



Annual Report 1958-1959

TO THE PROVOST OF THE UNIVERSITY:

SIR,

The past year has been a particularly satisfying one for the director and the staff of the Arnold Arboretum. Four years have been devoted to combining the non-horticultural herbarium collections of the Arnold Arboretum with those of the Gray Herbarium in the Harvard University Herbarium Building in Cambridge. The task was finished in May of 1959.

Work continues on a reorganization of the horticultural herbarium in the Administration Building in Jamaica Plain. Both collections are now in excellent condition, well housed physically and arranged in the most convenient way for the horticultural, monographic and floristic work of the staff. The staff has justifiable pride in a job well done. To parallel this accomplishment, the grounds and the plantings of the Arnold Arboretum in Jamaica Plain and Weston are in superb condition, and the spring bloom of the spectacular trees and shrubs has rarely been equaled.

[The Boston Department of Parks and Recreation](#) completed the cleaning of the cobblestone gutters and plans a rehabilitation of the roads and benches. Rarely has the Arnold Arboretum, in all its aspects, been in such excellent shape.

THE STAFF

Mr. John Thomas Park retired on May 3 as superintendent of the Case Estates of the Arnold Arboretum in Weston, Massachusetts. Mr. Park had spent nearly all of his life on the Case Estates. He worked for Miss Marion Roby Case as a boy and was superintendent of the property when the estate was bequeathed to Harvard University for the Arnold Arboretum in 1945.

During the spring semester of 1959 [Dr. Karl Sax](#), cytogeneticist for the Arnold Arboretum, was granted a sabbatical leave of absence to accept an appointment as Visiting Professor of Forestry at the University of Florida. Dr. Sax retired on August 30, 1959. His appointment as Visiting Professor of Botany at Yale University for the next academic year has been announced. Dr. Sax has also been awarded a Guggenheim Fellowship for continuing his research in Oxford, England, following the completion of his year at Yale.

Dr. Burdette Lewis Wagenknecht was appointed horticultural taxonomist at the Arnold Arboretum July 1, 1958.

HORTICULTURE

The past winter was unusually hard on broad-leaved evergreens throughout the entire northeastern United States. At the Arnold Arboretum in Jamaica Plain, and especially at the Case Estates in Weston, the extreme foliage burn and actual death of many plants seemed particularly severe. The mountain laurel (*Kalmia latifolia*) and the several varieties of *Ilex crenata* suffered severe branch damage. Young plants of evergreen *Rhododendron* varieties were killed in large numbers, and even established plants twenty years old were killed to the ground. The damage appears to have been caused, first by an early and sudden freeze which eventually reached a depth of nearly four feet, and then by the many sunny and windy days without snow cover. The spring months have produced very irregular leafing-out, and, in many cases, severe pruning will be required to re-shape the surviving plants. Much information can be obtained from a study of the cold-desiccation damage of the past winter.

The spring flowering season was one of the most beautiful of the past decade. The cherries, crab apples, forsythias and azaleas were especially outstanding. The magnolias, lilacs, and flowering quinces were below average in quality and quantity of bloom. During the two planting periods, the fall of 1958 and the spring of 1959, 257 different taxa were added to the Arboretum collections. These included plants completely new to our collection, additional clones for trial and replacements of taxa which have been lost.

The entrance to the Peter's Hill tract was graded properly and planted to extend the crab apple collection so that it can be seen from Bussey Street. A special planting of tree peonies (*Paeonia suffruticosa*) was established on the grounds. The large collection of azaleas on Bussey Hill was pruned for rejuvenation. A cleaning program was continued on the top of Hemlock Hill where recent hurricanes and summer droughts have affected many of the older hemlock trees. A series of special projects involving the horticultural herbarium and the living collections was inaugurated during the year.

The Arnold Arboretum maintains one of the most extensive files of photographic negatives and prints of cultivated plants. Many of the introductions to our collections during the past five years have now reached the size where they flower heavily and can be considered typical in form. These plants are being photographed in color and in black and white for teaching purposes and for the illustrations for staff papers. Herbarium specimens are being made of all plants introduced since 1949 when such work was stopped.

The propagation department under the direction of [Mr. Alfred Fordham](#) remains one of the busiest departments of the Arnold Arboretum. While visitors will continue to receive all aid possible for their individual problems it is obvious that some co-ordination of visitors to the greenhouse must be established. During the year nearly 100 classes and groups were taken on conducted tours through the propagation department. Numerous requests for aid in problems

of plant propagation, insect control, and general horticultural practice are received by phone or personal visit and handled as possible.

During the year 223 shipments of seeds and plant materials comprising 61 taxa were received from the United States and 14 foreign countries. In response to requests 341 shipments of living plants, propagating materials, seeds, pollen or cytological material were made to other gardens or scientists in the United States and in foreign countries.

The Department of Buildings and Grounds was offered surplus trees and shrubs for planting on the College grounds and in conjunction with the building program for Harvard College. This is in accordance with the terms of the Arboretum trust. About 350 plants of 130 species and varieties were selected for planting in the Cambridge area.

The International Code of Nomenclature for Cultivated Plants published in 1958 proposes the registration of cultivar names for new horticultural plants. This principle has been accepted by horticulturists at the international as well as the national level. Societies in some countries have accepted the responsibility for many specific groups of cultivated plants, such as Tulipa, Iris, Rosa, Hemerocallis, Narcissus, Rhododendron, Populus and others.

The vast majority of woody plants which are the interest of the Arnold Arboretum, however, is not represented by societies willing to serve as registration authorities. The Arnold Arboretum has volunteered to accept the registration responsibility for woody groups not represented by societies. Registration activity would be in accordance with the directives of the *International Code of Nomenclature for Cultivated Plants*. However, the Arnold Arboretum reserved the right to require and hold as part of its activity an adequate description, illustration, type herbarium specimen and a living specimen. A small charge would be made to individuals or companies wishing to register a cultivar name. The Arboretum agreed to compile and publish as soon as possible lists of cultivars in groups of registration interest. While the initial agreement when ratified will be for a two year trial period, it is fully expected that the registration, classification, publication and study of cultivated plants will be a major project continuing at the Arnold Arboretum where living collections, herbarium specimens, library, nursery catalogues and the Rehder Index combine to make this work practicable.

EDUCATION

The popular classes in horticulture and botany offered by staff members continued during the year with over 230 people registered. Approximately fifty special tours were conducted on the Arboretum grounds for groups requesting such trips. The largest tour again this year was the Massachusetts Horticultural Society Field Day, held on May 23, the peak of the lilac bloom. Approximately 500 people were conducted around the grounds in chartered busses. Staff members represented the Arboretum at scientific meetings or presented lectures for various groups interested in horticulture.

Dr. Sax and Dr. Howard were again appointed lecturers for the visiting lecturer program sponsored by the American Institute of Biological Sciences.

LIBRARY

Following completion of work on combining the library facilities mentioned in the last annual report, the activities of the library and its staff fell into more normal patterns of work. The library of the Arnold Arboretum is one of the outstanding botanical research libraries in the country. When considered in conjunction with the books comprising the library of the Gray Herbarium, the libraries are unsurpassed in quality for taxonomic and horticultural research. The library staff continued the work of reclassifying the extensive pamphlet collection, elaboration of the card index and a reconditioning of many of the books. The service offered to students, staff and visiting scholars was outstanding.

During the year 311 volumes were added to the library by purchase, exchange, transfer or binding, bringing the total volumes on hand to 50,515. Of the additions, 57 volumes were significant to horticultural research and were housed in Jamaica Plain.

Several sets of periodicals considered more useful to horticultural work were transferred to the horticultural library. The pamphlet collection was improved and 462 items were added which, with some discarding of duplicates or unwanted materials, brought the pamphlet collection to a total of 16,984 items. Services to other libraries and scientists included the dispatch of 198 books on inter-library loan.

HERBARIUM

The work of combining the non-horticultural herbarium specimens of the Arnold Arboretum with the specimens of the Gray Herbarium was completed during the year. The progress and procedure of this major herbarium reorganization has been noted in the annual reports of the past five years. It is with gratitude that I acknowledge the energy and devotion of the Curator, Dr. C.E. Kobuski, who carried the responsibility for this task, and the contribution of the staff members who completed this major task in so short a time. The staff may now return to individual programs with routine duties maintaining the excellent condition of the herbarium research facility.

During the year 5,918 specimens were mounted and added to the herbarium, bringing the total to 705,370 sheets. Considerable effort is made to repair damaged sheets as they are encountered, and 2,381 such sheets were reconditioned by the mounters. Our records indicate that 16,581 specimens were received during the past year. Of the total, 15,260 were in exchange, 3,246 as gifts, 339 for identification and 264 by purchase. The largest single shipment, consisting of 5,020 specimens from many parts of Russia, was received from the Academy of Sciences of the USSR.

One of the most valuable collections was received by special arrangement from the Museum of Science in the Philippines through Dr. Eduardo Quisumbing. This collection

consisted of 2,528 specimens made by the Spanish botanist Vidal in the Philippines between 1872 and 1890. Vidal's collections remained unstudied at the Museum de Ultramarino, in Madrid. During the past year Dr. Quisumbing, while on a Guggenheim Foundation grant, received permission to divide the Vidal collection, in return for its identification. Dr. Quisumbing felt that the most important location for this significant collection was in the Herbarium of the Arnold Arboretum, to supplement what probably is now the most important study collection of Philippine flora. Dr. Quisumbing spent six months of his Guggenheim Fellowship studying our collections from the Philippine archipelago.

The staff filled requests for go loans, totaling 13,855 specimens, from the combined herbaria to 46 different institutions, 33 in the United States and 13 in other countries. Sixty-eight loans numbering 10,272 specimens were requested from 44 institutions, 33 American and 10 foreign, for the use of staff members and students.

With the completion of our major effort in Cambridge, attention was turned to the horticultural herbarium in Jamaica Plain. Portions of the herbarium were painted, new fluorescent lighting was installed, and the entire herbarium was shifted to allow room for expansion. The significant taxonomic work of Rehder, Sargent, Palmer and others in the field of horticultural plant taxonomy antedated the current international rules of botanical and horticultural nomenclature.

In anticipation of developing taxonomic work it is necessary to reconsider the work of these earlier Arboretum staff members. In many cases type specimens were not selected or, if selected, were not indicated as such in the original publication of the taxon. Staff members are proceeding to examine the specimens studied by these workers, to separate the types and to indicate lectotypes when necessary.

Much of the work of Rehder and Sargent was based on plants growing in the living collections of the Arnold Arboretum. Such plants often were grown from seed collected in the wild at the same time as the herbarium specimen which is the type of a horticultural taxon. In other instances, the type of a horticultural taxon came from a living plant on our grounds. It is desirable to indicate the living plants which are either filial-types (progeny of the type collection) or living holotypes. Age, hurricanes and landscaping changes have destroyed many of these types in the past two decades. Labeling the survivors properly will enable us to preserve such specimens in future emergency situations, to propagate them and make such important specimens available to other arboreta.

INSTRUCTION

Staff members were scheduled to offer three classes in the Department of Biology during the past year. During the fall term [Dr. Sax](#) presented his class on cytotaxonomy and, in the spring semester, Dr. Howard taught the principles and practice of horticultural plant taxonomy. Dr. Wagenknecht assisted Dr. Howard.

During his leave-of-absence as visiting professor at the University of Florida, Dr. Sax offered a course in horticultural and cytological problems for the Department of Botany at Gainesville. Dr. Johnston's class in advanced plant taxonomy was not given.

TRAVEL AND EXPLORATION

Dr. Carroll Wood and Dr. Kenneth Wilson completed a month-long, 4,000-mile collecting trip involving field studies for their work on the flora of the southeastern states. A number of living collections in the genera *Liriodendron*, *Calycanthus*, *Philadelphus*, *Malus*, *Amelanchier*, *Robinia*, *Lonicera* and *Diervilla*, mostly from northeastern Alabama, were sent to the Arboretum for trials. All of these were wild clones of recognized ornamental genera worthy of cultivation. It is apparent that the area is worthy of more detailed collection and selection, for, in the past, it has yielded such ornamental plants as *Oxydendrum*, *Halesia*, *Liriodendron*, *Cladrastis*, *Catalpa*, *Fothergilla* and several deciduous rhododendrons.

During the spring, [Dr. Donald Wyman](#) visited azalea collections in Virginia and adjacent states to continue his studies and selections of ornamental subjects in this important group. Dr. Ivan Johnston collected in Texas and Mexico during the year, and Dr. Richard Howard continued his studies of vegetation on bauxite soils in Hawaii.

Dr. Frances Jarrett spent a month in England studying the Moraceae in the herbaria of the Royal Botanic Gardens at Kew, the British Museum (Natural History), and the Botany School, Cambridge University.

GIFTS AND GRANTS

Again this spring the "Friends of the Arnold Arboretum" were generous in their response to the annual appeal for gifts to support the horticultural work of the Arboretum. A special gift was received from the Godfrey Cabot Charitable Trust to install an acoustic tile ceiling in the lecture hall of the Administration Building. It is expected that this work will be completed during the summer and will make the auditorium a more pleasant place for meetings. Special gifts or grants from individuals and foundations were received to support the research work of various staff members.

A gift from Mr. George R. Cooley will support the work of Dr. Carroll Wood and Dr. Kenneth Wilson on the flora of the southeastern United States. Dr. Karl Sax received a continuation of his grant from the Massachusetts Society for Promoting Agriculture for work on dwarf rootstocks and for methods of promoting the growth and fruiting of fruit trees for New England.

The award of a Guggenheim Fellowship to Dr. Sax for work in Oxford, England, after his retirement, has already been announced. Professor I. W. Bailey has received a grant from the National Science Foundation to aid his investigations of the anatomy of the leafy cacti, *Pereskia* and *Pereskiaopsis*. Dr. Richard Howard was also awarded a second National Science Foundation grant for work on the anatomy of the petiole as a taxonomic character in the flowering plants.

PUBLICATIONS

The regular twelve issues of *Arnoldia*, under the editorship of [Dr. Donald Wyman](#), and the four issues of the [Journal of the Arnold Arboretum](#), edited by Dr. Carroll Wood, were published during the year. In addition, two special publications were sponsored by the Arboretum.

The important pamphlet, *Abbreviations of Titles of Serials Cited by Botanists*, compiled by Mrs. Lazella Schwarten and Dr. Harold Rickett and issued first in the *Bulletin of the Torrey Botanical Club*, proved invaluable to botanists. The original supply of reprints was quickly exhausted and the pamphlet was reprinted. A new edition of *The Arboretums and Botanical Gardens of North America* was compiled by Dr. Donald Wyman and issued by the Arnold Arboretum as a special publication. In addition 45 papers were published by staff members in scientific and horticultural journals.

RICHARD A. HOWARD, Director