Hardy Aroids in the Garden

Judy Glattstein

Though not showy plants and with only a modest following among plant lovers, the hardy aroids are interesting, display many virtues in cultivation, and attract “a different class of gardeners”

The Arum Family, or Araceae, consists of about fifteen genera, most of them tropical but of wide distribution. Some of the tropical members of the family have long been under cultivation, especially in eastern Asia and the Pacific Islands. Taro (Colocasia esculenta) and several species of Xanthosoma (yautia), for example, are grown for their edible tubers as staple sources of starch. Other tropical species are handsome foliage plants used in the temperate zones for summer bedding (Caladium) or as houseplants (Aglaonema, Dieffenbachia, Monstera, Philodendron). Others are used by florists as cut flowers (Anthurium, Calla).

Some members of the family are hardy, notably Arisema, Arisarum, Arum, Lysichiton, and Symplocarpus. The Araceae might seem a poor prospect for garden-worthy plants to those familiar only with the skunk cabbage (Symplocarpus foetidus) of New England’s swamps. I have enjoyed cultivating representatives of several genera, some for their flowers, some for their foliage.

Aroids have a modest following, appearing in an occasional article, mentioned briefly in gardening books. Visitors to my garden have admired them; they have several points of appeal. Many of the aroids I discuss in this article are rare in cultivation, especially in the United States. They are, therefore, unusual and have the appeal of novelty.

Aroids contain a bitter substance, calcium oxalate, and are little bothered by pests. Slugs, mice, rabbits, and deer find them decidedly unpalatable. When aroids are used for food, the calcium oxalate first must be destroyed by heat. Gardeners should be careful to wash their hands after handling berries or a bruised tuber. Once, after cleaning Arisäma seeds, I inadvertently touched my mouth. The resulting unpleasant tingling and numbness took several hours to wear off.

My garden in Wilton, Connecticut, is shaded by mature white oaks (Quercus alba). Understory trees are dogwood (Cornus florida) and black birch (Betula lenta). The Araceae I raise are quite hardy in Wilton, which is situated in Arnold Arboretum Hardiness Zone 6 (−5 Fahrenheit to 5 Fahrenheit). In fact, the temperature once dipped to −8 Fahrenheit, and there were no losses. The soil in the garden is a good loam, which I keep mulched with leaves for a constant supply of humus; as in most of Connecticut, the pH is rather low (acid). Other plants I use in the garden include such American wildflowers as Trillium, Sanguinaria canadensis (bloodroot), Hexastylis spp. (evergreen
gingers from the southeastern states), *Phlox stolonifera*, *Phlox divaricata*, and many kinds of ferns. Other shade-tolerant plants, such as hostas, epimediums, and primroses, also do well under these conditions.

Since I have to obtain most of the aroids from abroad, I prefer to receive them in the autumn. They are completely dormant at this time, and the tubers travel well and arrive in excellent condition. If they are shipped in the spring, there is the risk that they will break dormancy while in transit. New growth can be damaged either by the confines of the shipping container, or by rot. As soon as the tubers are received they are planted directly in the garden. The area is spaded over, and extra compost is added if necessary. I fertilize with muriate of potash and superphosphate. Soils in the Northeast are low in phosphorus, and potash is especially useful for tuberous plants. It is not safe to use bonemeal in my garden because it attracts skunks, which dig up the tubers looking for bones. They do not eat the tubers, but it is a nuisance to replant them. Nitrogen is applied in the spring, in the form of dried blood, cottonseed meal, or leather tankage. Fertilization after the first year is usually not required. The constant mulch of leaves seems to keep the plants growing in good condition.

An alternative way of obtaining these plants is to raise them from seed. I soak dried berries in a little tepid water for an hour or so, until the coat softens. Then, I rub the seeds gently between paper towels and separate the seed. Each berry has one to four seeds. I sow the seeds in a sterile mix of half potting soil and half

The familiar skunk cabbage (*Symplocarpus foetidus*) of New England’s swamps. This and all other photographs accompanying this article were taken by the author.

Lysichiton americanum in flower in the wild, Washington, D.C.
Jiffy-mix® or Pro-mix®, with enough sharp sand for good drainage. (I sow them thinly enough that I won’t have to prick them out for a year.) I cover the seeds well, water them, and wait. Fresh seeds will germinate promptly under growth lights. Older seeds will germinate more slowly, and outdoor conditions slow the germination process somewhat.

My biggest problem has been to keep the plants through their dormant stages. While the garden site may be quite damp, pot-grown plants rot with the greatest of ease. At the same time, small tubers dry out quickly. It is difficult to find the correct balance. Second-year plants can go into a prepared site in the garden and should begin flowering in their third or fourth year. I have used this method with several species of *Arisaema* and with *Arum italicum*. *Arisaema* seeds do not need a period of stratification but will germinate during the autumn they ripen if they are sown indoors. Sown outdoors in the autumn they will, of course, germinate the following spring. The production of seeds is generous, one spadix of *Arisaema sikokianum* having from one to four seeds in a berry, for a total of five hundred eighty-seven seeds. Plants of *Arisaema sikokianum* often begin to flower in their third year. Once established, the plants are most agreeable. I have dug one up in full bloom, potted it for a rock-garden show, and replanted it in the garden without any difficulty or damage to the plant.

The flowering of *Arisaema* follows an unusual pattern. Immature corms, from either seeds or offsets, are asexual and have a single foliage leaf. As corms increase in size after their first year, they reach sexual maturity, producing two leaves and one scape. Smaller (lighter) corms are male, heavier corms are invariably female, the sexual state having progressed from an asexual to a male and finally to a female state, remaining in the last state. Many plants—*Ilex* and *Myrica*, for example—have single-sexed plants that are either male or female and that remain so for the life of the individual plant, a condition called “dioecious.” The transitional nature of the sexual state of *Arisaema* is referred to as “paradiceous.”

**Arisaema**

In North America there are two species of *Arisaema*, *Arisaema triphyllum*, which has four subspecies, and *Arisaema dracontium* of the southeastern states.

*Arisaema triphyllum* (Linnaeus) Torrey is found from the Gaspé Peninsula, southern Québec and Ontario, Wisconsin and Minnesota south to eastern Texas and southern Florida, growing in moist, shady woodlands. There are four subspecific populations, with widespread hybrid swarms.

*Arisaema triphyllum* ssp. *triphyllum* is the most widespread. Its height varies with growing conditions. I have seen specimens that were dwarf in the wild reach two feet in height in the garden with richer soil and ample water. Typically, it has one or two leaves, each bearing three leaflets, which are glaucous beneath. The spathe may vary in color from green to green-and-purple striped, to chocolate purple. The name ‘Zebrinum’ is often applied to cultivars whose spathe are purple to bronze and have whitish longitudinal stripes inside. An interesting variant has recently been discovered by Peggy French in Wilton, Connecticut. It has pronouncedly white-veined leaves and comes true from seed.

The second subspecies, which I have seen in several gardens, is *Arisaema triphyllum* ssp. *stewardsonii*. This is a northern variant in which the spathe is
green and strongly fluted with white ridges on the outside. It tends to appear later in the spring than the other subspecies and grows consistently in moist sites. Its leaves are never glaucous.

The third subspecies is *Arisaema triphyllum* ssp. *pusillum*, which grows in the same habitat as *Arisaema triphyllum* ssp. *stewardsonii*, although farther south and at lower elevations. Its leaves, too, are never glaucous. There are no ridges on the spathe, and the coloring is nearly always completely green or completely purple, occasionally with thin, green stripes.

The fourth subspecies, *Arisaema triphyllum* var. *quinatum*, has a very restricted range in the deep South, growing in moist, shaded locations. It is smaller than the other subspecies, and its leaves are usually five-parted and glaucous beneath, although there may be fewer leaflets, and the the leaflets may not be glaucous. The spathe is green and bears no markings.

*Arisaema dracontium*, the green-dragon, has a solitary leaf with seven to nineteen segments. The spathe is more tightly furled than in the previous species and is green, without stripes. The long, slender spadix protrudes and hangs down from this. Plants can reach an overall height of three feet (0.9 m).

In western China, Japan, and the Himalayas, there are at least one hundred species of *Arisaema*, forty-two in Japan alone. Some of them are among the most beautiful, exotic, interesting, and easily cultivated plants that could be grown in the garden.

*Arisaema candidissimum* W. W. Smith is a Chinese species discovered and collected by George Forrest in Yunnan in 1914. It is found in pine forests, indicating a preference for acid soil. Under cultivation, it does not need a very moist site. The leaf is solitary, three-parted, and a glossy mid-green; it appears after flowering, which occurs early in June. The spathe is very beautifully marked with pink and white stripes. Mature tubers make numerous offsets, which form a good-sized clump in a few years.

*Arisaema sikokianum* Franchet and Savatier comes from Honshu, Shikoku, and Kyushu in Japan. Mature plants have two three- to five-parted leaves that often have attractive silver markings. Its Japanese name, *yuki-mochi-so*, means "snow rice-cake plant," in reference to the pure-white, clublike spadix. The spathe is a deep chocolate brown on the outside, green shading to white inside. It flowers in late April and early May.

This is an extraordinarily beautiful plant. In the garden, I combine it with the Japanese *Primula sieboldii*, especially the deep-pink forms that contrast so nicely with the dark spathe of the *Arisaema*. One colony is growing with the Japanese painted fern, *Athyrium goeringianum* 'Pic-tum', whose silver fronds complement the markings on the *Arisaema* leaf. Seeds are freely produced and germinate readily. Plants that produce seeds are more resistant to cold and go dormant later than non-seed-bearing plants. The seeds are ripe before the berries turn red, which is fortunate because the growing season in Wilton is too short for the berries to redd- en.

*Arisaema thunbergii* var. *urashima* (Hara) Ohashi and J. Murata is found in the wild on the islands of Hokkaido, Honshu, and Shikoku. The leaf is solitary, with eleven to fifteen pedately arranged leaflets of a dark, glossy green. It appears with the flowers. The Japanese name of the plant, *urashima-so*, refers to the odd—even amusing—flowers and is based on a folk tale. Taro Urashima was a young fisherman, and it is for him that
the plant is named. The dark bronze-purple spathe of *Arisaema thunbergii* var. *urashima* arches strongly over the spadix, narrowing abruptly to a tail-like tip. The spadix has a threadlike appendage as much as twenty inches (50 cm) long that trails on the ground like a fishing line. It flowers in mid-May in my garden. Seeds germinate freely. The tubers may make offsets. A colony of this variety is attractive, not only for the unusual flower but for the attractive leaf.

*Arisaema japonicum* Blume and *Arisaema serratum* Thunberg probably are one and the same species. A common and very polymorphic species, minor variants in color and size have been accorded specific rank in the past. Dr. Creech of the United States Department of Agriculture introduced it into the United States. The pseudostem may be up to two feet (0.6 m) tall and pale green or pale green with “snakelike” purple mottling. Plants with mottling are more attractive in the garden than those without it. It flowers in late April to early May. One of my correspondents, with true Oriental courtesy, has written, “I sent yesterday a parcel with the plants. I think they are of less value in Japan but good plant for shady garden.”

*Arisaema ringens* (Thunberg) Schott is noted in English literature as coming into growth as early as February or March. The colder winters in Connecticut must keep it dormant over a longer period, as I...
have not seen any growth as early as that. Its leaves are large, glossy green, and thick. Mature plants have two leaves, both of which have three leaflets. Each leaflet ends in a little, threadlike tail. The spathe of *Arisæma ringens* differs from those of other members of the genus, having an inflated, curving upper part resembling a very large snail shell. The main part of the spathe is green in forma *præcox*, dark purple in forma *sieboldii*. The spathe's margins are folded over like an auricle and are chocolate brown. The leaves are unaffected by a light frost but are damaged when temperatures drop below 28 Fahrenheit. The tubers of *Arisæma ringens* have grown larger than those of any other species of *Arisæma* I have raised, reaching three and one half inches (8.5 cm) in diameter. Offsets are formed to a moderate extent.

*Arisæma fargesii*, which is native to Mount Omei in China, is the least common species I grow. Carla Teune, curator of the Leiden Botanic Garden, sent me some seeds she had collected in China in 1980, among which were seeds of an unidentified species of *Arisæma*. (Since the spathe is an important character for identifying species of *Arisæma*, a fruiting plant cannot be identified with a taxonomic key.) The seeds germinated well, but some plants succumbed to the winter. Each winter I lost a few more tubers from rot. Finally, in the fall of 1983, I felt that the two remaining tubers were large enough to be put into a propagating-holding bed. May 1984 came and went, as did June, but there was no sign of either remaining tubers. The winter had been too cold for them, I thought, and I hadn't planted them deep enough. Or I should have protected them from the many mice, voles, and chipmunks that infest my garden. I doubted that the latter was true, for all parts of an *Arisæma* are laced with crystals of oxalic acid, which renders them unpalatable, and I had never had a problem with such animals before. I was ready to admit my guilt. Then, in mid-July, two large buds appeared. They grew swiftly and continued to grow, until the single leaf of each plant was bigger than my outspread hand. The spathe and spadix appeared as rapidly. The spathe reminded me a little owl, with the tip falling forward for the beak and an opening on each side resembling the eyes. It was a fine plant, but anonymous!

Ohwi's *Flora* is for Japan, and this was a plant from mainland China. When in doubt, find an authority, I told myself. I took some photographs and sent them off to H. Lincoln Foster, the doyen of American rock gardeners. He replied in early August:

> By studying my xerox of the pages of *Flora Republicæ Popularis Sinicae* concerning the arisëmas, even though the text is Chinese, from the rather good drawings I feel confident that your plant is from the Section Franchetiana. This has 6 species, including *candidissimum*. Your species is, I think *A. fargesii*.

A name! An identity! Though one plant had male flowers and the other female, there has not been any setting of seed. The foliage is very tender, being killed by the first light frost.

**Arisarum**

The genus *Arisarum* A. Targioni-Tozzetti contains three species, all of which are confined to the Mediterranean basin. One (*Arisarum proboscideum*) is, however, hardy in my garden.

*Arisarum proboscideum* (Linnaeus) Savi is often called the mousetail arum. Small-er (more dwarf) than most species of *Arisæma*, it has a creeping rhizome and sends up a mass of small leaves. The spathe has a threadlike tip that protrudes from the leaves and looks rather like a
Arisaema japonicum in the author's garden, Dr. John Creech of the United States Department of Agriculture introduced this species to the United States.

Close-up of the flower of Arisaema fargesii in the author's garden. An uncommon species, it hails from Mount Omei in China. This plant was grown from seed collected in China by Carla Teune of the Leiden Botanic Garden.

Arisaema japonicum in the author's garden, Dr. John Creech of the United States Department of Agriculture introduced this species to the United States.

Close-up of the flower of Arisaema fargesii in the author's garden. An uncommon species, it hails from Mount Omei in China. This plant was grown from seed collected in China by Carla Teune of the Leiden Botanic Garden.

mouse's tail. Culture is similar to that members of Arisäema, which is to say, woodland conditions of soil high in organic matter, moist but not soggy, and shaded.

Arum

The genus Arum Linnaeus consists of approximately twelve species, most of them native to the Mediterranean basin, two to the British Isles. All are tuberous. Their flowers are unisexual, but unlike that of Arisäema the spadix Arum bears both male and female flowers.

Arum maculatum is the species commonly found in Great Britain. The large, green, arrow-shaped leaves emerge in the spring. Often the leaves are splashed with black or purple spots. Flowering occurs soon afterward. In autumn, clusters of brilliant orange-red berries appear and make a handsome display. Arum maculatum is valuable as a garden plant because it will grow and fruit in heavy shade.

Arum italicum (as Arum italicum ssp. neglectum) is less commonly found in the British Isles. Arum italicum ssp. italicum, the form occurring in Europe, has green leaves with veins marked in creamy white; it is thus the more interesting garden plant. In addition, its leaves begin their growth in the autumn, persist through the winter, and go dormant in midsummer. If an exceptionally bad season destroys the foliage over the winter, a secondary set will emerge in the spring. The spathe varies in color from creamy white to pale green. The berries of this species also give a handsome display in autumn. Two especially attractive leaf forms have been given cultivar names, 'Pictum' and 'Marmoratum'. Because of the autumn berries and winter foliage, this is a choice species for adding interest to the shady woodland
garden. The seeds ripen in autumn and germinate the following spring.

**Pinellia**

The genus *Pinellia* consists of perhaps half a dozen species native to China and Japan. The leaves appear with the flowers, which are monocious. The leaves are simple or three- to seven-lobed. *Pinellia ternata* and *Pinellia tripartita* are the two species listed in Ohwi's *Flora of Japan*. Both are small plants four to eight inches (10 to 20 cm) tall. Their roots are tuberous; additional small tubers are produced at ground level. In both species, the leaves are green and three-lobed. Ohwi mentions *Pinellia ternata* as quite common in cultivated fields and roadsides. This, coupled with its habit of producing extra tubers at the soil surface might indicate a certain weediness. Spathes are green or purplish. Flowering occurs in summer.

In November 1986 a friend sent me some tubers of *Pinellia cordata* from Japan. While I have not yet found any references to this species (*Hortus Third*, for example, does not list *Pinellia* at all), I assume that *Pinellia cordata* has simple rather than lobed leaves. According to my friend, people generally raise it in pots in Japan, apparently to have easy access to the fragrant plants. Nowhere have I found reference to the pleasant aroma that this aroid has. I smelled it for the first time in Lincoln and Laura Louise Foster's garden during the summer of 1986, at the suggestion of my friend Takeo Nihei, who was visiting the United States at the time. Obviously, there is more to a plant than its botanical description.

The hardy aroids are not splashy, showy flowering plants like roses or chrysanthemums. They have a different kind of flower, interesting to a different class of gardener. Perhaps other gardeners will become interested enough in these plants through this article to attempt to cultivate them, as well as other hardy species, and would be willing to share their information with me.

**Sources**


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