

THE ARNOLD ARBORETUM DURING THE FISCAL YEAR ENDED JUNE 30, 1950

Horticulture. — The collections of living trees and shrubs have been maintained in good condition in spite of dry weather during the summer of 1949. In addition to the usual pruning operations the oak collection and the rhododendrons on Hemlock Hill were thinned. The Centre Street path has been completely renovated, and the Buxus collection has been assembled in a more favorable site. More than 12 tons of commercial fertilizer were used in a program designed to promote better growth of the trees and shrubs. The soil improvement project on Peters Hill is progressing satisfactorily. Weed trees and poison ivy are perennial problems, but chemical weed control is making progress.

Doctor Wyman is making a survey of all varieties of desirable ornamental woody plants in order to make our collections as complete as possible. Approximately 350 varieties were obtained from 105 different nurserymen for purposes of trial, study and display. More than 300 plants of new varieties from the Arboretum were distributed to commercial growers who specifically requested them. Several hundred of our new apple and cherry hybrids were distributed to Friends of the Arnold Arboretum. Our propagator, Mr. Fillmore, sent 1054 species and varieties of woody plants to cooperating institutions in 13 countries. He received 890 species and varieties from various sources in 15 different countries. He propagated, by cuttings, grafts, or seeds, a total of 8,200 plants.

The photographic records, especially of rare or unusual plants, is one of the responsibilities which has been neglected in the past. New equipment and other photographic facilities have enabled Mr. Howard to add 1500 pictures to the collections during the past year. These are in addition to the Kodachrome slides made to illustrate the lectures given by Dr. Wyman.

The Case Estates permit testing of new material on a much larger scale than was possible at the Arnold Arboretum in Jamaica Plain. The test nurseries contain nearly 2000 different species or varieties of woody plants, some of them introduced directly from Europe. A Post-entry Quarantine Nursery is cared for at the Case Estates, under the observation of the U.S.D.A. Bureau of Plant Quarantine. A ground cover test plot includes 70 different kinds of woody and herbaceous ground covers. Several acres of land are used for testing hybrid poplars developed under the auspices of the Cabot Foundation. The Division of Landscape Architecture of Harvard continues its experimental laboratory on the premises.

The educational work of the Arnold Arboretum has continued with the usual number of issues of *Arnoldia*, our journal of popular information. The Field Class was given by Dr. Wyman, who also delivered a number of lectures in many parts of the United States, including a series at the Colonial Williamsburg Symposium.

The experimental work of the Arnold Arboretum includes extensive work on propagation by Mr. Fillmore. He has also done some work with growth suppressing chemicals in connection with propagating problems. The director has continued his work with dwarfing rootstocks and altered polarity to produce dwarf trees. The breeding program has shown the value of triploids in ornamental plants. The radiation work, done under the auspices of A.E.C., has shown that plants can be subjected to several roentgens of ionizing radiation per day for months without serious injury.

Comparative Morphology. — During the year Professor Bailey and his co-workers have completed their investigations of a number of dicotyledonous families. The most comprehensive of these is a detailed study of the Monimiaceae including a suggested revision of the family. Mister R. W. Vander Wyk presented a thesis, dealing with the comparative morphology of the Annonaceae, for the doctorate which he received in June. Doctor Swamy, with his prodigious drive and efficiency, not only completed investigations of the comparative morphology of the Santalaceae, Gomortegaceae, Calycanthaceae, Saururaceae and Chloranthaceae, but also undertook a taxonomic revision of the last family.

The Herbarium. — During the year 10,775 mounted specimens were added to the herbarium, bringing the total to 656,545 specimens. A total of 16,493 specimens were received, of which 2,115 were obtained for identification, 8,424 by exchange and 5,604 by purchase or subsidy. The greater part of these accessions represent plants of the Old World, namely 4,687 from southern and eastern Asia, and 6,748 from Malaysia, Micronesia and Polynesia. Among the accessions of particular interest may be mentioned 1,585 specimens from Japan received from Dr. H. Hara, S. Suzuki and K. Uno, 1,900 East Indian plants from the Botanic Garden of Buitenzorg, 403 Indo-Chinese plants from A. Pételot, 1,325 specimens from Bombay Presidency, India, from Father H. Santapau, 1,230 specially selected Philippine plants from Dr. E. Quisumbing, 172 duplicates of Beccari's classic Malaysian plants from the Botanical Institute, Florence, Italy, and 290 of his very beautifully prepared and critically identified Chinese plants from Dr. H. H. Smith of Uppsala.

A total of 33,487 herbarium specimens were sent out during the year. Of these 10,840 were transferred to the Gray Herbarium and 610 (all orchids) to the Ames Orchid Herbarium. Duplicates totalling 4,891 were sent in exchange to institutions in the United States, and 17,146 specimens were sent to foreign institutions.

From 24 different institutions the Arboretum had 33 requests for the loan of its herbarium material. Specimens involved numbered 2,924, of which 1,841 went to thirteen American institutions and 1,083 to eleven foreign. For the use of our staff in research, 34 lots of herbarium specimens were borrowed for study. These consist of 941 specimens borrowed from five American, and 1,131 specimens from nine foreign herbaria.

Doctor Merrill had as his major project the identification of recent collections made in the Philippines. Doctor Johnston, having decided to

change his field from American to Asiatic botany, as a transition, worked on an account of the Boraginaceae of eastern Asia. Doctor Kobuski is concluding his studies in the American material of the troublesome, poorly understood family Theaceae. In the future he also intends to work, for the most part, on the Asiatic flora. Doctor Perry has worked on plants from New Guinea and has completed some special studies in the Myrtaceae. Doctor Shiu-ying Hu began her work as a staff member and as a specialist on the flora of China.

During the year the large store of unmounted specimens was examined methodically and appraised. Where possible the more valuable material was selected for mounting and that of little direct use to the Arboretum was set aside for use in exchange. Several large oriental collections, for the time being best kept unmounted, were sorted and stored in systematic arrangement and thus made readily available for study. The storeroom, however, still contains a great mass of collections and duplicates which can be processed only after the specimens are identified. The naming of this material should be a project of the herbarium staff during the next few years.

With the death of Alfred Rehder on July 21, 1949, the Herbarium lost a very distinguished member of its staff. The Herbarium, in many ways, is his monument. Under his administration and because of his studies, the collection grew from a few thousand sheets to the present large one of great reference value and international reputation.

The Library.—Three hundred and nine volumes were added to the library during the fiscal year ended June 30, 1950, making a total of 47,343 bound volumes. There were 287 pamphlets catalogued and filed, 604 cards were added to the main catalogue and 3,099 to the Gray Herbarium new species cards.

The inter-library loan service grows and grows; 518 books were either loaned or borrowed; loans to the business office for photostat or micro-film work were especially heavy.

Over 800 photographs taken by the horticultural staff were added to the photograph collection.

Financial report.—The Arnold Arboretum received during the year \$10,000 from the Fanny P. Mason bequest, and \$15,841 from the Louisa W. Case estate. These funds were added to endowment. Gifts for current use included \$8,159 from the Friends of the Arnold Arboretum and \$1,540 from other sources.

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KARL SAX,
Director.

Staff of the Arnold Arboretum

1949 — 1950

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