

# HYDRANGEA ANOMALA SUBSP. PETIOLARIS AND ITS PROPAGATION

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*Hydrangea anomala* subsp. *petiolaris* is a large climbing plant native to Japan and China. In its native habitat it often attaches to trees and can ascend 80 ft to the treetops. Attachment is by rootlike holdfasts which are stimulated to develop when the new shoots touch objects offering surfaces on which they might climb.

In cultivation *H. anomala* subsp. *petiolaris* has a number of landscape applications. Among these are the ability to grow over boulders, stone walls, posts of any height or on tall trees. When grown on the walls of buildings the plants can cover large areas and provide spectacular displays when in flower. An 88 year old plant of *H. anomala* subsp. *petiolaris* growing on a northeast wall of Arnold Arboretum covers about 500 square feet and has trunks 8 inches in diameter 3 feet above the ground. A 60 year old specimen which has climbed 3½ stories on a stucco wall is depicted in figure 1. When bare of leaves and when contrasted against the light colored wall it is bizarre. An excellent example of a tree grown specimen could be seen at the Arnold Arboretum for many years (Fig. 2). The host, an American elm, succumbed to Dutch elm disease. The hydrangea with no object on which to climb now sprawls around on the ground.

*Hydrangea anomala* subsp. *petiolaris*, hardy enough to be grown in regions comparable to the warmer parts of Vermont, is free of insects and diseases. In nature it is an understory plant and, therefore, adapted to grow in relatively low light. However, it flowers more freely when provided with some sun.

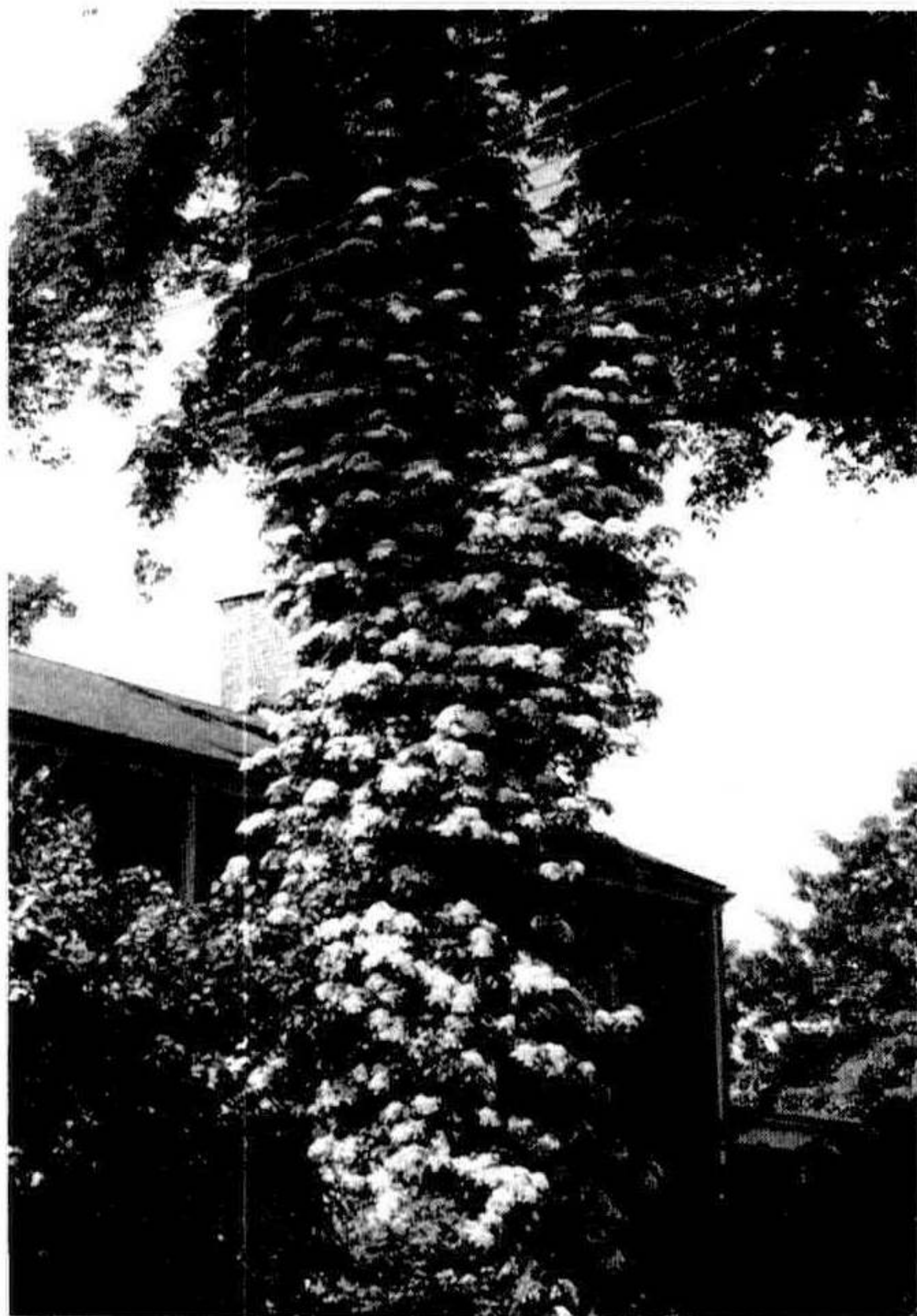
## FLOWERING AND FRUITING CHARACTERISTICS

The flower clusters of *H. anomala* subsp. *petiolaris* develop at the terminal ends of lateral branches which grow horizontally from the main trunks. They consist of conspicuous sterile flowers and numerous small fertile ones. A floral structure such as this is known as an inflorescence. The showy sterile flowers are, no doubt, display adaptations designed to attract pollinating insects.

The fruits of *H. anomala* subsp. *petiolaris* consist of capsules containing prodigious numbers of minute, winged seeds. In autumn when capsules open in preparation for seed dispersal they remain vertical and open only at their tops. This design prevents spilling of tiny, winged seeds yet allows winds to enter the capsules and carry them away from the mother plant. During



**Figure 1.** Contrasted against a light colored stucco wall, this 60 year old, 3½ story tall *Hydrangea anomala petiolaris* is bizarre.



**Figure 2.** A tree-grown *Hydrangea anomala* subsp. *petiolaris* at the height of its floral display. (Photo by Arnold Arboretum)

winter, the supporting stem of the inflorescence weakens and breaks away allowing the unit to fall from the plant.

### PROPAGATION BY SEEDS

Most very small seeds usually do not benefit from pretreatment by cold — *H. anomala* subsp. *petiolaris*, however, is an exception. Germination is increased and unified if the seeds are subjected to a cold treatment. This can be accomplished by sowing the seeds in flats, or other containers and placing them out-of-doors for the winter in a sheltered location such as a cold frame. An alternate method of stratification would be to put the containers of sown seed in a polyethylene plastic bag which is bound at the mouth with a rubber band to make it vapor proof. The cold requirement is then satisfied by putting the bag in a refrigerator set at about 40°F for about 2 to 3 months.

### PROPAGATION BY CUTTINGS

Most taxa of *Hydrangea* are among the easiest of plants to propagate by softwood cuttings. *H. anomala* subsp. *petiolaris*, however, is an exception. It behaves in a highly unusual manner. Ordinarily when softwood cuttings are prepared, basal cuts are made just below nodes and roots arise in that area. Roots on cuttings of *H. anomala* subsp. *petiolaris*, however, may or may not appear at that location. On some, the roots that would normally serve as holdfasts become functioning roots. They develop between the nodes (Fig 3). Other cuttings root only at their bases (Fig 4) while on still others, rooting is both basal and internodal. To get an accounting of variability, 100 softwood cuttings were tested. They were treated with a root-inducing formulation consisting of 0.8% indolebutyric acid in talc with the fungicide Thiram added at the rate of 15%. Mid-June was considered to be an optimum time for the collection of softwood cuttings. On June 16, the cuttings were collected and inserted under mist in a greenhouse bench with bottom heat maintained at 75°F. The medium consisted of peat moss and perlite in equal parts. Thirty-nine days later they were lifted and evaluated. The results are summarized in Table 1.

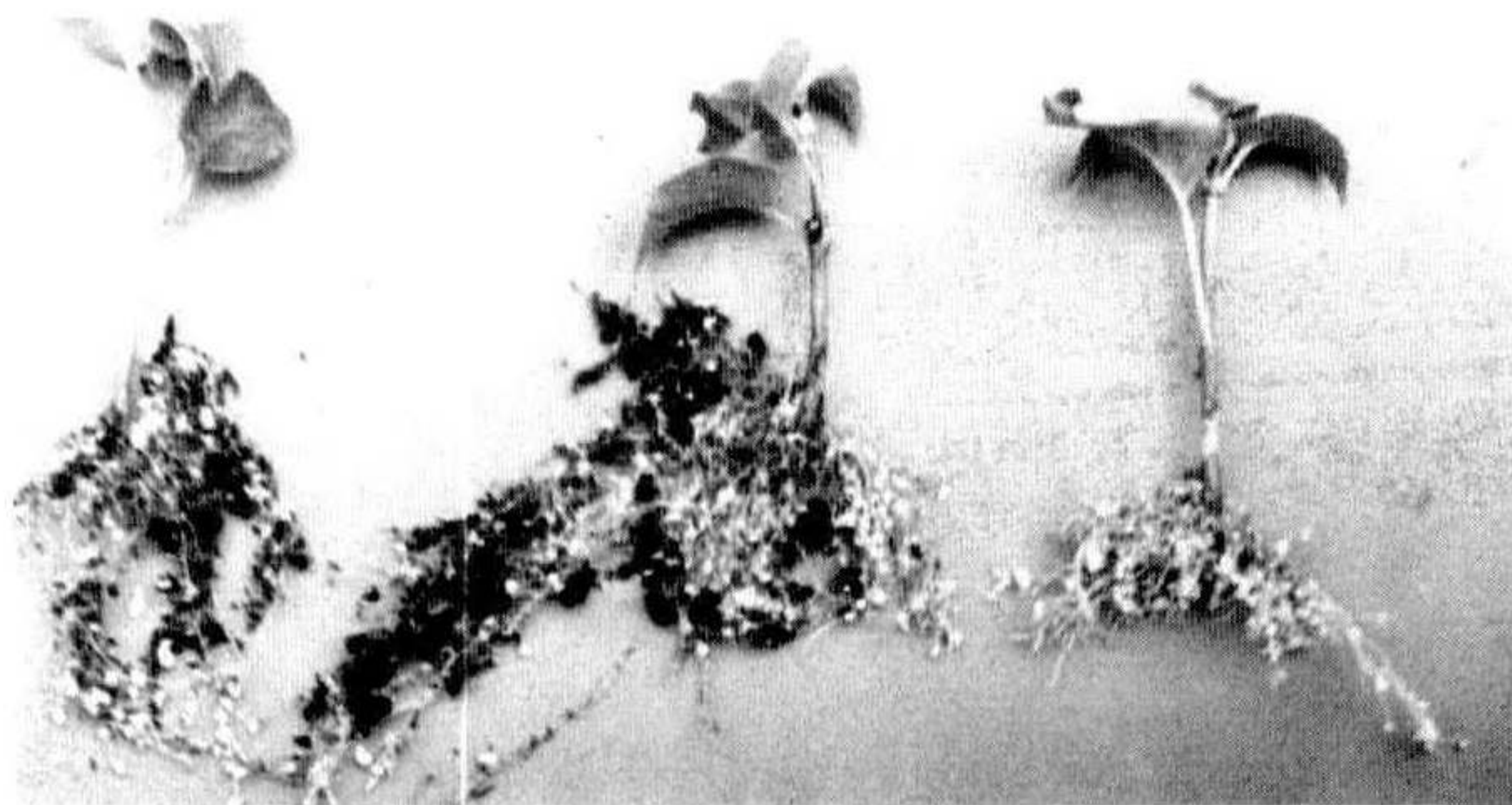
**Table 1.** Root distribution on *H. anomala* subsp. *petiolaris* cuttings.

Location of Roots	Percentage
Basal roots only	32
Internodal roots only . . . . .	34
Both basal and internodal	14
Failed to root	20
TOTAL	100

Cuttings of 2 and 3 year old wood, bearing holdfasts were pulled from a stone wall and tried. They were tested to find



**Figure 3.** Functioning roots developed between nodes in positions normally occupied by holdfasts.



**Figure 4.** Roots on 32% of the *Hydrangea anomala* subsp. *petiolaris* cuttings rooted at their bases.

whether or not functioning roots would develop when holdfast roots were already present. Preparation and treatment was similar to that described above. An abundance of functioning roots appeared on this material and all were internodal. The roots on each cutting arose in a vertical line parallel to the row of holdfasts.

#### PROPAGATION OUT-OF-DOORS UNDER MIST

At the Hoogendoorn Nurseries, Newport, Rhode Island, *H. anomala* subsp. *petiolaris* cuttings have been rooted out-of-doors under mist for many years. They are taken about the third week in June and only sand is used as a medium. In the absence of bottom heat, the cuttings root much slower than those described above and roots do not appear until September. Mr. Case Hoogendoorn cautions that the rooted cuttings must be protected against even a few degrees of frost as they are highly vulnerable to splitting. Therefore, in autumn they are lifted, flatted in a medium of damp peat moss and perlite, and placed in a 40°F

cold storage unit. In March they are potted and transferred to a frost-free frame where they remain until the following spring. At this time they are ready to be sold

## REFERENCES

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## PLANT PATENTS AND LEGALITIES

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Article I of the Constitution of the United States grants Congress broad powers to enact legislation to “promote the progress of science and the useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.”

In 1793, the Congress enacted the Patent Act, which was authored by Thomas Jefferson. The Act, which was subsequently modified in 1836, 1870, 1874, and 1952, is essentially the same today as it was written by Jefferson.

In 1930, the Plant Patent Act was enacted to afford patent protection to certain asexually reproduced plants. Before this time there were two factors which were thought to exclude plants from patent protection. First was the general belief that plants were products of nature, even though artificially bred. The second factor was that it was not thought that new varieties of plants could be adequately described by the written word. In passing the Plant Patent Act, the Senate, in its report on the Act, explained that the work of the plant breeder “in aid of nature” was a patentable invention. The Congress relaxed the written description requirement by providing for a “description as complete as reasonably possible.”

Questions most frequently asked about the Plant Patent Law are:

1. What is a plant patent?

A plant patent is a grant by the Government to an inventor (or his heirs or assigns) who has invented or discov-