



Annual Report 1968-1969

TO THE PROVOST OF THE UNIVERSITY:

SIR,

It is appropriate this year in this report to reflect on the successes and the difficulties of implementing the original purpose of the Arboretum "to grow all of the trees, shrubs and herbaceous plants hardy in the vicinity of West Roxbury" and the concomitant goal of increasing our knowledge of these plants, their relatives and the vegetation associated with them in their natural areas.

Again in the first months of 1969, New England suffered characteristic diversity of climate. A severe ice storm in January was localized in the suburban area, causing extensive damage on the Case Estates of the Arnold Arboretum in Weston, but none in Jamaica Plain. Contrastingly, two storms in February and one in March produced accumulations of wet, heavy snow that damaged plants severely, primarily in Jamaica Plain and almost equaled the damage to our plants of past hurricanes.

The weather bureau reported a record 47.6 inches of snow in Boston for February alone (annual average is 41.7 inches) including the longest recorded period of uninterrupted snow fall, 78 hours. The accumulation was even greater at the Arboretum than that officially reported at the airport. The extent of damage is almost immediately apparent to visitors because of the nearly complete destruction of the mass plantings of *Magnolia stellata* near the Administration Building, as well as in the loss of some entire trees, tops of trees or many branches in nearby plantings of other trees on the grounds. Proper pruning and repair of the damaged trees will take the rest of the year.

Replacements for many specimen trees must be propagated so that clones of known lineage will be retained. However, even though the damage of the winter of 1968-69 will long be evident, the spring season which followed was again without a late frost and the display of flowering shrubs was, in fact, one of the finest in many years.

We began the development of the Weld-Walter tract of land, 15 acres held by Harvard University for the purposes of the Arnold Arboretum adjacent to the main property leased from the City of Boston. Our own crew repaired the stone wall surrounding the property and a contract was let for units of chain-link fence to be placed on this wall. A second contract has

established 1,840 feet of roadway 24 feet wide which sweeps gracefully to the top of the hill on the property. This new land area will permit expansion of the present collections to relieve crowding of maturing trees and the establishment of special plantings adapted to dry hillside and meadow areas.

We improved the appearance of one of the large ponds, which had been filling naturally, by dredging the pond through a commercial contract. Elsewhere on the grounds the special funds of the Isabel P. Shaw fund permitted additions and replacements to the storm damaged collections of Ericaceous plants.

The beauty of the living collections represents the Arnold Arboretum to the general public and this appreciation seems to grow each year. The staff encourages visitors to the grounds for in larger numbers of visitors is protection for the collections. Although the City of Boston is supposed to supply regular police protection for the grounds and its visitors, the demands in 1969 for police services in other areas of Boston has reduced conspicuously the presence of uniformed police on the grounds, and there has been an increase in vandalism to the Administration Building and to the collections.

The living collections serve the staff and professional colleagues in botanical and horticultural sciences as a source of research materials. An increase in the world-wide study of chemical constituents of plant materials has increased the requests for materials from the living collections and for the associated historical information retained in the herbarium and the library. An excellent example is the genus *Camptotheca*, introduced into the United States from China by E. H. Wilson, a former staff member, and distributed by the Arnold Arboretum staff.

Recently *Camptotheca* has been found to contain the most promising chemical for the control of leukemia. Although the plant is not hardy in Jamaica Plain, the original herbarium records and photographs, and our records of the distribution of this plant have permitted the location of additional living specimens from which scientists have obtained the needed study materials. During the year scientists from the Bureau of Plant Industry have collected material from the majority of our collections of Coniferae, one of the largest in the United States, in their survey of the chemical constituents of that group of plants.

We have supplied plant materials of *Evodia* for studies of chemicals produced by plants which naturally control seed germination. The fruits of many taxa of horse chestnut have been requested by four independent teams of chemists. These are but a few examples of the utilization of a living collection of plants accurately identified and of known origin.

Plants reproduced by the staff in continuing studies of methods of plant propagations and not needed by the Arnold Arboretum were offered to the Department of Buildings and Grounds of the University, and those not accepted were distributed to other colleges and universities, to botanic gardens and to the Friends of the Arnold Arboretum.

In addition, 277 specific requests of material for study involved 918 taxa and were distributed within the United States and to 24 other countries. Eleven recent introductions of horticulturally interesting plant materials were prepared in duplicate and distributed to Cooperating Nurserymen in a continuing program designed to further the cultivation of high quality trees and shrubs.

The Case Estates in Weston, Massachusetts, are the location for the nursery area of the Arnold Arboretum, as well as for special display plantings, demonstration plots for comparison of mulching materials and pruning techniques, ground covers, street trees, and perennial beds; areas of natural woodland, and various plant materials which cannot be accommodated in Jamaica Plain. Additions were made to the already established wild flower garden this year and a small collection of rock garden plants was established for trial and demonstration.

The diversity and educational nature of the plantings has made the Case Estates increasingly popular with Weston school classes, New England college groups and many garden clubs. All of the Weston Schools sent classes for talks or tours during the year while guided tours were conducted on request. To facilitate special lectures and the regular popular classes for adults of the surrounding suburban communities, one of the buildings was redesigned as a class room and equipped with carpeting, shades for darkening the room for showing slides and new chairs.

The herbarium collections of the Arnold Arboretum started by the first director are now divided into two parts. The portion housed in Jamaica Plain is composed of cultivated plants and serves as a reference collection for the identification of, and distribution studies on plants in cultivation. It now comprises over 136,000 specimens and has particularly representative collections of woody ornamental trees and shrubs, especially those which form the large part of our living collections. As a result of the special effort devoted to increasing representation in the cultivated herbarium, additions of some size came this year from Massachusetts, Pennsylvania, Florida, Puerto Rico, Mexico, Venezuela, Brazil and South Africa.

A collection of historical interest to us consists of herbarium specimens prepared by [F.L. Olmsted](#) who worked with [Charles Sargent](#) in planning the Arboretum plantings and who was responsible for the development of the park system in Boston and of Central Park in New York. Given to us by the Olmsted Associates, this unmounted collection will require much work before it is fully available. It includes specimens collected in the Arnold Arboretum in 1875, the oldest material from our collections and probably some of the first specimens taken from early Arboretum introductions, as well as material of the same period from Central Park in New York, park plantings in New Haven, Connecticut and in North Carolina.

The major portion of the Arboretum herbarium, housed together with that of the Gray Herbarium in the Harvard University Herbaria in Cambridge, is composed of native plants of the floras of the world. It is most representative of woody plants of the United States and temperate and tropical areas of eastern Asia. The herbarium collection is the basis for

monographic and floristic studies, work in plant anatomy, morphology and palynology, and is used for general identifications or to answer special questions. The research work of the Arboretum staff involves all of these areas and active use is made of the herbarium for such studies.

Active Floristic Research projects involve the preparation of a Generic Flora of the Southeastern United States; a cooperative program with scientists of the Universidad Nacional Autónoma de Mexico on the environments and plant resources of the state of Vera Cruz, Mexico; the islands of the Lesser Antilles in the Caribbean, and the flora of Hong Kong and the New Territories.

Monographic studies involve plants from the same areas as well as those from countries of South America, tropical Africa and the islands of the Pacific. The bibliography of 59 published articles and books by the staff and students, which appears in the [*Journal of the Arnold Arboretum*](#), reflects this breadth of research interest and contribution as they are based on the resources of the living collections, the herbarium and the library.

Much staff time was involved this year in the rehousing of the fruit and seed collection. This move was necessitated by the appointment of a senior member to the staff of the Gray Herbarium to be housed in Cambridge. The need to move collections to house professional staff emphasizes again the increasingly crowded condition within the Harvard University Herbaria building in Cambridge. As the collections of books and specimens increase in size, as the use of the collections by an enlarged staff and more visitors continues, as new techniques and equipment are employed in our research, the problem of even adequate space is immediate.

As evidence of the use and the growth of the collection, we recorded that the combined herbaria honored requests for herbarium specimens through 154 loans comprising 19,351 sheets to 23 foreign and 39 domestic institutions. We added to the herbarium of the Arnold Arboretum 26,985 making a total now of 908,925 specimens - one of the outstanding such collections in the world. The library, too, increased in size by the acquisition of 859 bound volumes for a total of 55,126 and by 138 pamphlets making a collection of 21,236.

The convenience of the Arnold Arboretum herbarium and library in Cambridge to the college has increased its use by students and by visitors to Harvard. There is evidence also of increasing use of the Arnold Arboretum library in preference to that of other biological libraries in the Cambridge area and the services requested adds to the burden on the small staff and restricted space. We hope for adequate expansion space before the need becomes desperate.

Two formal courses in the Department of Biology were offered by members of the Arboretum staff. Dr. Howard taught an advanced one-semester course in plant systematics, Biology 209, "Phylogeny of the Flowering Plants," and Dr. Wood gave Biology 103, "The Taxonomy of Vascular Plants." Dr. Hartley taught the Harvard University Extension Course in general botany throughout the year. Three staff members offer "300", or research courses, for graduate students during the year.

At Harvard, as at other universities throughout the world, there was student "unrest" this spring. Several senior staff members, who are members of the Faculty of Arts and Sciences, spent long hours in special meetings of the Faculty and of the Department of Biology during the crises. They also carried on extended conversations with students as a small contribution toward better communication and improved understanding.

With permission of the President and Fellows of Harvard College and with the aid of the members of the Committee to Visit the Arnold Arboretum, invitations were sent this year to solicit membership as Friends of the Arnold Arboretum. The Friends are an informal group of contributors, some of whom have been supporting the general work or special collections for over twenty years. Its members have participated in the open houses and the popular classes in horticulture and botany offered by the staff and have shared in a program of plant distribution and hardiness testing.

The Friends supplied active political support in opposition to a bill filed in the Massachusetts legislature to build a ski tow in the Arnold Arboretum, and again this year in opposing a swimming pool and recreational area a well-intentioned member of the legislature proposed for our grounds. Over 300 new Friends have joined to help support the Arboretum during the past year, and it's our hope that many more will participate as the Arboretum approaches its Centennial Year.

A Centennial Fund has been established in the Office of the Treasurer of the University for gifts to be used during 1972 or in anticipation of it. Part of the development of the Weld-Walter tract has been made possible by this extra financial aid. We are particularly grateful for the generous but currently anonymous gifts to be capitalized until 1972 which are to support field work, plant introduction, and work in special areas of horticulture.

Throughout the year the Arnold Arboretum receives many gifts of living plants, books, herbarium specimens, articles of scientific or historical value which are acknowledged individually by the staff and by the University when appropriate.

The Arnold Arboretum published regularly a scientific quarterly, the *Journal of the Arnold Arboretum*, and a more popular bulletin, *Arnoldia*, which gives mainly horticultural information in twelve single or combined numbers.

Two special publications were issued during the year. The booklet "[Through the Arnold Arboretum](#)" is a popular guide to the living collections of the Arnold Arboretum. Some of the fine photography of this booklet was reproduced in the March 17, 1969 issue of the *Harvard Alumni Bulletin* in an issue devoted to Harvard's botanical collections. A second publication, *Flowers of Star Island*, is a study of the vegetation on the Isles of Shoals, a conference center located off the coast of Portsmouth, New Hampshire.

A portion of the income from the bequest of Mrs. Martha Dana Mercer is used annually as "Mercer Research Fellowships." In most cases the fellowships permit the holder to live in

Cambridge or Jamaica Plain while using the collections of the Arnold Arboretum for his special research studies. A few fellowships have been awarded to individuals who wished to work with members of the Arboretum staff in order to learn a particular technique or to become experienced in the operation of various units within the Arboretum.

This year for the first time a fellowship was awarded to a graduate student to pursue an academic program leading to a degree, working under the direction of a member of the staff. Although the Arboretum benefits by the use of its collections for these specialized studies it is the recipient who has the opportunity, otherwise not available, to pursue his goals.

Finally, may I report on the staff. The President and Fellows approved the promotion of Associate Curators Dr. Lorin I. Nevling, Dr. Bernice G. Schubert and Dr. Carroll E. Wood to be Curators. Dr. Alfred Linn Bogle and Dr. Thomas S. Elias were appointed Assistant Curators. Mr. Robert S. Hebb was appointed Assistant Horticulturist. Mrs. Ara R. Derderian was approved as the Honorary Curator of the [Bonsai Collection](#) of the Arnold Arboretum. Many of the staff accepted appointments to national and international committees of various societies and organizations to serve their profession.

Many of the staff gave lectures at other universities or took part in special symposia at universities or meetings of special societies. Such participation, which brings credit to the staff and the organization, is listed in the October *Journal of the Arnold Arboretum*, as an annual report.

Honors of a special nature were received by two members of the staff and deserve special notice. [Dr. Donald Wyman](#), Horticulturist, was awarded the Veitch Memorial Medal, in gold, of the Royal Horticultural Society with the citation, "By this Veitch Medal we today pay tribute to Dr. Wyman's contribution to the science, to the practice, and to the literature of horticulture." Since the medal is rarely awarded to persons outside of England, we are happy to record that Dr. Wyman is the third member of our staff to receive this prestigious honor.

Dr. Bernice Schubert, together with Dr. Lyman B. Smith, of the Smithsonian Institution, received the Eva Kenworthy Gray award of the American Begonia Society in recognition of their joint contribution of original material which aided in the study of the genus *Begonia*. These botanists have published a series of papers on the classification and distribution of *Begonia* in Central and South America.

RICHARD A. HOWARD, Director