THE PAST YEAR AT THE ARNOLD ARBORETUM

MANY changes have been made at the Arnold Arboretum during the past year, especially in some of the living collections. The many friends of the Arboretum will be interested in understanding some of the past events which have made it possible to undertake these changes, and in our plans for the future. This issue of Arnoldia will be devoted to an explanation of the situation so that our friends can better understand and appreciate the alterations when they visit the Arboretum this spring.

Everyone familiar with the late Professor Charles Sprague Sargent knows of his great love for the Arboretum and the plants grown there. Since his death in 1927, no one has seen fit to materially modify the plantings for which he was personally responsible. Undoubtedly he would have been the first to recommend the removal of many plants and even entire plantings, once they had served their purpose; Mrs. Beatrix Farrand also recognized this fact (Arnoldia, Vol. 6, No. 10). Since Professor Sargent's death, however, plants have continued to be sent to the Arboretum, new plants and some sent for "trial" to the extent of approximately 600 a year. Since the area (265 acres) has not been enlarged, and trial growing space had to be given for new and untried plants, the general plantings became more and more crowded, with the result that individual specimens received less care.

Labor and Staff

In the interim since 1927, with an ever-increasing plant population, labor in general has been demanding (and receiving) increased wages for fewer working hours. For various economic reasons there has been a gradual reduction of the 50-hour week to the 40-hour week with an accompanying increase in labor costs. As a result of this situation and the difficulty of obtaining labor during the war years, only half the time was being spent on the maintenance of the living collections in 1944 as was spent in 1931, and possibly considerably less than half
the time that was spent on the collections when Professor Sargent was living. By the end of World War II it became evident to even the casual observer that this situation could not continue.

During the past year we have had 12 full time and 5 part time men working on the grounds for a total of 3905 man days of labor (figured on an 8 hour day basis) at a cost of $30,500. In 1931, when a total of 5400 man days was spent in the collections, it cost $24,232. The hourly wages of our permanent labor staff has more than doubled during the past ten years. Labor efficiency has been increased by greater use of mechanized equipment, but this, too, is expensive.

At the end of the war the Arboretum found itself with a greatly depleted labor force. Some of the men had been taken on to fill vacancies only temporarily, and were obviously not interested in their work. The lack of care due to labor depletion during the war years was all too evident in many collections. The Arboretum suffered a tremendous loss when the Superintendent, Victor Schmitt, and the Propagator, William H. Judd, both of whom spent almost their entire lives working in the Arboretum and both of whom were carefully trained by Professor Sargent, died within a year and a half of each other. Valued nursery land adjacent to the greenhouses was taken by the state as essential for the erection of an addition to the State Antitoxin Laboratory.

Contrasted with this, the bright side of the picture gradually became evident late in 1945 when some of our young men came home from the armed services and we were once more able to hire additional competent workers. Heman Howard, for 14 years in charge of labelling and mapping at the Arboretum, returned from the army in 1945 and was made Assistant Horticulturist. Alfred Fordham, for 14 years Assistant Propagator at the Arboretum, returned from the Army in 1946 and was made Assistant Superintendent January 1, 1947. Mr. Robert Williams, who came to the Arboretum in 1945 as Superintendent to fill the vacancy left by the death of Mr. Victor Schmitt continues in his energetic efforts to keep the collections properly maintained.

Mr. Richard H. Fillmore has been appointed Propagator starting March 1, to carry on the work formerly done by Mr. Judd. Mr. Fillmore comes from a horticultural family, and has worked in his father's nursery in Nova Scotia. He graduated from Acadia University, Nova Scotia, in 1943 (majoring in botany) and since then has taken graduate work at Massachusetts State College (majoring in landscape architecture), transferring to Cornell University in 1946; he hopes to receive his M.S. degree in Ornamental Horticulture from that institution this June.

In early 1946 a full time tree pruner was employed, a young man trained in the skills of modern arboriculture. He and his immediate successors have proved many times over that they are worth their extra compensation, especially in an arboretum such as ours where all the men we had during the war were unable to do pruning work off the ground.
Mechanized equipment such as tractors, specialized tractor-drawn lawn mowers, etc., have been purchased during the past five years to reduce the amount of hand labor necessary. One of the most recent acquisitions has been a Disston chain saw, purchased last fall. This alone has resulted in a tremendous saving in labor. This morning, for instance, three men using the machine, felled and cut up (in less than 48″ lengths) a 30″ oak in less than an hour, a job which would formerly have taken three men at least a full day.

Several substantial bequests have made it possible for the Arboretum to increase the budget for labor and equipment although increased costs still keep our labor force much smaller than in Sargent’s time.

The Case Bequests

The generous gifts of Miss Louisa W. Case and her sister Miss Marian Roby Case, both of Weston, occurring over a period of several years, have come at a most opportune time. In the fall of 1942, as a memorial to her father, James B. Case, Miss Louisa W. Case of Weston gave the Arnold Arboretum of Harvard University an outright gift of $50,000.00 together with her residence, greenhouses, barns and fifty-nine acres of land to be utilized for the purposes of the Arnold Arboretum. In July, 1944, her sister, Miss Marian Roby Case, left the Arboretum some ninety acres of land, various buildings and what has amounted to a capital endowment of $420,000.00. In the fall of 1946, Miss Louisa Case left an additional forty acres of land and a residuary amount of money from her estate as yet undetermined.

Miss Marian Roby Case had been interested in horticulture ever since she started her summer school for boys in Weston in 1909. Since that time her Weston estate had been carefully planted with many kinds of fruit trees and ornamental specimens so that her gardens were of great interest to the community. Miss Louisa W. Case, too, had been interested in the Arnold Arboretum for many years and served on its Visiting Committee. Because of their interest in horticulture in general and in the Arnold Arboretum in particular, the Arboretum is now in a much better position to carry on its horticultural work than it has been for many years.

As a result of these excellent gifts from people who were deeply interested in the work of the Arnold Arboretum, land is now available for nurseries and experimental plots. Much preliminary work has been done during the past two years to make it possible to set up a most interesting series of horticultural experiments on these properties this spring. Many of the experiments have to do with cultural practices governing the color of the foliage, flower, fruit and autumn coloration of many ornamental woody plants. A sufficient endowment was given with these Case estates so that they can be operated without reducing the funds available for maintenance work in the Arboretum at Jamaica Plain.
The Balch Bequest

The Arnold Arboretum has also received this past year $150,000.00 from the estate of Katherine T. Balch, wife of the late John Balch of Milton. Mr. Balch was a friend of the Arboretum for many years, frequently visiting the collections and coming for advice in order to help him solve his many problems as tree warden for the town of Milton. By the terms of the will the money was left "to be used so far as possible for practical horticulture and for such uses as may reasonably add to the interest and enjoyment of the average visitor and the general beauty of the Arboretum."

Reorganization

Finally, the reorganization of botanical activities at Harvard and the passage of time have resulted in certain administrative changes in the Arnold Arboretum. In order to coordinate the various botanical institutions of the University the botanical activities have been divided into two administrative areas. The first includes the taxonomic and morphological activities of the Arnold Arboretum, the Gray Herbarium, the Botanical Museum and the Farlow Herbarium. The other includes the experimental and field work of the Arnold Arboretum, the Bussey Institution, the Harvard Forest, the Cabot Foundation and the Atkins Garden in Cuba. It is hoped that such coordination of the outlying botanical agencies with the Department of Botany will save duplication of certain activities and personnel. Such a plan was proposed by Dr. E. D. Merrill when he first came to Harvard as the Director of the Arnold Arboretum. When Dr. Merrill retired as Director at the age of 70 last fall, the administration of the Arnold Arboretum came under the direction of the chairmen of the two botanical areas, with Dr. Karl Sax, Professor of Botany, serving as Acting Director.

New Policies

A combination of all these circumstances since the war has resulted in an increased emphasis on the horticultural activities of the Arboretum. Two policies have gradually evolved which may greatly affect the future of the general maintenance work in the Arboretum. In the first place, a greater part of the nursery space for the initial trial of new plants and replacement plants will be on the Case estates in Weston. The breeding and most of the propagation will be continued at the Arnold Arboretum. In Weston sufficient land is available so that plants can be grown to flowering size before they are moved to permanent plantings. If it is found that a "new" variety differs only slightly from another long established in the collections, differs shall we say by an additional pubescence of the leaf or a slightly more entire leaf margin than another variety already established, it may not be kept. Full notes will be taken for the permanent records and then the plant may be discarded merely because it differs so slightly.

The second policy is perhaps more important. Certain varieties which have not proved themselves to be among the best of their group for ornamental purposes
may be removed from the general collections at Jamaica Plain and grown on the Case estates in Weston. Here such varieties, important for scientific reasons, would be lined out in rows and cultivated by machine at comparatively little expense. More room for better growth and display would again be given to the remaining plants in that particular group at the Arnold Arboretum. At Jamaica Plain, then, one would be able to see the most important plants and the best ornamental varieties in certain groups normally having a large number of varieties. If one wanted first-hand information of the others in the group, he could easily see these at the Case estates in Weston. In other words, as Mrs. Farrand has very rightly pointed out, it is impossible to continue to grow all the woody plants that are hardy in this climate on the 265 acres, especially if certain wooded areas and other important landscape features are to be maintained, as they should.

All parties concerned having agreed in general to these two policies, certain things have been done last year and this, which will, we hope, make the Arboretum a much more interesting and instructive place to visit.

**Work Accomplished The Past Year**

1. *Many duplicate shrubs and trees have been removed.* Often when a number of plants are set out all grown from the same seed lot, interesting and valuable variations will occur among the plants. It is always advisable to grow species from seed collected near the extremes of their known habitat and this can greatly increase the number of plants of a certain species. An intelligent understanding of this situation has to be made with each species to limit the number of plants grown. This winter, for instance, we were able to remove over 900 plants of 25 genera without eliminating any species or variety of importance.

2. *Vistas are being opened.* Because of the elimination of some 150 elm and ash trees, several splendid vistas have been opened, one showing Bussey Hill from the Forest Hills Gate, another showing the Customs House Tower from Bussey Hill, and another through the elms. Vistas have been opened also in the oaks and in the lindens with the elimination of some 80 linden and horse-chestnut duplicates. The trees remaining in all these collections are bound to benefit by having more room for proper development and by our ability, under the circumstances, to give them much more of the proper care that they need. It should be emphasized that not a single species or variety has been entirely eliminated by this thinning process. There are the following species and varieties of these plants represented in our collections at present:

<table>
<thead>
<tr>
<th>No. of sp. and var.</th>
<th>No. of plants</th>
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</thead>
<tbody>
<tr>
<td>Aesculus</td>
<td>36</td>
</tr>
<tr>
<td>Fraxinus</td>
<td>48</td>
</tr>
<tr>
<td>Tilia</td>
<td>40</td>
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<tr>
<td>Ulmus</td>
<td>65</td>
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3. A greater part of the barberry collection has been removed to the Case estates. This was done because the U.S. Dept. of Agriculture is placing more and more restrictions on the growing and shipping of barberries carrying the dread black stem rust of wheat. Only about 25 species and varieties of barberries are immune. These are remaining in the Arboretum. The remainder (some 96 species and varieties) have already been planted on the Case estates.

4. The greater part of the Ribes collection has been removed to the Case estates. These are known to be alternate hosts of the white pine blister rust, and rigid restrictions are placed against growing them in areas where five needled pines are grown. Hence the general public has difficulties in growing them. Over 40 species and varieties of these have been planted on the Case estates, with only a few of the ornamental ones left in the Arboretum.

5. Spent hops are being used as a mulch in many collections. It has been demonstrated that, on soils similar to those in the Arboretum, woody plants benefit from mulches. The difficulty comes in finding the proper mulch. Hay is excellent in areas removed from the public where fire is not a hazard. Peat moss, too, makes a splendid mulch, but in areas where this has to be applied in the Arboretum there is no available water, and it has been proved time and time again, right in the Arboretum, that, under our conditions, where weeks of summer drought are common, the surface of peat moss will dry out to such an extent that it constitutes a serious fire hazard. A carelessly flipped cigarette or a small fire actually started by boys, is an ever-present hazard, and once dry peat moss starts to smoulder and is whipped into a blaze by a strong wind, it is one of the most difficult types of fire to put out.

As a consequence, we are experimenting with spent hops, hauled from one of the local breweries. It is too early to say much about them except that they do not burn so readily as peat moss and that their water retentive value is higher. Visitors to the Arboretum this spring will see a great deal of hops around the plants, and if they have just been applied the odor will be all too evident. However, we hope it is all for the better growth of the plants, and the objectionable odor of hops does disappear after a week or so.

6. The lilac collection in the Arboretum will probably not be further enlarged. The Arnold Arboretum has more varieties of lilacs than any other institution in this country if not in the world. It is a valued collection. Few other arboreta or botanic gardens are willing to grow some 450 named varieties of lilac; yet at the moment the feeling seems to be that this is a valuable reference collection and all these varieties should continue to be grown at the one place in this country where students of this diversified group of ornamental plants can see how similar many varieties are. There is not enough room in the lilac collection for all these
varieties. Consequently, nearly 100 of the less important varieties will be lined out on the Case estates, where they can be studied by those who wish to do so, but where the general public will not be confused by an additional number of varieties (many of them unavailable from nurseries).

7. *Weigela, Philadelphus, Deutzia and Spiraea* collections, it is hoped, will be similarly treated this spring.

8. The lilac collection was thoroughly pruned for the first time since 1941. It is difficult to understand the tremendous amount of work done here last spring (well over 75 man days of 8 hours each) and the great amount of material it was necessary to remove. The lilacs may not produce a heavy display of bloom this spring, but they are in better physical condition than they have been in many years and should definitely show it by producing a bumper crop of blossoms in 1948.

9. The Euonymus collection formerly by the Aesculus collection was moved early last spring to its permanent place at the foot of Bussey Hill. At the same time some thirty different Phellodendron duplicates were removed and the work completed before early spring visitors arrived. It was of great interest that of the very few visitors who did note the change, all agreed it was a decided improvement.

10. Weed plants in all collections are continually being pulled out with tractors. In no place is this more evident than along the meadow side of Meadow Road where several weeks were spent in eliminating a greater part of the overgrown shrubbery. Now, because of the great interest in ground covers it is proposed to plant demonstration areas of some of the better types here. Only a few will be planted this spring, since much of the ground will have to be weeded carefully for a full year in preparation for other demonstration beds. The right kind of ground covers, properly grown, are far easier to maintain than grass. Even the highway departments are coming to realize this. The increased cost of adequate maintenance labor is forcing the planting of ground covers where they have not been used before.

11. All the roads in the Arboretum were resurfaced last spring by the Park Department of the City of Boston. This makes the walking much more pleasant and removes some of the bad holes which have occurred over a number of years. The work was completed before Lilac Sunday last year. Mr. William P. Long, Chairman of the Boston Park Commission, is to be thanked for his foresight in completing this work at such an opportune time.

12. A few additional plants will be added to the plantings around the Administration Building. Mrs. Farrand has suggested that some of the better introductions of the Arnold Arboretum be selected for permanent display in this prominent area.
Current Plans

It is hoped that the general weeding out of undesirable plants can be continued this year. It is also hoped that some of the duplicates among the conifers can be removed to give those remaining more room in which to grow. A program for the proper fertilization of certain collections will be again undertaken. In the past, stable manure has been purchased from time to time and put on the collections most in need of it. This is most beneficial but it is a time-consuming operation, and we hope to be able to cover more areas more quickly and economically by the use of a combination of commercial fertilizer and mulches.

We are also planning to rearrange the general planting in the Chinese collection on Bussey Hill. Some of the unsightly specimens have been and will be removed to other places in the Arboretum and it is hoped that a general planting of azaleas can be featured in this likely spot. There are over 125 different kinds of azaleas growing in the Arboretum now, but they are distributed in many places. It is hoped that this general location can be so planned and landscaped that this will be the azalea collection where some can always be seen in flower during the two full months that they bloom. Such a planting when observed from the top of Bussey Hill would be a sight worth remembering.

In order to make such an outstanding planting feasible it is necessary to lay a water line to this area so that the plants can be properly watered during droughts. Mr. William P. Long, Chairman of the Boston Park Commission, has promised that he will include in his 1947 budget, a request for the money for a water system throughout the entire Arboretum, for he realizes, as we do, the tremendous advantages which would accrue therefrom. Not only would it be possible to water plants when they needed it most, but also our own men could undoubtedly control many small fires without calling out the city fire trucks. As an example of our difficulties in this respect, on one particularly dry day in February this year our men put out eight set fires in one afternoon and called for assistance from the fire department only once. This was during the week of school vacation. It is hoped that the Park Department can see its way clear shortly to erecting proper fences around a few unfenced areas in the Arboretum.

This then is a general discussion of what has been happening at the Arnold Arboretum since the war. With an increasing interest in ornamental plantings clearly evidenced over the entire country it is only logical that this great collection of plants—America's greatest garden—should once more be put in excellent condition so that the thousands of visitors each year can fully appreciate the many plant treasures it has on display.

Donald Wyman