



### Annual Report 1962-1963

TO THE PROVOST OF THE UNIVERSITY:

SIR,

The work of the Arnold Arboretum comprises the maintenance and study of a collection of living plants, the preservation and use of herbarium specimens and library books, and the pursuit of botanical and horticultural research with the results made available through publications and by educational programs. In each of these areas the annual records are cumulative. The records of the institution, many dating back nearly ninety years, allow comparisons.

In our northern temperate climate, the variations of the environment from year to year are readily observable in the flowering of the trees and shrubs of the living collections. The past winter with its unusual ice storms adversely affected some plants but proved favorable for others, and the spring season was marked by an unusually beautiful flowering display of crab apples, lilacs, and evergreen rhododendrons. The staff published collectively over 65 papers during the year while continuing its regular curatorial activities involving the many collections. A large number of educational programs ranging from lectures and guided tours to courses and correspondence was also part of another busy year.

#### STAFF

The staff was saddened by the death of Dr. Clarence E. Kobuski on May 9, at the age of 63. Dr. Kobuski came to the Arboretum in 1927 and his death ended 36 years of contribution to the Arnold Arboretum, interrupted only by wartime service in the U. S. Army. In his early years as an assistant to [Alfred Rehder](#) and later as an editorial assistant in the preparation of Rehder's *Manual of Cultivated Trees and Shrubs* and the *Bibliography of Cultivated Trees and Shrubs*, he came to know well woody plants under cultivation. His research, involving difficult groups, began as studies of cultivated plants in the families Theaceae and Oleaceae.

As an editor of the [Journal of the Arnold Arboretum](#) and as senior curator of its collections, Dr. Kobuski served and helped every staff member. His efficiency, his hard work, his knowledge, and his good humor were basic to our everyday activities. Although the diagnosis of Hodgkin's disease two years ago was known to all, his death was a personal loss to each of us.

An account of his life and a list of his publications was published in the *Journal of the Arnold Arboretum*.

Two new appointments were made to the regular staff and several special appointments were also approved. Dr. Theodore R. Dudley was appointed Assistant Horticultural Taxonomist and Mr. William Grime was appointed Curatorial Assistant. Dr. Mary E. Sanders was appointed a Research Associate for one year in the field of cytology and genetics.

Mercer Research Fellowships of the Arnold Arboretum were awarded to Miss Dulcie A. Powell of the Institute of Jamaica, Kingston, Jamaica, for work on the history of early plant introductions by Hinton East; and to Dr. Lalit M. Srivastava, as a renewal, to continue his studies of the cambium and its vascular derivatives. Mercer Research Grants for the support of field work were awarded to five students.

Mrs. Claude Weber was awarded a James R. Jewett Fellowship to support her work on the genus *Chaenomeles* for one year. Dr. Don M. A. Jayaweera completed his work as a Mercer Research Fellow and returned to his position as Superintendent of the Royal Botanic Gardens, Peradeniya, Ceylon. Dr. Wallace R. Ernst resigned at the end of the fiscal year to accept a position at the U. S. National Museum.

#### HORTICULTURE

The living collections were noticeably affected by the adverse winter conditions characterized by ice storms. Seven storms in January and February coated the trees and shrubs with layers of ice that persisted from one to seven days. Fortunately, no wind accompanied these storms and breakage of branches was minimal. However, plants of *Ilex*, *Weigela*, and *Deutzia* were killed to the ground and the time of flowering was noticeably altered in *Forsythia*, *Magnolia*, and the azaleas.

By contrast the crab apples flowered profusely a full week ahead of their normal period, the lilacs persisted in peak of bloom for nearly two weeks, and the evergreen rhododendrons appeared more floriferous than usual. Similar reports were common in the New England area and from arboreta as far west as Illinois. Major improvements were completed on the grounds in Jamaica Plain.

[The Department of Parks and Recreation of the City of Boston](#) continued its program of road resurfacing and, in addition, began the development of a circular drive to the top of Peters Hill. A division of costs with another department of the City of Boston permitted the installation of a new storm sewer across the greenhouse land from Centre Street to the linden collection.

The Arboretum staff then cleaned out silt-filled ditches in the Meadow, and these projects lowered the water table about one foot and will permit future planting in an area formerly inhospitable. New gates and new fencing were installed on several boundary sections which have been difficult to protect.

The first year of operation of the Charles Stratton Dana greenhouses has been completed, and the necessary adjustments of experimental techniques to a new location and new buildings have been made. The Dana Greenhouses were used during the year for the regular activities of the Arboretum in receiving, propagating, and distributing plant materials. The laboratories were used by the staff and visiting scientists, and the lecture area for instructional purposes.

During the year the Arboretum received 174 shipments of plant materials representing 700 species and varieties from 15 countries, and 80 shipments of seeds of 132 taxa from 24 countries. The distribution of plant material included specimens for hardiness trials, new horticultural introductions, research requests, and gifts. A total of 321 shipments comprising 1,227 species and varieties was sent to 15 countries. Thirty-five nurseries and botanic gardens in 25 states and five foreign countries requested plant materials from a list we prepared of plants for distribution.

#### CASE ESTATES

During 1963 the town of Weston, the location of the Case Estates of the Arnold Arboretum, marked the 250th anniversary of its founding. The staff of the Arboretum was asked to cooperate by assisting in the committee work for the occasion and by scheduling its Annual Open House at Weston during the celebration by the town. The Arboretum is fortunate in occupying a prominent geographic position in this lovely town, and is aware of its privileges and its responsibilities as a tax exempt organization there.

[Dr. Wyman](#) served many years on the park, cemetery, and the beautification committees of Weston. He has also assisted in the design of a new park area. The Arnold Arboretum has contributed 150 trees and shrubs for the landscaping of it and other areas in the town for this anniversary. Dr. Howard, Dr. Wyman, and Mr. Draper, all residents on the Case Estates, were responsible for tours of the Estates during the anniversary celebration.

The Case Estates plantings are always open to residents of the town, and many of them take advantage of the labelled displays for study, or participate in the classes, tours, and Open House displays we offer. During the year new test plots of Hosta and Lilium were established and flowered for the first time. Several display trees of crab apples flowered heavily, suggesting that they will become roadside displays of outstanding quality. The clonal collections of forest trees maintained by the staff of the Cabot Foundation on the Case Estates were examined during the year, and a preliminary report reveals the potentially profitable breeding combinations for growth, hardiness, borer and weevil resistance. The value of these plants lies in the detailed genealogical records and the long and careful selection studies which document them.

## HERBARIUM

With competent help which became available during the year, the herbarium staff renewed its efforts to distribute duplicate specimens to herbaria with appropriate interests. In contrast to the previous fiscal year when only 483 specimens were sent out in exchange, 24,482 specimens were distributed during the fiscal year just ended. These constituted primarily collections from Indochina and from New Guinea made by Arboretum sponsored expeditions immediately after the close of World War II.

The Arboretum received during the year 35,431 specimens either by exchange, subsidy or purchase from expeditions, or by gift. A total of 19,112 specimens was mounted and added to the herbarium, bringing the total collection to 763,928 specimens. Several of the collections received were worthy of note. A collection of plants from one of the Bahama Islands represented an area where the vegetation is subject to destruction in the development of tourism. A collection sent for identification and checking from the island of Quemoy was made by a Nationalist Chinese soldier in an area threatened with military activity.

A modern collection from Ceylon represents the plants currently cultivated at the Royal Botanic Garden there, while an old collection from Martinique was made in the St. Pierre Garden before it was destroyed in the eruption of Mt. Pelee.

Photographs are also useful in the herbarium, and special gifts during the year which were added to the herbarium included the photographs used to prepare a recent book on flowering trees of the tropics, others used to document a classic work on the lilac now out of print, and many hundreds of photographs of type specimens in European herbaria.

## LIBRARY

A notable increase in the use of the Library during the year by students and visiting scholars was attributable, we believe, to the developing cross-reference system of file cards in the catalogue. This work has progressed slowly over the past few years and was reflected again this year in the statistical records of the Librarian. Four hundred and nineteen bound volumes were added to the Library during the year, making the total number of 51,453. Of this number, 004 deal primarily with horticultural topics and are housed in Jamaica Plain. Pamphlets numbering 518 were added to that special collection, making a total of 18,926.

Although 937 new items were additions to the Library, the number of reference cards added to the main card catalogue totaled 1,976, reflecting the efforts of the Library staff to make the Library of increasing value. The Librarian has also undertaken to arrange the available duplicate reprints of former staff members for eventual distribution as requested, and to prepare volumes of collected works of the former and the present staff members. In many cases this has involved locating obscure periodicals not necessarily in our Library, and obtaining reproductions of the appropriate articles. Several outstanding additions were made to the Library resources during the year. Through the Harvard College Library, 92 of the original

Linnaean Dissertations were obtained in an exchange program with the library of the University of Helsinki in Finland. Between the Libraries of the Arnold Arboretum and the Gray Herbarium, 132 of the original 186 theses published are now available for research use.

Also of special value are the manuscripts, photographs, and documents used in the preparation of the Lilac Botanical Exploration of the Trans-Mississippi West which were the gift of the author, [Mrs. Susan McKelvey](#). During the year we were able to purchase the manuscripts and notes of Dr. A.K. Schindler of Dusseldorf, Germany, whose work comprises studies of many genera of the Leguminosae.

#### COMPARATIVE MORPHOLOGY

The wood collection of the Arnold Arboretum received its usual curatorial attention during the year. In addition, the staff undertook cooperative programs with the Division of Wood Anatomy of the Smithsonian Institution, Washington, D.C., and the Department of Plant Anatomy of the Order of Lenin Forest Academy, Leningrad, USSR, in preparing wood samples for scientific study. Research projects continued on the anatomy of the Cactaceae, the secondary phloem and its derivative tissues, and the anatomy, chemistry, and physiology of bark.

#### EDUCATION, EXHIBITS, AND DISPLAYS

Through the spring semester Dr. Howard taught a course in horticultural plant taxonomy in the Department of Biology. During the regular spring vacation this class continued its work in Puerto Rico, making headquarters in the Luquillo Mountains and visiting the University of Puerto Rico, including its agricultural research stations, the forestry nurseries, and plantings of the U. S. Forestry service as well as other areas of horticultural, agricultural, or floristic interest. The experiment of working with undergraduate students in tropical flora proved stimulating to both instructors and students. In addition to general herbarium collections, specific collections were made of material needed for the herbarium and living plants, seeds, and plant parts collected for staff research and undergraduate research courses. Informal classes were conducted by the Arboretum staff in Jamaica Plain and in Weston, and the staff members participated in seminars held in Cambridge.

The Arnold Arboretum served as host institution for the midwinter meetings of the New England section of the American Society of Horticultural Sciences at Jamaica Plain. In addition, staff members attended scientific meetings of organizations representing their fields of research, presented papers at these meetings, spoke on invitation to various colleges, and served as guides for groups visiting the living collections in Jamaica Plain.

The staff prepared six special exhibits for flower shows held in Massachusetts, New York, and Washington, D.C., during the year. An educational exhibit was designed to show the various methods of seed production and dispersal, seed processing, including treatments for the several types of embryo dormancy and comparative growth rates of seedlings. The staff was pleased to receive a first prize and a gold medal from the Massachusetts Horticultural

Society for this exhibit, and to be the recipient of the Buckley Medal of the Garden Club of America for the most educational exhibit in the Spring Flower Show.

#### PUBLICATIONS

Results of much of the scientific work of the staff are published as research papers in the [\*Journal of the Arnold Arboretum\*](#). The four numbers issued during the past fiscal year contained 31 articles, 25 of which were written by staff members. The other six articles by other scientists concerned in some way the various collections maintained by the Arnold Arboretum. The twelve numbers of *Arnoldia* issued during the fiscal year contained but one article not prepared by a member of the staff.

#### GIFTS AND GRANTS

The many Friends of the Arnold Arboretum renewed their generous support of the horticultural work during the year, and we are most grateful for this continuing annual support. Although most gifts are unrestricted as to use, two gifts this year were designated for the care of the Larz Anderson bonsai collections and for the care and acquisition of dwarf conifers. Another gift was accepted to complete the collection of street trees maintained in Weston. Generous gifts of books, manuscripts, and photographs were received at the Library and the Herbarium. Continuing support of research projects of various staff members by grants from the Public Health Service, the National Research Council, and the National Science Foundation is acknowledged here and, as usual, in the various reports and papers resulting from the research.

RICHARD A. HOWARD, Director