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PRUNING RHODODENDRONS

MANY shrubs respond well and quickly to pruning. Such plants as forsythias, privets, deutzias and lilacs will initiate shoots from below the cuts when these are made at almost any time during the growing season. The earlier the cuts are made, the more time is allowed for the new shoots to mature satisfactorily by the time cold weather occurs. The more shoots that are cut, the greater the opportunity for such plants to send out new buds. In discussing the pruning of hedges, the statement is frequently made that almost any deciduous tree or shrub can be used in hedge making (i.e. can be heavily pruned and be reasonably expected to quickly recover) if the pruning is done at the proper time and on plants that are not too old.

Two years ago, I tried pruning some old lilac plants which had grown to a single trunk at the base. Certain lilacs have shown a marked inclination to grow with a single trunk at the base, and pruning such plants heavily has presented a problem. There were 16 plants in all, each one with a single trunk nearly 6'' in diameter at the base with no branches nor apparent visible buds at least eighteen inches from the ground. The plants were *Syringa vulgaris* "Ludwig Spaeth" and *S. vulgaris* "Macrostachya." These were all sawed off 12'' above the ground on April 16. None had branches or externally evident buds below the cuts. Within six weeks, all but two of these stumps had sprouted (where no sprouts were superficially evident before) and at the end of the summer were growing satisfactorily. No buds, shoots or suckers came from the two stubs by August 16, and no obvious cause could be noted for the failure of these two, but the majority of the plants certainly responded favorably to this heavy pruning.

Rhododendrons do not respond to pruning as readily as deciduous plants, probably for several reasons. Gardeners in general have adopted the policy of cutting off dead or diseased wood only. However, commercial growers are familiar with the methods used in large areas of the southern Appalachian Mountains where

carloads of these plants, and mountain laurel, used to be collected and shipped for northern planting. Here the plants were periodically killed back by burning over large areas, thus forcing young growth from the base of the plants, resulting in smaller but more dense and more desirable ornamental specimens. Occasionally, commercial nurserymen prune large plants, but if the results are not satisfactory, they can afford to discard such plants in the nursery row. Experimenting with a large ornamental specimen in its permanent place in the landscape planting is quite something different. Few gardeners wish to jeopardize such plants unless they have to.

During the past few years, rhododendrons throughout the East have reacted in peculiar and often inexplicable ways. Branches and even whole plants will die in the spring for no apparent reason. Temperatures during the few winter months preceding were not subnormal. Drought conditions the preceding summer or fall may have been marked and contributed heavily to such failures among the plants. The older (and the taller) rhododendrons grow, the more difficult it is for the owners to prune them back. They visualize 10 to 15' plants literally covered with blossoms each year and fail to realize that the taller these plants grow, the more susceptible they become to all manner of ills. Most *Rhododendron catawbiense* hybrids are at their best when approximately 6' tall, and if grown taller, the branches become too heavy and easily broken, especially from winter snow and ice. *Rhododendron carolinianum* is about the same height, though often lower. Even *R. maximum* (which grows 35' tall in nature) does not thrive when grown too tall under garden conditions. Consequently, most of the commonly planted rhododendrons are at their best when they are six feet tall or less. There are taller plants, yes, but usually they are the first to suffer breakage, winter injury and to show effects from drought conditions. When this last happens, irrevocable damage has been done to the plant tissues before remedial steps can be taken.

The fifty-year-old collection in the Arnold Arboretum is no exception. To the best of my knowledge, the plants have never been "pruned" in the sense that one prunes with a definite determination to lower the height of the plants. However, the plants have suffered materially during the past few winters from drought conditions in the summer, from winter cold, and from several other things. At one time we were contemplating the repropagation of the entire collection. A few experiments were conducted at the Case Estates of the Arnold Arboretum last year on pruning rhododendrons, and the results were so favorable that this spring, the entire collection was "pruned" with the chief purpose of reducing the size of the plants, and forcing out new growth from the base of the plants and along some of the shoots. This was done in June, and the resulting growth to the present time has been excellent. These notes on pruning rhododendrons seem to be very much in order to help others who may be confronted with similar problems.

Species selected for the experiments were *R. catawbiense*, *R. maximum* and *R.*

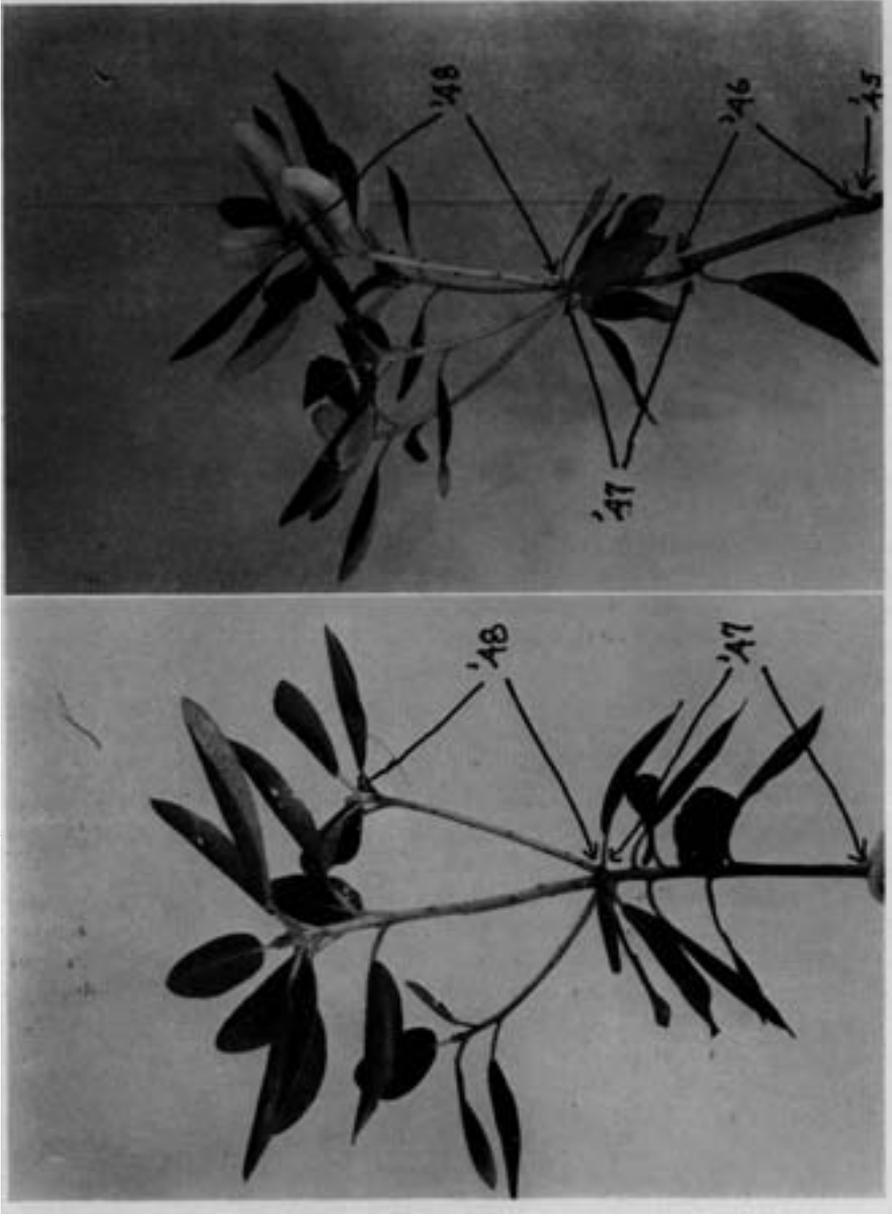


PLATE XI

(Left) Check showing normal growth of *R. catalbense* for two years with leaves clustered at upper end of twig growth and bud scale scars at lower end. (Right) The '46 growth of this shoot was cut in June '47 with one leaf below the cut. The axillary bud grew and developed into this fine shoot.

carolinianum. On all of these the annual shoot growth was fairly clearly marked for the past six years at least. The object was to make cuts at different places on twigs of different ages and sizes and note the resulting reactions.

From the illustrations it will be noted that the annual twig growth of a rhododendron shoot consists of a part at the terminal end with leaves, and another part near the base without leaves. The leaves remain on the plant 2 to 4 years, depending on the species, possibly the variety and possibly the condition of the soil. In the axil of each leaf is a dormant bud, which remains dormant, usually, unless something happens to the above portion of the twig, when the bud may be forced into growth. These buds are potential shoots for as long as they remain on the twigs.

On the twig elongation each year, there are a few scars below the leaves (i.e. on the lower part of the twig) which look approximately like leaf scars, but lack a dormant bud. These are bud scale scars. If the cut is made so that a few leaf buds are directly below the cut, new shoots will be forthcoming from the dormant buds remaining. If the cut is made in the annual growth in such a way as to be below the dormant buds and above the bud scale scars, no buds will be formed on that year's growth, but they will be produced on the previous year's growth below the cut.

In the first experiment, pruning cuts were made on twigs of seven different ages, all on the same plant, but always at a spot where a few true leaf scars were left below the cut. This was done on each year's growth, 1947 to 1941 inclusive, on June 13, 1947. By July 15, buds were breaking immediately below each of these cuts, on the same annual growth as that cut. In other words, shoots appeared on twigs that were at least seven years old.

Other cuts were made on twigs of different ages, but with no true leaf scars below the cut for that year. In each case, it was the dormant buds in the true leaf scars of the previous year's growth which were forced into growth.

It is of interest to note that as the twig grows older, the axillary buds become less and less prominent, until after four or five years they are not recognizable as such without a lens.

In other experiments, twigs were pruned according to size with no attention given to age. For instance, some branches that were alive and in vigorous growing condition were cut off at 1" in diameter, some at $\frac{1}{2}$ ", $\frac{3}{8}$ " and $\frac{1}{4}$ ". In every case buds were appearing below the cuts within thirty days, immediately below if the cut were at the top of the annual elongation, and on the previous year's growth if the cuts were in the area of the bud scale scars. Such buds, once started, did not grow fast the first year, but only about 2". However, the second year they grew normally.

A large plant of *R. maximum* (8' tall) was selected with many shoots from the base. Half the plant was cut to within a foot of the ground, leaving 9 stubs on this side varying in diameter from $\frac{1}{2}$ " to $1\frac{1}{2}$ ". At the end of ten weeks, five

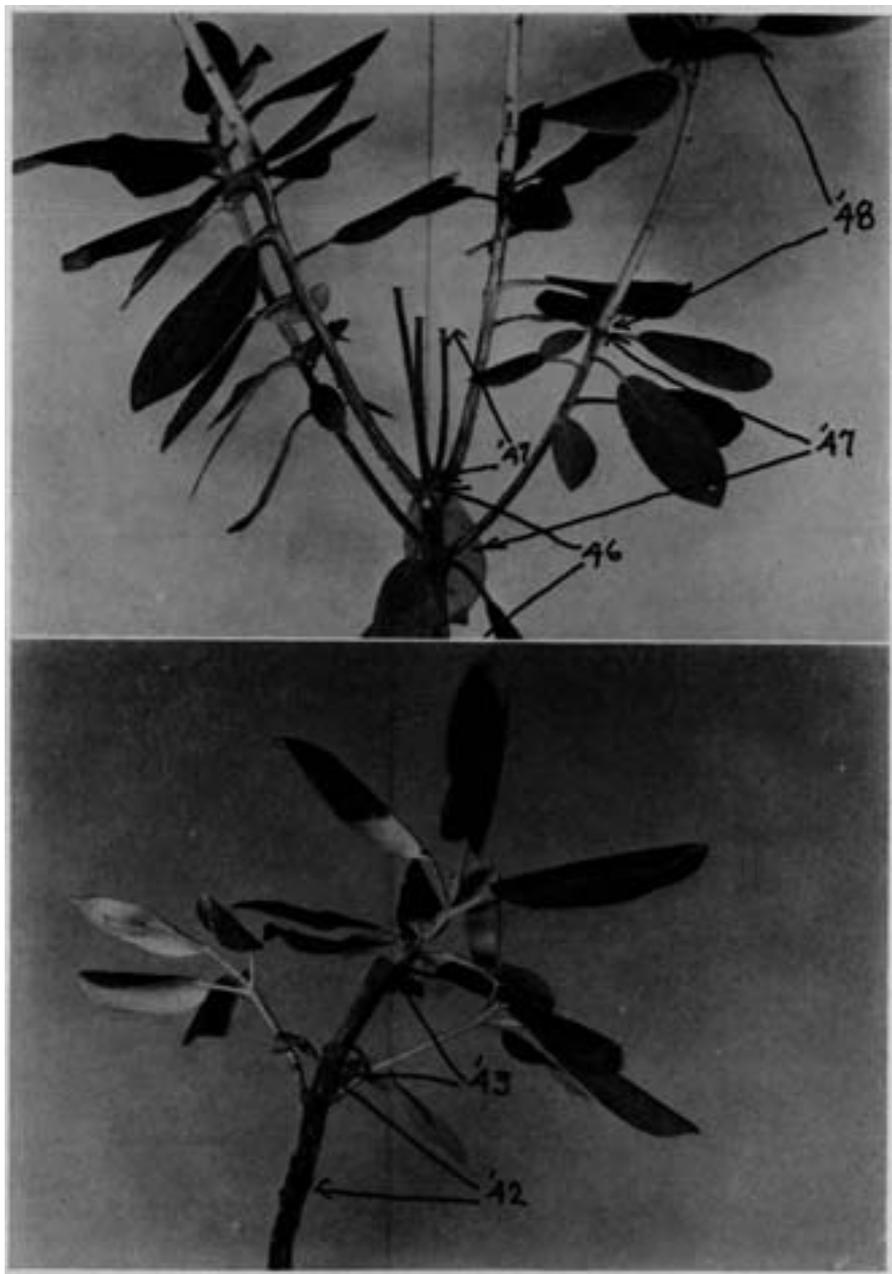


PLATE XII

(Above) The '47 growth of this was cut in June '47 below the leaves. The '47 growth died back and buds on '46 growth were forced into shoots growing in '47 and '48. No shoots at time of cut. (Below) '43 growth was cut above dormant bud, forcing dormant buds on both '42 and '43 growth. No buds apparent at time of cut.

of these stubs had formed buds and small shoots; the remainder did not.

All the shoots on one side of a vigorous plant of *R. carolinianum* (4' tall) were cut to within a foot of the ground in June, 1947, the stubs ranging from $\frac{1}{2}$ " to $\frac{3}{4}$ " in diameter. Within thirty days all the stubs were showing buds and within ninety days these had grown from 6 to 18" long, making a low dense shrub on that side of the plant.

Kalmia latifolia was cut similarly in June of 1948. These plants were much overgrown with 8' long branches and leaves only at the ends. The stubs left were 1 to 2" in diameter. Seventy-five percent of those cut showed buds and young shoots within thirty days. The same was done with 8' tall *Ilex glabra*, the stubs being 1 to 2" in diameter. At the end of the summer the plants were dense mounds of shoots 18 to 24" tall, and on their way to becoming healthy vigorous specimens once more.

The experimental laurel and rhododendron plants were growing in a shaded woods area without any particular care. The buds started to grow into shoots as soon as they appeared, but the length of this shoot growth varied from 2 to 8", depending on the size of the cut, the number of buds allowed to grow, etc. Some seemed to have a difficult time, once started, others seemed to flourish. It would seem advisable to do such pruning very early in the season to allow the maximum time for shoot elongation. The old adage about pruning spring-flowering plants after they bloom should certainly not apply to rhododendrons for the young shoots once formed need every extra day of seasonable growing weather possible.

The entire fifty-year-old collection in the Arboretum was pruned as a result of these findings. The cuts were not always made where they should have been, nor were plant responses all that might have been expected. This was mostly due to the fact that some of the plants had been allowed to become in a very poor and weakened condition.

However, the entire collection has responded remarkably well. The wet weather during June and early July, and the application of a complete fertilizer during May, did much to aid the vegetative growth. The serious drought of August may be responsible for winter injury later, but all in all, the collection is in a more apparently healthy condition than it has been in years. The plants would probably have responded even better if these pruning cuts had been made during April, rather than June.

In conclusion, rhododendrons and laurel can and should be pruned, but only when the conditions warrant it. Young growth can normally be expected on vigorous shoots, providing the pruning has been done at the right place and early in the growing season. It must be admitted that all plants, when cut to the ground, may not send up new shoots, possibly because some such plants are in an extremely weakened condition when cut. It should be pointed out that no rhododendrons should be allowed to deteriorate this far, but corrective measures should be taken (pruning, watering, fertilization and mulching) long before it becomes



PLATE XIII

(Above) *R. catawbiense* stub cut off 12" above the ground with no buds at the time of cutting in June '47. Showing buds developed and sprouts grew in '47, and both primary and secondary growth '48. No shoots at time of cuts. (Below) *Ilex glabra* stubs cut in June '48 (plants originally 8' tall) showing profuse growth developed within 60 days. No young shoots at time of cuts.

necessary to cut such plants to the ground to form entire new ones. Intelligent pruning practiced as a regular cultural operation and done at the right time and place, can do much to keep healthy plants in a healthy condition.

DONALD WYMAN

Fall Field Class

A Field Class for the study of berried shrubs, autumn coloration and evergreens as they appear in the Arnold Arboretum will be held this year. The first class will be on Saturday, October 2, at 10:00 a.m., meeting at the Forest Hills Gate. Weekly meetings will be held every Saturday morning during October, unless prevented by inclement weather, when the class will meet the next clear weekday morning. The period is two hours long, and discussions will be held about the plants as they take on their fall coloring. Members of the "Friends of the Arnold Arboretum" are welcome to attend all classes without charge. Others must register in advance by mail, and pay a registration fee of \$1.00.

The fall class is being tried this year at the request of many people who have expressed an interest in learning more about the ornamental fall characteristics of the thousands of plants growing in the Arnold Arboretum.