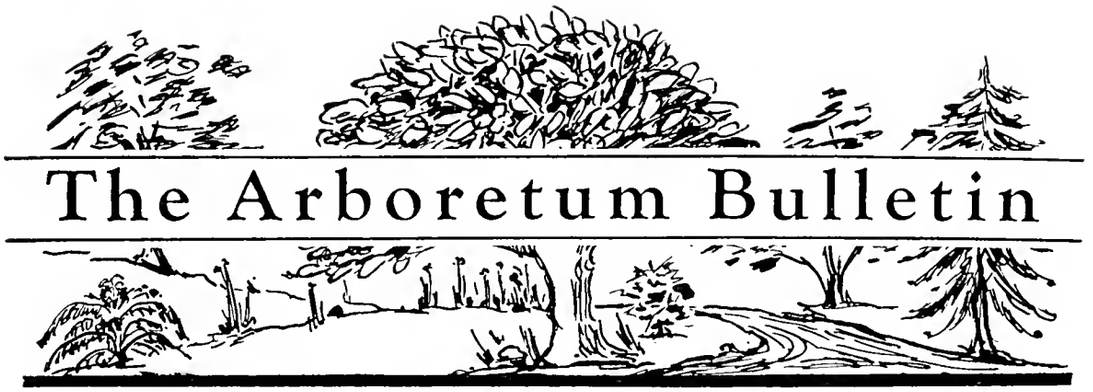

The Arboretum Bulletin

SEATTLE, WASHINGTON JUNE, 1939

(For the information of members of the Arboretum Foundation and other friends of the University of Washington Arboretum we publish below a report of Arboretum activities for the year ending June 1, by Dr. J. H. Hanley, Director.)

The past year has been an important one at the arboretum. The fine spirit of cooperation that has existed among the three principal parties concerned, namely, the University of Washington, the Arboretum Foundation, and the Works Progress Administration, has made possible numerous achievements leading towards a much more capable and complete organization of those forces upon which the future of any such project depends. One can now begin to appreciate the tremendous amount of work that has gone into the past developments; the developments not only of the year which is now drawing to a close but also of the preceding three-year period during which so many of the essential things were done which do not appear to the untrained or disinterested eye. Since the beginning of the project the principal efforts have been directed towards the construction details, the huilding up of a complete and necessary physical equipment.

The past year has followed essentially the same lines but gradually more and more pressure is being brought to bear on the details of procuring desirable plants and on the placing of them in their permanent positions on the arboretum area. Since the arboretum is fast approaching a physical maturity it is only natural, and certainly desirable, that greater stress be placed on the actual planting operations.

With this in mind, and by virtue of the fact that capable student help was procurable through the National Youth Administration at the University, large scale maps of the entire area have been prepared. These will be used to draw up the detailed planting plans which are so necessary before actual planting is done.

At the close of the last year there was approximately one-quarter of a mile of lagoon completed. During the current year this has been extended so that, by the end of June, there will be well over one and one-quarter miles of dredging finished. This by no means completes the lagoon area in the fashion outlined by the Olmsted plan, but it will furnish ample space for the development of a goodly portion of the water and bog planting. This water area should provide one of the most attractive features of the arboretum although at the moment it gives the appearance of being the least well-developed tract.

A great deal of work has been expended on the former city dump area which extends outward through the bogs toward Union Bay. A water line has been put in, an adequate service road is being constructed, and rough grading of the dump is about completed. As peat becomes available from the present dredging operation it will be spread over the heavy clay soil which was used for filling over the dump. A cover crop of some such thing as white clover will be planted in order to keep down the weeds and to encourage the creation of soil conditions which will be more favorable for the growth of the walnuts, hickories, poplars, and willows which will occupy the tract.

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The Azalea Way area is being prepared for the placing of the plants. A very excellent detailed planting plan has been received from Olmsted Bros., the landscape architects, and the soil is being prepared so that the active planting can begin in the fall. The whole of the ¾-mile, 16-foot wide grass walk has been seeded. Plans are now being developed which, it is hoped, will lead to the purchase of many, if not all, of the varieties of azaleas, flowering cherries, and dogwoods which are to be used along the Way. The plans for this area were supplied through the kindness of the Seattle Garden Club.

The late Mr. E. Fabi, former Seattle landscape architect, very generously supplied the arboretum with a detailed working plan for Woodland Garden, a naturalistic little valley the planting of which is being sponsored by the West Seattle Garden Club. The plans are now being carried out on the ground, the grading and subsoiling being practically finished and the construction of the series of pools along the stream course approaching completion.

Rhododendron Glen is still undergoing some changes; it is hoped that the rock work will be sufficiently complete by fall so

that the planting of the more than 300 species and varieties of rhododendrons now in the nursery can be started.

A large number of plants in the nursery will have developed enough by fall to warrant planting out on the arboretum. This will be done as fast as the weather and the completion of planting plans will permit so that the thousands of seedling trees and shrubs now in the coldframes and greenhouses can be given more space and a better opportunity to develop. At the present time the rooted cuttings from the propagating benches are being moved out into cold frames and nursery. July and August are the two best months for starting plants vegetatively and it is with this in mind that the benches are being cleared of all rooted material. New sand is being put in to accommodate the next series of cuttings which will be made up beginning the first week of July.

In this connection it is hoped that the cooperation of the members of the Arboretum Foundation can be enlisted. Practically every good garden has plant material that is needed at the arboretum. It would be to the advantage of our organization if some cuttings of each desirable kind could be turned over to us during these next two months so that we could have a more representative assortment of the better garden forms of trees and shrubs.

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It has been the acting director's pleasure to have had free access to many of Seattle's best gardens. In every one of them there are outstanding ornamental plants which are not found among the collections at the arboretum. A gift of some cuttings from such plants would be most commendable but, if the cutting material is limited, it may be more desirable to save a quantity of seeds which could be used to supplement the arboretum supply.

The matter of the propagation of species and varieties from seeds is receiving a great deal of attention. It is generally conceded that it is more desirable to propagate vegetatively from the superior individuals within a species or variety in order to perpetuate unchanged those characters which mark the parent plant as being superior. As a means of avoiding hereditary variation, and hence of forestalling the appearance of inferior individuals, the vegetative methods of propagation are to be recommended without reservation. This is particularly true of horticultural varieties which seldom, if ever, breed true to the original named type.

So far as species are concerned the same variation may be expected, but to a lesser degree. As a matter of fact, in addition to undesirable forms, one may also expect to find among the seedling progeny of a given species, a certain few which display qualities that set them apart as being more desirable for ornamental purposes. It follows, therefore, that it is often highly desirable to propagate true species by seeds with the idea of selecting only the best individuals for the final planting. Hence, if it becomes necessary to eliminate cuttings because of a lack of material, there still remains the possibility of using the seeds to advantage.

In connection with the extensive vegetative propagation which will be undertaken in July and August several experiments will be undertaken to ascertain the effectiveness of the so-called plant hormones in accelerating the rooting of cuttings. During the months of March and April such an experiment was inaugurated. Cuttings were taken from a number of broad-leaved and coniferous evergreen species, divided into equivalent lots, and treated with various concentrations of indolebutyric and naphthalene acetic acids. The final results of the tests are now being tabulated.

During the spring there were also started a series of tests designed to discover what effects, if any, followed the application of weak concentrations of Vitamin B_1 to seedling rhododendrons. Although the series was planned as a preliminary experiment, sufficient information was gathered to indicate that detailed studies should ensue. In one particular instance growth was distinctly increased by the vitamin; in another case the vitamin slowed down the growth somewhat but induced the formation of numerous side branches near the base of the seedlings. Such results are in line with normal expectation it is very improbable that such a complex genus as rhododendron would show similar results in the response of the many different species to a given chemical treatment. The Vitamin B_1 experiments will now be organized in greater detail in order to give sufficient data for scientific publication. The 1940 summer meetings of the American Association for the Advancement of Science and of the American Society for Horticultural Science will be held at the University of Washington. It is to be hoped that the arboretum organization will be able to do its part by furnishing several interesting exhibits of a scientific nature. Our research work should become a more and more important phase of our activities.

In connection with the student class work during the season just passed, a breeding program in the genus rhododendron was undertaken. During the course of a month some 250 crosses were made between a number of species within this genus. The climate of the Puget Sound region, where a wide variety of rhododendron species grow luxuriantly, makes it the more desirable that we devote as much energy and time as possible to the development of new strains and to the improvement of existing races of this important ornamental plant. The potential advantages that will accrue from an intensive breeding program in rhododendrons are tremendous. With the nearly 400 species and varieties already on hand in the greenhouses and nursery, it should be possible to make substantial contributions to present knowledge of the genetics of the genus.

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Another phase of the past season's breeding in rhododendrons involved the self-pollination of as many species as possible. One of the most readily noted characters of many rhododendron species is the high degree of variation observable in any group of individuals. Some of the variants possess much more desirable ornamental qualities than others. In order to accentuate the best features and to eliminate those factors which produce inferior qualities the experiments in self-pollination or inbreeding were begun.

The self-pollinations were not limited to the species, however; named horticultural varieties were also used. The results of these selfs will be awaited with great interest. Of course, it is only natural to suppose that not all of them will take. The extent of

self-sterility is not known and this knowledge in itself can most certainly be increased through such tests as these.

The principal reason for attempting self-pollination is not merely to determine the extent of sterilities, however. Theoretically and actually, each named variety of rhododendron, whether it arose directly from a cross or whether it appeared as a mutation or "sport," can be regarded as an F_1 individual. In no case, so far as we know, has any breeding work been done which will carry the progeny into the segregating generations below the F_1. These are really the important generations to the plant breeder since only in them can the desired recombination of the superior parental characters be brought about. Obviously, barring the appearance of a deterioration in vigor which may follow inbreeding, it is desirable to permit segregation and recombination phenomena to assert themselves and bring about the creation of superior strains. Even should marked deterioration result from continued self-pollination, there still remains the great possibility that the re-creation of the original vigor, or even the establishment of more vigor, can be effected by subsequent crossing between selfed lines, as has been demonstrated in other plants. The selfing experiments will be continued indefinitely unless overpowering evidence appears which will point to them as being valueless.

During the past year the arboretum has maintained cordial relations with other similar institutions throughout the world by means of seed exchanges. Approximately 1,500 packets of seeds were received from 52 such organizations. In our turn, we were able to send material to 109 arboreta and botanic gardens in this and other countries.

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There is no one to doubt the advisability of continuing these exchanges. However, since it is important that we uphold our reputation with the institutions with whom we correspond, and since one of the simplest ways to destroy a reputation is to send out seeds that are improperly identified, it behooves us to exercise great care in the selection of those who shall do the collecting work for us.

With this in mind, a properly supervised collection trip has been organized for the current season. The expedition was made possible through the kindness of Mr. Reginald H. Parsons, who, besides possessing a keen knowledge of things horticultural, is the scion of a truly outstanding family of plantsmen. Mr. Parson's grandfather, Mr. Samuel B. Parsons, was one of this country's early and outstanding nurserymen. He is one of a few horticulturists who is given space in L. H. Bailey's Cyclopedia of Horticulture. It is fitting, therefore, that Mr. Reginald H. Parsons should have interested himself in this constructive work by establishing the Parsons Seed and Plant Fund.

The major portion of the fund will be used to send Miss Sylvia Edmonds of Vaughn, Washington, into the Coast Range as far south as central California, then inland into the Rockies, and northward to Montana. Miss Edmonds is a capable systematist in her own right and in addition she will be under the direct supervision of Dr. C. L. Hitchcock of the department of botany at the University of Washington. Dr. Hitchcock is a recognized authority on the flora of the western mountains. The party will leave Seattle on June 17 to return in mid-August. A series of colored pictures will be taken as the expedition proceeds. These will be used as illustrative material for lectures during the coming winter.

Such an organized trip under the leadership of a trained taxonomist will assure maximum returns in the quantities of seed collected and in proper naming of each kind.

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The services of Prof. Aven Nelson, emeritus head of the department of botany at Wyoming, past president of the American Botanical Society and one of the country's leading taxonomists for the last 50 years, have been unofficially procured to aid the arboretum by collecting seeds on Mt. McKinley, Alaska. Prof. and Mrs. Nelson sailed from Seattle on the night of June 12. Our organization supplied them with the necessary envelopes, etc., which are used in seed collection work. They will return to Seattle in mid-September and undoubtedly will have an extensive collection for us.

The arboretum has enjoyed many other profitable contacts during the year. The annual report would be incomplete if the work of the Camp Fire Girls of America was not given due prominence. An area in the pinetum sufficient to take care of 88 Junipers has been assigned to this organization. Periodically new additions are made to the collection and at each planting a simple but very effective dedication ceremony is held. The organization is to be commended for its active interest and it is our hope that such sincere cooperation will be continued.

The coming year gives every promise of being an important one. Plans are progressing for much extensive planting in many areas. The fall season will see renewed activity and by another spring the plantings will be much more in evidence.

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I hereby apply for membership in the Arboretum Foundation and remittance for same is enclosed to cover dues for the next succeeding twelve months.

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