

# Eight Witches'-Brooms of *Acer palmatum* and Their Propagation

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## INTRODUCTION

This discussion would not be complete without mention of the splendid work by Alfred J. Fordham, former research horticulturist at the Arnold Arboretum, Jamaica Plains, Massachusetts. His publication of June 23, 1967 titled "Dwarf Conifers from Witches'- Brooms" gives an historical picture of brooms in U.S.A. and Germany. This publication is a fine landmark treatise of broom theory, combined with the practical side of collecting, growing, and evaluating brooms at Arnold Arboretum.

William G. Schwartz, a Philadelphia attorney and nurseryman (Green Mansions Nursery, Media, Pennsylvania), has been my associate in locating and growing *Acer palmatum* brooms, also called bud-sports. The brooms mentioned are from both our collections. He is constantly sending me up the tree to procure scions at the risk of my life. He states, "Dick Wolff, a retired pilot, should have no fear of height."

In this paper I will be presenting information on eight of seventeen Japanese maple brooms in my collection. I will discuss growth rate; node spacing; terminal growth; spring, summer, and fall leaf color; leaf shape; and strengths and weaknesses of the individual broom cultivars.

## BROOM CHARACTERISTICS

What are similar and constant characteristics of most *A. palmatum* brooms?

- A smaller leaf size, usually 30% to 50% smaller than leaves of the parent plant.
- The center lobe on most leaves of brooms is reduced in size. This characteristic varies in the different cultivars.
- They are never found on the highest limbs of the tree, but rather in the mid to lower portions of the tree.
- Most brooms are found on the southeast side of the parent tree.
- Until last month, no broom had ever been found with seed on it. However, a broom bearing mature viable seed was spotted by Mr. Schwartz in the Germantown section of Philadelphia. We obtained seed to be cold stratified and planted out.

We have completed three generations of grafts with no noticeable change in leaf size, shape, node spacing, or terminal growth. These appear to be constant factors not influenced by propagation.

The hardiness of these eight brooms varies. The least hardy is 'Baby Lace' which, when in a container, must be overwintered in a non-freezing (preferably underground) cold frame or root cellar. Most hardy are 'Shaina' and 'Tiny Tim'. Both have been field tested for several years in Zone 6 with no apparent damage.

## BROOM CULTIVARS

The eight brooms I will discuss are: 'Shaina', 'Tiny Tim', 'Skeeter's', 'Baby Lace', 'Wolff's', 'Daniel', 'Elizabeth', and 'Mini Mondo'.

**'Shaina'**. I located this broom in an enormous old 'Atropurpureum' in the Villanova section of Philadelphia. In January, 1984, I procured scion wood and named the cultivar. The parent tree of 'Shaina' was estimated to be over 100 years old with a diameter of 40 in. and a height of 48 to 50 ft. The broom was at the 30 ft level, round, compact, and was approximately 15 ft in span. New grafts are winter hardy after the second year in Zone 6. Color is red—holding red most of the season. Propagated plants are globe shaped with a node spacing of 1 to 2 cm. Terminal growth per year is 5 to 10 cm with average of 7 cm.

**'Tiny Tim'**. I located this broom 5 years ago on an old tree of reduced vigor in Philadelphia's Fairmount Park section. Color is a pleasant green until fall when leaves display yellow and red color after the first hard frost. Indented center lobe is displayed on most leaves. Node spacing is 1 to 3 cm. Growth with fertilizer was 18 to 20 cm. I named this cultivar in 1988.

**'Skeeter's'**. This broom is from the cultivar 'Bloodgood' and found and named in about 1986 by Edward Rodd of Rarafolia Nursery in Kinterville, Bucks County, Pennsylvania. Summer and fall colors are the same as 'Bloodgood'. Node spacing is 4 to 5 cm. Leaf is one-half the size of the parent tree. Terminal growth is 6¼ to 9 cm per year.

**'Baby Lace'**. So far this tree represents the first dissectum type that I have seen. It was found in central New Jersey about 1989 by Edward Rodd who also named it. 'Baby Lace' has nodes 2 to 3 cm apart. Terminal growth is 5 to 8 cm per year. The leaf and broom are very fragile. Potted grafts are not winter hardy and must be protected in a frost free root cellar for the first 3 to 4 years. Leaf size is 3 to 5 cm and very finely divided. Leaf color breaks red but quickly goes to green, then to orange-red for its fall color.

**'Wolff's'**. This broom was found in Delaware County, Pennsylvania by William G. Schwartz about 1989 and named by him. Leaf color is red in spring quickly changing to green by July. As cool air of fall arrives, it changes to orange-red. Some cascading of the branches has been noted on 3-year-old trees. Node spacing is 1 to 3 cm and terminal growth is 8 to 12 cm. Broom on parent tree is well rounded, compact, and about 8 ft in diameter. Winter hardy after second year in Zone 6.

**'Daniel'**. This broom was located by Mr. Schwartz around 1988 in the Germantown section of Philadelphia, Pennsylvania and he also provided the cultivar name. The broom is on a very large tree. Fall color is yellow suggesting that the summer color is green. The parent tree was judged to be well over 100 years old. The broom was located at 30 ft, halfway up the tree on the southeast side. Small brown leaves 3½ cm wide were still clinging to the branch. This broom differed from all previous brooms in that leaves had no size reduction of the center lobe and also contained seed. Broom shape was flat and horizontal unlike all other brooms that were globe shaped. Nodes were 2 to 3 cm and terminal growth is 8 to 10 cm per year.

**'Elizabeth'**. This cultivar was found and named by Edward Rodd of Kinterville, Pennsylvania about 1988. Leaves measure 2 to 2½ cm with typical indent of center

lobe. Petiole length is from 2 to 2½ cm and node spacing is 1 to 2 cm. Leaf color is red. Size, shape, and age of parent tree unknown.

**'Mini Mondo'**(small world). This is one of the smallest and slowest growing brooms. I discovered it at our Lima, Pennsylvania, nursery 17 years ago and named it. It came from *A. palmatum* "Littleleaf" which is also a selection of mine. Recognition was immediate due to dwarf habit and small leaf approximately 2¼ cm in width. Leaf swirl and pink chimera observed in the wood in 1978 and 1980. By 1986 plant was 3 ft tall. Head is round and compact. Leaf color is green in summer, changing to deep-red color in fall. Indented center lobe present. Ideal for bonsai work.

The following is a list of other *A. palmatum* brooms I have and their parent tree identification.

**'Fjellheim'**. Parent: Sango-kaku; found in Australia.

**'Matthew'**. Parent: Green seedling; found by W. G. Schwartz in Drexel Hill, Pennsylvania and named by him.

**'Schmidt'**. Parent: 'Oshio-beni'; found by J. Schmidt in Boring, Oregon about 1987.

**'Verkades'**. Parent: Green leaved plant; found by Verkades Nursery, Wayne and Bridgeton, New Jersey.

**'Coonara Pygmy'**. Parent: Green plant; found and named by A. Teese in Victoria, Australia.

**'Englishtown'**. Parent: Red fastigate form; found by Stephen Kristoff in Englishtown, New Jersey.

**'Royal'**. Parent: Unknown; found by Joseph Stupka in Neshanic, New Jersey.

**'Kandy Kitchen'**. Found and named by Joseph Stupka, Stupka Nursery, Poulski, Pennsylvania.

## PROPAGATION

We mainly use a side graft but have used a cleft graft. At times, due to closeness of the nodes, it often becomes necessary to cut through a node to get sufficient surface for the graft. On some of the smaller diameter grafts, considerable skill is required to match scion to understock and wrap with very narrow rubber strips. A wax dip follows and then the grafts go immediately to the growing greenhouse constantly maintained at 60°F. Grafts are watered every second day. In all of the grafts of new brooms, a bulge or swelling of the scion portion of the graft appears.

## REFERENCES

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