small leaves and small clusters of minute flowers; and there is one in which the corolla is deeply divided into narrow lobes (var. *polypetala*). A form with broad, handsome, Rhododendron-like leaves (var. *obtusata*), rarely flowers, and another with a six-lobed corolla has recently been found growing on the Blue Ridge in North Carolina. The Laurel collection is easily and quickly reached from the Walter Street and South Street entrances of the Arboretum.

Rhododendrons. Although the hot weather of last week ruined the flowers of the early Rhododendrons and although the late flowering species and hybrids have not yet opened, a large number of the varieties of the Catawbiense hybrids are now in bloom. Persons who may desire to cultivate Rhododendrons must remember that they, including nearly all Azaleas, cannot live in soil impregnated with lime and that with the exception of the native *R. maximum* they are not hardy north of Massachusetts, and that south of Maryland, except at high altitudes on the Appalachian Mountains, the summers are too hot for them. The range therefore in eastern North America where these plants can be successfully cultivated is comparatively small, but probably the northwest coast of North America from southern British Columbia to northern California is as well suited for these plants as any part of the world, and in this region there can be grown in addition to all the varieties common in European gardens the Himalayan and Chinese species which here in the east can only be kept alive in glass houses, and in Europe thrive only in a few exceptionally favorable places like Cornwall or in the neighborhood of the Italian Lakes.

Rhododendrons, although they are moisture-loving plants, do not thrive in undrained positions; they do best in soil in which loam, peat and sand have been equally mixed, although peat is not always essential to the successful cultivation of these plants. They should be planted where the roots of trees cannot take away moisture from them, and the best position for these plants is on the north side but not too near coniferous trees as they have been planted in the Arboretum. In such positions they are protected from the direct rays of the sun in March and April, for in this climate where the roots are in frozen ground in winter and therefore cannot take up moisture, it is important to reduce as much as possible winter and early spring evaporation from the leaves. It is this evaporation from the leaves of evergreens growing in frozen soil which makes it impossible to keep alive many of them in this part of the country; and this is the reason why it is desirable here to water thoroughly Rhododendrons just before the ground freezes in the autumn. Of the species of evergreen Rhododendrons only the eastern American *R. maximum*, *R. catawbiense*, *R. carolinianum* and its variety with white flowers (var. *album*), *R. minus* and its mountain form, the Caucasian *R. Smirnovii* and *R. caucasicum* at least in some of its forms, are truly hardy in Massachusetts. The two species of the European Alps, *R. hirsutum* and *R. ferrugineum* can live here sometimes for a number of years, but they are usually short-lived and unsatisfactory plants in this climate. The Japanese *R. brachycarpum* formerly lived in Massachusetts gardens for many years and longer trials will probably show that it can be successfully cultivated in this climate. Including this still doubtful Japanese species and the two

little European species, there are only nine species of this great genus of several hundred species, hardy in this climate, and there is little hope that another species able to support this climate will be found. The poverty of our gardens in this plant appears when the Arboretum collection is compared with that in a garden in Cornwall in England, in which some three hundred and sixty species are growing and in which on a day in May sixty-five species have been in flower. Such a collection, and perhaps even a better one, can be made in a garden in the neighborhood of Portland, Oregon, or in some favorable place on the shores of Puget Sound, but the sooner it is realized that northeastern North America is not a good *Rhododendron* country in any broad sense the better it will be for the gardens in this part of the United States. For the last seventy years a large amount of thought, labor and money have been expended in attempts to cultivate these plants in the New England and Middle States; during this time many hundreds of thousands of these plants, principally hybrids of the American *R. catawbiense*, have been imported from Europe but the collections of *Rhododendrons* in the eastern states at all satisfactory or comprehensive can be counted on the fingers of one hand. In this climate unfortunately only a few of the Catawbiense hybrids, which are the popular *Rhododendrons* here, can be grown. The American parent of these hybrids is perfectly hardy, but the influence of the tender Himalayan species with which it has been crossed has made most of the varieties of this hybrid unsuited to this climate. The influence of the tender *R. ponticum*, the stock on which these plants have been almost universally grafted in European nurseries, may account in part for the fact that plants of these hybrids which have lived here for thirty or forty years have then died without any other apparent cause. If evergreen *Rhododendrons* are ever to become hardy and permanent features of eastern gardens we must give up trying to make European-grown plants successful here, and confine our efforts to the few species which are hardy here and to crossing these among themselves in the hope of obtaining hybrids which will be able to grow here permanently. Something can be accomplished by the selection of seedlings. For example, the flowers of *R. catawbiense* are of a peculiar shade of magenta which does not harmonize with any other color but white. Comparatively few seedlings, however, of *R. catawbiense* have ever been raised and probably not much attention has ever been paid to selecting from among the plants growing on the high Appalachian peaks individuals with flowers of unusual colors. *R. catawbiense* is perhaps the hardiest here of all *Rhododendrons*; the habit is excellent and the leaves are handsomer than those of the other hardy species. Improvement in the color of the flower is all that is needed to make it a first rate plant for this climate. It is doubtful if this can be accomplished by crossing it with other species, but through patient selection it may be improved and possibly a white-flowered form discovered. Hybrid *Rhododendrons* are hardier or less hardy than their parents. The few hybrids which have been made between *R. catawbiense* and *R. maximum*, the hardiest of all *Rhododendrons* here, are less hardy than their parents. On the other hand by crossing some of the Catawbiense hybrids with *R. Metternichii*, a delicate Japanese shrub, a race of hybrids has been produced in England which is quite hardy in the Arboretum; and the hybrids of the two

species of the European Alps crossed with one of the forms of the American *R. minus* are excellent dwarf garden plants here. In this country the breeding of Rhododendrons for American gardens has never been systematically undertaken with full knowledge of the species available for the purpose. The field is an inviting one, for these plants and other hardy broad-leaved evergreens are greatly needed in American gardens. Of the early-flowering Rhododendrons those which have proved most satisfactory in the Arboretum are varieties of hybrids of *R. caucasicum*, and the Appalachian *R. carolinianum*. The best of the Caucasiums are the varieties called "Boule de Neige," "Mont Blanc" and "Coriaceum." The first is a round-topped plant rarely three feet high and occasionally six feet in diameter with handsome foliage and snow-white flowers faintly tinged with pink in the bud, in compact clusters. "Mont Blanc" is a taller and narrower plant with flowers rose-color when the buds open but soon becoming white. "Coriaceum" is also a more upright growing plant than "Boule de Neige" and in the rusty brown under surface of the leaves and in the flowers deeply tinged with yellow it resembles the wild plants of *R. caucasicum* which grow on the mountain slopes of the Caucasus. Two specimens of "Coriaceum" have been growing in the Arboretum for many years and are among the most satisfactory plants in the collection. *Rhododendron Smirnowii* flowers only a little later than *R. carolinianum* and the Caucasian hybrids. It is a plant with which Americans interested in the cultivation of Rhododendrons would do well to become acquainted, for it is not only a beautiful plant but may prove exceedingly valuable in the production of a new race of hybrid Rhododendrons better suited for this climate than any which we now have. It is a large shrub with pale gray-green leaves coated below with a thick mat of pale felt, and large pink or rose-pink flowers in medium-sized clusters. The leaves are not as handsome as those of *R. catawbiense* and its hybrids, and when the plants are fully exposed to the sun the leaves sometimes curl up in very hot weather. The felt on their lower surface protects them from the attacks of the lace-leaf fly from which other Rhododendrons suffer so seriously here. Hybrids of this plant with *R. catawbiense* hybrids which have been raised in England show no trace of the covering of felt on the lower surface of the leaves and are less hardy and less desirable plants here than their Caucasicum parent. In the Arboretum collection of Catawbiense hybrids are plants raised in England, the United States and Germany. English nurserymen have been longer engaged than those of other countries in raising hybrid Rhododendrons and have had a larger variety of material to work with and as a rule the English Catawbiense hybrids are more desirable plants for this country than at least those in the Arboretum collection which have been raised in the United States and Germany. Nearly all the colors which have been obtained in the flowers of these hybrids will be found among the English plants which are hardy in the Arboretum. A list of such plants should include those called "Album elegans," "Catawbiense Album," "Charles Dickens," "Atrosanguineum," "Caractacus," "Lady Armstrong," "H. W. Sargent," "Roseum elegans," "Mrs. C. S. Sargent," "Henrietta Sargent," "Everestianum," "Purpureum grandiflorum," and "Purpureum elegans." With these if proper soil and a good position for the plants is selected a fine display of foliage and flowers can be obtained.

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