

Moving *Magnolia grandiflora* North

Joseph Hickman

My county, Franklin, and other parts of Southern Illinois, were partially settled by folks who were "Cumberland Gap" or similar. They lent a distinctive flavor to this particular area, not always enviable. It has been a source of interest to me that some of them seemed to defy the laws of genetics. The passage of generations and the mixture of or theoretical dilution of the gene pool does not seem to have altered their character. Witness: If you backed a Detherow into a corner 100 years ago, he would almost invariably cut you with sharp steel. If you back a Detherow into a corner today, he will almost invariably cut you with sharp steel. Buntins are notoriously friendly, easy going, just generally delightful people but if you owned land adjoining them and took it upon yourself to encroach upon them or alter a land line unfavorably, you needed arrangements made with your undertaker. If you encroach on a Buntin today, you still need to make arrangements with your undertaker. I do not have too many friends so I will refrain from telling you of my family proclivities. These folks had always grown tobacco and cotton and they continued that here for many years. Among other things, many of them brought with them a love of *Magnolia grandiflora*. They were used to those trees.

I am told that in 1917 in my small town, Benton, we had the grandfather of all winters. It had been the habit to bury water lines one foot deep. Consequently, many of them froze all over the town and this changed the habit to 18 inches. Again on hearsay, my father told me that there were a good many large, old *M. grandiflora* trees, no doubt largely or totally seedlings, that were destroyed by that extreme cold. After World War 1, by hearsay and some remaining visual evidence, folks again

planted a good many of these trees. Our rather large backyard at my childhood home contained eight or ten that my father planted. Every town of any size at all between my home and Cairo, 80 miles to the south, contains a substantial number of *M. grandiflora*.

I surmise that no effort was made here to procure trees of noteworthy hardiness and I do not recall any of particular horticultural merit until the introduction of the selection 'Majestic Beauty.' In this vein, some 30 years ago, my friend Bon Hartline from Anna, Illinois, procured three balled and burlapped trees of this selection, caliper the size of a half dollar. He gave one to me, gave his brother one and planted one himself. Mine survived and has grown to substantial size; however, in the grandmother of all winters, 1977-78, it sustained cambium damage on limbs up to two inches in caliper and required extensive pruning. That particular winter really slaughtered the older *M. grandiflora* trees that had been planted in the previous roughly 50 years, and I certainly do remember this well. Many do survive, thrive and bloom but so far I have not seen one of any outstanding horticultural merit, certainly not to compare with many of the named and selected cultivars that we grow here now. Another exceptionally savage winter, which we can get, may well wreak havoc with many of the cultivars that I am growing.

For many years I have looked for *M. grandiflora* every place I go, especially when traveling in the Midwest. I now see numerous plantings of 'Majestic Beauty,' probably made since 1977-78, and they survived our -17°F of 1993-94 with major defoliation but little cambium damage. I like to use 'Majestic Beauty' as a yardstick, and I believe that the winter will come again which will severely damage them, if not kill them outright. In my opinion, many hardier selections are available now. Of late years this intriguing problem has absorbed my interest and, hopefully, I have accumulated quite a collection whose hardiness is reasonably assured here, in the northern part of USDA Zone 6, and hopefully will thrive in Zone 5. Some of those I'm growing, no doubt, will not prove hardy.

My good friend, Dr. Wesley Whiteside of Charleston,

Illinois, is kind enough to visit with me once or twice a year. He attempts to grow *Magnolia grandiflora* in his Zone 5B climate, not with much success, but is greatly interested. He is a retired professor of Botany at Eastern Illinois University and has, for many years, created a five acre personal arboretum of great renown. This past fall I took nurseryman Stan Tyson and him around Benton to show them a few of the old surviving *M. grandiflora* and, to my surprise, he indicated that he would be glad to be able to grow any one of them. I mention this to reaffirm my belief that there are many folks in Zone 5 who would hopefully grow this fine tree if chances of success are even reasonable.

At our meeting in Philadelphia in the spring of 1991, I met Elliott Jessen of Riverton, Connecticut, and Dr. Larry Gabriel of New Castle, Pennsylvania, on a garden path at an arboretum in that city. While visiting we discovered that we shared this common interest and, since we North Americans have the reputation of being notorious joiners, I suggested that we then and there form the "Hardy Magnolia Grandiflora Society," and they agreed. Since then we have reported at least annually on our efforts and progress, to each other. This was intended to be a joke.

Robert Adams of Shelbyville, Indiana, was on a different path at that time and place but he has long since been admitted to this august "society," along with Albert Hendley, Jr., of Zanesville, Ohio. Bert found a tree north of Cincinnati which he has named 'Foothills.' This has quite a good shaped leaf, a very good type, although no noteworthy indumentum. Robert Adams found two, which he has named 'Phil Savage' and 'Wagner.' 'Phil Savage' was found in a suburb north of Cincinnati in an exposed situation. It has shiny leaves, about 20% larger than average, and has withstood -25°F without foliage damage. 'Wagner' was found in an exposed situation in the highway median strip at Columbus, Indiana, a hard Zone 5, not far from Bob's home of Shelbyville, in Central Indiana. All of these are of horticultural merit and worthy of serious consideration due to their demonstrated ability to withstand the Zone 5 climate of Bob Adams' Shelbyville garden.

I have been growing one for some years called 'Simpson.' This is from an at least 50 year old tree at Vincennes, Indiana, the very northern edge of Zone 6A. I'm told that it was bought all those years ago by Bob Simpson's brother, brought home and planted at their old home place as a present for their mother. It has a far better than average leaf and, obviously, is extremely hardy. This leaf strikes me as much thicker than many.

Bob also grows the seedling of 'Edith Bogue' selected by Theodore Klein from a large population. Klein's form of 'Edith Bogue' is hardier than its seed parent.

Ms. Kathleen Fisher, the Editor of *American Horticulturist*, wrote me in the fall of 1995, referred by Dorothy Callaway, to answer a question about growing a cultivar of *M. grandiflora* in central Illinois. When I replied I advised her of our Hardy Magnolia Grandiflora Society and told her of its origin. Subsequently in a question and answer column in the *American Horticulturist* she mentioned our "society" and gave it a dignity that we had not previously enjoyed. Consequently, Chuck Tubesing wrote me recently and wanted to know how in the world a society such as this had been around for four years and he hadn't heard about it. He inquired about the number of our members and asked if I would write an article for the journal describing our group and its purpose. Well, here goes:

Will Hulbert, a long time groom of Man O' War, led the old horse out for literally thousands of visitors. He invariably made only one statement: "This is the mostest hoss." Many of us believe that *Magnolia grandiflora* is the "mostest tree." Our purpose is to move *Magnolia grandiflora* north at least into a good, solid Zone 5. The rules of our society are simple; 1937 Hayloft Rules govern all of our proceedings and everyone is familiar with those rules. We have no officers, no chiefs, all are Indians. The dues are zero. Our charter is not closed and we are now actively seeking charter members. Come to think of it, we do have one rule. Members should circulate a letter at least once a year and hopefully report on any trees, of some merit hopefully, that are thriving in Zone 5, or near, conditions.

In 1995, Dorothy Callaway kindly advised me of the efforts

of Rick J. Lewandowski, Director of Horticulture/Curator of the Living Collections at the Morris Arboretum of the University of Pennsylvania. I talked with him and wrote him and learned that he had begun an experiment of growing on and planting out in that Zone 6B climate as many of the hopefully hardy selections of *M. grandiflora* as he could obtain. He plans on rooted cuttings only, not mixing up with grafted plants. I sent him cuttings of a number of cultivars that I am growing and he advised that he will have a report for the society in a couple of years.

Herewith is an excerpt from a letter of April 25, 1995, from Dr. Larry Gabriel:

"The spring planting season has arrived in Western Pennsylvania. Fortunately, this past winter was a kind one. Unlike the previous winter. Winter lows this year were around 0°. The previous winter the low was -24° with approximately a five week period in which the temperature did not exceed 32°F.

I did not suffer any significant plant damage this winter. The previous year was another story. All of my magnolia *grandiflora* plants suffered extreme damage or outright death. Several of the plants had obtained significant size including one which was over 20 feet tall. This plant died to the ground. It was an unnamed seedling obtained in Maryland. My 'Majestic Beauty' plant was killed outright. A large 'D. D. Blanchard' was killed to the ground. Two plants of 'Edith Bogue' were killed. A 'Victoria' was killed. 'Timeless Beauty' was killed to the ground. Two *grandiflora-virginiana* hybrids were also killed outright. A few other plants whose origin I have forgotten were also damaged or killed. As you may gather, I am somewhat discouraged by the above events. The plant that seemed to do best for me was a magnolia '24 Below' obtained from a Tennessee nursery. I had two plants both of which survived below the snow line. That was a relative high note for the winter of 1993/1994 ...

I had a chance last summer to observe two of the large magnolia trees which I had seen in Pittsburgh previously. At that point, these trees appeared to be essentially unharmed

and they both had seed buds on them indicating to me that they had bloomed normally last summer.

I had previously hoped that a magnolia which had been well established through six years of mild winters with winter protection would stand a severe winter such as was experienced in 1993/1994. I had hoped this, along with favorable sitings, next to a building would be enough to let a plant survive relatively intact. Obviously, I no longer have faith in this strategy. The fact that the trees that I have observed in Pittsburgh have done so well gives me some lingering hope, however. I hope that all of you have met with more success than I have in this regard. Any thoughts or updates that you may have would be much appreciated."

For a few years I have been surrounding each winter up to 50 young trees that I have planted out, usually two years from a graft or cutting, with a cylinder of fiberglass tubing one and one-half or two feet in diameter. I am able to get ten or twelve foot sections of this almost indestructible material from our coal mines, which are unfortunately closing. It was used to conduct fresh and exhaust air to and from the working areas in the mines. Cut into three foot sections, these are put on in the fall and removed in the spring until the trees are too large to do this. I plan on continuing this practice, notwithstanding Larry Gabriel's dampening experience, for I am planting out obviously quite small trees.

Bob Adams has the same determination that Larry Gabriel does. It should be noted that he is growing not only his selections named but a few others and has had great success, even at -32°F in January, 1994, with BRIJ 35. BRIJ 35 is a surfactant which also works as a good cryoprotectant. Experiments with BRIJ 35 and other cryoprotectants are described in the April, 1991, issue of *HortScience* re: freezing resistance of grapevine bud and leaf tissue. BRIJ 35 is made by I.C.I. Chemical Company. Bob used it, fortunately, in the fall before the really savage winter of 1993-94 on several *M. grandiflora* in his yard. This product will go on green tissue and aids both in hardening off and preventing premature growth in the false spring.

Hardiness has always been a vexing, perplexing problem. Mr. John J. Sabuco wrote a fascinating book *The Best of the Hardest*, the second edition of which was published by Good Earth Publishing, Ltd., Flossmoor, Illinois, in 1987. That publisher has since gone out of business. I was not aware that a third edition has been printed of this highly popular book; however, Mr. Sabuco advises me that a fourth edition will be out in June of this year and the price will probably be about comparable, i.e., \$30.00. It can be obtained from friend Dr. August E. Kehr of Hendersonville, North Carolina, wrote:

"I have never grown many plants of *M. grandiflora* because most are not hardy for me. Most people think that bWhite Oak Group, P.O. Box 1, Flossmoor, Illinois 60422. The telephone number is (708) 747-1900. Nurseries such as McClure and Zimmerman usually sell Mr. Sabuco's book.

Mr. Sabuco provides a really learned treatise on low temperatures, desiccation, culture, *et al.*, affecting winter adaptability, subjects which I do not approach in this effort. Mr. Sabuco mentions in his chapter under Genetics and Adaptability that all parents, plants or animals, have two genes for every trait they demonstrate. With his permission I quote a paragraph from his book under the heading "Breeding for Hardiness: Incomplete Dominance:"

"Many times two homozygous parents demonstrating differing characteristics for the same trait have genes that are neither dominant nor recessive. In such a case the offspring phenotype is a blend or combination of the characteristics. For instance a *Botanicus tenderus* that is hardy to only 0°F. is bred with *Botanicus hardius* which is hardy to -20°F. The resulting hybrid would be hardy to a median point of perhaps -10°F. Our hybrid *B. x medius* is heterozygous with a phenotype of -10°F. Though the phenotype is a combination of characteristics, the genes remain stable and in a subsequent F2 cross there will be separation and return to parental types. The ratio is 1 tender to 2 middle to 1 hardy plant (1:2:1) in this F2 cross. Incomplete dominance is the most common form of gene expression in inter-specific hybrids such as our example. This is also the most common method used by hybridizers

when in possession of a quality ornamental plant they wish to make hardier. A true life example of this is Kathleen Meserve's cross of the excellent *Ilex aquifolium* (zone 6) and the prostrate *Ilex rugosa* (zone 3), the result of which is the famous *I. x meservae* (zone 5)."

This is not necessarily new or previously unknown information but to me it points out one probable path to real progress in moving this great tree solidly into Zone 5, not as an exception but as the rule. Here, I suggest, is where we need pioneering younger members who share our interest, to make and grow on crosses between the hardiest selections of *M. grandiflora*.

In his letter to me of February 10, 1996, my good ecause I live in North Carolina I have mild climate. Actually just the opposite is the rule. Our climate is colder than the one we left in Maryland. Perhaps Richard Schock has a little colder location, but certainly not so prone to late freezes. I mean freezes, not frosts.

I have one thing that should be considered in cold hardiness. Most all of the plants in the Arctic regions are polyploids. They withstand cold winters and permafrost. Although one may think they are protected by snow cover, in actuality the Arctic regions are very commonly a kind of desert with very little snow. At least that is what I have been told, I have never been there in winter, or otherwise.

One might assume from this comment that all one has to do is to develop polyploids of plant species and presto—they are hardy. Such is not the case.

In my experience the polyploids are no hardier than the diploids from which they were derived. My explanation is that the polyploids have more chromosomes and there is more opportunity for selection in their progenies for such characteristics as cold tolerance.

It may very well be the reason that *M. grandiflora*, as a hexaploid, is so variable for cold tolerance. That is a kind of wild theory, called the "Kehr Theory." In any event, as you point out, it is well known that there is a wide variation among seedlings of that species for cold tolerance. Your Society is

therefore based upon a pretty good scientific basis.

I have a fairly large plant of '24 Below.' It has a good flower and worthy in its own right as a desirable cultivar, in addition to being cold tolerant. Last year I made some crosses of a hexaploid *M. sieboldii* (seed parent) x '24 Below' (pollen parent). If the seed germinates, it should give some valuable seedlings. I firmly believe this cross is one that can be made, because the cross of *M. virginiana* (a close species to *grandiflora*) x polyploid *sieboldii*) can be made rather easily. I have two large trees of the latter cross and they are definitely hybrids. I also have seed of the cross *grandiflora* x hexaploid *M. virginiana*. With both parents hexaploid it is likely the seedlings will be fully fertile. Of course, they probably will not improve the hardiness situation, but one can never tell. "

I mention the following ten *Magnolia grandiflora* as being substantially harder than the average cultivars: '24 Below,' 'Edith Bogue' (Klein's variety), 'Foothills,' 'Greenspire,' 'Phil Savage,' 'Poconos,' 'Simpson,' 'Slankard,' 'Victoria,' and 'Wagner.' I suggest that crosses be made between any of these, or any other reputedly hardy cultivars, and the seed distributed through the seed counter to be grown on by anyone interested. I plan on making a few crosses this year but although I have plants, not all will bloom here. I will have blooms on 'Simpson,' 'Victoria,' 'Slankard,' and, possibly, '24 Below.' Dr. Frank Galyon of Knoxville, Tennessee, found and registered '24 Below,' which withstood -24°F without damage. 'Slankard' is my own selection.

The Arnold Arboretum has tested a hardy cultivar called 'Tulsa.' It has been a success in the cool maritime Boston climate. Those *M. grandiflora* aficionados in areas with cool summers have a special problem. Most *M. grandiflora* require substantial summer heat to thrive and develop winter hardiness. 'Victoria' and the Freeman hybrids with *M. virginiana* do well in cool areas.

Mr. Joe Hebert, Editor and Publisher of *Hardy Enough*, *Journal of Experimental Gardening*, 351 Pleasant Street, #259, Northampton, Massachusetts 01 060, in the July/August, 1991 bulletin reported that the cultivar

'Bracken's Brown Beauty' had displayed exceptional hardiness. Others have also reported this superbly shaped tree to be hardy. It did go through outdoors here for me with -11°F in January of 1994, although my small trees were defoliated.

Commercial nurseries are now growing only a few of the hardier cultivars. These are 'Poconos,' 'Victoria,' 'Simpson,' and '24 Below.'

Our "Society" is not at all intended to be exclusive but, on the contrary, hopefully, very inclusive. Common sense indicates that the hardiest *M. grandiflora* has not been found and, indeed, may never be found but it surely can be bred. I conclude with a plea to anyone who has seen, discovered, or is familiar with a *Magnolia grandiflora* of demonstrated exceptional hardiness, hopefully with some better than average horticultural merit, to communicate with me at my address below. 🌿

Mr. Hickman can be contacted at P. O. Box 396, Benton, IL 62812 (USA), telephone 618-438-0261 or fax 618-439-3115.

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