TREES AND SHRUBS
OF NANTUCKET

MABEL AGNES RICE

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DESCRIPTIONS

IDENTIFICATION KEYS

LIST OF TREES AND SHRUBS

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NANTUCKET TREES

The question is often asked: "Was the Island of Nantucket ever forested?" I am not attempting to establish a case for either an affirmative or a negative answer to this question. I have attempted rather to collect data, geological, botanical and historical which refer to Nantucket trees and to present them in sequence as glimpses of the past. Any answer to the question today can be only surmise, but the data collected do indicate a series of changing conditions.

The argument falls into two divisions according to the connotation given the word *ever*, whether it be reckoned by the geologist's time or by man's time on the Island. To a geologist time is very long. He calls 2,000,000,000 years a conservative estimate for the age of the earth.[48] The Great Ice Age of Pleistocene time to which is due so much of the present land contours of Northeastern America was, as it were, a moment in the late afternoon of the whole geologic span.[37]

Here is a page from the history of Nantucket as geologists have compiled it. The Wisconsin stage of the Pleistocene glacier, determined by its moraines, reached its farthest southeast extension across the upper half of what is now Nantucket.[52] Nantucket must then have been merely a low hill on the mainland, for it seems a well-established fact that from late Tertiary times through the Pleistocene age of Quaternary time, the North American continent was bordered by an uplifted coastal plain whose eastern limits were about 100 miles off the present-day shore.[21] Even after the melting of the ice, some 20,000 years ago,[37] the wide coastal plain is believed to have persisted long enough for the development of a climax forest from the Carolinas up to and including Newfoundland. Fernald, in discussing the results of botanical exploration in Nova Scotia, states, "...if there were need of further evidence that, since the Pleistocene glaciation, the continental shelf of

eastern North America has been high in the air, affording an essentially continuous line of migration across the mouth of the Gulf of Maine to Nova Scotia, thence to Newfoundland, the evidence is now abundantly at hand."[13]

Hollick has made calculations for the rate of subsidence during the era of depression which followed. He estimates that "...6000 years ago the area included within the present 20 fathoms line would have been dry land."[21] Since island formation by a subsidence of the coast is not a cataclysmic event like a volcanic upheaval, and since a few thousand years more or less matter little in geologic time tables, we are free to use Hollick's measuring rod of time and estimate that the irregular North Atlantic coast line of today with its bordering islands, Long Island, the Elizabeth Islands, Marthas Vineyard, Nantucket, Mount Desert, and Newfoundland, is presumably not more than 6000 years old.

The above data afford some evidence that there were forests on Nantucket in the long past of geologic time. Nantucket Island may well have been forested as a direct heritage from that post-glacial coastal plain of which it was once a part, but a windswept island offers a hard life for trees. When once reduced or removed, forests would grow again with difficulty. Certainly such stands as the virgin forests of the mainland would seem to be impossible.

Apparently the wind always blows on Nantucket but the summer visitor who enjoys its freshness has little idea of the force of the occasional summer hurricane or of the winter storms. In Starbuck's history the *New Bedford Mercury* quotes a letter from Nantucket of March 9, 1774. It tells of a great gust of wind which, lasting but a minute, destroyed the Brant Point Lighthouse and several shops and barns: "Had it continued 15 minutes more not more than half the buildings in its wake could have stood."[43]

The Nantucket Weather Bureau gives the following figures, corrected for the standard anemometer. "Nov. 27, 1898, NE, a maximum wind velocity of 62 MPH; an extreme of 69 MPH. January 24, 1908, NE, a maximum wind

velocity of 64 MPH; an extreme of 98 MPH." This corresponds to the 130 MPH for one gust as given for the latter date in Argument Settlers,[46] or, as picturesquely stated by Douglas-Lithgow,[10] to the one puff which registered a velocity of over 120 miles per hour. The Weather Bureau figures continue: "March 1, 1914, SE, a maximum of 66 MPH; an extreme of 91 MPH. September 21, 1938, SE, a maximum of 52 MPH; an extreme of 57 MPH. September 14, 1944, SW, a maximum of 57 MPH; an extreme of 79 MPH with gusts possibly over 90 MPH. June 27, 1945, NE, a maximum of 55 MPH; an extreme of 68 MPH."[36]

The many trees uprooted in Nantucket during the two recent storms are fresh in our minds. Bassett Jones has observed earlier in the same connection: "Indeed, were the storms frequent I am disposed to think that the flora of Nantucket would be very different than it is at present. Few things could manage to keep a foot-hold."[27] The result of centuries of such winds upon the Island Bassett Jones estimates as follows: "As it is, only a selected company of peculiarly adapted hardy plants can survive unless protected. So we find our 'hidden forests,' of which there are quite a number, strictly limited as to tallness of the plants and trees by the protection they get from low hills to the northeast."[27]

Fogg's description of forest conditions on the Elizabeth Islands gives almost the same picture. "The most conspicuous vegetational feature of the islands, aside from the open grassy downs, is the dense growth of rather low beech woods which clothes the greater part of Naushon and smaller areas on some of the other islands. From a distance these woods are seen to fit in closely with the general topography, due, doubtless, to the high wind velocity which would tend to level forest growth to the existing lines of the hills and ridges."[14]

On Nantucket the sweeping branches of the great beeches of the Hidden Forest begin so close to the ground that it would be child's play to climb them. A picture of tall beeches in England as seen in the avenue of beeches in Savernake Forest, Wiltshire, emphasizes by contrast wind effects on Nantucket.[2]

It is not only against wind force that the island vegetation struggles. The wind-driven salt spray is lethal every winter to shrubs along the shore and at hurricane time it sears the foliage across the whole island. Francis V. Perry of the Weather Bureau writes: "The greatest damage, however, resulted from salt deposit on the foliage of the trees....This indirect effect has been widely noted...as being the most destructive element, as far as growing things are concerned, and is concomitant with winds of hurricane velocities here on the island."[38] The amazing thing in this connection is the resilience of the seemingly dead trees. Just a month after the June hurricane of 1945 had browned the foliage, while the dead leaves lay on the ground as in autumn, the branches were tufted with new leaves. A discussion of the damage done by the hurricane of 1938 is pertinent. "...but the big difference that now shows up between the conifer and the broad leaf plant is the ability of the latter to recover. The conifer is badly injured and cannot recover because it does not have adventitious buds to start out like the broad leaf plants. Even those broad leaf plants that were so badly injured that none of the fundamental buds lived have now developed fairly good leaves. The leaves are irregular, they are not where leaves belong, but nevertheless they are leaves. They are forming food and buds that will carry the plants, we hope, through a winter. Whether or not the plants are going to be able in these cases to develop buds that are strong enough to stand the winter, and at the same time feed the trunk and the roots, only time can tell."[49]

Evidence for forests or at least tree cover on Nantucket since the glacial age is found buried in peat bogs and scattered through historical records.

Shaler, in a report upon the geology of Nantucket, shows a figure of tree stumps which had been buried in a submerged swamp on the north shore. He writes: "I am inclined to believe that when this island was first settled the greater part of its surface, at least the portion of the area north of the south plains, was covered with a forest growth which afforded some architectural timbers."[41]

Wilder reports in 1894 a visit to an old peat bog at Polpis at Hughes Neck. He saw there a stump about 20 inches in diameter standing undisturbed in a dense thicket on top of a bog where the soft peat is still a meter thick. The stump was extracted and found to be oak in a good state of preservation. Wilder also reported a neighboring bog covered with water where there were visible more than twenty uprooted stumps of various sizes.[51]

From another bog at Polpis Bassett Jones reports two great stumps thought to be *Nyssa sylvatica* Marsh., which were unearthed by mosquito control work.[28,29]

Sara Winthrop Smith saw in a gash in the cliff near the site of the Nantucket Golf Club-house the branch of a good-sized tree embedded in the exposed peaty bed of an uplifted swamp on the very edge of the bluff. This specimen was given to the Nantucket Historical Association. Miss Smith noted also, about a mile above this point and only a short distance from the shore, submerged peaty deposits which at very low tide showed stumps and roots of several trees, one with a diameter of at least ten inches.[42]

Among the records of early Nantucket days reviewed by the historian Starbuck is the following: "March 15, 1665 at a meeting at Nantucket the Inhabitant agree to Dig a trench to drean the Long pond forthwith with regard to a weare for takeing fish and Also for makeing of Meadow...the work is to be Carri'd on thus, the one half of the work is to be done by the Indians the other half by the English Inhabitant or owners, the Indians to have half the Fish so long as they attend to the weare carefully." [43] This Madaket Ditch, as it is called today, has remained for nearly three centuries. The *Inquirer and Mirror*, 1931, brought its history up to date. "The ditch was dug crooked and winding and it still continues to twist its way through the marshes which lie between Long Pond and Hither Creek...an offshoot of Madaket Harbor. Throughout the passing years a large tree stump about two feet in diameter has held its place, with the ditch winding around it. The Indians probably left the stump there, as it was a difficult

thing to remove...and the stump has remained as a sample of the big oak trees which once grew on this island, according to tradition. But at last the tough old piece of oak has been removed, Oliver Fisher tackling the job ....In this connection we have heard some of the men who frequent Long Pond claim that below its waters are other tree stumps...other junks of oak which bolster up the claim that many years ago this island was heavily forested in some sections."[25] The three pieces of this Madaket stump were put together and are now preserved at the Lydia S. Hinchman House.

These various findings of buried tree stumps do not necessarily imply great forests in the past. There are living trees on the Island today whose bases are as big as the buried stumps or bigger. The buried stumps do, however, link us with the past. We do not attempt here to date that past. Only a geologist, by comparison of the overlying and underlying strata, is competent to estimate the periods when these various buried stumps were living trees. At least, for the oak of Madaquet Ditch, we may say it lived over 300 years ago. According to the late geologist, William F. Jones, reported by his brother, Bassett Jones, "Many of these peat-bog stumps belong to trees that grew on bottoms laid down at least 1000 years ago and were later drowned out by sea encroachments."[29] We should also guard against thinking that these great stumps necessarily imply tall trees in an ancient forest. We have already noted what wind has done to the habit of beeches in the "Hidden Forest." The ancient giants may well have been dwarfed in stature. In emphasis of this point Bassett Jones writes, "So I here register a doubt that any trees could ever have attained to the dignity of 'architectural timber' on this island."[27]

Man has worked with the wind to exterminate trees. The Indians must have begun the destruction. Some of the stumps found in peat bogs today bear crude axe marks made possibly by early Indians with stone axes.[29] Indians of the New England coast are described in the record of Captain Waymouth's voyage along the coast in 1605. Waymouth, unfortunately for our interests, did not land on Nantucket. The east coast which he

evidently skirted was too inhospitable. Rosier's record reads: "Munday, the 13th of May, about eleven a clocke afore noon, our Captaine, judging we were not farre from land, sounded...and by eight a clock (*of the next day*), having not made above five or six leagues, our Captain upon a sudden change of water (supposing verely he saw the sand) presently sounded, and had but five fathoms. Much marvelling because we saw no land, he sent one to the top, who thence described a whitish sandy cliffe, which bore west-north-west about six leagues off from us; (*they approached the land in a small boat, but the rocks and currents made this too dangerous*)....Thus we parted from the land...." Henry S. Burrage, the editor of the record has identified the "whitish sandy cliffe" as Sankety Head and the shoal as Rose and Crown Shoal of Great Rip.[40] Waymouth then turned north and his descriptions of Indians are of those along the Maine coast. We may gather from them, however, Indian habits of the time in the use of wood. "Their canoes are made without any iron, of the bark of a birch tree, strengthened within with ribs and hoops of wood." "Their bow is made of witch-hazle, and some of beach..." "One special thing is their manner of killing the whale...." (They) "strike hime with a bone made in fashion of a harping iron fastened to a rope, which they make great and strong of the bark of trees."....[40]

The white man has been even more destructive than the Indian. The record of the first settlement by white men on the New England coast begins the story of tree denudation. In 1602, five years before the founding of Jamestown, Captain Bartholomew Gosnold from England landed upon Cuttyhunk, the smallest of the Elizabeth Islands. His party built a rude fort and lived there for three weeks while they gathered wood. The wood of their special interest was sassafras which was then much in demand because of its supposed medicinal value. It is mentioned several times in *The Relation of Captain Gosnold's Voyage to the North part of Virginia:* "delivered by Gabriel Archer, a gentleman in the said voyage." "The nine-and-twentieth we labored in getting of sassafras ....The first of June, we employed ourselves in getting sassafras and the building of our fort." ...The Indians "went into the wood to help us dig sassafras."[1] John

Brereton, also of the party, saw in sassafras only a valuable commodity. "This island is full of high timbered oaks;...sassafras trees, great plenty all the island over, a tree of high price and profit."[7]

Nantucket, upon the arrival of the first white settlers, was apparently more or less wooded. Various records and some persisting local names indicate this. Obed Macy tells of the arrival in 1659 of Thomas Macy, the first settler on Nantucket and writes, "They found the island covered with wood, and inhabited by about fifteen hundred indians." In the deed by which the head Sachems, Wanackmamack and Nickanoose, granted land to the settlers the description reads: "All the Land, Meadow, Marshes, Timber and Wood."[32]

In Godfrey's *Guide to Nantucket* we read: "That tract of land near the head of Hummock Pond which we now call 'the woods'...now entirely destitute of trees...was previous to the year 1700 called 'the long woods.'" Godfrey rather naively remarks, "This is very positive evidence that there were large tracts of trees upon the island in those early days, for the people of that time called things by their right names."[16]

Godfrey quotes William C. Folger to the effect that the George Gardner house built in 1696 on North Shore Hill contained timbers of oak which were believed to have been cut on the Island between said house and the Cliff as that was a place remarked for a good growth of white oak trees.[16]

Tradition speaks of several groves of oak which were used for building purposes.[42] One grove was said to have been south of Dead Horse Valley not far from Mill Hill. According to Wyer[54] and to Godfrey[16] the "Old Mill" now standing was built in 1746 from this timber. According to the *Inquirer and Mirror* the native oak was used for Bunker Mill, the first of the four mills built on Mill Hill, but the "Old Mill" of today got its oaken beams from the driftwood of wrecked vessels.[24] Without attempting to resolve the discrepancy, our interest centers upon the reference to an oak grove near Dead Horse Valley where none remains today.

The name Grove Lane is probably descriptive of the past; the lane runs today through swampy pasture land.

Although nearly all the early deeds speak of timber and wood for fuel granted to purchasers of land, a record of 1672 indicates that wood is becoming scarce. "5th 4th mo 1672 James Lopar doth Ingage to carry on a design of whale Catching on the Island of Nantucket... and for the Incorragement of the said James Lopar the Town doth grant him Ten Acres of Land in som convenant place that he may Chuse in, (Wood Land exceped)...on conditions that he follow the Trade of Whaling on the Island two years in all the season thereof..."[32]

Godfrey writes: "It is probable that the settlers were very like their modern prototypes and used wood with an usparing hand; for it seems that but little more than a century from the settlement of the island the inhabitants were obliged to get fuel from Coskata."[16]

Worth, in *Nantucket Lands and Landowners*, indicates how rapidly the settlers used up Nantucket forests and ventures the opinion that there may have been trees large enough to furnish lumber for the first dwellings but that all houses built after 1680 required lumber from the mainland. Worth quotes an order of 1663 that "no man shall cut any timber on Cowatu except for building houses," and again of 1676 that cutting green trees for post rails or for the bark is forbidden. He notes that in 1670 Nathaniel Barnard was importing pine boards from the Merrimac and in 1732 Timothy White was buying wood from Freetown and Rochester.[53]

The oldest house of today's Nantucket was built in 1686 of wood from Exeter, New Hampshire, where the father of Jethro Coffin owned forest land.[10]

When Old South Wharf was rebuilt in 1917, pilings of Norway pine were dug up.[34] Norway Pine has been only occasionally planted on Nantucket. Therefore, this pine for the first South Wharf, built in 1709, must have been imported from the mainland.

Starbuck records the same decrease in the supply of wood. In the height of the whaling industry, live oak

and yellow pine were imported from the southern States for the whaling vessels. Under date of March, 1694, the town prescribed a penalty for cutting wood on Coatue but provided "nevertheless aney freeholder may cut timber for whale bots or the Like anything in this order notwithstanding." Starbuck quotes under a later date: "At a Towne meeting of ye inhabitants freeholders Nantucket ye 25 of ye 11 mo 1711 ye town takeing into consideration ye great benefit ye Coetue neck is to them for ye sucker of their sheep in hard seasons as is lately Experienced do now conclude that there is necessity of preserving ye Seaders & pines & other groaths there do now voate yt after of this order no person whatsoever shall not for time to come cutt or carry of from Coetue any sort of Wood by land or Water, Either seaders pines or any other groaths of wood under any notion or pretence Whatsoever on penalty of paying a fine of ten shillings for any quantity whatsoever & to forfit what is brought of & ye informer to have it & one half of ye fine."[43]

We wonder at the mention of pines in this last quotation. There are no pines today on Coatue; indeed all pines on Nantucket today are traced to introductions of the 19th and 20th centuries. Perhaps the use of the term "pines" here is the same as its use by many people today for whom pine is synonymous with evergreen.

The increasing dependence of Nantucket upon wood from the mainland brought dire hardship during both the War of the Revolution and the War of 1812 as Nantucket ships were continually in danger of capture. One may get a vivid picture from Starbuck's extracts both from the diary of Mrs. Fanning (Keziah Coffin) and from the town records.

From Mrs. Fanning's diary, 1776, we read: "Tues. Sept. 5, Rand, P. F., Sampson, Brister &c sl'd this morning to Vineyard in Fathers vessel for a load of wood. Fri. Oct. 6...a number of our vessels have long been look'd for from Kennebeck with wood." Mrs. Fanning writes of the exceptional severity of the winter of 1779-80, "The harbor was frozen over the latter part of Dec. 1779, and by the 15th of Jan., 1780 people travelled over the ice to Quaise. No water was in sight from any part of

the Island. Fuel was not obtainable in the swamps or from the ground because of the ice and snow. The poor were enabled, because of the ice, to get supplies of fuel by transporting the scrub oaks and junipers from Coskata, a laborious and at times dangerous task."[43]

Extracts from the town records run as follows: "falmouth october ye 2, 1775. An account of all the permits given for Supplying the Inhabitants of Nantucket by vertue of an act of the Court: includes records of cord wood." Resolution of Continental Congress. Dec. 11, 1775: "Resolved. That the selectmen of the town of Sherbourne, in Nantucket, prepare an estimate of the quantity of fuel, and provisions necessary for the use of said Inhabitants, and lay it before three or more justices of the peace, for the county of Barnstable, in the Colony of Massachuset bay, attested by the oath or affirmation of the said selectmen; and that the said justices be empowered to grant licenses under their hands to any master or owner of vessels in the said island, to import fuel and provisions from the colonies of Mass. bay, Rhode Island, Conn., New York, New Jersey, Penn., Lower Counties on Delaware, or Maryland, not exceeding the quantities specifyed in the estimate." Starbuck reports further straits: "Wood became scarce and peat was resorted to. The scrub oaks were used, roots as well as top." At a legal Town Meeting at Sherborn Sept'r 30, 1779, a memorial drawn up to present to the General Court at Boston...set forth the difficulties the inhabitants of Nantucket had encountered from the beginning of the war. "The Inhabitants of this Island are computed at near Five Thousand Persons, in about Seven Hundred Families, at least one half this number if not Two thirds are totally destitute of Firewood, of which doubtless you are acquainted, this Island produceth very little; we consequently are dependant on the Continent for this article, wh. has for a long time been brought to us very sparingly from the risque occasioned by the frequent passing of British Cruisers, but a total stop for some time hath taken place."[43]

Two descriptions written after the War of the Revolution give the same picture of a treeless island. Crèvecoeur, a visiting Frenchman, in his *American Farmer*

1782, describes Nantucket as a sandy spot of about twenty-three thousand acres. He writes that "many red cedar bushes and beach grass grow on the peninsula of Coitou" but that "the rest of the undescribed part of the island is open and serves as a common pasture for sheep"...that the original settlers found "the island so universally barren that they took to fishing rather than farming." "The town of Sherburne," he writes, "consists of about 500 houses all of which were framed on the main."[9] In 1792 Dr. Zacheus Macy wrote about Nantucket and says of the land: "The wood being entirely gone and few shrubs left to shelter the ground against the cold winds and hard winters, the profits of our farming business are much reduced."[33]

Thus Nantucketers during the War of 1812 were faced with the same privations as in the earlier war. They were constrained to appeal to the British with promise of neutrality. In 1814 a petition was sent to Admiral Cochrane. Again the problem of wood enters the description: "we, the undersigned, Inhabitants of the Island of N. and of that class generally called Federal Republicans and Friends of Peace, who have been universally opposed to the War wh. now exists and wh. has prostrated our happiness and taken away the means by wh. we have lived, Ask leave resp. to appr. you with our petition for relief....Our soil is light and infertile, and its productions insufficient for the support of one eighth part of its inhabitants; now....Our Island has not a tree of natural growth, and we are consequently dependent on the continent for our fuel..."[43]

One may question whether there may not have been the exaggeration of dire extremity in these descriptions of a barren island, especially when one sees today the so-called hidden forests of great trees. These trees, however, are probably less than a century old. Their site may have been merely a swampy thicket at the time of the wars with Great Britain.

The ecologist interprets these forested hollows as the climax stage in a progression from water to dry land which is the fate of most lakes or ponds.[50] It is common knowledge that the glacial ponds which dot

Nantucket's surface are gradually disappearing. Thoreau has noted in his diary that the William Coffin map of Nantucket 1834 records 1050 fresh ponds.[45] These may be found today in all stages of conversion to dry land. There is Maxey's Pond where the clear water is bordered by a zone in which grow rushes and the dainty floating heart, while outside that is a sandy shore encroached upon by cranberry vines and sphagnum moss. Then there are the two ponds at Taupaushaw whose open water can be reached only by struggling through a quaking bog of sphagnum using clumps of swamp loosestrife for foothold. Not far from Taupaushaw are the two Pout Ponds. Within the last few years these have changed to bogs ringed about by rushes and by dying shrubs. The Pout Ponds show, perhaps, an abnormal progression in an over-rapid lessening of water as the Mosquito Control lowers the water table. Pitcher Plant Swamp, east of Almanac Pond, has reached a corresponding stage with less of death apparent. Here, in the midst of deep sphagnum, clumps of azalea, poison sumac, and red maple saplings flourish. But here the end is in sight for the white pond lilies. They are rooted in muck and sphagnum with luxuriant, short-stemmed leaves, but they seldom bloom. We may see the near climax of a progression at Ram Pasture in a grove of red maples whose sprawling roots offer easy footing in the sphagnum. Finally there is the "Hidden Forest." Here, although there is still sphagnum and water enough to make a paradise for mosquitos, the low-spreading beeches, the sour gums and other great trees shelter an undergrowth of wood mosses, ferns and flowering plants such as is found in no other spot on Nantucket. Of these Bicknell has written: "Here, too, surviving in the thickets and tree groupings, are little colonies of woodland plants, vestiges, we may suppose, of an earlier flora that had its day in that unrecorded period before the woodlands were destroyed."[4] If this be true, the undergrowth speaks of an antiquity greater than that of the trees in whose shade it now grows and Jack-in-the-pulpit, the dainty oak fern and the moss Georgia are lineal descendants of the growth under pre-glacial forests. The great trees, as members of a climax forest that has replaced a post-glacial lake, are upstarts of a century or less. Bassett Jones, by tests made with a

Swedish increment borer, has estimated an age of 85 years each for three of the beeches in "Hidden Forest."[28]

It is the succession of dead floras in these climax stages developed from the glacial lakes that has made the hidden forests possible. Elsewhere over the island the soil is light and sandy and, Crèveceour adds, "a receptacle for rabbits."[9] Harshberger lists the soil of glacial sands and gravels second to the wind as a factor influential in making Nantucket "practically treeless."[19] Moreover, years of deforestation under the wind-swept island conditions have brought loss of soil in its wake and have thus, in a vicious circle, caused a "recession" to a moorland vegetation.[44] The peat bottoms of the ancient lake beds, on the other hand, have furnished a soil for forest stands. These are tree asylums today. Rooted in peat, protected from wind by the barricade of hardy shrubs which earlier bordered the lake, trees have grown here to hoary age. Even shrubs in these asylums often assume tree habit. Blueberry tree-shrubs ripen their fruit out of reach of picking. A shad bush in Pocomo swamp measures 1½ feet in diameter about 2 feet above the ground. In a swamp near Madaket a bayberry tree has a trunk 4 inches in diameter and its bark, wrinkled with age, has lost entirely the character of that of the bayberry bush. In Ram Pasture a beach plum and an elder berry have each the stature of trees.

Aside from the wind hazards the climate of Nantucket is evidently mild enough to allow the growth of trees of more southerly latitudes. Bassett Jones, in his plantation on Polpis Road, has built a tree asylum by use of the resistant Japanese black pine, *Pinus Thunbergii* Parl., as a wind shelter. Within its protection young balsam firs, *Abies balsamea* (L.) Mill., are holding their own; the Chinese pine, *Pinus tabulaeformis* Carr., has grown to pyramids of beauty; and two bald cypress, *Taxodium distichum* Rich., delight one with their feathery green.

No wonder Bassett Jones is an ardent advocate of black pine for Nantucket plantings. For shelter purposes there can be none better. The first Nantucket planting of Pinus Thunbergii Parl. in 1895 by Bassett

Jones's father is now a sheltering grove at Wauwinet[26] and many estates on the island are making use of this evergreen as a wind-break. It is perhaps perverse criticism to wish that the black pine had more of the picturesque habit of pitch pine. It soon loses its youthful pyramidal fullness to a somewhat sprawling adult contour but on Nantucket it may not yet have had time to reach picturesque old age.

In a survey of the island trees of today one should add to those which have grown up in the bog asylums the few woods which have persisted from the time of the settlers. On the high land at Coskata there is still an oak forest as when the "Broad Woods"[10] were the chief resource of Nantucket settlers. Coatue beach is still bordered by a line of ancient cedars as when the villagers went across the ice in winter to gather firewood. Each winter the salt spray kills the outposts of this cedar while the sand, through the years, has buried all but the recent growth. Rich green sprays laden with blue-grey fruits, spreading close to the sand, may be the top of a century-old tree. One such tree which was killed by the salt spray in 1933 showed 107 years of wood rings. Its top had a spread of 24 feet and it was only 5 feet tall. Buttresses on the south side of the clustered branches showed how it had braced itself against the north winds.[28] Bassett Jones has preserved this great stump.

Coatue cedars seem to be helping to reforest Nantucket. Perhaps birds carry the berries across. At any rate, between the Shimmo shore and the Polpis road, directly across the harbor from Coatue, the low rolling hills are dotted with a growth of cedars of all ages from foot-high sprouts still clothed in the juvenile type of needle-pointed leaves to fruiting trees. They are scattered beyond the road also. Their dark green accentuates many a slope amid Saul's Hills. Here and there over the island an old red cedar connects the growth with earlier days. This is a promise of native timber for the future as red cedar does not demand rich soil. It flourishes along with the golden-flowered Hudsonia and Andropogon grass in the sandy soil of the moorlands.

There is other roadside growth today. There are thickets of sassafras and sour gum; wild cherry as shrub and tree offers its fruit to the birds; scrub oak, shoulder high, forms many impenetrable "scrubs." The island must have a much more sylvan aspect than when Crèvecoeur saw it in 1782 or Thoreau in 1854. Thoreau wrote in his diary, "There is not a tree to be seen, except such as are set out about houses....This island must look exactly like a prairie, except that the view in clear weather is bounded by the sea....The nearest approach to woods that I saw was the swamps, where the blueberries, maples, etc., are higher than one's head."[45] Nevertheless by airplane view today Nantucket is still open moorland with thickets of wood merely filling the hollows and bordering the roads. During a summer on Nantucket ones eye becomes so accustomed to the few trees and their reduced scale that, on a return to the mainland, driving inland from New Bedford, one looks with surprise at the tall trees which border the highway.

Without doubt sheep grazing has helped to keep down wooded growth on Nantucket. Godwin includes this as a factor in the establishment of English heaths. "...While biotic factors such as sheep-grazing, very close eating down by rabbits, treading, burning and tree felling make very heavy and varied impress on the vegetation."[17] Sheep are mentioned in all the early town records on Nantucket. Without them housewives would have been hard put for their homespun. In the first half of the 19th century Nantucket land holders invested heavily in sheep farming; at one time the sheep on the island were estimated at 10,000. These grazed at large over the Commons until 1848 when, by vote of the proprietors of the common land, the sheep were restrained from pasturage outside of enclosed tracts.[15] This restraint and the fact that sheep farming has been for the most part given up on Nantucket have probably been factors in the increased wooded areas of the 20th century.

There is another chapter to the tree story of the 19th and 20th centuries. During this period there has been much tree planting on the island, particularly in the town. *The Inquirer & Mirror* in its *Memoir of One Hundred Years* prints a view of Nantucket of probable

date 1870.[24] In this print trees are conspicuous only for their small size and small number. Such trees as we have today would, in whaling days, have impeded the view of anxious watchers from the "walks." Bicknell, the outstanding authority for the Nantucket flora, summed up in 1908 his observations upon introduced trees. "The introduced trees number thirty-two, although only one has become a strong structural element in the flora, this being our native pitch pine which, history tells us, was first planted on Nantucket in the year 1847. Few other introduced trees have made such response to the conditions that Nantucket has offered, although the cockspur thorn is making itself at home there, and the apple, the pear and the hybrid willow (*Salix Smithiana*) are sparingly more or less wide-spread. The Scotch pine and the European larch have long formed an extensive and increasing growth at the locality where they were originally set out, and at a few places the locust and the silver poplar are well established, but most of the other trees are not much to be considered, and some number only a few examples that have appeared spontaneously and grown up in out-of-the-way places."[4] The many trees included in my Key but not mentioned by Bicknell should indicate that, in the generation since Bicknell's time, trees have increased on Nantucket notwithstanding the handicap of poor soil and hurricane winds. With evidences all over Nantucket of the havoc wrought by the hurricanes of 1944 and 1945 we do not minimize this handicap. As we see even native cedar and resistant black pine burnt brown and see the heavy toll of uprooted trees, we find ourselves wondering that any trees survive on Nantucket.

The pitch pines of which Bicknell speaks were planted along the Siasconset road by Josiah Sturgis in 1847. More were planted in 1854.[46] It is perhaps this second planting of which Thoreau writes in his diary of December, 1854. Capt. Edward W. Gardner "is extensively engaged in raising pines on the island....He showed me several lots of his, of different ages,...one tract of three hundred acres sown in rows with a planter, where the young trees, two years old, were just beginning to green the ground,...and I saw one of Norway pine and our

pine mixed, eight years old, which looked quite like a forest at a distance."[45] The Norway pines, *Pinus resinosa* Ait., must have died out. It is only occasionally about town that one finds the Norway pine today.

Today the pitch pine plantation across the Siasconset and Polpis roads is heavy enough to warrant the term forest. A rutted road runs through them in the direction of Saul's Hills and it is one of the pleasant surprises of Nantucket driving to come out from this forest cover to the wide horizon of the rolling moors. A Nantucket Beacon, the "Bug Light," which was built in 1820 as a range light, stood near the junction of the Siasconset and Polpis roads. It was discontinued as a government station in 1880.[24] Certainly the outlook today from that site in the midst of the pines would not be favorable for a range light.

Not only have the pitch pines made a thick growth near their original planting; they have spread across the roads on both sides of the triangle and, as woods or scattered growth, are found all over the island. To the south they cross the Surfside road so that here also one may drive along a wooded road. The lichen-laden branches indicate that the growth is one of many years and within the shade a woodland flora has developed. The waxy whiteness of Indian pipes and fragrant spikes of *Chimaphila* make fairy clusters among the coarse needles. *Chimaphila maculata* (L.) Pursh. is included in the list of which Bicknell writes, "It should be noted that among the Nantucket pines are found a few woodland plants that either do not occur at all elsewhere on the island or are nowhere else at home. It would seem to follow that the advent of these plants, or some of them, must have been subsequent to the introduction of the pines."[4]

Off the Surfside road near the head of Miacommet Pond is a thick stand of English larch and Scotch pine. The planting was made by Henry Coffin in 1876.[35] Mr. Coffin was evidently a lover of trees. The laburnum at the Coffin place on Main Street as well as that among the larches is of his planting. Mrs. Clark, the granddaughter of Henry Coffin, talking with Miss Albertson (Mrs. Alfred F. Shurrocks) in 1929, was sure that the trees came from

Scotland. She was living at her grandfather's at the time and remembered boxes of seedlings about 18 inches high.[5] Both pines and larches have done well and have evidently seeded in the vicinity. There are many fine trees whose branches sweep the ground. Hickories grow here too. The stand has been neglected and it is an unkempt grove. Perhaps that is just as well. "The Larches" would lose much of their charm if trimmed up like a state forest.

The larches on Hinckley Lane came from Japan. Mrs. Emma Frances Hayward writes that her uncle, Captain Richard Swain, sent 250 larches and 250 pines home from Japan. She remembers that her mother and sister saw to their planting on Hinckley Lane about 1912.[20]

The Commonwealth has a considerable evergreen forest on the island. In 1912 white pines were set out[46] but Nantucket is not a favorable climate for white pine. Their foliage is sparse and the hurricane of 1944 resulted in a complete browning of the needles.[36] White pine, Scotch pine and spruce have been set along the Siasconset road but only the Scotch pine holds its own with the earlier colonist, the pitch pine. The twisted, silvery needles of the Scotch pine add a pleasant note in the green of the road border.

For the deciduous trees, so abundant about town, there are few dated records of introduction. The sycamore must have been early introduced. Godfrey writes in 1882, "Probably the oldest and largest tree on the island is a sycamore which stands on the corner of Main Street and Ray's Court, and it is a beautiful sight in summer."[16] Today it is a decrepit tree with concrete filling and the few branches that remain are overshadowed by a sycamore maple which offers a chance to compare the leaves of the true sycamore with those of its namesake among the maples. This tree has struggled against more than wind and salt spray. Guba, in his list of Nantucket fungi, stops to speak of the old sycamore. "This famous old tree, cited in many publications on Nantucket shows the effect of many years of struggle with infections of this anthracnose fungus."[18]

Douglas-Lithgow records the introduction in 1821 of the "two-thorn acacia,"[10] probably the black locust,

Robinia Pseudo-Acacia L. These are now fairly numerous in the town. One stand is on Cliff Road opposite Sunset Avenue. The clusters of fragrant white flowers which bloom in June make the locust a pleasant tree for one's yard, A related species, *Robinia viscosa* Vent., the pink-flowered clammy locust, forms a thicket on Cliff Road opposite "Derrymore" and also on Cabot Avenue just off Cliff Road.

The honey locust, *Gleditsia triacanthus* L., is a more striking tree than the black locust. The leaflets of its compound leaves are smaller and they are often twice divided. The resultant feathery foliage, the branching thorns, and the long red pods which follow inconspicuous flowers are characters quite distinct from *Robinia*. Four of these tall trees fill a corner lot on Fair Street opposite the Woodbox. Probably few of the visitors who admire the "Harp of the Winds" on the Polpis Road recognize the trees as the honey locust. There was another honey locust "harp," rather the worse for wind, at the Franklin Valley Farm on Crooked Lane but since the two recent hurricanes it is leafless.

At 44 Orange Street a group of trees might at first sight be mistaken for the black locust. The compound leaf, however, lacks the small thorns at the base of the leaf stalk which has given to the locust the name "two thorn acacia." The blossom clusters are more creamy-white than those of the locust and the pods, constricted between the seeds, give the effect of a chain of green beads. This is *Sophora japonica* L., the scholar tree or pagoda tree of the Orient, so-called because of its frequent planting around pagodas. The flowers and fruits of Sophora yield a yellow dye. The tree is said to withstand heat and drought and is, therefore, a good street tree.[23]

Marthas Vineyard has an older Sophora than Nantucket. It is said to have been brought from China by Captain Thomas Milton in 1837. It came in a small flower pot; today it rises to 90 feet with a spread of 70 feet.[47]

In the early 19th century New England developed an interest in the silk industry, and this interest

spread to Nantucket. An account of the enterprise was given to the Nantucket Historical Association in 1898 by Rev. M. S. Dudley. The summary follows. In 1832 William H. Gardner had a prosperous mulberry plantation at Quaise. George Fitch planted mulberry trees at his home lot on Academy Hill; one fine tree is still bearing fruit there. George Easton had an orchard of 1000 mulberry trees about his homestead at North Water Street in the rear of the house next south of Springfield Lodge. In 1835 Aaron Mitchell had a grove of 4000 mulberry trees a little out of town. Thorn Lot on Duke Street of the old village of Sherbourne was formerly a mulberry orchard planted by Gideon Gardner with a thorn hedge around it for protection. The interest in the silk industry crystallized in 1835 in the formation of the Atlantic Silk Company. The factory was on Gay Street, the last building on the left as one goes up the street toward the High School. For a while four looms were busy here, but the factory was closed down in 1844. Today only an occasional white mulberry tree bears witness to the venture.[11]

In 1842 three young weeping willows were brought by Captain Plasket of the ship "Napoleon" from the grave of Napoleon on St. Helena. They were set out on Centre Street near Broad and are said to have grown to be huge trees. Storms blew down two; the third, half-rotted, was cut down in 1918 but there is still a survivor on the spot, grown from the old root.[46] There are other survivors. According to Mrs. M. W. Boyer, when the original trees were cut down Dr. Coleman had some of the wood put in his yard, corner of Hussey and Centre Street, to be cut up for fire wood. One piece lay there so long it sent out shoots and in 1935 two good sized trees were standing there. These were damaged by wind and have been cut down. However, on land on North Beach Street owned by a daughter of Dr. Coleman there are several trees, offsprings of the original willows.[6] According to Charles Kimball, there is a healthy tree from a shoot of the Napoleon willow now growing near the Madaket Road opposite the junction with Crooked Lane.[30]

In Hotte's *Book of Trees* we read of another cutting from the weeping willow on St. Helena. This one

was planted in Copp's burying ground, Boston, and shades the grave of Cotton Mather. One is not told what coincidence of name or interest caused that planting and thus gave Boston and Nantucket a share in this historic tree.[23]

There are many willows on Nantucket besides the relic from St. Helena and only a specialist would venture to sort out the mixed population of species and hybrids. The large tree in Ray's Court, *Salix purpurea* L., shows to what stature a willow can attain. *Salix pentandra* L., the laurel-leaved willow, is becoming an ornamental planting. One of the most interesting native willows is *Salix tristis* Ait. It does not belong in a discussion of trees as it is tiny even for a shrub. On the open stretches of the south shore plain its low clumps of silvery-grey leaves are as striking as white flowers.

Poplars are first cousins to the willows with similar catkins in the spring. Outside the town the aspen poplar, *Populus tremuloides* Michx., is found in roadside thickets. The white poplar, *Populus alba* L., is described by Bicknell as "spontaneous and spreading in the neighborhood of the town and elsewhere."[4] The thicket of young trees and suckers by the roadside on Mill Hill is an illustration. It is a weed among the grave-stones in Old North and Prospect Hill cemeteries. On Union Street the Carolina poplar, *Populus canadensis* Muench., approaches the tall, erect growth of the Lombardy poplar. At the sandy end of Vestal Street the Balm of Gilead, *Populus candicans* Ait., is noticeable for its aromatic, sticky buds.

Main Street was planted to elms in 1852 after the great fire of 1846.[46] Many of these died some ten years ago but there were replantings. The hurricane of 1944 has again taken toll of the elms. These trees which grace Main Street are *Ulmus americana* L., the white elm, which is the glory of so many New England villages. If one needs more than its "wine glass" shape for identification one may note the corky, ridged bark and the ovate leaf with rough surfaces, saw-toothed edges and unequal base. *Ulmus glabra* Huds., the Scotch elm, has

also reached old age in the town. There are two tall examples of the tree on Orange Street across from the *Inquirer and Mirror* office and a younger tree shades the office on the south. Pleasant Street, near Main, is shaded by fine Scotch elms and their seedlings are starting in the hedges. It is at 16 Cliff Road, however, that one may see best the distinctive beauty of the Scotch elm where the sturdy trees fill the corner lot. The Scotch elm is more round-topped than the white elm and its branches start lower from the sturdy trunk. The bark is less deeply ridged, but its most distinctive difference is in the leaf. Below the tip it broadens abruptly giving often an effect of triple points. *Ulmus pumila* Linn., native of northern Asia, is of more recent planting on Nantucket than the two other species of elms. There are many of these young trees about town and a few are old enough to show their willow-like habit. The pendulous branches are set with small leaves, the elm leaves in miniature. On the east side of North Liberty Street, near Cliff Road, a Chinese elm overtops a grey-shingled house. It is well worth the walk from town to see its branches sway in the Nantucket winds. This species should prove a valuable addition on the Nantucket streets. It is said to be immune to most of the ills to which the white elm is susceptible.

Next to the elm, the maple ranks as the typical New England shade tree. Although less graceful than the feathery elm, its domed contour has a satisfying symmetry. The difference in contour of elm and maple traces back to a difference in leaf position on the twig. The elm belongs to the group of alternate-leaved, and the maple to the group of opposite-leaved plants. Their habit of branches carries out the same difference. One may see this character where twigs are silhouetted against the sky.

On the mainland of New England the sugar maple, *Acer saccharum* Marsh., is the typical native maple. It is distinctive in March for its sugary sap, in May for its honey-yellow blossom clusters which make the tree against a blue sky seem like pure sunshine, in September for its flaming foliage. The sugar maple does not take to Nantucket. Two trees near the corner of Main and

Gardner Streets give little idea of the beauty of the species. The native maple of Nantucket is the red maple, *Acer rubrum* L., but it does not come into town. It is not even found along the open roads; the red maple prefers the acid soil of peaty bogs. In such a setting it grows to forest size although, as an effect of its struggle against the constant wind, it is so low and spreading that a grove of red maple counts in the landscape merely as a low thicket. Such a forest may be found in Ram Pasture. The venerable trees branch close to the ground and form a spreading canopy. The small leaves are grey underneath and the branches are hoary with tufts of lichen. It seems an ancient and mysterious forest. The chance visitor does not enter as it is ringed about by an almost impenetrable swamp.

The abundant maples of Nantucket town are of four species: the ash-leaved maple or box elder, *Acer Negundo* L., the silver maple, *Acer saccharinum* L., the Norway maple, *Acer platanoides* L., and the sycamore maple, *Acer pseudo-platanus* L. The box elder is our only maple with a compound leaf. It is a rapid-growing tree and reaches a large size. An example may be seen on Pine Street. The silver maple is another rapid-growing species. A cut-leaved variety of this silver maple is being increasingly planted here as a shade tree and has grown to a large size at the corner of Fair and Darling Streets. The Norway maple has been occasionally planted and grows to a vigorous, spreading tree. It is, however, the sycamore maple, that has become, next to the elm, the dominant shade tree of the town. There are fine examples at 72 Main Street while in the yard at the junction of New Mill and Milk Streets the spreading sycamore maples form an out-of-door room. Rehder, the tree authority of America, states that the sycamore maple "thrives well in exposed situations and near the sea shore." There is good reason then for its successful colonizing of Nantucket.[39]

Among the deciduous trees, oaks are the dominant native trees on Nantucket but they are seldom seen in town. On upper Main Street a small pin oak, *Quercus palustris* Muench., the species which is so much planted in Boston parkways, has been set out. In the yard at

20 Orange Street there is a spreading English oak, *Quercus Robur*, var. *pedunculata* Ehrh., and there are a few small specimens of English oak at the Coleman place now owned by the Blairs.

One must go to Coskata to see Nantucket oaks at their best. Here the ground space under the white oak trees is so extended as to give an entirely distinct flora under the dense shade. Here also the black oak group, including scarlet, red and black oaks is abundant. Bicknell measured one scarlet oak, *Quercus coccinea* Muench., which was 41 inches in circumference, 1 foot above the base. He found even stouter black oaks, *Quercus velutina* Lam. The black oak is the most abundant species at Coskata but it brings confusion to the novice in tree studies as at Coskata the species has two diverse forms. The ordinary form has leaves with broad lobes and shallow identations; the other has such deeply cut leaves that the tree may be mistaken for the scarlet oak. Both forms have, however, the characteristic heavy, almost leathery leaf with soft pubescence.[4]

It is not only in the isolated forests that oaks are found. Other species hold their own on the sand and on the moors. Behind the dune ridge at Third Point, Coatue, the post oak, *Quercus stellata* Wang., makes a sprawling barricade, its branches half buried in the sand. There is also a row of wind-battered post oaks behind the dunes near Eel Point. Two other species of oak form the scrub growth of the moors. The true scrub oak, *Quercus ilicifolia* Wang., is hardy enough even to grow a second crop of leaves when defoliated by a caterpillar plague. It grows from 1 foot to 10 feet in height and, in the heavy scrub, many of the trees must be of great age. The land of the present Sankaty Golf Course is said to have been covered with a growth of scrub oak.[30] J. H. Holmes of Nantucket has reported that when the course was laid out many stumps were pulled from the ground so large that the hooks of the caterpillar tractor were broken. A pile of stumps as large as a house was burned, and another pile supplied fireplaces for a long time after.[22] To an observer from the road the scrub oak cover is misleading, especially when one watches deer travel in effortless leaps over

the growth. Only by struggling through the tangled mass on foot is its depth realized. Scrub oak close at hand has ornamental value. Its brown blossom tassels in May seem a new color note among flowers; its grey-green, angular leaves and tiny acorns make it a plant that might well be cultivated by landscape gardeners. Companion to the scrub oak is the dwarf chestnut oak, *Quercus prinoides* var. *rufescens* Rehd. The straight species, *Quercus prinoides* Willd., is seldom found on Nantucket but the difference between the species and its variety would seem a mere quibble to any but a botanist. This chestnut oak is much more of a dwarf than the scrub oak. It makes a luxuriant green cover in hollows of the moorland but leaves the more exposed stretches to the huckleberry.

In completing the oak genus with the dwarf chestnut oak, we find ourselves so close to the ground that it seems proper to mention two other dwarf shrubs: the bearberry, *Arctostaphylos Uva-ursi* (L.) Spreng., and the evergreen heath, *Corema Conradii* Torr. One realizes on breaking the stem of the bearberry that it is a woody plant. It is a trailer whose long runners are doing their best to carpet any bare ground on the moorlands. Its shining evergreen leaves form a background for dainty shell-pink bloom in May and for crimson berries in September. Corema is a true dwarf shrub, each plant a close-built cushion spreading from a central woody stem scarcely a foot high. Its close evergreen turf in the Tom Nevers region gives little hint of the great age of the individual plants. A special interest attaches to Corema. It is a so-called relic plant...one of those which are believed to have flourished earlier all along the ancient coastal plain from the Carolinas to Labrador. Fernald writes of this group: "of greater interest are the coastal plain species, because they represent in New England, eastern Canada and Newfoundland a relic of the extensive flora which during the late Tertiary migrated northward along the then highly elevated continental shelf and at the drowning of the shelf were left as relics at isolated points."[12] Today Corema is found only on such persisting high spots as the New Jersey Pine Barrens, Nantucket, Mount Desert and Newfoundland.

The American chestnut, *Castanea dentata* (Marsh.) Borkh., is first cousin to oak and beech and thus completes the trilogy of the beech family. I include its mention here for the sake of completeness but it is only doubtfully established on the island. Bicknell wrote in 1908, "A single slender sapling of the American chestnut, *Castanea dentata* (Marsh.) Borkh.,...grows in an opening among the pines near Miacommet Pond."[4] Bassett Jones reports that he and E. L. Littlefield, Supervisor of Forestry Investigations, New York State, found Bicknell's single chestnut several years ago. It was then infected by the chestnut blight.[29] Charles Kimball saw a few poor chestnut trees in the same locality four years ago.[30] Today a scrubby specimen in the Larches shows the sucker growth which follows chestnut blight destruction.

We know that ash was introduced on Nantucket before 1908 as Bicknell records both the American species, *Fraxinus americana* L., and the European species, *Fraxinus excelsior* L. Both have prospered and increased. A row which fronts the Casino in Siasconset contains the two species. Two other species, the black ash, *Fraxinus nigra* Marsh., and the green ash, *Fraxinus pennsylvanica* var. *lanceolata* Sarg., are found in Civic Park.

The remaining tree species which might be listed as town dwellers in Nantucket are a hit or miss collection. They seem the result either of an itinerant nurseryman or of the individual fancies of the householders. The latter reason may explain the tamarisk shrub, *Tamarix parviflora* DC., near several houses on the Point and in the Gordon yard on Lincoln Avenue. The latter was planted about 1890 by William S. Kimball, the grandfather of Charles Kimball.[30] The tamarisk is accustomed to a sandy soil. We read that it "plays the role of Juniper" where it is native "in southwestern Spain and along the African coast from Tunisia, where an arm of the Sahara reaches up to the sea."[3]

In a vacant lot on Union Street, opposite the Whiting Milk Office, there is a motley collection of trees: a sycamore maple, a decrepit cherry, a tall spruce, and two Kentucky coffee trees, *Gymnocladus dioica* Koch. Notwithstanding its name, the Kentucky

coffee tree will grow in fairly northern latitudes but it does not seem happy on Nantucket. Kentucky settlers are said to have used the seeds as a substitute for coffee. It was evidently not a popular substitute. At any rate, Nantucket cannot so avail itself, as it does not fruit here. The collector's chief interest in this tree is in its huge, twice-compound leaf. Only the Hercules Club, *Aralia spinosa* L., has a more elaborate compounding.

Ailanthus glandulosa Desf. also has a large compound leaf. Ailanthus is "A Tree" that "Grows in Brooklyn." It seems at home whether in backyards of city slums or in the more open spaces of Nantucket. Its grey bark is quickly lichen-covered in the moist sea air. Its long, frond-like leaves, surrounding a mass of reddened fruits are most decorative. With such beauty it is almost a pity to mention the disagreeable odor of the trees with staminate blooms. There is a tall Ailanthus on High Street; there are several beautiful specimens along the main road just after entering Siasconset.

Even in vacation time Academy Hill is not deserted. The bees gather honey from the linden tree in front of the High School, drawn by the fragrance of its small yellow blossoms. The linden is a tree of many names. In the Biglow Papers, James Russell Lowell uses another name:

> The lime-trees pile their solid stacks o'shade
> An' drows'ly simmer with the bees' sweet trade.[31]

Two commoner American names are basswood and whitewood. There are a confusing number of forms of linden on Nantucket. Of the large-leaved forms, *Tilia neglecta* Spach. is in Civic Park and *Tilia euchlora* K., on Easton Street. The small-leaved forms are more frequent about town, both *Tilia cordata* Mill., the English lime of Academy Hill and *Tilia vulgaris* L. of Ray's Court.

The name whitewood is applied also to an entirely different tree, the tulip tree, *Liriodendron Tulipifera* L., because it also has soft, white, fine-grained wood valuable for wood-working. On the mountains of Pennsylvania and farther south the tulip tree makes a

forest growth. In the open it attains a tall symmetry with columnar trunk. The spreading tulip tree in the Folger yard across the street from North Church has evidently felt Nantucket's winds as its branches begin lower than is normal. The leaf of the tulip tree is distinctive, with palmate veins like a maple but with square-cut lobes and a re-entrant angle at the tip. In May the tree bears large yellow-green blossoms which have some slight resemblance to a tulip. The blossoms are really more like the Magnolia to which Liriodendron is related. There are a few large shrubs of the early-flowering Magnolia, *Magnolia Soulangeana* Soul., around town; one on Winter Street might rank as a tree. The fine example of *Magnolia acuminata* L., the cucumber tree, is scarcely known. It stands in the yard of the Gables, Broad Street.

Catalpas in Nantucket are the survivors of the young trees which Gilchrist Company of Boston distributed in 1911 to school children throughout the state. This is recorded in the Nantucket School Report of 1911. "In the Spring, 1911, one thousand Catalpa trees were offered freely to the schools by the Gilchrist Company of Boston, Mass. The offer was accepted and several of the trees are alive and doing well at the Academy Hill grounds."[38] Mrs. Charles Clark Coffin reports for the children: "I can remember my sister and I taking our trees home and planting them, and seeing them both grow and blossom, only to be cut down for some reason later."[8] Vissitudes must have been heavy through these 35 years for today only an occasional Catalpa strews the ground in June with its exotic-looking blossoms.

Evergreens, or more exactly, Gymnosperms, are not abundant in town but there are a few interesting specimens. The Ginkgo should stand first as a Gymnosperm which is neither cone-bearing nor evergreen. *Ginkgo biloba* L. is a tree with a history. It is one of the few broad-leaved Gymnosperms, relic of an age when more moisture and warmth in the north temperate latitudes made a paradise for great trees. Fossil records prove the Ginkgo once grew abundantly in North America but in this present age it is native only in China.[23] The Ginkgo in the yard of the Eagle Wing Studio on Union Street must have stood there for many years. Young

Ginkgo trees grow a slender spire like Lombardy poplars. Only in maturity do they begin, as it were, to experiment in branching and throw out branches at broad angles to the trunk. The tree on Union Street is in the transition stage. One who knows the wide-spreading Ginkgos in the Boston Public Gardens and the avenue of great Ginkgos in the New York Botanical Gardens wishes that more might become settled on Nantucket.

An interesting cone-bearing evergreen stands in the yard on the corner of Milk Street and New Dollar Lane, a beautiful pyramid of a tree, *Cryptomeria japonica* Don. This, like the Chinese scholar tree, is a native of the Orient. It is rarely seen in the North Atlantic states outside of arboretums although Philadelphia has some fine specimens. The story of its planting on Nantucket is an instance of the chance offering of unusual plants by the trade. According to Mrs. Charles Clark Coffin, her mother bought it about 15 years ago at the Central Market which was located where Mac's pharmacy is now. The small plant was bought for about two dollars with the idea that it would grow like barberry for a lawn shrub.[8]

At least three species of spruce are trying to hold their own in town but few of them look happy. In addition to an occasional pitch pine and Scotch pine in town there is the red or Norway pine, *Pinus resinosa* Ait. The beauty of its deep green foliage in the yard of 114 Main Street has been much enjoyed from the windows of the Maria Mitchell House.

The years of chance experiment in tree planting on Nantucket might well give way to more definite plans for increasing the numbers of those species which have proved adaptable to Nantucket conditions.

The native oaks should make good shade trees. The Scotch elm and the Chinese elm have proved themselves as settlers. Lindens are sturdy against the wind and fragrant in June. The feathery foliage of the honey locust might beautify other streets than Fair. The clean-growing tulip tree with its interesting leaves and blossoms, the Sophora and the Ginkgo to link us to China... all three might well have their single examples multiplied

in the town. And last of all, more plane trees, if only to replace the relic at the corner of Main Street and Ray's Court and start another century on Nantucket.

August, 1945. Many of the type species which are described in these pages have been damaged by the hurricanes of 1944 and 1945. It is too early to tell whether they will recover and stand as illustrations in later years. Therefore it has seemed best not to make substitutions at this time.

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TREES AND SHRUBS OF NANTUCKET

Key for Identification based chiefly upon Leaf Characters.

Identification keys unlock the names of the species included. Perhaps they might better be considered a collection of sign-boards set at successive forkings of the road. At any fork of the road one makes a choice of roads and later signs on the road not taken are of no interest. Likewise, in an identification key, when a choice is made from two or more balanced statements, only those subdivisions *under the choice made* are to be considered.

The tree names to which the key leads are given in two forms: the common or English name and the binomial or Latin name. The binomial includes first, the name of the group or *genus* of closely related plants; second, the name of the *species* or member of the genus. The name of the genus, the generic name, is a noun; that of the species, the specific name, is generally an adjective and follows the noun.

It is worth while to become familiar with the binomials. Whereas the common names may be only locally known, the binomials are known around the world. They may be pronounced with English sounds for the letters but should be divided into as many syllables as there are vowels or diphthongs in the word. A single consonant between vowels begins the following syllable.

The authorities for the nomenclature used in the following pages are Gray's Manual of Botany, 7th Edition for all plants therein included and Rehder's Manual of Cultivated Trees and Shrubs, 2nd. Edition. Due to recent changes in the rules of nomenclature and to the study of type specimens, many changes in these botanical names have been proposed and will be adopted when new editions of the plant manuals are published. Since it may be some time before they appear, it is thought best to use here the familiar names that can be found in readily available works.

The attempt has been made to use few technical terms in the descriptions. Where technical terms have been used they have been defined or explained on the occasion of their first use. Further descriptions of the terms and of the trees and shrubs may be found in reference books at the Maria Mitchell Library and the Athenaeum.

REFERENCE BOOKS ON TREES AND SHRUBS IN THE MARIA MITCHELL LIBRARY, NANTUCKET

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KEY FOR THE IDENTIFICATION OF TREES AND SHRUBS
OF NANTUCKET

A. Trees: Woody plants, usually with a single tall stem and a crown of branches. 1
A. Shrubs: Woody plants, usually with several stems forming a fairly low, bushy cluster. 67

1. Leaves *simple*: undivided, with margin entire, toothed or lobed but not cut to the midrib 2
1. Leaves *compound*: divided to the midrib or to the leaf stalk into distinct parts: *leaflets*. 43
2. Leaf with expanded surface 3
2. Leaf reduced to needle or scale. 56
3. *Free-forking* veins in a fan-shaped leaf: a primitive type found only rarely on Nantucket
Maidenhair Tree
Ginkgo biloba L.
3. *Netted veins*: the small veins connected by cross veins into a mesh throughout the leaf. . 4
4. Leaves set by threes on the twig: *whorled*. . . . . Catalpa
Catalpa bignonioides Walt.
4. Leaves set by twos on the twig: *opposite*. . 5
4. Leaves set by ones on the twig: *alternate* . 10
5. Primary veins several, radiating from the base of the expanded leaf portion: the *blade*: *palmately* veined
Genus *Acer* 6
5. Primary vein one with secondary veins arising along it: *pinnately* veined. . . . 9
6. Lobes radiating in star-like pattern . . 7
6. Three main lobes forward-pointing. . . . 8
7. Leaf smooth, dark green, 7-lobed, milky sap . . . Norway Maple
Acer platanoides L.
7. Leaf smooth, dark green, 5-lobed, watery sap. . . Sugar Maple
Acer saccharum Marsh.
7. Upper leaf surface furrowed by veins, 5 widely spreading lobes
Sycamore Maple
Acer pseudoplatanus L.

8.Lobes slightly toothed
Red Maple
Acer rubrum L.

8.Lobes deeply and irregularly toothed. . . . .Silver Maple
Acer saccharinum L.

9.Leaf large, heart-shaped, often set by 3's instead of 2's on the twig
Catalpa. 4

9.Leaf broad-elliptic, short-stalked, soft with minute hairs, veins furrowing the upper leaf surface, curved, a tree-shrub, See #72 . . . . . Flowering Dogwood
Cornus florida L.

9.Leaf slender-oval, long-pointed long-stalked, minutely saw-toothed: *serrulate*, branches slender, a shrub or spreading tree, See #70
Spindle Tree
Euonymus Bungeana Maxim.

10.Leaf evergreen, oval, thick, shining, wavy-margined with spiny teeth
American Holly
Ilex opaca Ait.

10.Leaf not evergreen, *deciduous* 11

11.Leaf margin either uncut: *entire* or serrulate. 12

11.Leaf margin either conspicuously saw-toothed: *serrate*, or lobed. . . . 19

12.Leaf large, 3 inches or more. Genus *Magnolia*. 13

12.Leaf less than 3 inches long. . . . 14

13.Leaf firm, with tapering base, a tree-shrub. See #94
Early Magnolia
Magnolia Soulangeana Soul.

13.Leaf thin, usually with rounded base, a large tree
Cucumber Tree
Magnolia acuminata L.

14.Leaf sap aromatic, leaf elliptic, without lobes but on the same tree there may be lobed leaves.
Genus *Sassafras*. . . . 38

14.Leaf sap not aromatic. 15

15.Leaf egg-shaped; *ovate*, with pointed tip: *acute* 16
15.Leaf lance-shaped: *lanceolate*, with acute or long-pointed tip: *acuminate*. 17
16.Leaf entire, smooth, shining.
Sour Gum, Tupelo
Nyssa sylvatica Marsh.
16.Leaf serrulate, smooth, shining.
Pear
Pyrus communis L.
16.Leaf serrulate, fairly smooth above, more or less woolly beneath.
Apple
Pyrus Malus L.
16.Leaf somewhat hairy above, thick-woolly beneath.
Quince
Cydonia oblonga Mill.
17.Leaf silvery-white with soft hairs on both surfaces, a thorny tree-shrub.
Silver Thorn, Russian Olive
Elaeagnus angustifolia L.
17.Leaf shining grey-green, roughened with a few scales beneath, making it a lustrous, metallic white, a tree-shrub.
Oleaster
Elaeagnus umbellata Thunb.
17.Leaf entire or serrulate, upper surface smooth.
Genus *Salix*. 18
A large and confusing genus with many hybrids. The following are among the commoner species on Nantucket.

18. Leaf broad-lanceolate, upper surface dark green, shining, small swellings: *glands* on edge of leaf-stalk: *petiole*. See #21.
Bay-leaved Willow
Salix pentandra L.

18. Leaf medium-lanceolate, dark green above, paler beneath, marginal teeth glandular.
Crack Willow
Salix fragilis L.

18. Leaf medium-lanceolate, green above, paler beneath, not glandular.
Purple Willow
Salix purpurea L.

18. Leaf slender-lanceolate, tapering at both ends, sharply serrulate, branches drooping.
Weeping Willow
Salix babylonica L.

18. Leaf slender, *oblanceolate*: broader at tip, serrulate, pale beneath.
Smooth Willow
Salix discolor Muhl.

18. Leaf narrow-lanceolate, rolled edge, silvery-silky beneath.
Basket Willow
Salix viminalis L.

19. Leaf *symmetrical*: the two sides similar in outline. 20

19. Leaf *unsymmetrical*: the two sides unlike in outline 37

20. Small swellings: *glands* on the petiole. See #90 21

20. No glands on the petiole 22

21. Two reddish glands on petiole just below the blade, leaf lanceolate,

small incurved marginal teeth, crushed leaves with bitter odor. .Black Cherry
Prunus serotina Ehrh.

21.As above but leaf shorter and broader, elliptic or obovate, sharply serrate.
Cultivated Cherry
Prunus Cerasus L.

21.Leaf lanceolate, tapering to both ends, 4-7 inches long, margin often wavy, with short, sharp-pointed teeth.
Peach
Prunus Persica (L.) Stokes

21.Tiny black glands on upper side of petiole and on upper surface of blade. Bark white with triangular black markings below the branches.
Grey Birch
Betula populifolia Marsh.

21.Glands on edge of petiole, leaf broad-lanceolate, shining, See #18
Salix pentandra L.

22.Leaf approximately triangular, ovate with a more or less straight base, margin toothed.
Genus *Populus*. 23

22.Leaf ovate-elliptic, sharply toothed or lobed.
Genus *Crataegus*. . . . 25

22.Leaf large, orbicular in general outline but deeply 3 or 5 lobed. 26

22.Leaf large, long-elliptic, serrate or lobed. 29

23.Leaf stalk laterally compressed just below the blade. 24

23.Leaf stalk not compressed but rounded, leaf white-downy beneath, margin

with large, blunt teeth.
White Poplar
Populus alba L.

24.Leaf ovate, heart-shaped, buds pointed, elongated, sticky and aromatic.
Balm-of-Gilead
Populus candicans Ait.

24.Leaf with slightly heart-shaped base, finely serrate.
Aspen Poplar
Populus tremuloides Michx.

24.Leaf ovate, pointed, marginal teeth unequal, leaf grey beneath.
Large-toothed Poplar
Populus grandidentata Michx.

24.Leaf broadly triangular with a straight base, surface glistening, 2 glands at base of blade, fine hairs among marginal teeth.
Cottonwood
Populus deltoides Marsh.

24.Leaf broadly triangular with long-pointed tip, marginal teeth with incurved, thickened points but no glands or hairs.
Carolina Poplar
Populus canadensis Moench.

25.Leaf shining green, wedge-shaped: *obovate*, toothed toward the tip.
Cockspur Thorn
Crataegus Crus-galli L.

25.Leaf dull green, broadly ovate, doubly serrate: serrations on each tooth.
Hawthorn
Crataegus submollis Sarg.

25.Leaf 3-5 lobed.
English Hawthorn
Crataegus monogyna Jacq.

26.Leaf smooth, dark green, 3-lobed, the two lateral lobes square cut, the middle one indented.
Tulip Tree
Liriodendron Tulipifera L.

26.Leaf with 3-5 pointed lobes, base of petiole enlarged and tubular, surrounding the twig and covering the lateral bud.
Genus *Platanus* 27

26.Leaf with 2 thumb-like lateral lobes; others on the same tree without lobes or with one lobe . . 28

27.Leaf as broad as, or broader than long, one ball only on each blossom stalk.
Western Plane Tree, Sycamore
Platanus occidentalis L.

27.Leaf as long as or longer than broad, central lobe usually elongated, more than one ball usually on each blossom stalk.
London Plane Tree
Platanus acerifolia (Ait.) Willd.

28.Leaf margin entire.
Genus *Sassafras*. 38

28.Leaf margin toothed.
Genus *Morus*. 38

29.Leaf thin, smooth, green on both sides, not lobed . 30

29.Leaf thick, lobed.
Genus *Quercus* 32

30.Leaves set in more than 2 rows on the stem.
American Chestnut
Castanea dentata (Marsh.) Borkh.

30.Leaf set in 2 rows on the stem: *2-ranked.* Genus *Fagus*. 31

31.Leaf with sharp teeth.
American Beech
Fagus grandifolia Ehrh.

31.Leaf with short, blunt teeth or margin merely wavy.
European Beech
Fagus sylvatica L.

32.Lobes rounded, not bristle-tipped. 33

32.Lobes pointed, bristle-tipped. 34

33.Lobes cut halfway or more to the mid-rib, petiole ½-1 inch long.
White Oak
Quercus alba L.

33.Lobes cut less than half way to the mid-rib, petiole not more than ½ inch long, ear-like projections at the base of the blade.
English Oak
Quercus robur var. *pedunculata* Ehrh.

33.Lobes 3-5, the sub-terminal ones square-cut, forming a broad-shouldered leaf, persistent yellow hairs on under leaf surface.
Post Oak
Quercus stellata Wang.

34.Lobes 5-7, sharply toothed, irregular, triangular, See #95.
Scrub Oak
Quercus ilicifolia Wang.

34.Lobes 5-9, rounded *sinuses*: indentations, reaching usually only about half way to the midrib 35

34.Lobes 5-9, rounded sinuses reaching nearly to midrib, leaf thin, smooth, light green, petioles slender. 36

35.Lobes broadening outward from their bases, leaf thick, dark green, soft-hairy beneath, petiole stout, acorn cup deep with loose, velvety scales and fringed edge, acorn without rings below the tip or with only one ring.
Black Oak
Quercus velutina Lam.

35.Lobes narrowing outward from their bases, acorn cup shallow, with smooth, close scales and edge not fringed, acorn with 2 or more faint rings below the tip.
Red Oak
Quercus rubra L.

36.Horizontal-spreading branches, acorn cup deep, scales smooth, rim smooth, 2 or more rings on acorn just below tip.
Scarlet Oak
Quercus coccinea Muench.

36.Lower branches slanting downward from the

trunk, acorn cup small, shallow, saucer-shaped.
Pin Oak
Quercus palustris Muench.

37. Leaf with a lobe on one side only: a mitten-shaped leaf. There are often symmetrical leaves, without lobes or with 2 lateral lobes on the same branch 38

37. Base of leaf rounded on one side and obliquely cut on the other . 39

38. Leaf aromatic, margin entire.
Sassafras
Sassafras variifolium (Salisb.) Ktze.

38. Leaf not aromatic, margin irregularly toothed, upper surface shining, rough, sap milky.
White Mulberry
Morus alba L.

39. Leaf elliptic, doubly serrate, sharp-pointed.
Genus *Ulmus*. 40

39. Leaf broad-ovate to orbicular, serrate, sharp-pointed, under surface hairy in tufts at angles of the veins.
Genus *Tilia*. 42

40. Leaf broadest near the middle. 41

40. Leaf broadest just below the tip.
Scotch Elm
Ulmus glabra Huds.

41. Leaf 2-3 inches long, surface rough.
White Elm
Ulmus americana L.

41. Leaf less than 2 inches long, surface smooth, branches slender and drooping.
Chinese Elm
Ulmus pumila L.

42.Leaf large, 5-6 inches long, flower bract without stalk; *sessile*.
American Basswood
Tilia americana L.

42.Leaf large, 4-5 inches long, thick, smooth, dark green above, grey hairs beneath.
Downy Basswood
Tilia neglecta Spach.

42.Leaf 2½-4 inches long, flower bract stalked.
European Linden
Tilia europaea L.

42.Leaf 2-4 inches long, lustrous above, pale green and smooth beneath.
Crimean Linden
Tilia euchlora K. Koch.

42.Leaf small, 1½-2½ inches long, often broader than long, flower bract stalked.
Little Leaf Linden
Tilia cordata Mill.

43.Compound leaves (not their leaflets) opposite one another on the twig 44

43.Compound leaves alternate on the twig 50

44.Leaflets set along a central stalk or midrib like the pinnae of a feather: *pinnately compound* 45

44.Leaflets radiating from the tip of the petiole like fingers from the palm: *palmately compound*.. 48

45.Leaf *odd-pinnate*: the paired leaflets tipped by a single leaflet. 46

46.Leaflets 3 or 5, margins with a few large teeth,... See #6.
Box Elder
Acer Negundo L.

46.Leaflets 5-11. .Genus *Fraxinus* 47

47.Leaflets stalked, inconspicuously serrate dark green above, light beneath . . .White Ash
Fraxinus americana L.

47.Leaflets stalked, margin entire or irregularly serrate, green on

both sides. .Green Ash
Fraxinus pennsylvanica var. *lanceolata* Sarg.

47.Terminal leaflet stalked, lateral leaflet sessile, sharply serrate, green on both sides.
Black Ash
Fraxinus nigra Marsh.

47.Leaflets sessile, sharply toothed, dark green above, pale beneath.
European Ash
Fraxinus excelsior L.

48.Leaflets 5-7, wedge-shaped: *obovate*
Genus *Aesculus* 49

49.Leaflet doubly blunt-toothed, sessile, buds sticky. . .Horsechestnut
Aesculus Hippocastanum L.

49.Leaflet doubly sharp-toothed, stalked, buds slightly sticky.
Red-flowered Horsechestnut
Aesculus carnea Hayne.

50.Leaves *once compound*: only one series of leaflets to a leaf 51

50.Leaves *twice compound*: some of the leaflets cut to their midribs into a secondary series of leaflets 55

51.Leaflets small, *even-pinnate*: no terminal leaflet, branching thorns on twigs and trunk. Occasionally there are twice-compound leaves on the same tree.
Honey Locust
Gleditsia triacanthos L.

51.Leaflets *odd-pinnate*: having a terminal leaflet 52

52.Leaf large, 12-40 inches long, 13-19 large leaflets, a few gland-tipped teeth at bases of leaflets.
Tree of Heaven
Ailanthus glandulosa Desf.

52.Leaf about 12 inches long, leaflets ovate, entire, without spines.
Schdlar Tree, Pagoda Tree
Sophora japonica L.

52. Leaf about 12 inches long, 5-25 oval or oblong leaflets, *stipules*: projections at base of petiole, usually

spiny, petiole set over the lateral bud. . . . . .Genus *Robinia*. 53

52.Leaf 8-18 inches long, leaflets yellow-green, serrate, terminal leaflet larger than the paired leaflets . . . .Genus *Carya*. 54

53.Petioles smooth, a large tree.
Black Locust
Robinia Pseudo-Acacia L.

53.Petioles sticky, a shrubby tree.
Clammy Locust
Robinia viscosa Vent.

54.Foliage resinous-scented, margins of leaflets smooth.
Mocker Nut Hickory
Carya alba (L.) K. Koch.

54.Foliage not resinous-scented, margins of leaflets hairy.
Shagbark Hickory
Carya ovata (Mill.) K. Koch.

55.Twice-compound, even-pinnate leaves on same tree as once-compound leaves
Honey Locust . . .See #51

55.Twice-compound, odd-pinnate leaves, very large, bronze-green, shining, base of petioles of first degree compound leaflets as well as base of main petiole often swollen, lowest leaflets usually undivided.
Kentucky Coffee Tree
Gymnocladus dioica (L.) Koch.

56.Leaves long, slender, needle-shaped 57

56.Leaves short-needle or awl-shaped 63

56.Leaves reduced to mere scales 66

57.Thick or leathery leaves: *evergreen*. . . . 58

57.Not evergreen, *deciduous* 62

58.Needles 2-5 inches long, in clusters of 2-5, arising from very short twigs or dwarf branches.
Genus *Pinus*. 59

59.Dwarf branches not persistent: *deciduous*, 5 needles in a cluster.
White Pine
Pinus Strobus L.

59.Dwarf branches persistent, roughening the bark of the twigs 60

60.Needles 3 in a cluster.
Pitch Pine, Yellow Pine
Pinus rigida Mill.

60.Needles 2 in a cluster 61

61.Needles about 2 inches long, straight, bright green, pyramidal tree or dwarf shrub.
Mugo Pine, Swiss Mountain Pine
Pinus Mugo Turra.

61.Needles about 2 inches long, twisted, silvery-green.
Scotch Pine
Pinus sylvestris L.

61.Needles 3-5 inches long, stiff, dark green.
Black Pine
Pinus Thunbergii Parl.

61.Needles 4-6 inches long, slender, flexible, bright green. Red Pine
Pinus resinosa Ait.

61.Needles 2-4 inches long, stiff, margin rough.
Chinese Pine
Pinus tabulaeformis Carr.

62.Needles about 1 inch long, cylindrical, several in a cluster, arising from wart-like, persistent *dwarf branches*. .European Larch
Larix decidua Mill.

62.Needles about ½ inch long, flat, thin, light green, set singly in 2 rows on the twig. . . . .Bald Cypress
Taxodium distichum (L.) Rich.

63.Leaves ½ inch long, sharp-pointed, stiff, opposite; the young stage of the Red Cedar. . . . . .Genus *Juniperus*. . . . 66

63.Leaves ½-1 inch long, square in cross section, tips curved, bases running down the twig: *decurrent*, leaves set closely on the twig in alternate zones of shorter and longer leaves.
Cryptomeria
Cryptomeria japonica D. Don

63.Leaves ½-1 inch long, flattened, 2 silvery stripes beneath, sessile on the twigs leaving merely circular scars on smooth twigs after the fall of the leaves . . . . . .Genus *Abies*. 64

64.Leaves about 1 inch long, dark green above, silvery beneath, aromatic. . . . .Balsam Fir
Abies balsamea (L.) Mill.

64.Leaves 1 inch long, bluish green, irregularly arranged on the twig, curving upward, buds resinous.
White Fir
Abies grandis Lindl.

63.Leaves about 1 inch long, stiff, pointed, set singly all round the twig on short, slender petioles which are persistent after the leaf falls, making a rough bark.
Genus *Picea*. 65

65.Leaf blue-green with a whitened surface, tip incurved.
Blue Spruce
Picea glauca (Moench.) Voss.

65.Leaf light-green, somewhat ill-smelling. . . . .White Spruce
Picea canadensis (Mill.) BSP.

65.Leaf ½-¾ inch long, dark green, shining, spirally crowded on the branches . . . . Norway Spruce
Picea Abies (L.) Karst.

66.Branches cylindrical, scales similar, set opposite each other close against the branch. Awl-shaped needles of the juvenile type may occur on the same tree. See #63 . . .Red Cedar
Juniperus virginiana L.

66.Branches flat, scales of two types: two broad scales set opposite each other close against the twig; two narrower scales set opposite each other on the two edges of the twig, making the foliage appear as if pressed. . . . . .Arbor Vitae
Thuja occidentalis L.

67.Leaves *simple*: undivided, entire, toothed or lobed but not cut to the midrib 68
67.Leaves *compound*: leaf blade divided to the midrib or to the petiole, forming distinct leaflets. . . 105
68.Leaf with expanded blade 69
68.Leaf blade reduced to needle or scale. 116
69.Leaves *opposite*: 2 or occasionally 3 at a *node*: the point where leaves occur on a stem. 70
69.Leaves *alternate*: 1 at a node 86
70.Leaf margin entire 71
70.Leaf margin cut in varying degrees . . . 75
71.Veins conspicuous, especially on under surface 72
71.Veins inconspicuous 73
72.Leaf broad-elliptic, short-stalked, soft with minute hairs, veins curved, a tree-shrub. See #9.
Flowering Dogwood
Cornus florida L.
72.Leaf long-elliptic, smooth, green beneath. . .Fringe Tree
Chionanthus virginica L.
72.Leaf long-ovate, smooth, 2 or 3 at one node. . Buttonbush
Cephalanthus occidentalis L.
72.Leaf ovate, pointed, green and shining above, grey and soft beneath. . . .Carolina Allspice
Calycanthus floridus L.
72.Leaf narrowly ovate, leathery, olive-green, evergreen, 3 at a node, a shrub only 1 or 2 feet high. See #89
Sheep Laurel
Kalmia angustifolia L.
73.Leaf oblong-ovate, firm, short-petioled, dark green, smooth.
Privet
Ligustrum vulgare L.
73.Leaf ovate to elliptical, thin, short-petioled.
Genus *Lonicera* 74
74.Leaf smooth, deeply veined, a bushy shrub.
Tartarian Honeysuckle
Lonicera tatarica L.

74.Leaf rough-hairy, a tree-shrub.
Honeysuckle
Lonicera Maackii var. *podocarpa* Rend.

74.Leaf smooth, half-evergreen, a tangled vine.
Trailing Honeysuckle
Lonicera japonica Thunb.

73.Leaf more or less triangular with broad, straight or slightly heart-shaped base. . Lilac
Syringa vulgaris L.

75.Leaf lanceolate or ovate, margin scalloped: *crenate*, surface rough.
Genus *Deutzia*. 76

75.Leaf lanceolate-ovate, apical half of margin toothed.
Forsythia
Forsythia suspensa (Thunb.) Vahl.

75.Leaf elliptic, finely toothed or crenate, 1-2 inches long. See #9.
Genus *Euonymus* 77

75.Leaf elliptic, 2 or more inches long, shallow-toothed, surface rough, deeply veined, petiole set over lateral bud . . . . . .Mock Orange
Philadelphus coronarius L.

75.Leaf ovate-orbicular, 1-3 inches long, margin sharply toothed or 3-lobed, surface deeply veined.
Genus *Viburnum* 80

75.Leaf ovate or orbicular, 3 or more inches long. . Genus *Hydrangea*. . . . 83

76.Leaf lanceolate, a low bush.
Deutzia
Deutzia gracilis Sieb.& Zucc.

76.Leaf lanceolate-ovate, a tall bush . . . .Deutzia
Deutzia magnifica (Lemoine) Rehd.

77.Leaf thick, leathery, evergreen. 78

77.Leaf deciduous 79

78. Leaf shining, dark green above, light green beneath, smooth, finely crenate, an upright shrub . .Euonymus
Euonymus japonica L.

78. Leaf duller than the above, often variegated with white, a trailing shrub.
Euonymus
Euonymus Fortunei var. *radicans* (Miq.) Rehd.

79. Leaf thin, branches with 2-4 corky wings.
Wahoo Bush
Euonymus alata (Thunb.) Sieb.

79. Leaf thin, long-petioled, acuminate, serrulate, with incurved teeth, a shrub or small tree with close, light-grey bark.
Spindle Tree
Euonymus europaea L.

80. Leaf rounded at base 81

80. Leaf tapering at base. 82

81. Leaf 1-2 inches long, smooth & shining above, soft-hairy beneath with star-shaped hairs, fruit blue.
Arrow-wood
Viburnum venosum Britton

81. Leaf 1-2 inches long, smooth on both sides or hairy only in the angles of veins on under surface, fruit blue.
Arrow-wood
Viburnum dentatum L.

81. Leaf 3-lobed, glands on petiole, flat flower cluster, fruit red.
High-bush Cranberry
Viburnum Opulus L.

81. Leaf 3-lobed, spherical flower clusters, no fruit.
Snowball
Viburnum Opulus var. *sterile* DC.

82.Leaf not lobed, 3 inches long, fruit red turning blue-black.
Arrow-wood
Viburnum pubescens Pursh.

83.Leaf short-stalked. 84

83.Leaf long-stalked, 1 inch or more. 85

84.A tree-shrub, blossom clusters white. . Bush Hydrangea
Hydrangea paniculata Sieb.

85.A scarcely woody shrub, petioles of leaves much shorter than the large fleshy leaves, pink and blue flower clusters flat.
Hydrangea
Hydrangea macrophylla (Thun.) DC.

85.Flowers sterile in a globose cluster, pink and blue.
Hydrangea macrophylla var. *Hortensia* Rehd.

85.A scarcely woody shrub, petioles nearly as long as the leaf blades, flowers sterile in a globose cluster.
Hydrangea arborescens var. *cordata grandiflora* Rehd..

85.A shrubby vine, petioles often as long as the leaf blade.
Climbing Hydrangea
Hydrangea petiolaris Sieb. & Zucc.

86.Main veins radiating from the base of the blade: *palmate venation*. 87

86.One main vein with secondary ones along it: *pinnate venation* 88

87.Leaf 5-nerved, round-ovate, leathery, shining, margin entire, branches armed with stout spines, climbing by tendrils and twining stem.
Green Brier
Smilax rotundifolia L.

87.Leaf large, orbicular, 3-5 angled or lobed, young leaves rusty-woolly

beneath, a vine with tendrils.
Fox Grape
Vitis labrusca L.
(The Concord is a cultivated variety of this species)

87.Leaf large, orbicular, generally deeply 5-lobed, branches and leaves densely rusty-woolly, tendrils intermittant.
Vitis aestivalis Michx.

87.Leaf 3-lobed with straight base.
Gooseberry
Ribes oxycanthoides L.

87.Leaf with 3-lobed apex and wedge-shaped base. . Althaea, Rose of Sharon
Hibiscus syriacus L.

87.A 3-lobed, maple-like leaf, bark shredding in strips.
Ninebark
Physocarpus opulifolia Maxim.

88.Leaf stiff, leathery, evergreen . . . 89

88.Leaf deciduous. 90

89.Leaf small, $\frac{1}{2}$-1 inch long, narrowly obovate.
Bearberry
Arctostaphylos Uva-ursi (L.) Spreng.

89.Leaf small, $\frac{1}{2}$-1$\frac{1}{2}$ inches long, elliptic, deep green.
Boxwood
Buxus sempervirens L.

89.Leaf small, $\frac{1}{2}$-1$\frac{1}{2}$ inches long, yellow-green, rusty-scurfy beneath. . . .Cassandra
Chamaedaphne calyculata (L.) Moench.

89.Leaf 1-1$\frac{1}{2}$ inches long, oblong, shining, sparingly toothed toward the tip, See #10 & 98.
Inkberry
Ilex glabra (L.) Gray

89.Leaf 2-3 inches long, elliptic, green on both sides. See #72.
Mountain Laurel
Kalmia latifolia L.

89.Leaf large, 3 or more inches long, oblong, edge recurved. See #98.
Rhododendron
Rhododendron sp.

90.Two glands on petiole just below the blade. See #21.
Beach Plum
Prunus maritima Wang.

90.No glands on petiole 91

91.Leaf aromatic.
Genus *Myrica* 92

91.Leaf not aromatic 93

92.Leaf wedge-lanceolate, serrate toward the tip, pale green.
Sweet Gale
Myrica Gale L.

92.Leaf oblong, entire or slightly toothed toward the tip.
Bayberry
Myrica carolinensis Mill.

92.Leaf narrow-lanceolate, with rounded teeth on margin, hairy beneath.
Sweet Fern
Myrica asplenifolia L.

93.Leaf large, over 3 inches long 94

93.Leaf of medium size, 2-3 inches long. 96

93.Leaf small, not over 2 inches long. 98

94.Leaf margin entire, a tree-shrub. See #13.
Magnolia
Magnolia Soulangeana Soul.

94.Leaf margin crenate or lobed, leaf thick, often leathery. See #32.
Genus *Quercus*. 95

95.Leaf crenate, without bristles, white-woolly beneath.
Dwarf Chestnut Oak
Quercus prinoides Willd.

95.Leaf as the above but with both white and tawny wool beneath.
Dwarf Chestnut Oak
Quercus prinoides var. *rufescens* Rehd.

95.Leaf lobes irregular, triangular, bristle-tipped. See # 34.
Scrub Oak
Quercus ilicifolia Wang.

96.Leaf 2-3 inches long, wedge-shaped, sharply serrate.
Sweet Pepperbush
Clethra alnifolia L.

96.Leaf 2-3 inches long, oblong, finely toothed, bright green, soft-hairy.
Silver Bell
Halesia carolina L.

96.Leaf 2-3 inches long, ovate-oblong, finely serrate, rounded base, short-pointed tip.
Genus *Amelanchier*. . . 97

97.Leaf smooth, bronze-green when young, green on both sides when mature.
Shad Bush
Amelanchier canadensis (L.) Medic.

97.Leaf grey with silky hairs on both surfaces when young, pale green beneath when mature.
Shad Bush
Amelanchier oblongifolia (T. & G.) Roem.

98.Leaf 2 inches long, ovate, bluntly short-toothed, a shrubby vine.
Bitter-sweet
Celastrus scandens L.

98.Leaf 2 inches long, ovate, doubly serrate.
Genus *Corylus*. 99
99.Twigs and petioles bristly, fruit with ruffled bract.
Hazel Nut
Corylus americana Walt.
99.Twigs and petioles soft-hairy, fruit beaked.
Beaked Hazel Nut
Corylus rostrata Ait.
98.Leaf 1-2 inches long, inverted ovate: *obovate*, finely serrate, downy on veins beneath.
See #10.
Winterberry
Ilex verticillata (L.) Gray
98.Leaf 1-2 inches long, obovate, finely serrate or entire, minutely hairy.
Andromeda, Male Berry
Lyonia ligustrina (L.) DC.
98.Leaf 1-2 inches long, lance-shaped, shining, minutely serrate, each tooth tipped by a stiff hair. See #89.
Clammy Azalea
Rhododendron viscosum (L.) Torr.
98.Leaf 1-2 inches long, oblong-oblanceolate, finely serrate. See #16.
Genus *Pyrus*. 100
100.Midrib of leaf glandular on upper side, grey and soft-hairy beneath, fruit red.
Red Chokeberry
Pyrus arbutifolia var. *atropurpurea* (Brit.) Robinson

100. Under surface of leaf smooth, fruit black.
Black Chokeberry
Pyrus melanocarpa (Michx.) Willd.

98. Leaf 1-2 inches long, wedge-shaped, coarsely toothed, scurfy.
Groundsel
Baccharis halimifolia L.

98. Leaf ½-2 inches long, obovate, short-petioled.
Genus *Berberis* 101

101. Leaf 1-2 inches long, bristle-toothed, in clusters above a triple spine which is an altered leaf.
Common Barberry
Berberis vulgaris L.

101. Leaf ½-1 inch long, margin entire, spine single.
Japanese Barberry
Berberis Thunbergii DC.

98. Leaf 1-2 inches long, sprinkled with resinous or waxy dots.
Genus *Gaylussacia*. . . 102

102. Leaf obovate-oblong, thick and shining, needle-pointed, green on both sides.
Swamp Huckleberry
Gaylussacia dumosa (Andr.) T. & G.

102. Leaf ovate-oblong, thickly clothed with shining, resinous globules.
Moor Huckleberry
Gaylussacia baccata (Koch.)

102. Leaf oblong-ovate, blunt, pale, soft-hairy beneath.
Wood Huckleberry
Gaylussacia frondosa (L.) T & G.

98.Leaf 1-2 inches long,
not resinous.
Genus *Vaccinium*. . . . 103
103.Leaf elliptic, green
above, pale beneath,
margin soft-hairy,
a tall shrub.
High Bush Blueberry
Vaccinium corymbosum L.
103.Leaf lance-elliptic,
green both sides,
margin with minute,
bristle-tipped teeth.
Dwarf Blueberry
Vaccinium pennsylvanicum Lam.
103.Leaf obovate, pale,
smooth, entire or
minutely serrate.
Late, Low Blueberry
Vaccinium vacillans Kalm.
98.Leaf 1-2 inches long,
linear-lanceolate,
white-woolly. See #18.
Dwarf Willow
Salix tristis Ait.
98.Leaf 1 inch or less, thin.
Genus *Spiraea*. 104
104.Leaf broad-oblong,
coarsely serrate,
smooth.
Meadow-sweet
Spiraea latifolia Borkh.
104.Leaf oblong, serrate,
brown-woolly beneath.
Steeple Bush
Spiraea tomentosa L.
104.Leaf ovate-orbicular,
cut-toothed or 3-lobed,
bluish green beneath.
Bridal Wreath
Spiraea trilobata L.
104.Leaf linear, serrate.
Spiraea
Spiraea Thunbergii Sieb.

105.Leaf *once compound*: one series of leaflets. . 106
105.Leaf *twice compound*: some of the leaflets cut to the midrib to form a secondary series of leaflets 115
106.Leaf *trifoliate*: one pair of leaflets plus a terminal leaflet 107
106.Leaflets more than three. 109
107.Margin of leaflets entire.
Golden Chain Tree
Laburnum alpinum
Bercht. & Prsl.
107.Margin of leaflets irregularly toothed, plant smooth, poisonous to the touch. See #112.
Poison Ivy
Rhus Toxicodendron L.
107.Margin of leaflets irregularly and coarsely toothed, stems and petioles armed with prickles, leaflets sometimes 5.
Genus *Rubus*. 108
A large and variable genus, containing many hybrids. The following are among the common species.
108.Canes arched-recurving, prickles stout, leaflets smooth above, velvety beneath, occasionally 5 leaflets on leaves of older stems.
Blackberry
Rubus frondosus Bigel.
108.Leaflets rhombic-ovate, doubly serrate, smooth, dull, stems elongate, becoming prostrate, prickles stout, backward turning . . . .Dewberry
Rubus villosus Ait.
108.Leaflets smooth, firm, shining, dark green, stems prostrate trailers, prickles backward turning . .Small Dewberry
Rubus hispidus L.
109.Leaflets 5, palmate 110
109.Leaflets 5 or more, odd-pinnate, See #108 111

110.Leaflets oblong-lanceolate, coarsely serrate, stems trailing, climbing by tendrils, dull green, paler beneath.
Virginia Creeper
Psedera quinquefolia (L.) Greene

110.Leaflets elliptic, margins serrate, sharp spines below the petioles.
Spiny Panax
Acanthopanax Sieboldianus Mak.

111.Leaves opposite, 5-7 leaflets, some leaves twice compound, a pithy shrub. See #114.
Elder
Sambucus canadensis L.

111.Leaves alternate. 112

112.Leaf long and feather-like, the swollen base of the petiole set over the lateral bud. See #107.
Genus *Rhus* 113

113.7-13 entire leaflets, the pairs standing half erect on the main leaf stalk, stalk red.
Poison Sumac, Poison Dogwood.
Rhus Vernix L.

113.11-21 unsymmetrical leaflets, shining, with winged stalks.
Dwarf Sumac
Rhus copallina L.

113.11-31 serrate leaflets, stalks smooth.
Smooth Sumac
Rhus glabra L.

113.11-31 serrate leaflets, stalks hairy.
Staghorn Sumac
Rhus typhina L.

112.13-23 large leaflets, soft, green on both sides, sharply and doubly serrate, stipules at base of the main leaf stalk..Bushy Spiraea
Sorbaria assurgens Vilm. & Bois.

112.15-19 entire, pointed leaflets, 2 slender bracts at base of each set of leaflets, a woody climber.
Wisteria
Wisteria sinensis (Sims.) Sweet

112.9-13 small, elliptic leaflets, dull green, indented tips
Bladder Senna
Colutea arborescens L.

112.5-7 serrate leaflets, stipules leafy, thorny shrubs.
Genus *Rosa* 114

114.Leaflets narrow-elliptic, shining, dark green, sharply serrate, stipules simple wings, spines more or less hooked.
Wild Rose
Rosa virginiana Mill.

114.Leaflets narrow-oblong, finely serrate, dull green, stipules very narrow, spines fairly straight.
Wild Rose
Rosa carolina L.

114.Leaflets larger, thick, deeply veined, dark, blue-green above, pale and soft beneath, stipules leafy, spines of varying lengths.
Rugose Rose
Rosa rugosa Thunb.

115.2 pair of lower leaflets pinnately compound, the others simple,. leaves opposite. . . . . .Elder. See #110.

115.11-31 pinnately compound leaflets, deeply toothed, soft-hairy. See #112.
Cut-leaved Sumac
Rhus typhina var. *dissecta* Rehd.

115.Huge leaves with pinnately compound, toothed leaflets, base of main leaf stalk encircling the stem, stalks armed with slender prickles erect at the base of the leaflets.
Hercules Club
Aralia spinosa L.

116.Leaf deciduous, small scales, sheathing the stems, grey-green.
Tamarisk
Tamarix parviflora DC.

116.Leaf firm or leathery, evergreen 117

117.Leaf a tiny needle, ½ inch long, yellow-green, set radially around the stems, low, spreading shrubs, making a heath-like ground cover.
Broom Crowberry
Corema Conradii Torr.

117.Leaf linear, 1 inch long, abruptly pointed, dark green above, yellow-green beneath, prominent midrib.
Yew
Taxus cuspidata Sieb. & Zucc.

117.Leaf ½ inch long, sharp-pointed, stiff. See #63.
Genus *Juniperus*. . . . 118

118.Leaves opposite on the twig, young trees, 1-2 feet high, the young stage of the Red Cedar. See #63.
Red Cedar
Juniperus virginiana L.

118.Leaves in 3's on the twig. 119

119.Leaf with white stripe on the upper side, a low, sprawling shrub.
Ground Junpier
Juniperus communis var. *depressa* Pursh.

119. Leaves as the above but a narrow pyramidal shrub.
Irish Juniper
Juniperus communis var. *hibernica* Gord.

LIST OF TREES AND SHRUBS INCLUDED IN THE KEY

This list of Nantucket trees and shrubs does not presume to be complete. It will have served a purpose if it should stimulate readers to find additions to the list.

Assistance in many determinations of species has been given by Dr. Lyman Smith of the Gray Herbarium, Harvard, Mr. E. J. Palmer of the Arnold Arboretum, Harvard, and Mr. S. N. F. Sanford of the Museum of Natural History, Boston. Through the determinations of these scientists the list has far exceeded the first expectation and gives an index of the extensive and varied plantings which have been made on the Island during the last century. Nevertheless this result is incidental to the original purpose of the publication:--that of offering a non-technical Key by which the non-botanist could become acquainted with Nantucket's trees and shrubs.

I have not indicated the native and the introduced species in the list. I have, however, starred all those species which were in Bicknell's list of Nantucket plants, 1908-1919, and I have double-starred those which Bicknell called introduced species. The remainder are, by inference, introduced since Bicknell's time.

LIST OF TREES INCLUDED IN THE KEY

Binomial	Common Name	Location of type specimen
1. Abies balsamea (L) Mill.	Balsam Fir	Estate of Bassett Jones
2. Abies grandis Lindl.	White Fir	127 Main Street
3. Acer Negundo L.	Box Elder	Vestal St.
**4. Acer platanoides L.	Norway Maple	Pine St.
**5. Acer pseudoplatanus L.	Sycamore Maple	Milk St.
*6. Acer rubrum L.	Red Maple	Ram Pasture
7. Acer saccharum Marsh.	Sugar Maple	Cor. Gardner & Main Sts.
**8. Acer saccharinum L.	Cut-leaved Silver Maple	Cor. Darling & Main Sts.
9. Aesculus carnea Hayne	Red-flowered Horse-chestnut	Vestal St.
10. Aesculus Hippocastanum L.	Horse-chestnut	Vestal St.
**11. Ailanthus glandulosa Desf.	Tree of Heaven	Union St.
*12. Betula populifolia Marsh.	Grey Birch	Polpis Road
*13. Carya alba (L.) K. Koch.	Mocker Nut Hickory	Pocomo Swamp
**14. Carya ovata (Mill.) K. Koch	Shagbark Hickory	The Larches
**15. Catalpa bignonioides Walt.	Catalpa	Cor. Pine & Summer Sts.

Binomial	Common Name	Location of type specimen
**16. Castanea dentata (Marsh.) Borkh.	American Chestnut	The Larches
*17. Cornus florida L.	Flowering Dogwood	Hidden Forest
**18. Crataegus Crus-galli L.	Cockspur Thorn	Cor. Main St. & Ray's Court
19. Crataegus monogyna Jacq.	English Hawthorn	Orange St.
20. Crataegus submollis Sarg.	Hawthorn	Ray's Court
21. Cryptomeria japonica D. Don	Cryptomeria	Cor. New Dollar Lane & Milk St.
22. Cydonia oblonga Mill.	Quince	Vestal St.
23. Elaeagnus angustifolia L.	Silver Thorn	Cor. Easton & So. Beach St.
24. Elaeagnus umbellata Thunb.	Oleaster	Wauwinet
25. Euonymus Bungeana Maxim.	Spindle Tree	Hiller's Lane
*26. Fagus grandifolia Ehrh.	American Beech	Hidden Forest
27. Fagus sylvatica L.	European Beech	Upper Main St.
**28. Fraxinus americana L.	White Ash	Academy Lane
**29. Fraxinus excelsior L.	European Ash	Cor. Orange & Coon Sts.
30. Fraxinus nigra Marsh.	Black Ash	Civic Park
31. Fraxinus pennsylvanica var. lanceolata Sarg.	Green Ash	Civic Park
32. Ginkgo biloba L.	Maiden-hair Tree	Union St.
33. Gleditsia triacanthos L.	Honey Locust	Fair St.
34. Gymnocladus dioica (L.) Koch.	Kentucky Coffee Tree	Union St.
*35. Ilex opaca Ait.	Holly	Hidden Forest
*36. Juniperus virginiana L.	Red Cedar	Coatue
**37. Larix decidua Mill.	European Larch	The Larches
38. Liriodendron Tulipifera L.	Tulip Tree	Centre St.
39. Magnolia acuminata L.	Cucumber Tree	Broad St.
40. Magnolia Soulangeana Soul.	Early Flowering Magnolia	Winter St.
**41. Morus alba L.	White Mulberry	Academy Lane
*42. Nyssa sylvatica Marsh.	Sour Gum	Quidnet Road
43. Picea canadensis (Mill.) BSP.	White Spruce	Estate of Bassett Jones
44. Picea Abies (L.) Karst.	Norway Spruce	Union St.
45. Picea glauca (Moench.) Voss.	Blue Spruce	Union St.
46. Pinus mugo Turra.	Mugo Pine	Estate of Bassett Jones
47. Pinus resinosa Ait.	Red or Norway Pine	118 Main St.
**48. Pinus rigida Mill.	Pitch Pine	Civic Park
**49. Pinus sylvestris L.	Scotch Pine	Civic Park
**50. Pinus Strobus L.	White Pine	State Forest

Binomial	Common Name	Location of type specimen
51. Pinus tabulaeformis Carr.	Chinese Pine	Estate of Bassett Jones
52. Pinus Thunbergii Parl.	Black Pine	Civic Park
53. Platanus acerifolia (Ait.) Willd.	London Plane Tree	7 Milk St.
54. Platanus occidentalis L.	Western Plane Tree	Cor. Main St. & Ray's Court
**55. Populus alba L.	White Poplar	Mill Hill
56. Populus canadensis Moench.	Carolina Poplar	Union St.
**57. Populus candicans Ait.	Balm of Gilead	Vestal St.
58. Populus deltoides Marsh.	Cottonwood	Polpis Road
*59. Populus grandidentata Michx.	Large-toothed Aspen	Taupaushaw
*60. Populus tremuloides Michx.	Aspen Poplar	Taupaushaw
**61. Prunus Cerasus L.	Cherry	Walnut St.
62. Prunus Persica (L.) Stokes	Peach	Bloom St.
*63. Prunus serotina Ehrh.	Black Cherry	Mill Hill
**64. Pyrus communis L.	Pear	5 Main St.
**65. Pyrus Malus L.	Apple	North Liberty St.
*66. Quercus alba L.	White Oak	Coskata
*67. Quercus coccinea Muench.	Scarlet Oak	Coskata
*68. Quercus ilicifolia Wang.	Scrub Oak	Tom Never's Rd.
**69. Quercus palustris Muench.	Pin Oak	109 Main St.
**70. Quercus robur var. pedunculata Ehrh.	English Oak	20 Orange St.
**71. Quercus rubra L.	Red Oak	Hummock Pond Rd.
*72. Quercus stellata Wang.	Post Oak	Coatue
*73. Quercus velutina Lam.	Black Oak	Coskata
**74. Robinia Pseudo-Acacia L.	Black Locust	Cliff Rd.
**75. Robinia viscosa Vent.	Clammy Locust	North Vestry Hill
**76. Salix babylonica L.	Weeping Willow	Centre St.
*77. Salix discolor Muhl.	Smooth Willow	No. Liberty St.
**78. Salix fragilis L.	Crack Willow	Lily St. Swamp.
**79. Salix pentandra L.	Bay-leaved Willow	Hurlburt Ave.
**80. Salix purpurea L.	Purple Willow	Ray's Court
**81. Salix viminalis L.	Basket Willow	Beach St.
*82. Sassafras variifolium (Salisb.) Ktze.	Sassafras	Polpis Rd.
83. Sophora japonica L.	Scholar Tree	Cor. Orange & Cash Sts.
84. Taxodium distichum (L.) Rich	Bald Cypress	Estate of Bassett Jones
85. Thuja occidentalis L.	Arbor Vitae	Vestal St.
86. Tilia americana L.	American Basswood	147 Main St.
87. Tilia cordata Mill	Little Leaf Linden	High School
88. Tilia euchlora K. Koch.	Crimean Linden	Easton St.
89. Tilia europea L.	European Linden	Ray's Court

LIST OF TREES INCLUDED IN THE KEY

Binomial	Common Name	Location of type specimen
90. Tilia neglecta Spach.	Downy Basswood	Civic Park
*91. Ulmus americana L.	American Elm	Main St.
92. Ulmus glabra Huds.	Scotch Elm	Pleasant St.
93. Ulmus pumila L.	Chinese Elm	127 Main St.

LIST OF SHRUBS INCLUDED IN THE KEY

Binomial	Common Name	Location of type specimen
1. Acanthopanax sieboldianus Mak.	Spiny Panax	Milk St.
*2. Amelanchier canadensis (L.) Med.	Shadbush	Wauwinet Road
*3. Amelanchier oblongifolia (T. & G.) Roem.	Shadbush	State Forest
4. Aralia Spinosa L.	Hercules Club	36 Gardner St.
*5. Arctostaphylos uva-ursi L.	Bearberry	Saul's Hills
*6. Baccharis halimifolia L.	Groundsel	Saul's Hills
**7. Berberis Thunbergii	Japanese Barberry	29 Liberty St.
*8. Berberis vulgaris	Barberry	Shimmo
9. Buxus sempervirens L.	Boxwood	3 Milk St.
10. Calycanthus floridus L.	Carolina Allspice	Vestal St.
*11. Celastrus scandens L.	Bitter-sweet	Wauwinet Rd.
*12. Cephalanthus occidentalis L.	Buttonbush	Saul's Hills
*13. Chamaedaphne calyculata (L.) Moench.	Leather Leaf	Bloomingdale
14. Chaenomeles lagenaria Koidz.	Flowering Quince	111 Main St.
15. Chionanthus virginica L.	Fringe Tree	13 Gardner St.
*16. Clethra alnifolia L.	Sweet Pepperbush	Madaket Rd.
17. Colutea arborescens L.	Bladder Senna	9 Milk St.
*18. Corema Conradii Torr.	Corema	Barnard's Valley
*19. Cornus florida L.	Flowering Dogwood	Hidden Forest
*20. Corylus americana Walt.	Hazelnut	Quaise
*21. Corylus rostrata Ait.	Beaked Hazelnut	Quaise
22. Deutzia gracilis Sieb. & Zucc.	Deutzia	36 Gardner St.
23. Deutzia magnifica (Lemoine) Rehd.	Deutzia	Lowell Place
24. Euonymus alata (Thunb.) Sieb.	Wahoo Bush	3 Union St.
25. Euonymus europaea L.	Spindle Bush	7 Milk St.
26. Euonymus japonica L.	Euonymus	9 Milk St.
27. Euonymus Fortunei var. radicans (Miq.) Rehd.	Trailing Euonymus	3 Vestal St.
28. Forsythia suspensa (Thunb.) Vahl.	Forsythia	14 India St.
*29. Gaylussacia baccata (Wang.) C. Koch.	Moor Huckleberry	Saul's Hills
*30. Gaylussacia dumosa (Andr.) T.&G.	Swamp Huckleberry	Bloomingdale
*31. Gaylussacia frondosa (L.) T. & G.	Blue Dangleberry	Saul's Hills
32. Halesia carolina L.	Silver Bell	18 Milk St.
33. Hibiscus syriacus L.	Althaea	Gardner St.
34. Hydrangea arborescens var. cordata grandiflora Rehd.	Hydrangea	Vestal St.
35. Hydrangea macrophylla (Thunb.) DC.	Hydrangea	Main St.
36. Hydrangea macrophylla var. Hortensia Rehd.	Hydrangea	Main St.

	Binomial	Common Name	Location of type specimen
37.	Hydrangea paniculata Sieb.	Hydrangea	115 Gardner St.
38.	Hydrangea petiolaris Sieb. & Zucc.	Climbing Hydrangea	Pleasant St.
*39.	Ilex glabra (L.) Gray	Inkberry	Golden Hind Swamp
*40.	Ilex verticillata (L.) Gray	Winterberry	Grove Lane
*41.	Juniperus virginiana L.	Red Cedar	Polpis Road
42.	Juniperus communis var. depressa Pursh.	Ground Juniper	36 Gardner
43.	Juniperus communis var. hibernica Gord.	Irish Juniper	40 Orange St.
*44.	Kalmia angustifolia L.	Sheep Laurel	Bloomingdale
*45.	Kalmia latifolia L.	Mountain Laurel	89 Main St.
**46.	Laburnum alpinum Bercht. & Prsl.	Laburnum	117 Main St.
47.	Ligustrum vulgare L.	Privet	Milk St.
48.	Lonicera japonica Thunb.	Trailing Honeysuckle	Vestal St.
49.	Lonicera Maackii var. podocarpa Rehd.	Honeysuckle	Ray's Court
50.	Lonicera tatarica L.	Tartarian Honeysuckle	Ray's Court
*51.	Lyonia ligustrina (L.) DC.	Male Berry, Andromeda	Long Pond Thickets
52.	Magnolia Soulangeana Soul.	Early Magnolia	Academy Lane
*53.	Myrica asplenifolia L.	Sweet Fern	Saul's Hills
*54.	Myrica carolinensis Mill.	Bayberry	Madaket Road
*55.	Myrica Gale L.	Sweet Gale	Polpis Road
56.	Philadelphus coronarius L.	Mock Orange	36 Gardner St.
57.	Physocarpus opulifolia Maxim	Nine-Bark	118 Main St.
*58.	Prunus maritima Wang.	Beach Plum	Polpis Road
59.	Psedera quinquifolia (L.) Greene	Virginia Creeper	Wauwinet Rd.
*60.	Pyrus arbutifolia var. atropurpurea (Brit.) Robinson	Choke Berry	Taupaushaw
*61.	Pyrus melanocarpa (Michx.) Willd.	Black Chokeberry	Ram Pasture
*62.	Quercus ilicifolia Wang.	Scrub Oak	Saul's Hills
*63.	Quercus prinoides Willd.	Dwarf Chestnut Oak	Bloomingdale
*64.	Quercus prinoides var. rufescens Rehd.	Dwarf Chestnut Oak	Saul's Hills
*65.	Rhododendron viscosum (L.) Torr.	Clammy Azalea	Madaket Road
66.	Rhododendron sp.	Rhododendron	Cultivated
*67.	Rhus copallina L.	Dwarf Sumac	Wauwinet Road
*68.	Rhus glabra L.	Smooth Sumac	Wauwinet Road
*69.	Rhus Toxicodendron L.	Poison Ivy	Beach St.
**70.	Rhus typhina L.	Staghorn Sumac	Union St.
71.	Rhus typhina var. dissecta Rehd.	Cut-leaved Sumac	No. Liberty St.

Binomial	Common Name	Location of type specimen
*72. Rhus Vernix L.	Poison Sumac	Madaket Road
*73. Ribes oxyacanthoides	Gooseberry	Wauwinet Rd.
*74. Rosa carolina L.	Wild Rose	Grove Lane
75. Rosa rugosa Thunb.	Rugosa Rose	Vestal St.
*76. Rosa virginiana Mill.	Wild Rose	Grove Lane
*77. Rubus frondosus Bigel.	Blackberry	Quaise
*78. Rubus hispidus L.	Small Dewberry	Bloomingdale
*79. Rubus villosus Ait.	Dewberry	Wauwinet Road
*80. Salix tristis Ait.	Dwarf Willow	So. Shore Plains
*81. Sambucus canadensis L.	Elder	Madaket Road
*82. Smilax rotundifolia L.	Green Brier	Wauwinet Road
83. Sorbaria assurgens Vilm. & Bois.	Bushy Spiraea	25 Hussey St.
84. Spiraea latifolia Borkh.	Meadow Sweet	Hummock Pond Rd.
85. Spiraea Thunbergii Sieb.	Spiraea	Gardner St.
86. Spiraea tomentosa L.	Steeple Bush	Gibbs Pond
87. Spiraea trilobata L.	Bridal Wreath	Ray's Court
**88. Syringa vulgaris L.	Lilac	Gardner St.
89. Tamarix parviflora DC.	Tamarisk	Hurlburt Ave.
90. Taxus cuspidata Sieb. & Zucc.	Yew	1 Vestal St.
91. Tecoma radicans (L.) Juss.	Trumpet Creeper	11 Milk St.
*92. Vaccinium corymbosum L.	High Bush Blueberry	Ram Pasture
*93. Vaccinium pennsylvanicum Lam.	Dwarf Blueberry	Saul's Hills
*94. Vaccinium vacillans Kalm.	Late Low Blueberry	Saul's Hills
*95. Viburnum dentatum L.	Arrow-wood	Wauwinet Road
96. Viburnum pubescens Pursh.	Arrow-wood	2 Vestal St.
97. Viburnum Opulus L.	High-bush Cranberry	9 Milk St.
98. Viburnum Opulus var. sterile DC.	Snowball	Cor. Westchester & Centre Sts.
*99. Viburnum venosum Britton	Arrow-wood	Wauwinet Road
100. Vitis aestivalis	Pigeon Grape	Polpis Road
*101. Vitis labrusca L.	Fox Grape	Polpis Road
102. Wisteria sinensis (Sims.) Sweet	Wisteria	25 Hussey St.