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## WILFRID WHEELER—THE HOLLY MAN

**T**HOSE who know something about the native American holly (*Ilex opaca*) have certainly heard of Wilfrid Wheeler and may have had the pleasure of meeting him and hearing him enthusiastically discuss this wonderful American tree. He has been interested in this plant for a long time and has done much, especially in an area where it is at its present northern native limits, to increase its popularity. It is not enough to grow or transplant just any tree, but Mr. Wheeler has spent years in carefully searching for the trees that make the best ornamentals in the northern parts of its range.

Years ago, when he was in England as a much younger man, he became intensely interested in the English holly, the painstaking care the people took with it, the wide popularity of the tree in all sorts of ornamental plantings, and the close relationship of the plant to the customs and spirit of the Christmas time. He, of course, knew of the American holly, but then there was little being done to advance the plant in popular acclaim in America except to mutilate thousands of trees by cutting carloads of branches for Christmas decorations.

Mr. Wheeler's forebears farmed in Massachusetts since the early 1600's and he himself has been associated with farming in the Concord, Massachusetts area practically all his life. Born in 1876 in Concord, Mass., he was made the first commissioner of agriculture for Massachusetts, in 1919. Prior to that time, he was secretary to the old State Board of Agriculture. He was re-elected eight times "the Number One Farmer In Public Service" by the farmers of the State, prior to the reorganization of the old State Board of Agriculture. As secretary of the State Board, he was trustee of the State College. During World War I, he headed several important committees on food production, and in 1920, he took over the 10,000 acre Coonamesset Ranch Project on Cape Cod, for the Cranes of Chicago. In 1925, he bought about 300 acres of land nearby, including a couple of farms that were practically abandoned, mainly in Hatchville and

Mashpee, now called Ashumet Farm, off Route 151, and it is here that he started his holly program.

Today he has nearly 2000 hollies growing here including 200 full sized trees in the woods. He grows them commercially, propagates them and has been experimenting with the growing of several exotic species.

In 1930, a friend sent him a dozen small hollies and he planted them in his woodlands. He was amazed at their rapid growth (some are now twenty and thirty feet tall) and when he found that hardiness was not a problem, he decided to grow hollies commercially, for he realized in order to reduce the vandalism to the trees, they would have to be made far more common in gardens and public plantings as well. At the time, nurserymen were not growing them much as ornamental specimens, for several reasons. First, buyers always shied away from them because of the thought of creating tempting possibilities for vandals in home plantings; they were supposed to be very difficult to transplant and had to be partially defoliated; they required special soil conditions; and finally, since the sexes were separate, there was always the difficulty of placing a known pistillate tree in the right place, by providing a suitable staminate tree in the near vicinity to insure fruiting. Seedlings took nearly 10 years to fruit, and many a northern gardener thought they were not hardy.

Through the years, many people have whittled away at these "barriers" to holly growing in the North, and one of the most enthusiastic has been Mr. Wheeler. He had spent much of his time ferreting out known local stands of hollies on the Cape and in adjacent areas, studying their respective ornamental merits and selecting and propagating some of the better ones for commercial purposes. To date, he has named 21 varieties. Some of the things he has found out about hollies in this part of the country are of help to every northern gardener who might contemplate planting some.

Of course hollies require acid soils, but fortunately, New England is especially rich in these. They like a certain amount of moisture, but the soil must be well drained also. Water is especially helpful if applied during a drought when the trees are in bloom and shortly afterwards, as this will help fruit formation. Planting is done by giving the young plant the best possible soil. The tree may live to be 300 years old (or considerably more) hence a little care at the start is worth while. Even though the plant to be set out is only in a three-inch pot, it is wise to dig a hole three feet wide and two feet deep and remove all the soil, if it is poor. He feels that the trees should be planted about twenty-five feet apart.

Decomposed sod can be placed upside down in the bottom of the hole with six inches of oak leaves on top. These need not be decomposed. Then good acid loam is placed about the roots of the young plant, and a slight depression left in the soil to catch any rain water. No tamping is done to the soil, but the plant is well watered in. After the ground has settled a few days, the soil can be filled in a bit more and a good mulch of well-rotted oak leaves, pine needles, sawdust,



**PLATE XIV**

Wilfrid Wheeler inspecting one of his many hollies.

Photo courtesy of Massachusetts Horticultural Society

well-rotted manure, or native peat applied. A mixture of well-rotted manure and any of these materials proves excellent.

As a result of wide correspondence and considerable holly hunting in the eastern part of New England, Mr. Wheeler has found *Ilex opaca* as far north as Portland, Maine and even in Amherst, Massachusetts. He has known plants in Groton, Mass., subjected to winter temperatures of  $-30^{\circ}$  F. which were not damaged, and his experiences along the seacoast have led to his remark that he has "never seen a holly yet that has been killed by water or weather." Salt water does not injure them. Many are growing within the reach of salt water spray and, after the 1938 hurricane, he knew of a group which was under nearly 20 feet of salt water for nearly two weeks without serious injury. Hollies on Fire Island, N.Y., are subjected to lots of salt water yet they do not seem to mind it. In the old days on Cape Cod, sheep proved especially destructive for they not only ate the foliage of holly, but chewed off the bark of the trees. Fires, too, have destroyed many a valuable Cape Cod holly plant, even in recent years.

Mr. Wheeler has pointed out the fact that now other growers are shipping the American holly as far north as Nova Scotia and Simcoe in southern Ontario and that a well known tree is growing in West Virginia at an altitude of 3000 feet. A grower in Wales, Massachusetts, at an altitude of 1600-1700 feet, is planting a few every year, and last year some of them fruited for the first time, providing the winter bird food which he was anxious to have. This man wanted to do his bit in assisting the American holly in becoming as popular an evergreen tree in the North, as is the large leaved *Magnolia grandiflora* in the South. One of the biggest trees of which Wilfrid Wheeler knows is in the Lowell Holly Reservation, between Mashpee Pond and Wakeby Pond on the Cape, a 150 acre tract, presented to the Trustees of Reservations by the late President Lowell of Harvard University. The tree is twenty-four inches in diameter and 45 feet tall. There are nearly five hundred hollies in this Reservation twenty to fifty feet tall, and of course thousands of younger ones.

The flowering habits of the American holly have come in for some close observation on Mr. Wheeler's part. He has never seen a tree with perfect flowers, nor has he seen a tree with polygomodioecious flowers. He has found that the pistillate flowers of *I. opaca* can not be fertilized with the pollen of the native black alder, *Ilex verticillata*, which is native throughout the same area, or other *Ilex* species. He has also found that there is as much as two weeks difference in the time certain clones bloom, even though they may be growing side by side. This is a most important fact to be known, for it is, of course, necessary to have male plants in bloom at the same time as the female plants. Even a week's difference might spell the difference between a good crop of fruit and no fruit.

He has noted from personal observations that over 60 kinds of insects visit the holly flowers in his garden. This includes several kinds of wasps and especially the large night flying moths, yellow jackets, common mud wasps, hornets and

ants. The male flowers are very fragrant and the trees beautiful in bloom. Although the general suggestion is one male tree to every twenty-five female trees in a rather close planting, as would be found in a commercial orchard, nevertheless, it is better to err on the side of too many males than too few. Also, when several males are used, they should be of different clones in order to make up for any differences in the time of bloom.

Male trees can still be excellent ornamentals for planting as evergreen backgrounds. Then, too, such trees do not offer much temptation to would-be vandals at Christmas time. The sexes can be determined only when they are in flower.

Well-rotted manure is an excellent fertilizer to apply, when available, and Mr. Wheeler would like to apply it as a mulch to his plants every year if he had it. (He tries not to use what he calls "raw chemical" fertilizers, for he believes these are not as conducive to good growth as some of the organic types.) He has used cotton-seed meal as well as tobacco dust, and found that these materials aid in producing an excellent dark green foliage and brighter berries. He likes to keep a mulch about the base of his trees for this helps conserve moisture all the time. If commercial fertilizer must be used, he has applied one-half pound of nitrate of soda to a big tree about twenty feet tall and has cut this amount in half for trees that are only five feet tall. He has also used hen manure mixed with sawdust or shavings, about a half wheel barrow load for a twenty foot tree.

Pruning hollies becomes a pleasure when it is combined with the gathering of Christmas greens, for young hollies should be shaped a little and when done at the Christmas season, the clippings can be used in the house for decoration. As the trees grow larger, quite a lot of branches may be cut. Care should be taken not to cut too short or too many in one place. Usually a tree can be cut on one side one year, and the other side the next. Some hollies will make a growth at the top of two or three feet and this, if left on, is apt to make a long space without branches. This long growth should be cut back at least one half, for the hollies make much better ornamental specimens when forced into thick growth by proper pruning.

When it comes to the reasons for selecting certain trees in the wild for commercial propagation, Mr. Wheeler has had to be strict. In the first place, he has discarded most varieties with berries less than one-quarter inch in diameter. The way the berries are borne on the branches is most important, for on some trees they are bunched closely together, making an excellent display, and in others they are loosely distributed on the branch. The color of the fruits on different trees varies from yellow to almost black. He has had to keep in mind certain special purposes for which the plants are to be used. For instance, a clone that is to be used as a hedge plant would have different properties from one that was meant to be a fruiting specimen. The hedge plant should have dense, dark green foliage, and because it would have to be clipped a good bit of the time, might even be a male plant.

There is a question about the advisability of using southern varieties (i.e. those clones of *Ilex opaca* which have originated in the South) in the North. Mr. Wheeler feels it is better to use clones that have originated here in New England. The "Howard," originally found by Dr. H. H. Hume, is one of the best for Georgia, and is used in several big commercial orchards in the South, one of these being one hundred forty acres in size, but this variety does not perform as well in the North as some of the New England varieties. On the other hand, some of the New England varieties are doing well in North Carolina, Kentucky and Tennessee, as well as in the North.

He selected the variety "Elizabeth" for its very light colored red berries, lighter than most. "Emily" is one of his best, having berries one-half inch in diameter and being named for his wife. The variety "Perpetual" was selected because of the fact that the fruits remain on the tree a full year, that is, if they are not first eaten by the birds. As a greenhouse pot plant, the variety "St. Mary" has proved popular since it fruits very early in life, and six to twelve inch plants can be greenhouse grown, dusted with "Rootone" or Hormodin" (in lieu of pollen) when in flower, and will then produce berries for the Christmas trade.

Wilfrid Wheeler propagates hollies by cuttings in the greenhouse, taken any time from mid-August to January. Although he has never experimented with grafting on established plants out of doors in the early spring, as is frequently done with apple varieties in order to "make over" a tree from one variety to another, he sees no reason why this could not be done.

As far as transplanting is concerned, he does this on Cape Cod any time from mid-August to April, but prefers the dead of winter when he can move the plant with a frozen ball, presupposing of course, that the new hole has been dug in advance. He does not find it necessary to defoliate the trees in transplanting, for with ordinary precautions, he has obtained at least 90% survival in his transplanting operations.

Other than vandals destroying the fruiting trees, and birds devouring the bright ripe berries just before the Christmas period, the worst pest with which Mr. Wheeler has had to deal is the holly leaf miner. This insect, at one point in its life history, hatches from the egg and as a small worm eats its way in between the upper and lower epidermis of the leaf itself. Until recently, this insect was very hard to control, for once it was inside the leaf, no spray could reach it. Now, with "Lindane," he has found that this material not only kills the insect outside the leaf, but the fumes of this spray will kill a goodly proportion of the insects shortly after they have entered the leaf. However, the exact timing of this spray is still highly important, for it is much easier to obtain a good kill of the insects before they enter the leaves. The extensive use of this material has resulted in larger infestations of red spider, so that it is advisable to mix "Aramite" with the "Lindane" to kill both insects. (Note: in the Arnold Arboretum, we have found it advisable to make two applications, one between May 15 and 25, and another between June 1 and 10.)

The hunt for better varieties of the American holly continues, for there is always a chance that a previously unknown tree will be found worthy of propagation. It was only a few short years ago that Mr. Wheeler and J. M. Batchelor of the United States Department of Agriculture were going through some almost impenetrable briar thickets, on the Cape, when they came across a tree they could not reach but which had surprisingly large berries. This happened to be in the path of certain army maneuvers and when Mr. Wheeler visited it again, he found it had been badly mauled by army equipment. He was able to measure the berries and found they were one half inch in diameter. He obtained a few cuttings, and on a third trip found the tree to have been completely destroyed. However, he has raised many trees from those few cuttings and found that the plants have performed remarkably well, one of the largest fruiting forms he has ever found. He named it "Emily" after his wife, and thanks to him and his persistence in maintaining his unceasing hunt, this variety is now available commercially.

During his long horticultural career, Mr. Wheeler has written many articles on holly, which have been printed in the leading horticultural periodicals. He has been active in many organizations and was especially helpful in aiding in the forming of the Holly Society of America a few years ago. The Massachusetts Horticultural Society presented him with the Jackson Dawson medal especially for his work in propagating hollies. He has been awarded citations by both the Massachusetts Federated Garden Clubs and the American Holly Society for his work with these native American plants.

Although he will not be pinned down regarding which individual variety is "best" for New England, it goes without question that among the twenty-one varieties he has named, will be found the best hollies for growing in the northern United States today.

DONALD WYMAN

### THE BEST OF THE FRUITING HOLLIES NAMED BY MR. WHEELER

**"Amy"**: One of the best trees for landscape planting. The branches droop somewhat and bear the berries on the upper side so that the effect of the tree when berries are ripe, and from a distance, is as if it were covered with a red blanket, and yet the beautiful green spiny leaves make a background against which the berries stand out. The berries are borne on long stems, very conspicuous—brilliant red. A splendid lawn tree.

**"Elizabeth"**: This tree was collected from a roadside when it had been almost cut to pieces by vandals, and is a very rapid grower. It has large leaves and bears abundant large deep orange colored berries, a color quite like many of the English hollies. The berries are borne in long loose clusters in a very striking way so that the tree gives an effect of being covered with berries against a background of large dark green well-spined leaves. This is a good tree either for cutting sprays or for landscape work. It was named for Miss Elizabeth

C. White, of Whitesbog, N.J., who has also done a great deal of work in selecting outstanding clones of *Ilex opaca*.

**“Emily”**: So far as size of berries (which often measure  $\frac{1}{2}$ " in diameter) and the color of fruit is concerned, this tree ranks best in the Wheeler collection of hollies. It was named by Mr. Wheeler for his wife. The leaves are smaller than many others, but are a dark green and inclined to curve, and are well spined. This is a fast grower and comes into bearing almost the earliest of any. Young trees three years old are usually covered with fruit, and the berries are borne in close, dense clusters giving the effect of great masses of color. This tree is probably the most spectacular one in the Wheeler plantings.

**“Freeman”**: This variety is a very large rather compact tree growing rapidly under Cape Cod conditions, in a pyramidal shape. The leaves are very large, well spined and a real holly green. Fruit is above average size and a bright glossy red, not as conspicuous as some, but still a very handsome tree. Because of its rapid growth and its good color, it is one of the best, and should be planted as a lawn tree.

**“Natale”**: This tree is inclined to grow slowly and very compactly, bearing great quantities of berries held closely to the branches on rather short stems. It bids fair to become one of the most popular varieties, originally growing in the colder part of the Cape where it was exposed to winds from every direction. The fruits are very shiny. A very fine tree where space is limited.

**“St. Ann”**: A fine large holly tree, growing rapidly and making a remarkable landscape tree. The fruit is large on long stems, appearing very early, and the foliage is fine. This tree is large enough for a roadside tree or for planting in a border where a definite planting is desired. The original was found growing on the island of St. Mary in Osterville Harbor, and it is named after the mother of the Virgin Mary.

**“St. Mary”**: St. Mary came from the island of St. Mary in Osterville Bay, and was named for the Virgin Mary. It is a beautiful compact tree with closely growing branches making it a dense tree and bears abundant medium-sized berries of bright red color. This tree is becoming one of the most popular among nurserymen because it makes a good growth, bears early, often the first year after rooting.

**“Perpetual”**: So named because of its habit to carry red berries through the year. The tree is tall with rather short branches, making its use desirable where height is required. It is an annual bearer of good sized berries with fine color. In fact, this variety is often chosen by visitors as the best in the Wheeler plantings, because of the color and appearance of the berries and leaves. A truly fine holly.

Mr. Wheeler has selected and named several male holly clones such as “Ash-umet,” “Charles,” “Dick,” “John Banks,” “Rick” and “Wilfrid.” He has named several other fruiting clones as well, but the eight fruiting varieties described in his words above, are the eight which he feels will make the best plants for ornamental planting.