

# A Swedish Intersectional Hybrid

by J.C. McDaniel

Dr. Tor Nitzelius, who recently retired from the Gothenburgh (Sweden) Botanic Garden, is the breeder of an unnamed and still unflowered magnolia hybrid, *M. wilsonii* × *M. hypoleuca*. He sent me scions from young seedlings of this cross in early 1976 and they are growing as grafts on two trees in Urbana, Illinois: One is on a seedling *M. virginiana*. Grafts are also on branches of *M.* × 'Charles Coates' and *M. hypoleuca*, both in turn grafted onto a *M. tripetala* stock tree. Flowering is not expected before 1979 at the earliest.

Two older hybrids have flowered on this same *tripetala* stock for several years. *M.* × 'Charles Coates,' a Kew Gardens hybrid of *sieboldii* × *tripetala*, may grow to flowering quicker than *M.* × *wieseneri* (syn. *watsonii*), but its new foliage is frequently disfigured at

Urbana when we have temperatures above 85° F. in May.

I am not sure if this leaf trouble is directly attributable to heat or to the high levels of ozone or other air pollutants likely to accompany such weather. *M.* × *wieseneri* (*sieboldii* × *hypoleuca*) and Dr. Nitzelius' new *wilsonii* × *hypoleuca* hybrid do not have leaf trouble, nor does *M. sieboldii* where grown on *virginiana* stock in an adjacent yard.

*M.* × 'Charles Coates' has fragrant flowers, but no so powerfully fragrant as those of *M.* × *wieseneri*. Under Urbana conditions, I'd choose *wieseneri* for its tidier foliage.

Members who have these species that produce flowers might try to obtain *sieboldii* × *tripetala* hybrids that would be better for hot American climates than 'Charles Coates' seems to be.

## Testing Stored Pollen

A magnolia pollen storage viability test carried out by collaboration between Phil Savage and Harold Hopkins and somewhat lacking in strictly scientific conditions is nonetheless reported for whatever use it may be to Society members.

Hopkins, noting that most hand pollinating of magnolias is done by same-year pollination of a later-blooming magnolia with pollen from an earlier flowering one, wondered why stored pollen couldn't be used to make crosses in the other direction, from the later flowering magnolia to the earlier flowering one.

Obviously this requires storage of pollen from, say, late spring or summer of one year to spring of the next year. Investigation indicated that pollen of other genera has been stored for extensive periods and viability retained to some extent by freezing the pollen and keeping it dry.

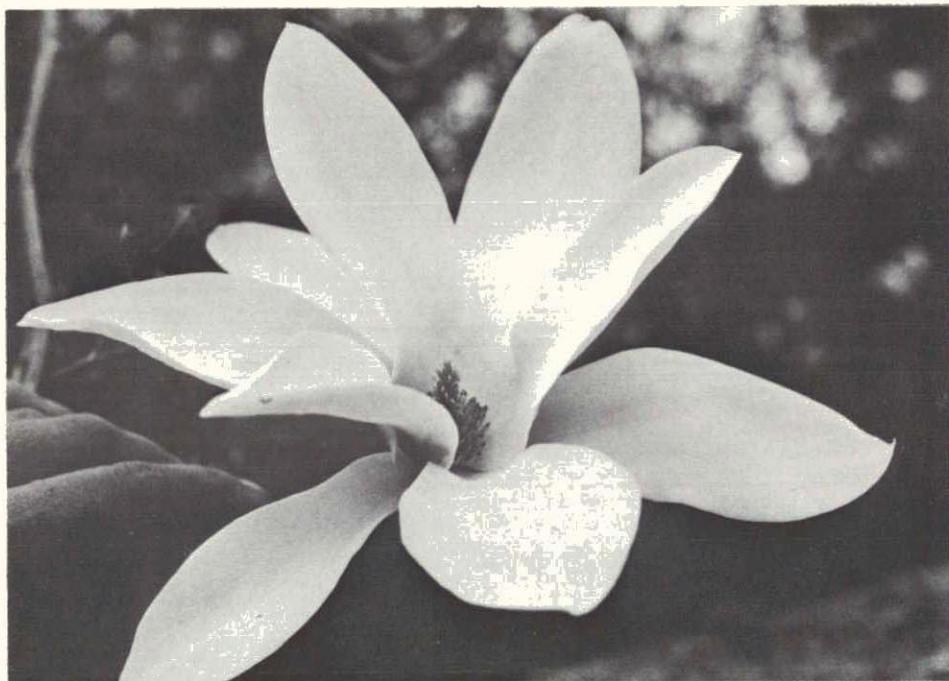
Pollen was collected by Hopkins from plants in late spring and summer of 1976 — *M. macrophylla* subsp. *ashei*, *M.* × 'Freeman,' and *M. coco* in subgenus Magnolia, and *M. acuminata* and *M. liliflora* (*quinquepeta*) *nigra* in subgenus Yulania. In spring of 1977 pollen was collected from subgenus Yulania — *M.* × 'Merrill' and *M.* × 'Wada's Memory,' *M. cylindrica*, *M. denudata* (*heptapeta*), *M. sprengeri* 'Diva,' *M.* × *veitchii*, *M.* × *veitchii* × *denudata*, and *M. liliflora* (*quinquepeta*) *nigra*.

Hopkins' use of 1976 pollen in spring of 1977 was frustrated by a succession of late freezes that destroyed every flower of a couple of hundred pollinated over a period of several weeks and his daubings were more emphatically interrupted when a stepladder gave way (during pollinating, of course) and he was unable to extricate himself from it before it went to ground and caused various personal injuries. With this sidelining, the balance of the 1976 pollen was saved and the additional pollen that had been collected in that spring of 1977 was also saved.

It was stored in drugstore pill bottles or covered petri dishes, both air tight, these placed in larger air tight containers on a bed of silica gel, and the whole put into plastic bags and stored in a home chest freezer at 0° F.

In spring 1978 Hopkins was again frustrated horticulturally by the preparations necessary to sell his urban house and move to a rural residence 35 miles away. Determined to get involved in at least some magnolia activity, even if vicarious, he prevailed on Savage to experiment with the stored pollen in 1978 to test its viability.

Savage determined not only to test viability but also to produce hybrids with the pollen, if possible. None of the 1976 pollen of subgenus Magnolia (*ashei*, × 'Freeman,' *coco*) took in 16 careful pollinations on *M. tripetala* 'Bloomfield' and two northern strains of *M. virginiana*, though both have



*Magnolia* × *soulangiana* 'Brozzonii' as depicted by Dick Figlar's camera in the garden of Ray Hartz, Bernardsville, New Jersey.

been fertile seed parents in the past. (The 1976 *acuminata* pollen and the 1976 and 1977 pollen of *M. liliflora* (*quinquepeta*) *nigra* apparently were not used.) Savage's conclusion is that subgenus *Magnolia* pollen probably does not age well.

Three of the subgenus *Yulania* pollens collected in 1977 — 'Wada's Memory,' 'Merrill,' and *cylindrica* — produced nothing and Savage feels that pollen from Section *Buergeria* perhaps ought to be used during the current year. The failures of these three were on flowers of *M. sprengeri* 'Diva,' on which Savage has used all of these pollens with success in the past.

The other 1977 pollen from subgenus *Yulania* performed considerably better. A fertile *M. acuminata* produced a good crop of plump seed from the 1977 *M. sprengeri* 'Diva' pollen. The same *M. acuminata* produced a small amount of seed from crossing with *M. × veitchii* × *denudata*. *M. denudata* 'Purple Eye' (from Hillier's nursery) produced abundant seed from pollen of a *M. denudata* whose source was Tom Dodd's Nursery. *M. acuminata* produced 2 seeds from a limited amount of pollen of *M. × veitchii*.

Savage and Hopkins know of no other studies in which magnolia pollen as much as a year old has been shown to be viable. The

period involved here can be stretched out slightly longer than a year because magnolias in the Washington area flower several weeks earlier than in Michigan.

A more precise test for testing simple viability would be to use aged but well preserved pollen from a magnolia species on flowers of another seedling of the same species, and perhaps to use identical pollen of the same year as a control to determine the deterioration rate. We do not think our test eliminates the possibility that pollen two or more years old may still be usable to an extent. It should be noted that all this pollen spent a few days in the mail between the Washington, D.C., area and Michigan before use.

For the purpose of pollinating an early flowering magnolia with a late flowering one, shipment of pollen from a warm to a cool area, or from a cool to a warm area, could make possible crosses that aren't normally made because of the sequence of flowering. For pollen without a long life, this could shave weeks or even months off the storage period.

The use of drying and freezing methods, as well as airmail transport between collaborators, has resulted in crosses not considered possible in the past. Reciprocal crosses (as they are called) of existing known