quarters of an inch in diameter. It is probably a form of *C. orientalis* with fruit of an unusual color.

Late flowers. *Chrysanthemum sibiricum*, which has been flowering for several weeks on Azalea Path, will continue to open its white flowers until the buds are killed by a hard frost. This attractive plant is still rare in gardens, although it was introduced into this country fourteen years ago by Professor Jack who found it on Poukan-shan, the mountain close to the city of Seoul. This late-flowering Chrysanthemum is perfectly hardy; it produces seeds freely, and spreads also by underground shoots, so that once established it is likely to be a permanent feature in the garden. It is a shrub eighteen or twenty inches tall, with slender stems, woody at base, deeply divided, pale green, pungently aromatic leaves and white daisy-like flowers an inch and a half in diameter. A form with pale rose-colored flowers has been raised in this country. A handsomer plant now in bloom is *Chrysanthemum nipponicum* which is commonly cultivated in Japanese gardens and which is believed to grow naturally on the shores of some of the smaller islands of northern Japan. It is a stout-stemmed, compact-round-topped shrub which under conditions favorable to it grows from two to three feet tall and three or four feet through. The leaves are narrowly oblong-obovate, sessile, slightly toothed toward the apex, light green and lustrous above, pale below, and thick and leathery; they stand erect, and pressed close against the stem display only their lower surface. The flowers are produced on long stout stalks, each from the axil of one of the upper leaves; and as the flower-stalks increase in length from the lowest to the one in the axil of the topmost leaf the flowers are arranged in a broad flat cluster in which buds continue to open during many weeks or until they are destroyed by cold. The flowers are daisy-like with broad, pure white ray-flowers, and are from two to two and a half inches across. The flowers of this Japanese Chrysanthemum are sometimes injured in Massachusetts by October frosts. It is better suited, like the Japanese Anemone, to regions which enjoy a longer autumn than that of Massachusetts. It grows well in the neighborhood of Philadelphia and there are good plants on Long Island. With the protection of a pit or a cool greenhouse it would probably continue to open its flower-buds until Christmas.

The Mountain Halesia or Silver Bell Tree. Until the beginning of the present century the botanists who visited the high Appalachian Mountains appear to have taken it for granted that the Halesia which grows at altitudes above 2500 feet was the same as the bushy tree of the foothills and upland valleys of the Piedmont region and southward. This idea having been generally accepted and as the lowland plant had for more than a century been common in gardens no attempt was made to cultivate the mountain tree, and the gardens of the United States and Europe have been deprived of one of the handsomest trees of the North American forests. The lowland plant, *Halesia carolina*, is usually shrubby in habit with numerous stout stems wide-spreading from a short stem, and covered with nearly smooth or slightly scaly bark. The tree of the high mountains is not rarely eighty or ninety feet high with a straight trunk sometimes three feet or three feet and

a half in diameter, often free of branches for fifty or sixty feet from the ground and covered with bark separating into great platelike scales like those of a scaly-barked Hickory or a Swamp Cottonwood. The flowers are about one-third larger and the fruit is twice as large as the flowers and fruits of the lowland tree. The habit of the plant and the large flowers and fruits are reproduced in the seedlings, which when the seeds germinate begin to grow as trees with a single stem. The seedlings show no variation in habit, and the young trees grow with a single straight stem with short branches which form a narrow symmetrical, pyramidal head. The trees often begin to flower and to produce fertile seeds before they are ten feet tall. The mountain Halesia has been described as a variety (var. *monticola*) of *H. carolina* but it will probably be, when better known, considered a species. This tree was introduced into cultivation by Mr. Harlan P. Kelsey who for many years has maintained in western North Carolina a nursery of Appalachian plants. By him it was sent to the Park Department of Rochester about twenty-five years ago, and in 1907 it came from Rochester to the Arboretum. This mountain tree has proved to be perfectly hardy in the Arboretum where it is growing rapidly and where it has now flowered and produced fruit since 1913. It is a tree which seems destined to play an important part in the decoration of American parks and which may prove useful for street and roadside planting.

Photinia villosa. This small tree or arborescent shrub which has been covered with bright red autumn leaves was last week the most conspicuous object in the Shrub Collection. It is a native of Japan and China, and although it was introduced from Japan, probably in 1864, by the Parsons Nursery at Flushing, Long Island, it does not appear to be well known in this country. Photinia is related to *Crataegus*; it has small white flowers in clusters, and small, shining, scarlet fruits which remain on the branches until after the leaves fall.

Cotinus americanus. The so-called Smoke-tree (*Cotinus coggygria*) of eastern Europe is found in many old-fashioned gardens in which it is conspicuous in summer by the great clusters of the much-lengthened, hairy, colored stems of the small flowers. Much less well known is the American species of this genus. The American Smoke-tree grows naturally only in the neighborhood of Huntsville in northern Alabama, in southern Missouri, and in eastern Oklahoma and Texas. First raised in the Arboretum in 1882 from seeds collected on the high limestone ridge a few miles south of Huntsville, Alabama, the American *Cotinus* has proved perfectly hardy here. It has grown, however, into a broad tall shrub and not as a tree, although on the Huntsville ridge trees thirty feet tall were once abundant. The "smoke" of the American species as compared with that of the Old World plant is inconspicuous, and its value is found in the splendid orange and scarlet coloring of the leaves at the end of October when it is one of the conspicuous plants of the Arboretum. A large specimen can be seen on the left hand side of the Meadow Road next to the Sumachs, and there is another by the road near the top of Peter's Hill.

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