



Annual Report 1961-1962

TO THE PROVOST OF THE UNIVERSITY:

SIR,

In recording the activities of the staff of the Arnold Arboretum during the year, the event that stands out most vividly is the completion of the Charles Stratton Dana Greenhouses and the associated "open house" days. The planning of this new research development has occupied the staff for several years and the actual construction much of the present one. We planned to open the greenhouses officially in May and to show them to the Friends and the public who might be interested before we settled down to actual operations within them.

The construction was completed in March, leaving April and early May for the tasks of moving the contents of the old greenhouses and laboratories to the new location and of preparing the grounds. The complete cooperation and the hard work of the horticultural staff of the Arnold Arboretum made it possible to meet our schedule.

For once the fickle New England weather cooperated with our plans by producing excellent weather for the moving operations and also one of the most beautiful flowering seasons in the recent history of the Arboretum. The frequent newspaper releases and radio announcements of the progress of the flowering season were also helpful in giving us the largest weekly attendance since before the last war. At the same time, these newspaper releases culminated in producing an historic traffic tie-up on surrounding streets on lilac weekend with an estimated 25,000 visitors on the grounds between two and three P.M. on Sunday.

THE STAFF

The new appointments to the regular staff during the year were Dr. Bernice Schubert and Dr. Wallace Ernst. Dr. Schubert, formerly of the Bureau of Plant Industry at Beltsville, Maryland, joined the staff on January 1 as Associate Curator of the Herbarium. Dr. Ernst, a recent graduate of Stanford University, was appointed jointly with the Gray Herbarium to work with Dr. Wood on the generic flora of the southeastern United States. Two scholars were also appointed Mercer Research Fellows during the year. Mr. Don M. A. Jayaweera, Director of the Royal Botanic Gardens, Peradeniya, Ceylon, held a Rockefeller Foundation Fellowship during the year and was appointed a Mercer Research Fellow to complete his work on the genus *Mussaenda*.

Dr. Lalit M'ohan Srivastava, a graduate of the University of California at Davis, was appointed a Mercer Fellow to work with Dr. I.W. Bailey on further studies of the cambium and secondary phloem of vascular plants.

The resignations of Dr. Joab Thomas and Dr. Burdette Wagenknecht were accepted at the beginning of the year. It is a pleasure to record the horticultural award of the Colman Medal to [Dr. Sax](#), Professor Emeritus of Botany, by the American Association of Nurserymen in recognition of the work he accomplished at the Arnold Arboretum. Dr. Ernst was awarded the George R. Cooley Prize for the best paper presented at the annual meeting of the American Association of Plant Taxonomists. [Dr. Wyman](#) completed his term as President of the American Horticultural Society, and was elected to the Board of Directors of the Society at its annual meeting.

HORTICULTURE

The completion of the Charles Stratton Dana Greenhouses and the transfer of the propagation work to these new quarters summarized in large measure the activities of the staff in horticulture during the year. Previous reports have indicated the nature of the physical plant proposed and a full description of these greenhouses was published in the combined issue numbers 5 and 6 of volume 22 of *Arnoldia* (1962). The new greenhouses are built on land owned by Harvard University for the Arnold Arboretum and adjacent to the city owned land occupied by the main collections.

The development comprises four units of construction: the main building with attached greenhouses, a cold storage house built in an earthen bank, a free standing slat house of modern design to house the bonsai collections, and a pipe frame construction to be covered with saran cloth to function as a shade house for nursery stock. The surrounding areas have been devoted to over an acre of ground for nursery stock with additional area for future expansion, appropriate landscaping for the buildings, bank plantings of suitable taxa as a demonstration area of such plants, a collection of dwarf plants near the bonsai collection, and a new location for the Arboretum hedge collection. The entire area is fenced in and can be locked, thus affording for the first time excellent protection to the greenhouse and nursery areas.

The Dana Greenhouses have a main building, the head house, 36 X 11 feet with a full basement and first floor and a smaller second floor apartment 22 X 68 feet for a resident guard. Included in the main building, in addition to ample areas for the work of the propagation staff, are a small conference-lecture room, a laboratory for anatomical or cytological work, two walk-in cold rooms for controlled temperature experiments in ranges of plus 400 to minus 20~F., and abundant storage space. Three green houses are attached with space for a fourth.

The heating plant is designed to handle twice the present glass area. An auxiliary generator was installed to provide automatic take-over when the line voltage drops below 70% of normal. This generator will operate both heating and refrigeration units for an extended

emergency. The cold storage house is another feature of the experimental opportunities made possible through the new construction. The house has heating as well as refrigeration units. One section will house the [bonsai collection](#) during the winter months, but a separate section can be used to produce an early cold season or extend a winter season for plants larger in size than are usually cared for in a greenhouse. Nursery stock normally subjected in New England to unseasonable early warm periods followed by a late freeze can now be maintained in dormant condition until all frost danger is over.

The new greenhouses are named for Charles Stratton Dana and were made possible through the generosity of his daughter Martha Dana Mercer by the use of a bequest. Their completion and occupancy make possible new contributions by the staff in the study of the ornamental plants hardy in New England.

The weather during the year was extremely favorable to our collections. The season was marred only by the passage of hurricane Esther on September 21, for moderate branch damage resulted from the gale winds. The heavy snow coverage of February gave adequate protection to the plants during the month of most violent weather and little or no killing of flower buds or branches was experienced.

The result of the natural winter protection was revealed in a most floriferous spring season of moderate temperatures which saw the major collections remain in flower for longer periods than usual. The labor requirements associated with the Dana Greenhouses caused a reduction in the cultural efforts in the main collections during the year. Very little planting was done during the fall or spring season in the main collections. We also omitted a regular distribution of plants to cooperating nurserymen this year. Materials for both programs are on hand and both will be reactivated during the transplanting season in the fall.

[The City of Boston Department of Parks and Recreation](#) continued its regular attention to the Arboretum road system. A major road unit from the Forest Hills gate to the pond area and a second unit from the forsythias past the lilac collection to the rockery were completely resurfaced, the drains relocated and the sidewalks repaired. This is a major improvement which will facilitate snow plowing during the winter and make many areas more accessible to winter-time work. With the cooperation of the representatives of the Park Department, the City of Boston scheduled a hearing concerning necessary repairs to a storm sewer which passes through the new greenhouse area. Since this land is private property belonging to the Arboretum and not the City of Boston, a division of the costs of repairs has been reached and it is expected that this needed repair task will be completed in the next year.

During the year the staff of the propagation department received 164 shipments of plant materials representing 579 species and varieties from 23 different countries. One hundred and thirty of these lots representing 458 taxa came as plants or cuttings, while only 34 shipments or 121 taxa were seeds and fruits.

By contrast, 214 shipments comprising 852 taxa were distributed on request to botanists in nine countries. Of these 157 shipments or 645 taxa were as plants or cuttings and 57 shipments of 207 taxa as fruits or seeds. In addition to these statistics, we were able to fill 52 requests for pollen, leaf samples, soil samples, fruits, or wood specimens obtained from the living collections in support of research requests of scientists in 13 countries excluding the United States.

CASE ESTATES

The Case Estates in Weston continue to serve as a nursery area, a testing area, a demonstration area, a quarantine zone, and a place to retain under conditions of easy maintenance taxa not desired in the main collections in Jamaica Plain. The plants propagated in the Arboretum greenhouses are held in Weston until they reach flowering size. During this period, their growth habits, hardiness, and flowering characteristics can be determined. The best plants from the cultural or ornamental points of view are later planted in Jamaica Plain. Less desirable plants, those whose distribution may be restricted by law as *Ribes* or *Berberis*, or plants marginally hardy may be retained in permanent non-display plantings in Weston.

Among the demonstration plots, the perennial garden, the ground cover plots, and the small stature trees attract the greatest attention from visitors. Increased interest is seen in the test plantings of *Narcissus* varieties contributed by members of the New England section of the American Daffodil Society.

The grounds of the Case Estates are used for teaching activities of the staff. In addition to an open house, field classes have been held for the general public in the spring and the fall in Weston. Special tours are arranged for interested groups which can be shown certain plants, plantings, and practices not demonstrable in Jamaica Plain. The grounds are commonly used for field work in the biology classes of Harvard University and the Weston Public Schools. In addition, staff members of the [Bussey Institution](#), the Biology Department of Harvard, the Cabot Foundation, and the Gray Herbarium have been allowed to use small plots of land for experimental studies. Currently three high school and private school students have "science fair" projects under way on the grounds.

HERBARIUM

During the year 16,467 specimens were mounted and added to the herbarium, bringing the total collection to 742,811 specimens on June 30, 1962.

During the same period 10,920 specimens were received as accessions, of which 9,292 were in exchange, 1,277 through subsidy, and the remainder as gifts or for identification. In conformity with our policy of having the Gray Herbarium maintain all exchanges with countries and institutions of the Western Hemisphere and the Arnold Arboretum those of the Old World, the above accessions represent plants of the Eastern Hemisphere. All collections of cultivated plants are credited to the Arnold Arboretum and whatever their source are added to the

horticultural herbarium in Jamaica Plain. The staff filled 117 requests for loans of herbarium material which amounted to 12,056 specimens sent to 69 institutions, 48 in the United States and 21 to other countries. For their study, the staff requested 94 loans comprising 7,278 specimens from 20 American herbaria and 22 foreign institutions. Outgoing loans averaged 103 specimens per loan and included materials from the Arnold Arboretum and the Gray Herbarium.

Incoming loans averaged 80 specimens per loan again emphasizing the wealth of material in our herbaria. A total of 43 steel herbarium cases were purchased from the Art Metal Company for installation in the administration building in Jamaica Plain. Two additional cases were purchased for staff use in Cambridge. After the installation of the new cases for the horticultural herbarium, the entire herbarium was shifted to allow room for expansion and addition throughout the collection and to provide case space for individual staff members and for the use of the mounters.

LIBRARY

The librarians continued their regular services during the year, for the shifting of books described in previous reports has been completed. There were 347 volumes obtained by purchase, gift, and binding added to the collections, making the total number of volumes 51,453 on June 30, 1962. A total of 624 pamphlets were also catalogued and added to the collection, making a total of 18,926 such units.

The work of cross-indexing the main catalogue continues with 2,088 such cards being added including the new acquisitions. Four issues totaling 3,000 cards were added to the Gray Herbarium Card Index of American Plants. The Torrey Index to American Botanical Literature was enriched with the addition of 2,600 cards and set number 15 of generic cards was added to the *Index Nominum Genericorum*. In response to request, a total of sixty-six volumes was sent on interlibrary loan.

This represents about one half the number of volumes loaned in previous years. The staff is filling a larger number of requests by the use of contura, xerox, or microfilm reproduction methods to avoid sending old volumes.

COMPARATIVE MORPHOLOGY

I.W. Bailey, Professor Emeritus of Wood Anatomy, has continued to serve as Curator of the Wood Collection at the Arnold Arboretum. As this collection is one of the best in existence and is listed in the directory of wood collections published by the International Union of Biological Sciences, frequent requests are received for study samples. These are filled as materials are available.

During the year, wood samples were sent to 26 investigators in 14 countries. Where specimens have not been previously sectioned for our own slide collection, duplicate slides are requested in return, adding to the available slides for local study.

EDUCATION

No formal classes were offered by members of the staff during the year. Informal classes on horticultural topics were represented by the field classes held in the fall and the spring at Weston and Jamaica Plain. The staff members also took part in two seminar series held weekly and bi-weekly in Cambridge and open to all students. The formal series this year dealt with botanical problems in Latin America. The latter comprised a discussion of the research projects of staff members and students. A series of lectures open to the public was given evenings during the fall at the administration building in Jamaica Plain. Attendance varied at these meetings depending on the topic and the weather. The conclusion is almost inescapable that evening programs in Jamaica Plain will never be completely successful due to the remote location and difficulty of public transportation.

We again experienced an increase in the number of groups visiting the Arboretum and the Case Estates and requesting guided tours. Unexpected was the increased number of requests by mail for information on the Arboretum and the number of individual visitors who requested information on or the location of specific plants. These can be explained only in terms of the recent increased publicity given the Arboretum in newspapers, national magazines, and on local radio programs.

The Arboretum's exhibit at the Massachusetts Horticultural Society's Spring Flower Show was mentioned and complimented in the March 30 issue of *Time Magazine*, which drew attention to the dwarf plants. *Life Magazine* of May 4 listed the Arnold Arboretum first in a column on American arboretums and referred to our original introduction of [Metasequoia](#).

The Harvard Alumni Bulletin of February 17 had a cover illustration of the Arboretum, drawing attention to the conifer collection. *The New York Times* of April 22 had an article by Dr. Walter Hodge on botanic gardens which contained an illustration of our lilac collection and a reference to "Harvard University's Arnold Arboretum, America's best known arboretum, has been rated since Ernest Wilson's day as 'America's greatest garden.'"

[Dr. Wyman](#)'s timely articles in the *Boston Herald* feature the plants in flower at the Arnold Arboretum each week during the spring season. Such publicity is welcome for the interest it focuses on the educational values and contributions of the living collections and the staff.

EXHIBITS AND DISPLAYS

The living collections of the Arnold Arboretum are planted on 400 acres in Jamaica Plain and Weston. Only the professional horticulturists or the most determined visitors take time to see all of the plants of a given group. A flower show, by contrast, offers an opportunity of displaying small plants or branches or portions of plants in a small area, conveniently displayed and studied. Such displays may be seen by more people in a few hours than may visit the living collections in a full week.

As a part of its effort in horticultural education, the staff of the Arboretum prepared six educational displays of plant materials during the year. A display of ornamental fruiting shrubs and trees was shown at the fall show of the Massachusetts Horticultural Society attended by 5,000 people and at the comparable show of the Worcester County Horticultural Society which had 9,000 visitors. The staff cooperated with members of the Massachusetts Horticultural Society in preparing a Christmas show held at Horticultural Hall in Boston which drew 3,000 visitors.

During the spring season, our largest exhibit was at the Massachusetts Horticultural Society Spring Flower Show at Revere, Massachusetts. This display, awarded a first prize and a gold medal, featured a collection of dwarf evergreen plants which we will eventually locate near the Dana Greenhouses. Eighty-six thousand people attended this exhibition. At the request of the New York Horticultural Society, the Arboretum collection of bonsai was taken to New York for the New York International Flower Show. Our final exhibit again by request was a demonstration of methods of pruning trees and shrubs. This display at the Jordon Marsh Spring Show sponsored by the Garden Club Federation of Massachusetts attracted 50,000 people.

GIFTS AND GRANTS

The Friends of the Arnold Arboretum who contribute regularly to the work of the Arboretum responded generously to an appeal during the spring. To these regular contributors we again express our appreciation. Through the initiative of Mr. Seth Kelsey of East Boxford, a member of the Committee to Visit the Arnold Arboretum, eight Massachusetts nurseries contributed over 1,300 plants of various types and sizes to be used in establishing the basic landscape plantings around the Dana Greenhouses. Through their generosity, the Greenhouses lost a portion of the bleak appearance so characteristic of new buildings and freshly moved soils. One group of plantings proposed for the fenced-in area of the Dana Greenhouses was a collection of native hollies with most attractive fruits. A selection was offered the Arboretum in the fall of 1961 by Wilfrid Wheeler. Although Mr. Wheeler died on Christmas day, 1961, his wishes were carried out by his sons.

PUBLICATIONS

Four quarterly issues of the [*Journal of the Arnold Arboretum*](#) were distributed during the year as were the twelve numbers of *Arnoldia* which appear at irregular intervals. In these and other botanical and horticultural periodicals, fourteen members of the Arboretum staff published a total of 52 papers during the past academic year.

RICHARD A. HOWARD, Director