumps of grass and occasionally some of our common garden weeds. But one of the oddest of these false epiphytes is to be seen in the fork of one of the elms on Essex street, by the upper gate of the North Church, where two tall stems of a common golden rod have blossomed for a week past, fifteen feet from the ground. Of course these plants simply derive their sustenance from earth and moisture lodged in the tree, precisely as if growing in the gutter or angle on the roof of a house, as "Alice's posies" grew on "The House of the Seven Gables."

Additions might be made to the number of references for many species in the list of trees noticed, but, as it was only intended to cite a few good examples of each tree, it would not be possible to name half of the fine specimens which may be found in our streets and gardens.

It is of course pleasant to find evidence that these sketches have proved of interest to the public generally, and this assurance has been repeatedly given. If they have contributed to the pleasure of the readers of the Gazette, and at the same time awakened interest in the trees themselves, and thus indirectly cause them to be more respected and better cared for, the object of the sketches will have been fully accomplished.

SEPTEMBER EIGHTH.

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