

# FRIDAY MORNING SESSION

December 4, 1964

The session convened at 9:00 a.m. in the Ballroom, Manager Hotel. Mr. Leslie R. Bork, Jr., moderator.

MODERATOR BORK, JR.: Our first speaker this morning is Mr. Al Fordham of the Arnold Arboretum who will talk with us about abnormal conifers from native populations and also White Pine Witches' broom seedlings.

## ABNORMAL CONIFERS FROM NATIVE POPULATIONS IN MASSACHUSETTS

ALFRED J. FORDHAM

*Arnold Arboretum*

*Jamaica Plain, Massachusetts*

This series of slides will show some abnormal conifers which originated spontaneously in Massachusetts.

Within fifty yards of this solitary fifty-foot tall Canadian hemlock, nine slow-growing forms similar in character, were discovered. No other probable parent tree or the remains of one that might have fallen, could be found within a distance of one quarter of a mile. Each abnormal plant was characterized by a single trunk, short branched habit of growth, and small needles darker than usual in color. Although the plants ranged in size from three to five feet tall, they could well be of a like age estimated at about thirty-five years. The parent tree was searched carefully for a witches' broom or the remnants of one, with the thought that seeds producing the variants might have originated in this way. However, no evidence of a broom could be detected.

Canadian hemlock has produced a multitude of slow-growing genetic forms. As an indication of this abundance the Arnold Arboretum in recent years, has received plants or propagating material of 73 abnormal hemlocks almost all of which were discovered in natural habitats. Any dwarf or slow-growing variant located in the woods is at a competitive disadvantage for it would tend to be shaded out by other woodland plants. Canadian hemlock, however, has the ability to survive in shade, so that slow-growing forms persist where dwarf forms of other subjects might fail.

This eight foot tall, oddly shaped Canadian hemlock looks as though it is a tree which has lost its leader. This is not the case, for in the same area there are another 18 or 20 plants about half this size with the same dark foliage color and peculiar shape. I searched the area for an abnormal parent plant which might be casting seeds but found none. The only hemlock nearby, of adult size, was about 100 yards away and of normal appearance. However, it is quite probable seeds which gave rise to these oddities were shed by that tree.

The loosely formed weeping hemlock shown in this slide is located beside a country road. It is distinctly pendulous, but not nearly so impressive in this character as Sargent hemlock or numerous other weeping hemlocks now known in cultivation.

This prostrate form found at the edge of a pasture is growing under very poor conditions. In character it is somewhat like 'Cole's Prostrate.' It has been propagated and in a few years we will know how it will perform when provided with better growing conditions.

A number of white pines, differing from the normal, have appeared in the woods. This particular one is about 4 feet tall and unusual because of its contorted branches.

This white pine, apparently a slow-grower, has better than usual foliage color. When propagated it may well produce a good ornamental dwarf.

The white pine now shown could, when propagated, make a good upright plant for the angle of branching, as seen near the top, is quite tight. *P. strobus fastigiata* when young has a narrow upright shape but it broadens with age. This specimen at the Arnold Arboretum was grafted nearly 70 years ago in 1897 and through the years has widened to this extent.

This small white pine has a multibranched framework which indicates that it will be a slow growing bush type rather than a normal tree. It was found together with many others in the vicinity of a fruiting witches' broom.

This small *Juniperus communis* found in a pasture, is a very slow growing hemispherical mound about 12 inches high by 22 inches in diameter, with a framework which shows it to be quite old. Cuttings have been rooted and it will be under observation to see if the slow growth and mound shape persist in cultivation.

A second *Juniperus communis*, one of many taking over an abandoned pasture, shows an odd growth habit and yellow coloration. We plan to propagate it and add it to the Arboretum collection.

#### WHITE PINE WITCHES' — BROOM SEEDLINGS

ALFRED J. FORDHAM

*Arnold Arboretum*

*Jamaica Plain, Massachusetts*

Last year at the St. Louis Meeting, I presented a series of slides depicting this white pine witches'-broom which grows in the Berkshire Hills of western Massachusetts. It has fruited and shed seeds for many years. Within its dispersal area over 200 genetically dwarf forms were found. In the intervening year some of its seeds have been germinated thereby providing an opportunity to observe the behavior of its progeny. The next slide shows the small twig and cone characteristics of the broom when compared with those of normal pine. These cones