



**Annual Report 1967-1968**

TO THE PROVOST OF THE UNIVERSITY:

SIR,

An unusually early and temperate spring season produced a spectacular flowering display of those plants which form their flower buds in the year of bloom. The living collections in Jamaica Plain which form the popular appeal of the Arnold Arboretum were particularly beautiful and drew larger numbers of visitors than have been seen in the experience of the current staff.

One item of major construction completed during the year in Jamaica Plain was the new garage and storage building for mechanical equipment used on the grounds. Ever since the construction of the herbarium addition to the Administration Building in 1905, mechanical equipment and tools had been kept in the basement with access only by a narrow ramp. This arrangement was feasible in the days when the grass in the arboretum was permitted to mature and then was cut by scythe and stacked in mounds. In recent years, however, mowing has been a continuous operation throughout the growing season and the cut grass has been retained as a mulch. The tractor-drawn mowers and similar power devices necessary to cut grass and care for the living collections fitted like pieces of a jigsaw puzzle in the basement.

The new one story structure, 44' by 105', is of reinforced concrete with adequate storage at ground level for all vehicles and grounds equipment, supplemented by special storage rooms for parts, tools, fertilizers, and sprays. The \$145,000 budget for this building included new equipment and established a fenced and paved parking area for staff cars. Alterations were also made on the administration building itself to improve facilities and permit future use of the additional space.

Again this year the Arboretum staff suffered the loss by death of one of its valuable members. Dr. George Konstantin Brizicky died following a heart attack on June 15, 1968. Dr. Brizicky joined the staff in 1960, initially as a joint appointment with the Gray Herbarium, and worked with Dr. Wood as a botanist on the Generic Flora of the Southeastern United States project. His careful bibliographic work is exemplified in more than 70 scientific papers.

Two staff members reached retirement age and the resignations of two additional staff were accepted. New appointments to the staff included Dr. Paul Sorensen, assistant horticultural taxonomist; Mr. George Pride, associate horticulturist; Mr. Robert Hebb, assistant

horticulturist; Mr. Thomas Kinahan, superintendent of the Case Estates; and Mrs. Robert Hebb, assistant librarian. The members of the staff serve broad fields of systematic botany and horticulture both nationally and internationally.

New assignments accepted during the year include the appointments of Dr. DeWolf to an advisory panel of the National Science Foundation; [Mr. Alfred Fordham](#) as chairman of the International Plant Propagators Society's committee to evaluate woody plant cultivars; Dr. Richard Howard as chairman of the Plant Records Center Committee of the American Horticultural Society; Mr. George Pride to the Gardens and Grounds Committee of Old Sturbridge Village; and [Dr. Donald Wyman](#) to the Board of Directors of the Roxbury-North Dorchester Beautification Project.

Dr. Howard was elected an honorary foreign member of the Royal Danish Academy of Science and Letters and honorary President at Large of the Herb Society of America. He also received the distinguished citizen citation for 1968 issued by the Metropolitan Area Association of Warren, Ohio.

The activities of the staff in the field of horticulture involve the maintenance and care of the living collections of woody plants; work in plant propagation; systematic and taxonomic studies relating to the living collections and the herbarium of cultivated plants; and the operation of nursery areas and display plantings at the Case Estates in Weston. Shortages of water during the past years of drought, accompanied by city restrictions on outdoor use of water, have posed major problems in the care of nursery stock. A well and overhead irrigation systems installed this year will facilitate future care of the young plants in the nursery. A test program to gain information on plant hardiness in New England was begun with twenty-five collaborators in all of the New England states.

Over 1,500 container-grown plants in 41 taxa were distributed to be grown under uniform conditions. Systematic observations on them will be correlated. Plants surplus to the needs of the Arboretum itself were again made available to the Department of Buildings and Grounds of the University. Additional material was given to the City of Boston beautification programs, including those in the Roxbury-Dorchester area. The 10 acre Case Estates in the town of Weston serve as the nursery area for the Arnold Arboretum and also for display areas of special horticultural interest. The land also provides room for taxa which cannot be accommodated in the plantings in Jamaica Plain.

A test plot of 575 rhododendron seedlings and 100 cultivars of Ilex was established this year. Work was also begun on a wildflower garden of educational interest to local schools as well as to Harvard classes. The herbarium of spontaneous plants housed in the Harvard University Herbaria building in Cambridge was increased by 31,750 specimens. The collection of herbarium specimens of the Arnold Arboretum now numbers 881,730 of which 132,750 are specimens of cultivated plants housed in Jamaica Plain. The herbarium represents one of the world's outstanding collections of material for the study of the native and cultivated woody

flora of the world. It is the basis of work of the staff and is consulted by scholars from many countries. Specimens are loaned on request to specialists and students for research studies of many kinds.

During the past year the combined herbaria of the Arnold Arboretum and the Gray Herbarium sent on loan for scientific study 168 shipments comprising 18,050 specimens. An additional 214 shipments of living plants or material of living plants, including 1,146 taxa, were sent to scientists and institutions in 17 countries. Proper housing for the herbarium collections remains a serious problem. Provision for the growth of the collection and convenient working space for staff and visitors are both necessities.

The University is cooperating in a study of means of obtaining increased space by the addition of a fifth floor to the present Cambridge building. In the meantime cramped working space and temporary housing for specimens in cardboard boxes are being tolerated. The use of the herbarium for floristic studies is exemplified by several projects of the staff.

Dr. Carroll Wood and his associates continued their work on an illustrated generic flora of the southeastern United States, a project supported in part by the National Science Foundation. Dr. Thomas Hartley has continued with the identification of collections of plants made in personal field studies in Papua and New Guinea between 1961 and 1964. The specimens are specially significant in supporting phytochemical studies being made by collaborators in the Commonwealth Scientific and Industrial Research Organization in Melbourne, Australia.

Dr. Richard Howard, through a grant from the National Science Foundation, has completed ecological studies of an elfin forest on the summit of Pico del Oeste in Puerto Rico. The project received collaboration from many other scientists and institutions for special studies of weather, soils, roots, and anatomical characteristics as well as for work on the non-vascular plants. Identifications and distributional data required the use of our herbarium and library in Jamaica Plain and in Cambridge. The laboratories in Cambridge were the site of studies of the structure and composition of the plant tissues.

Dr. Shiu Ying Hu spent four months in the territory of Hong Kong developing her studies of that area with the collaboration of local botanists. Her collections represented new material for our herbarium. They included plant families and genera which formerly could not be presented adequately to classes in plant phylogeny and taxonomy.

Dr. Lorin Nevling, representing both the Arnold Arboretum and the Gray Herbarium, is participating actively in investigations of the vegetation of the state of Vera Cruz with members of the Instituto de Biología, Universidad Nacional de México. The collecting work is sponsored in part by a grant from the National Science Foundation. The collections of plants under cultivation will be distributed in the exchange program of the Arnold Arboretum.

Plants of tropical America in the genera *Dioscorea* and *Desmodium* are the research projects of Dr. Bernice Schubert. Some species in these genera are sources of food, medicinal compounds, and forage. Dr. DeWolf, with a grant from the National Science Foundation, is preparing treatments of those species of the genus *Ficus* found in Suriname and Venezuela. Dr. DeWolf is working in cooperation with programs being carried on by botanists from the Netherlands and Venezuela respectively. He has also completed studies of *Ficus* in tropical Africa and in Madagascar.

Staff interest in the vegetation of New England and the United States is represented by the research and collections of Dr. Paul Sorensen and Mr. George Pride. A Mercer Research Fellow from Peshawar University (Pakistan), Dr. Syad M.A. Kazmi, is using the herbarium of the Arnold Arboretum for general studies of the woody flora of Pakistan and is preparing a treatment of the Boraginaceae of that area.

In summary the staff has studies under way involving the floras of nearly every continent. Such work is possible with the excellent library and herbarium collections which are an important part of the Arnold Arboretum. The library of the Arnold Arboretum was increased by the addition of 491 volumes and 219 pamphlets and reprints to totals of 54,267 and 21,089 respectively. The total holding of books, bound periodicals, and unbound but catalogued pamphlets and reprints is now 75,365. Improvements by additions to card files and by binding are routine procedures of the library staff.

Although no formal courses were taught in the Department of Biology this year, active instruction to graduate students and participation in seminar programs continued. In addition the staff members addressed numerous other organizations; spoke in programs at other universities; cooperated with local schools in Jamaica Plain, Roxbury and Weston; presented papers at national science meetings; and prepared displays for regional flower shows.

The regular publications of the Arnold Arboretum issued during the year comprised four numbers of the *Journal of the Arnold Arboretum* and twelve issues of *Arnoldia*. The early volumes of the *Journal of the Arnold Arboretum* have long been out of print, as have several numbers of more recent dates. The Kraus Reprint Company of New York has been authorized to reproduce these issues, so that full sets of the *Journal* are again available. Requests have also been received for the reproduction of the volumes of *Arnoldia* now out of print. Negotiations are in progress to make this serial generally available.

The bibliography of the staff during the academic year included 46 titles and appeared in 21 different botanical and horticultural journals.

RICHARD ALDEN HOWARD, Director