



Annual Report 1959-1960

TO THE PROVOST OF THE UNIVERSITY:

SIR,

It is with regret that we record the sudden death of Dr. Ivan M. Johnston on May 31, 1960. Dr. Johnston, Associate Professor of Botany and a member of the staff of the Arnold Arboretum since 1931, was known in the botanical world for his monographic studies in the Boraginaceae and for his floristic work in the deserts of the United States, Mexico, and South America. A biographical report of his life and professional career, as well as a bibliography of his published works, will appear in the January 1961 number of the [*Journal of the Arnold Arboretum*](#).

[Dr. Karl Sax](#), Cytogeneticist for the Arnold Arboretum, retired on August 30, 1959 and has served as Visiting Professor of Botany at the Gibbs Laboratory, Yale University, for the remainder of the year. Three staff resignations also were accepted. Dr. Francis M. Jarrett, Botanist, who worked on the flora of the Philippines and Asia, resigned October 3 to accept a post at the Royal Botanical Gardens, Kew, England. Mrs. Claude Weber, Botanist, who had contributed greatly to the reorganization of the herbarium, resigned September 1 to enter the graduate school of Radcliffe College.

Mrs. Mary Lehmer, Business Secretary, resigned June 15 and moved to Albuquerque, New Mexico. Each contributed devoted and valuable services to the Arnold Arboretum and carry with them our appreciation.

Two new scientists were appointed to the staff. Dr. Lorin I. Nevling was appointed Assistant Curator beginning October 15. Dr. Nevling, who received his Ph.D. degree from Washington University in St. Louis, has been working on the Thymelaeaceae of the New World. Dr. Joab L. Thomas, a graduate of Harvard University, was appointed Cytotaxonomist as of July 1. Dr. Thomas, whose doctoral thesis dealt with the Cyrillaceae, will work primarily on the cytology and genetics of the cultivated plants in the Arboretum's collections.

The Ninth International Botanical Congress was held in Montreal, Canada, between August 19 and 29, 1959. Approximately 100 foreign scientists visited the Arnold Arboretum before, during, and after the meetings to work with our plants and collections. Eleven members of the Arboretum staff attended the pre congress nomenclatural meetings. During the meetings Dr. Howard presented an invitational paper titled "The Vascular Anatomy of the Petiole as a

Taxonomic Character" at a symposium on plant anatomy. Dr. Hu reported on "The Taxonomy, Geography, and Economic Importance of the Genus Fraxinus in China" at a session on plant taxonomy. Dr. Wood was appointed to the subcommittee for family names of the Committee for Spermatophytes. Dr. Howard was elected President and Dr. Wagenknecht, Secretary of the International Association of Botanical Gardens, both to serve for five years.

The Arboretum staff was represented at the annual meeting of the Plant Propagators Society by [Mr. Fordham](#) and at the annual meeting of the American Association of Botanical Gardens and Arboreta by Drs. Howard, Wagenknecht, and Wyman.

The staff again made the necessary arrangements for the annual meeting of the New England section of the American Society of Horticultural Sciences which was held in Cambridge. Five staff members attended these meetings with three presenting technical papers.

Dr. Howard was a participant in the Tropical Botany Conference held at the Fairchild Tropical Garden, May 5-7, 1960. This conference was jointly sponsored by the National Academy of Science and the National Research Council. Awards of recognition came to Drs. Wyman and Sax during the year.

A special award to a professional horticulturist for outstanding accomplishments and contributions was given to Dr. Wyman by the Horticultural Society of New York. Dr. Sax received the Jackson Dawson Medal from the Massachusetts Horticultural Society and was named "Horticulturist of the Year" at the University of Massachusetts students' horticultural show.

For the living collections in Jamaica Plain the winter of 1959-60 was unusually mild with only a single heavy snowfall. These conditions allowed for nearly continuous out-of-door work in the cleaning of many shrub plantings and in the pruning and removal of dangerous trees. Much of this work was necessitated by the extreme weather conditions of the previous year. The effects of the winter of 1958-59 became more evident in many plants as the season progressed and were again visible in the spring of 1960.

The spring season of 1960 appeared to be a short one. It was not possible to complete all the transplanting from the nursery in Weston to the permanent plantings in Jamaica Plain but 214 species, varieties, and cultivars were moved. Some of these were used to augment existing group plantings and others replaced weak or poorly grown plants. Many were new and represented additions to the permanent plantings.

Several plantings received special attention during the year. The collection of tree peonies, moved the previous year, is being pampered until it is well established in its new area. Approximately 1,700 bulbs of Narcissus cultivars were added to the naturalized area being created along Bussey Brook.

The mass planting of torch azalea along the South Street bank was pruned, cleared, and fertilized. The Taxus and Juniperus collection which had become crowded during recent years

was given special attention and several of the large yews and junipers were moved and some duplicate plants removed. New taxa have been added to the main collection and the general appearance is much improved with favorable growth conditions again present in the area.

The city of Boston through its [department of Parks and Recreation](#) continued the annual program of improvement of the roads, paths, and benches which is its responsibility. A new surface was placed on the full extent of the road between South Street and Bussey Street in the area of the Rhododendron and conifer collections.

The meadow road from the Arborway passing in front of the administration building to the maple collection was also resurfaced. These two areas not only represented the most serious deterioration of the roadways, outside of the Peters Hill area, but were also the sections most heavily travelled by visitors and by Arboretum equipment. It is hoped that additional areas may be resurfaced as city funds permit. The Department of Parks and Recreation also completed the last portion of the work of clearing the cobblestone gutters within the Arboretum.

The area of Peters Hill is now clear and the whole roadway much improved. One of the most striking features of the Arnold Arboretum living collections is the completeness and accuracy of the labelling and mapping systems. Both of these are maintained only by constant effort. During the past winter a complete new inventory of the plants in the living collections in Jamaica Plain and Weston was made and the nomenclature checked against [Rehder's Bibliography](#) as well as more recent monographs.

The work of verifying plants in the living collections from which type specimens were collected by Sargent, Rehder, and others has been continued. A special label has been prepared to identify properly such plants. During the fall the Arnold Arboretum was approved as the National Registration authority for cultivars of woody ornamental plants not now handled by special societies.

This delegation is from the American Association of Botanical Gardens and Arboreta and the American Horticultural Society, and is for a two year trial period. In this work the Arboretum staff cooperates with any individual or organization wishing to register specific groups of plants. For groups not delegated to others, the members of the Arboretum staff will register cultivar names and compile registration lists as interest is expressed. The Arboretum has no responsibility for the distinctness of the cultivar registered and legally none for the identification, although both points are of immediate concern to the staff. Where necessary additional correspondence often has clarified the relations of cultivars, producing information of lasting value which will be kept with the type specimen. The presence of authentic living and herbarium material of cultivars will facilitate the work of the staff in horticultural plant taxonomy. The end of the two year trial period will coincide approximately with the 1962 International Horticultural Congress when steps may be taken to coordinate registration activities for all ornamental woody plants at the international level.

In the 1959 session of the Massachusetts Legislature a bill was passed to obtain several acres of land from the [Bussey Institution](#). It is on this land that the Arnold Arboretum maintains its greenhouses, nursery area, and collection of bonsai. Although the bill was incorrectly filed, a new bill will be prepared. For this reason the staff has spent considerable time during the past fiscal year drawing plans for new greenhouses and the necessary accessory buildings.

A site was selected on land owned by Harvard University for the Arnold Arboretum along Centre Street, and a program of fertilization and soil preparation is under way in this area. The new greenhouse plans will improve research facilities by providing experimental cold chambers, laboratory space, and modern head-house equipment. A small classroom for graduate students and popular classes is also contemplated. The overall increase in greenhouse space will be approximately 33 %, while the nursery area will be increased threefold.

The President and Fellows of Harvard College, as trustees of the Arnold Arboretum, approved the plans in principle, and it is expected that an architect will be selected during the summer with construction possible during the next year. The routine work of filling requests for plant materials and of handling shipments of seeds and plants received occupies a large percentage of the work time of the department of plant propagation. During the past year 245 shipments were made to twelve countries outside of the United States. A regular exchange is maintained with most of the institutions represented. Thus, during the year, from the same or other sources the Arnold Arboretum received 235 shipments of 693 species and varieties as living material. These came from United States sources and eleven other countries. A total of fifty-two shipments of seeds representing 186 taxa were received and processed. These were from seventeen countries in addition to the United States.

The house at 101 Wellesley Street in Weston, adjacent to the ground cover demonstration area was made available to the Arboretum during the summer of 1959. This house was given to the Arboretum by Miss Marian Case, but has been occupied by Miss Case's gardener for a number of years. It is one of the oldest existing houses in Weston. The house was reconditioned and anew heating system was installed. It is now occupied by the superintendent at the Case Estates.

The New England Daffodil Society expressed an interest in obtaining space for a test garden for Narcissus varieties at the Case Estates, and beds were prepared for trial plots of these bulbs. A trial garden will be of value to the staff in relation to its teaching programs and to its work in cultivar registration. The New England Daffodil Society has agreed to plant and maintain the beds. Again this year the surplus plants were offered to the Department of Buildings and Grounds in accordance with the terms of the Arboretum trust.

Approximately 430 plants of 144 taxa were offered and most of these were utilized on the Harvard campus and in conjunction with the Harvard building program. None of the Arboretum staff was scheduled to offer formal courses at Harvard University during the past year. Several staff members assisted in the guidance of graduate students at Harvard and

Radcliffe. A series of luncheon seminars for graduate students and staff was continued, in which various staff members and students presented papers which were followed by discussion. The popular classes in horticulture and botany, conducted by the staff, were eleven in number. Another expression of the educational activity of the Arboretum staff is found in the outside lectures which we are requested to give. Such lectures are offered at many levels.

On occasion the Arboretum staff has, through lectures or guided tours, dealt with students from the elementary grades of the Weston schools to the graduate students of many colleges. We also receive many requests for speakers from Garden Clubs and similar groups interested in horticulture. Again this year approximately fifty groups numbering at least twenty-five persons were given conducted tours of the living collections in Jamaica Plain or Weston.

Dr. Wood represented the Arboretum on the program of the annual Williamsburg Garden symposium. Dr. Howard was a speaker on the campuses of Duquesne and Pittsburgh Universities under the sponsorship of the American Institute of Biological Sciences. He was the American Association for the Advancement of Sciences speaker at Franklin and Marshall College in Lancaster, Pennsylvania, and was the principal speaker for the Pennsylvania Catholic Round Table of Science at its annual meeting in Pittsburgh.

[Dr. Wyman](#) was the principal speaker at the annual meetings of the Colorado Nurserymen and Arborist Association, the Michigan Nurserymen's Association, and the Pennsylvania Nurserymen's Association. He was also the horticultural speaker at the University of Maine's Farm and Home Week and took part in the nurseryman's short course offered by the Waltham Field Station.

The annual Spring Flower Show of the Massachusetts Horticultural Society was held at a new location, Wonderland Park in Revere, Massachusetts, where the Arboretum staff was asked to display again a pruning exhibit which was used five years ago. This exhibit, demonstrating the methods and equipment for pruning shrubs and trees, also contained examples of plants showing both correct and improper pruning. Interest in the exhibit was such that it was again set up in the lecture hall in Jamaica Plain and was used throughout the spring season for classes and also was available to visitors.

An open house was held in Weston on the Case Estates May 1 to allow inspection of the nursery area, ground cover, and small tree demonstration plots and other plantings. During the day staff members were on the grounds to answer questions. As a result of such demonstrations the number of visitors and the number of tours in Weston increase each year.

The efforts of the Library staff were again concentrated on classifying and cataloguing the extensive reprint and pamphlet collection. A total of 356 pamphlets were added to the collection, making the total number 17,340 on July 1, 1960. Two hundred sixty-eight books were added to the bound volumes bringing the total to 50,783 volumes. Fourteen hundred cards were added to the main catalogue, an indication of the extensive system of cross-referencing of pamphlets and volumes now being developed. Requests for the interlibrary loan

of books remained high, and 177 volumes were sent on loan. An equal number of requests could be handled by supplying contura copies, microfilms, or photo stats. The cost of such reproduction is charged to the person or institution making the request where possible. Filling requests in this manner requires more effort on the part of our own staff, but does reduce the wear on the books and allows them to remain available to our own staff.

The Linnaean Society of London made available 825 microfiche reproductions of the Linnaean herbarium. A set of these cards was purchased jointly with the Gray Herbarium and will be available in the Library. During the year 8,766 specimens were mounted and added to the herbarium, bringing the total collection to 714,136 specimens on July 1, 1960.

The specimens added were in part received during the year and in part collections on hand from previous years that required study or preparation before mounting. Our records indicate that 11,767 specimens were received during the past year. Of the total 10,585 were in exchange, 1,074 by gift, 54 for special identification, and a similar number by special subsidy. The largest numbers of specimens came from institutions or collectors in Asia with 2,931, 2,523, and 1,458 specimens from Eastern Asia, Western Malaysia, and Papuasias respectively.

During the year the Arboretum staff sent 1,664 specimens in exchange to other American institutions and 6,277 to institutions in other countries. The staff filled ninety-eight requests for loans which comprised 10,903 specimens borrowed by fifty-three different institutions, thirty-six in the United States and seventeen foreign countries from Canada to Argentina and from England to Japan.

For their own work or that of students, the Arboretum staff borrowed sixty loans of 5,290 specimens from thirty-five institutions, sixteen in the United States and nineteen abroad. The research of the herbarium staff, in part supported by special gifts and grants, involves floristic, monographic, and anatomical studies. Work is in progress on the floras of the Lesser Antilles, the southeastern United States, and several areas of Asia. Monographic studies of genera in Chloranthaceae, Polygonaceae, Theaceae, Urticaceae, and Thymelaeaceae are progressing. Three staff members are using detailed anatomical studies for taxonomic purposes in broad surveys of plant structures and in specific scientific problems. Professor I.W. Bailey, Professor of Plant Anatomy, Emeritus, continued to serve as curator of the wood collection of the Arnold Arboretum. In addition, Professor Bailey is continuing his investigations of the comparative anatomy of the Cactaceae under a three-year grant from the National Science Foundation.

During July, 1959, Dr. Howard made a final trip to Hawaii in order to record growth data on some experimental projects established on the island of Kauai. On this trip he completed a report on the use and rehabilitation of agricultural lands following strip mining for bauxite ores. The report was submitted to the Commissioner of Public lands and was used for reference in preparing mining-rehabilitation legislation for the state of Hawaii.

During two weeks of December and January, Dr. Howard and Dr. Wagenknecht collected in Florida, Jamaica, and the Cayman islands. The primary purpose of this trip was to observe agricultural and forest plantings on mined-out bauxite lands in Jamaica. The opportunity was taken to collect specimens of cultivated ornamental shrubs and trees in all three areas. The Arboretum contributed to the support of the expedition of Drs. Ernst and Lucy Abbe of the University of Minnesota to Siam, Cambodia, the Malay Peninsula, and Borneo. The purpose of this expedition was a study of the Asiatic oaks and their relatives.

Dr. Abbe sent acorns and other fruits from the mountain areas for trial at the Arboretum where some species from the area are now under cultivation. During the spring the Arboretum was notified that it had been designated as one of three beneficiaries of a perpetual charitable trust fund established under the will of Mrs. Martha Dana Mercer of Doylestown, Pennsylvania. Mrs. Mercer died February 21, 1960.

The fund is being handled by the Old Colony Trust Company of Boston with a share of the income to be paid to the Arnold Arboretum. This bequest may well represent the largest single gift which the Arboretum has ever received. The use of the gift is unrestricted, and the income will be applied to improvement of the physical facilities and for increases in the staff of the Arboretum.

Again this spring the "Friends of the Arnold Arboretum" were generous in their response to the annual appeal for gifts to support the horticultural activities of the Arboretum. Even though such gifts are with few exceptions unrestricted, they have been used for the most part in the areas of plant propagation and the care of the living collections. Special gifts or grants from individuals and foundations were received to support the research of various staff members. A gift from Mr. George R. Cooley will support the collaborators of Dr. Wood on the flora of the southeastern United States. In addition, Dr. Wood received a three-year grant from the National Science Foundation for the preparation of biologically oriented generic flora of the southeastern United States.

Dr. Perry received a one-year grant from the Public Health Service for investigations of the native medical uses of plants of southeastern Asia. This grant, which will utilize the extensive herbarium collections of the Arnold Arboretum from that area, may be expected to be renewed twice. Grants from the National Science Foundation to Professor Bailey and Dr. Howard for their research have been continued.

Under the editorship of [Dr. Wyman](#), Volume 20 of *Arnoldia* was issued during the year. As a policy the articles in *Arnoldia* are of timely horticultural interest. The issues appear at irregular intervals with twelve numbers comprising each volume. [The Journal of the Arnold Arboretum](#) by contrast is issued quarterly on a regular basis with more technical articles largely representing the research of the staff members. Volume 40 of the *Journal* was issued during 1959. A total of fifty-eight papers of scientific botanical and of horticultural interest were published by members of the staff during the last year.

RICHARD A. HOWARD, Director