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Growing Oranges in Boston

Since 1929 the Curator of the Herbarium has been growing oranges out of-doors at his home in Jamaica Plain, though, unfortunately for him, the oranges in question are quite inedible. They are specimens of the hardy Trifoliolate Orange, *Poncirus trifoliata* (*Citrus trifoliata*), a shrub or small tree native to China and commonly grown there and in Japan. It was introduced into western gardens in 1850 and has been extensively planted in the southern states where it is used as an ornamental shrub and as a hedge plant; it has escaped from cultivation and has become naturalized in several localities. Along the Gulf Coast in late years it has become something of a pest since it harbors the undesirable citrus canker.

Specimen plants of *Poncirus trifoliata* are occasionally seen growing without protection as far north as New York City but to the best of our knowledge Mr. Rehder's little orange tree is the only one to have fruited regularly out-of-doors in Boston. Several attempts to grow the species at the Arboretum have been unsuccessful, though at present there is a small specimen in the nursery. Mr. Rehder's *Poncirus* is planted in a corner by the north wall of his home and in that way is sheltered during very cold winter weather and is prevented from rushing into growth during deceptive warm spells in the early spring.

As its name would suggest, the Trifoliolate Orange is characterized by compound leaves, each of which is made up of three small leaflets. Almost as conspicuous as the leaves are the stout spines, one of which is set directly above each leaf. The twigs are irregularly flattened and, like the spines, are a bright, shining green, looking almost as if they had been enameled. They interlace in all directions and with their long thorns produce a barrier more impenetrable than a barbed-wire entanglement. The flowers are similar to true orange blossoms but are a little smaller, and with narrower, less conspicuous petals. The fruits, here in Boston, ripen in the early fall and are of an attrac-

tive bright golden color, particularly when seen against the clear green of the leaves and young branches. Though orange-like in general appearance, they are much smaller, being about the size of a large walnut. When green they are covered with a soft down, which becomes less perceptible as the fruit ripens. They are very aromatic and a few of them will scent up a whole room. To many people the odor is quite pleasant, suggesting Eau de Cologne; others find it rank and disagreeable.

The exterior of the ripe fruit is so attractive that one is bound to be disappointed on opening it. There is little to recommend the contents. The seeds are large; they are even larger than those of the cultivated orange, and they leave little room for the pulp, which is sour and unpalatable. The rind is strongly impregnated with a bitter oil, which inevitably becomes mixed with the juice as the fruit is opened and gives it a vile flavor.

For over forty years experts in the Department of Agriculture have been attempting to use the Trifoliate Orange in building up a new race of semi-hardy citrus fruits. They have been successful to a surprising degree in combining its hardiness with a more attractive flavor. They have definitely succeeded in bringing the culture of citrus fruits out of the tropics and into the edge of the temperate zone, but there is as yet no indication that they will ever make orange-growing profitable in Boston.

The first hybrids were between *Poncirus trifoliata* and varieties of the cultivated orange. They were called "Citranges" and while they received a good deal of publicity when they were first introduced they may be said to have been more encouraging than useful. The fruit, though beautiful to look at, was scarcely larger than that of the Trifoliate Orange, and while the juice, taken by itself, could be used as a substitute for lemons, there was even in the hybrid so much musky oil in the rind, that special precautions had to be taken in opening the fruit. Another bad trait of the hybrid was its too quick response to warm weather in the early spring. It was, therefore, crossed with two other citrus fruits, which, though not so hardy in other ways, were slower to start into growth in the spring. These were the Kumquat, *Fortunella japonica*, and the Calamondin, *Citrus mitis*, a tropical citrus fruit from the Philippines. The triple hybrids which resulted were called "Citrangequats" and "Citrangedins" respectively. The most promising hybrid yet introduced is among the latter group and has been named the Glen Citrangedin, from Glen St. Mary's, Florida, where much of the breeding work has been done. It has small fruits about the size and flavor of a lime, but colored like an orange. The rind is without even a trace of the musky oil which characterizes the original hybrid and the tree is hardy at least as far north as southern Georgia. This artificial cosmopolite, uniting the possibilities of the Chinese *Poncirus*, and Philippine Calamondin with the common orange, is the "farthest north" which has as yet been achieved by the plant breeders.

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