



Annual Report 1978-1979

TO THE PROVOST OF THE UNIVERSITY:

SIR,

This year has been an interregnum between the two directorships. Dr. Richard A. Howard retired from administrative duties at the end of the previous fiscal year, after twenty-four eventful years. Dr. Peter S. Ashton's arrival from the United Kingdom was delayed by immigration formalities until December 28, 1978, and Drs. Bernice G. Schubert and [Richard E. Weaver, Jr.](#), acted as directors at Cambridge and Jamaica Plain, respectively. The Case Estates have lacked a supervisor throughout the year following the resignation of Mr. Kenneth Shaw in the previous fiscal year; Mr. James A. Burrows has been appointed to replace him, starting in July 1979.

The second half of the fiscal year has, therefore, been a period of policy reassessment and definition rather than implementation. The new director, in a [message](#) to readers of *Arnoldia* (Volume 39, No. 2, March/April 1979: pp. 67-70) emphasized the need to harmonize, and, where possible, integrate the apparently disparate functions and facilities of the Arboretum, with its commitments to the University and to the City, to research, education, and amenity, and its diverse facilities at Cambridge, Jamaica Plain, and Weston.

The Arboretum has been and always will be in the first instance a University museum: a collection of living and preserved woody plant species which, with its libraries and in combination with the other University herbaria, provides Harvard with the outstanding facilities of their kind in the world for research and education. It is only if it continues to remain preeminent in these functions that the Arnold Arboretum can continue to develop its complementary function as a unique public amenity and an authoritative source for information on the culture of woody plants.

We see it as vital that our collections, in both the plantings and the herbaria, be used actively for research and instruction by Harvard faculty and students, and preferably in combination. The association of a great museum and a university provides each with strength and opportunities greater than either could muster independently. This is obvious to those of us who have experience in independent herbaria and botanic gardens. Interaction with faculty outside the institution and the participation of students can foster a vigorous and innovative climate required for research of the highest standards. Conversely, the unrivaled diversity of

plant form available in our collections enables a breadth of research and educational possibilities that no other university can match. Our future policy will be built on two independent convictions: that our staff must pursue every opportunity to participate in and facilitate the work of the Department of Biology as a member institution of the Institute of Plant Sciences; and that research by faculty and students using the collections is essential for their survival as a viable facility, for this alone assures the continued curation without which they would become unusable to the scientific community at large.

For an arboretum to establish a reputation for excellence, it must maintain a consistent planting policy, for styles, both aesthetic and scientific, change during the life of a tree. [Charles S. Sargent](#) was well aware of this need. It is clear from his writings that his aim was to establish a comprehensive collection of woody plants, arranged according to the natural classification of Bentham and Hooker, for scientific and educational purposes, and set in a landscape in such a way that they would become a public amenity of beauty. To insure the latter, he collaborated with [Frederick Law Olmsted](#) in designing the paths and plantings. It is clear also that the principal and permanent plantings were to be collected from the wild, and that their provenance and other details would be recorded fully, including collection of herbarium vouchers from the parent trees. Following Sargent's death, the collection continued to be maintained, but there is no mention in reports of any conscious policy for further accessions, or deaccessions, until after the second World War. By then the collections had been damaged severely by the storms of the thirties and the shrub collections were overgrown through neglect.

In 1946 Mrs. Beatrix Farrand was brought in by [Dr. Karl Sax](#) to make recommendations for restoring the collections. A landscape architect by training, her plan could not have been executed without the experienced presence of the Arboretum's horticulturist, [Dr. Donald Wyman](#). Mrs. Farrand was well aware of Sargent's original policies. Her [policy statement](#), in *Arnoldia* 6(10): 45-48, 1946, shows that she had a different problem to face owing to the senescent condition of some plantings and to overcrowding. She felt that it was appropriate for a new direction to be charted:

“Among many questions to be considered is whether the comparatively small acreage of the Arboretum can wisely accommodate all the species and varieties of woody plants of the temperate regions. If the acreage is thought too small for this full collection, a further decision should be made whether to limit the Arboretum collections or to provide a space for planting the material of comparatively limited interest which would overcrowd the present available area... Old friends of the Arboretum may feel aggrieved in seeing some of the plantations altered, but they will be less distressed when they realize that these very alterations are absolutely essential. They are undertaken in order to restore the design to essentials in the plant groups and also to display to advantage the best and most ornamental of the plants now growing within the Arboretum.”

It is clear from the second quotation that "best" and "most ornamental" are to be regarded as synonyms; how can a plant be assessed as "best" for science or education? Dr. Wyman was responsible for executing this policy, which he did with panache and considerable skill over the following fifteen years. His own report in *Arnoldia* 7(1): 1-8. 1947, testifies to his policy:

"Since Professor Sargent's death, however, plants have continued to be sent to the Arboretum, new plants and some sent for 'trial' to the extent of approximately 600 a year. Since the area (265 acres) has not been enlarged, and trial growing space had to be given for new and untried plants, the general plantings became more and more crowded, with the result that individual specimens received less care. "A combination of circumstances since the war has resulted in an increased emphasis on the horticultural activities of the Arboretum. "Certain varieties which have not proved themselves to be among the best of their group for ornamental purposes may be removed from the general collections at Jamaica Plain and grown on the Case Estates in Weston. Here such varieties, important for scientific reasons, would be lined out in rows and cultivated by machine at comparatively little expense. At Jamaica Plain, then, one would be able to see the most important plants and the best ornamental varieties in certain groups normally having a large number of varieties. In other words, as Mrs. Farrand has very rightly pointed out, it is impossible to continue to grow all the woody plants that are hardy in this climate on the 265 acres, especially if certain wooded areas and other important landscape features are to be maintained, as they should. "This winter, for instance, we were able to remove over 900 plants of 25 genera without eliminating any species or variety of importance."

It is interesting, in this last context, to note that recent calculations indicate it is still possible to grow up to three plants of every species of woody plant hardy in the West Roxbury area at Jamaica Plain. The problem of overcrowding becomes acute when cultivars are introduced as a policy, for their numbers are limitless. It is also a reflection of past priorities that some of the plants transferred to lines at Weston were original Wilson introductions, that maintenance was very low, and that subsequently many plants there have died.

Sargent had another clear policy relevant in this context. He recognized the need for a dichotomy between the permanent "backbone" of the collections consisting of trees, and the shorter-lived shrub collections, and experimental or ornamental material which could be regarded as more temporary and amenable to change. The postwar policy did not continue this distinction, and in several cases permanent plantings were removed for purely aesthetic reasons.

A serious problem arising from this postwar policy has been the split of interest that has ensued between science and horticultural display. Sargent's accession policy is precisely that which would be advocated by a plant scientist at the present day, now made yet more valuable owing to the impending extinction of so many species in the wild, especially in East Asia.

Cultivars, especially when grown in juxtaposition with their parents when known, have a limited educational, but almost no scientific or horticultural research interest. Postwar accessions policy has, therefore, seriously compromised the scientific value of the Arboretum. Mr. Seth Kelsey, a horticulturist who advised on accession policies of the Arboretum in 1970 for the Horticultural Subcommittee formed within the Visiting Committee at that time, crystalized this clash of interest in his report:

"Since, however, the Arboretum is a park as well, and open to the public as such, a continuing objective should be to improve the landscape appearance of the collections for increased public enjoyment and education, and perhaps the time has come for a complete restudy of the Arboretum from the landscape and display point of view. "He then continued by advising on the nature of research that should be carried out at the Arboretum:"... we would add... An active program of breeding and selection to develop cultivars of (a) greater ornamental value, (b) increased hardiness, (c) greater resistance to insects and disease, (d) greater tolerance to urban conditions. including but not limited to factors of pollution. "By intensive and skillful field work many decades of labor can be saved and much more immediate results can be achieved for the benefit of the public and the renown of the Arboretum. Several years of intensive summer fieldwork on city streets followed by limited propagation and testing at Weston of the superior clones uncovered, would yield relatively quick and very important results. The Arboretum has the required room and facilities, and probably the staff to carry out such a program."

Now it is interesting that a comprehensive collection of species acquired from the wild would provide an unparalleled base for this kind of research. Kelsey did not state how continued accumulation of cultivars, often of unclear parentage, into the permanent collections would benefit such a program. He did recommend, in a special report to the director, dated May 1, 1965, additional planting of species, but went on to recommend nurseries from which stock could be bought. Such nursery stock, generally of unknown provenance and parentage, is of limited potential for research.

His recommendations, therefore, illustrate a difference of views that has arisen between plant scientists and amenity horticulturists. The Arnold Arboretum, as part of Harvard University and alone among institutions of its kind, has the opportunity to pursue --we would say as its primary function --research, and the educational opportunities emanating from it, at the highest level of scientific excellence. By this we mean fundamental research, descriptive or experimental, aimed at increasing our understanding of the diversity of plant form and function. Research into the hormonal physiology of woody plant roots, tree breeding systems, population genetics, or systematics, for example, can achieve this. Such research can also be instrumental in advancing horticultural science by extending our knowledge of the rules governing plant diversity, breeding, and propagation. Plant breeding programs, on the other hand, usually rely on established knowledge and techniques and do not need full-time

assistance of theoretical scientists. This is not, I wish to emphasize, to suggest that Arboretum staff should not pursue such work. Rather, we should pursue both aspects, for the living collections will always need curatorial staff, and those staff members should be expected, as they have done so well in the past, to pursue research into plant breeding and other horticultural fields. Our academic staff members (faculty) will wish, though, and rightly, to concentrate their efforts in fundamental scientific research. Both groups should work in close collaboration; thus our horticultural endeavors will profit directly from the work of faculty.

We are of the opinion that a clash of interests between horticulturists and plant scientists is as unnecessary as it is undesirable, and believe that it has arisen, in part, through lack of adequate communication. It should be recalled that Sargent faced the problem of serving the needs of science, education, and amenity, and solved it. His employment of Olmsted as his landscape architect led to creation of a unique work of art, now the only remaining working arboretum designed by that landscaping genius, and the one on which he lavished the most time. However, Olmsted intended that the emphasis should be on the landscape as a whole, not on the display of individual specimens; his planting design has been obscured by the very horticultural plantings that were intended to enhance the Arboretum's beauty! As I have explained, we cannot do better for science, for horticulture, for conservation, or for amenity, than revert to Sargent's accession policy. We do have room in Jamaica Plain for accommodating all hardy woody plant species; we can and should retain, from time to time and on a less permanent basis, selected cultivars of outstanding historical or display value when they enhance the landscape as a whole. This will allow us to develop a discrete, yet interrelated policy for the Case Estates, for there alone is the room we will require for experiment, both horticultural and botanical; and there, too, a more extensive collection of outstanding cultivars can be grown on and kept for assessment and display.

Three policy decisions have already been made in this spirit. Having reasserted that the objective at Jamaica Plain is to grow a completely documented collection of woody plant species hardy in that area, a decision has been made to seek grants to undertake a complete restoration of the living collections there over a period of five years. This would involve verifying the identification of all plants, checking labels and the records which need to be computerized, and preparing a new map which will be used as the basis for one to be published as part of a guidebook. It will enable us to define precisely, and for the first time, the gaps which need to be filled, and, hence, our future accession policy. Concurrently we intend to restore the planting plan devised by Olmsted and Sargent for that part of the Arboretum designed by them, and to produce a long term plan for the remaining parts in Jamaica Plain which will allow expansion of our holdings to include the many species discovered in the last century. This will be done in a manner that is convenient for scientific and educational purposes, and at the same time in the spirit of the Olmsted-Sargent plan.

Next, we plan to integrate more closely than at present the work of the propagation and nursery facilities at Jamaica Plain and at the Case Estates, and to develop scientific research into

the living collections. At the same time we wish to give all encouragement to further expansion of horticultural research by our curatorial staff. A first step has been the approval of a new professorial appointment in root biology of woody plants, to be based on the greenhouse facilities. This appointment was included in my 1979-1980 budget, and the person appointed, it is hoped, may also fill the role of deputy director.

Third, we intend to complete our collections by reverting to a policy of acquiring plants from the wild, through exchange, and through expeditions organized by ourselves or by others. Our North American holdings are far from adequate, and I shall be reporting on two staff collecting trips which made a start toward correcting this situation.

The National Science Foundation Curatorial Grant for the combined herbaria presupposes reinvigoration of botanical research based on the collections in them. The herbarium of the Arnold Arboretum, in combination with the library, provides the foremost facility that exists in the Americas for the study of the botany of the Far East, both temperate and tropical; and plants from this region are particularly well represented in our living collections. Of special significance to us, therefore, was a visit to Harvard, in May 1979, by a delegation of botanists from the People's Republic of China, the first since the revolution. I shall be reporting subsequent events which give us grounds for hope that collaboration in research will be renewed. Similarly, attendance at a symposium in Malaysia enabled the director to discuss future collaboration in research and training with colleagues in that region.

The Arnold Arboretum serves as one of the foremost amenities offered by Harvard to the Boston public. This service can be provided as a natural extension of our university function, thanks to the good fortune that our living collections are located on an attractive site of rolling land, that they were laid out and provided with a road and parkway system by Frederick Law Olmsted, and that an extensive and well-maintained collection of woody plants provides a quiet and tranquil refuge for our citizens that will be valued increasingly as travel becomes more expensive. The impending development of the Southwest Corridor Project provides us with an opportunity and a responsibility to the Boston public which we must seize. I shall be reporting here on the initial steps we have taken. The successful development and maintenance of the Arboretum for its various purposes is dependent on a high level of upkeep and successful control of vandalism. Both are improving, currently, thanks to steps which have been taken in recent years.

Essential to this future policy will be a staff structure that can enable it to be implemented. In February and March 1979 a series of meetings were held, at which a new staff organization was devised. Its aim is to establish clear lines of responsibility, and to increase the extent to which it is shared, to increase communications between the various parts of the institution, to facilitate future planning, notably through identification of gaps in staff, and to integrate our work more clearly and advantageously with that of the other institutions of the Department of Biology. The work of the Arboretum has been divided into five functions, whose policies are defined by five committees. Three of these, the Herbarium Committee, the Library

Committee, and the new Publications Committee are constituted jointly with the other Harvard herbaria. There remain the Living Collections Committee and the Public Relations and Education Committee. The director is an ex-officio member of every committee, as will be the deputy director when appointed. Other scientific staff members may be elected, but in any case have the right to attend all committee meetings, thereby encouraging their participation in policy making. The senior member of the executive staff concerned with each of the five functions chairs the appropriate committee and is responsible for the implementation of its decisions; other executive staff members under his or her direction serve on it. Each committee includes also one invited member from outside our institution.

It is obvious that changes of the magnitude envisaged will require new budgetary policies. These will be presented in my budget letter for 1980-1981.

This year has seen a start to the construction of the Herbaria Building addition which, although beginning late, and now scheduled for completion in early 1980, is progressing satisfactorily. The final resolution of the fate of the Adams-Nervine property, mentioned in previous reports, awaited the new director on his arrival. Reassessment of the cost of acquisition and restoration of some of the buildings indicated that this would be an investment of doubtful value. Fortunately, the property has been acquired by a development company which intends to convert the existing buildings into condominiums without changing their external appearance.

The fiscal year ended with the retirement of Mr. Robert G. Williams, superintendent of the Arboretum, Jamaica Plain, since 1945. Serving under four of the five directors, Mr. Williams established a high standard of maintenance of the living collections through strong and just administration of the crew, and thrifty and careful exploitation of the facilities available. Named as his successor is Mr. Henry Stanton Goodell, who this year received his commendation from Harvard for twenty-five years of meritorious service.

THE LIVING COLLECTIONS

The Living Collections Committee, under the chairmanship of Mr. Gary Koller, the supervisor of the living collections, at once addressed itself to the definition of a long-term accession and deaccession policy. Having agreed that Sargent's original policy remains appropriate today for the purposes of this Arboretum, the committee made preliminary investigations which led to the rediscovery, at the Olmsted offices in Brookline, of Olmsted's original plans for the main eastern section of the Arboretum. No copy of these plans existed in our archives. This in turn led to the realization that Olmsted and Sargent's planting and layout have survived to a remarkable extent. We have resolved, therefore, in the long term, to restore the Olmsted-Sargent plan, both as a work of art and as a scientific collection to the extent that is feasible; to incorporate the shrub collections with it; and to develop the Peters' Hill and South Street tracts in the same spirit as evidenced by Olmsted's plan to accommodate the very many exotic species discovered since his time.

This project will take years to accomplish, and will involve reorganization of the record system, verification of plant identifications, and remapping. Grant proposals are being formulated and will be submitted in the coming fiscal year. For the present, we have clarified our definition of accession and deaccession policy, and thus advanced integration of our propagation and nursery facilities at Jamaica Plain, and at the Case Estates in preparation for the arrival there of a new supervisor.

Undoubtedly of great moment to the Arboretum is the news that the Southwest Corridor Project is to go ahead and that it is considered a high priority by the Governor. The project provides for linking Boston Common with the Arboretum by a green way over a new underground railway. Arboretum staff members have been attending community meetings, while the director and the supervisor of the living collections have had discussions with the project director and the director of forests and parks at the Department of Environmental Management. Forest Hills Station is to be rebuilt to the north, and therefore closer to the Arboretum than at present. We expect that our main visitor flow in the future will be to and from this station. Therefore, we need to develop, in cooperation with the Southwest Corridor authorities, an integrated plan for a new access route into the Arboretum, possibly by way of the South Street tract. An adjacent visitor center must be considered. We have agreed to collaborate in providing an exhibit and planting at the new station, and to advise on plantings throughout the Corridor.

Two Mercer Fellows were appointed during the year. Mr. Mohammed Jadidi, from Ariamehr Botanical Garden, Tehran, Iran, received training in arboretum operations under Dr. Weaver's supervision during the period July 1 to November 15, 1978. Dr. Michael Dirr, University of Illinois, Urbana-Champaign, spent the entire year with us, during which time he prepared two articles for *Arnoldia*, one of which, "Street Trees for Home and Municipal Landscapes," coauthored with Mr. Koller, has been published as a separate book. He gave two lectures within Harvard, and numerous others in Boston and elsewhere.

Two collecting expeditions within North America were mounted by Arboretum staff members during their vacations. Mr. Robert Nicholson made a carefully planned visit to British Columbia in the fall of 1978, bringing back 124 collections representing 110 taxa from thirteen locations in the wild. A special effort was made to collect seed from the points of maximum hardness of species ranges. Dr. Weaver visited the Southeast in April 1979 and collected forty-seven seedlings and young plants, of which all but two have survived. Altogether 178 shipments representing 926 taxa were received during the year from twenty-seven countries, notable among which were nine shipments representing 138 taxa from the People's Republic of China.

Two hundred fifty-five taxa were propagated to provide replacements of defective specimens in the Arboretum. In addition 158 taxa were propagated in response to requests and in anticipation of our distribution program.

Some 4,000 plants of 117 taxa from Dr. Stephen Spongberg and Dr. Weaver's 1978 Japan/Korea [expedition](#) were distributed to eighty-five institutions in six countries. Further 214 shipments, comprising 1,135 taxa, were distributed to cooperating institutions, nurseries, and individuals in eighteen countries.

Notable donations of plant material were received from Princeton Nurseries, Princeton, New Jersey, and Weston Nurseries, Hopkinton, Massachusetts. Many of these taxa were used as understock.

With the resignation of Ms. Donna Lynch, mapper and labeler, in September 1978, her work was discontinued until March 1979 when Ms. Jennifer Hicks assumed this position. Meanwhile Mr. Charles Mackey checked collections over a large portion of the Arboretum for missing labels. Scientific and display labels have been prepared as needed. These are being put out, and the maps have been updated at the same time. A new map of the dwarf conifer area was completed in April 1979.

The weather during this fiscal year has been unexceptional but for the very low snowfall, 23" in comparison with 81" in the previous year. The Arboretum has been in generally better condition than it has for some years past, with grass well cut and considerably less litter. This has been due largely to the efficient deployment of the crew by the assistant superintendent, Mr. Henry Goodell, who assumed this role in the previous year. At the end of the current year he was promoted to superintendent on Mr. Williams' retirement. Also, in part, it has been thanks to a new joint initiative with our neighbors and Friends, twenty of whom joined us for a spring cleanup in April, a very successful venture that will be repeated twice yearly in the future. Although a fire in the spring of 1979 burned about a third of the turf on Peters' Hill, and we have as usual been involuntary hosts for several teenage beer parties, vandalism in general has declined, thanks to greater police surveillance. The director visited Police Station Thirteen early in the year for discussions with Captain Caselli, and attended a meeting, convened by the local community, at the Roslindale Amvets Association Building, to discuss vandalism in the Arboretum. These meetings, and the maintenance of close contact with the police and Police Commissioner Jordan's office, appear to have had a marked positive effect. The mounted police, too, have visited the Arboretum more frequently than heretofore. A new barrier was installed at the Peters' Hill gate on Bussey Street, which has led to reduction of the entry of stolen cars.

In the absence of a supervisor at the Case Estates, Mr. Thomas Kinahan and the grounds crew merely continued management of existing holdings. Mr. Burrows, who resigned as assistant propagator in February to take up a post in Korea, returned, and has been appointed assistant supervisor of the living collections, assigned to the Case Estates, beginning in July.

In addition to the personnel changes mentioned, crew member Mr. Alphonse MacNeil retired, Mr. Angllo Navarro resigned, and one crew member was dismissed. Mr. Mark Walkama was appointed as a pruner in Jamaica Plain, and Mr. Bruce Munch joined the grounds crew at

the Case Estates; Mr. Peter Del Tredici was appointed assistant propagator, and Mrs. Jeanne Sattely replaced Ms. Hicks as horticultural secretary.

Twenty-one horticultural trainees were employed in 1979, fourteen of whom were local residents.

Improvements to the collections included consolidation of several beds in the deciduous Rhododendron (Azalea) border; restoration of the hedge collection, including installation of a wall to the dwarf conifer collection; major removal of surplus and overgrown stock in the old conifer garden, the Taxus collection, the collections abutting the South Street gate, the Ilex bed, and the beech collection; repair of drains underlying the Carpinus and Aesculus collections; and major pruning of the Ulmus collection in which five cultivars of *U. americana* have become infected by Dutch elm disease. Dr. Weaver, horticultural taxonomist, checked the identity of Cytisus, Maackia, Corylus, and, with the assistance of volunteer Dr. Richard Warren, Abies, Pinus, and Larix collections.

One hundred forty-five plants, representing seventy three taxa, were added to the permanent collections this year. Of these, thirteen were new to the Arboretum and twelve were replacements, five were cultivars, and seventeen were collected from wild stock.

Major repairs were made to the chain link fence on behalf of the City, following damage caused by the blizzard of 1978. Leaks in the heating system of the Administration Building were detected and repaired, and the roof deck of the Dana Greenhouses was reconditioned.

Dr. Spongberg continues to serve as chairman of the Registration Committee of the American Association of Botanical Gardens and Arboreta (AABGA), and has recently been co-opted onto a subcommittee of the Botanical Society of America charged to develop collaboration with the People's Republic of China.

Mr. Koller, the supervisor of the living collections, helped to organize and implement the North Atlantic Regional Meeting of the AABGA in February 1979 at Old Sturbridge Village, and attended the National Meeting of the American Holly Society, and the Massachusetts Horticultural Congress.

Mr. Alexander, the propagator, attended the International Plant Propagators Eastern Region Convention in Toronto in December 1978, where he presented a lecture.

Tours were organized for twenty groups of plant scientists and nurserymen during the year, and some 150 individuals made professional visits. Members of the Arboretum staff answered 290 technical requests or inquiries by letter, and at least double this number by telephone. A survey undertaken between April and December 1978 revealed that some 200 poisonous plant inquiries were received by telephone at the Arboretum during that period.

THE HERBARIUM

The herbaria and libraries of the Arnold Arboretum and the Gray Herbarium are particularly strong in materials for the study of North American plants, cultivated plants, and the floras of the temperate and tropical Far East. Also we have been leaders in the introduction of living material from the Far East, much of which is grown at the Arboretum. The research interests of our staff reflect these strengths, and such research must depend heavily on thorough and continued curation of the herbarium. During the year Merrill's collections of type fragments, which he obtained from European herbaria, and which constitute a valuable taxonomic tool, have been curated, and are now ready to be mounted, annotated, and inserted. These latter tasks have already been completed for Symplocaceae, Myrtaceae, Myrsinaceae, Ficus, and Ericaceae. The Arboretum file of negatives of type and other authentic specimens has now been fully integrated with that of the Gray Herbarium, making both more convenient for the user. This involved the indexing of 5,060 negatives or negative strips. Folders for type specimens were replaced and added in families 63-91, and New World Geographic tags were provided for families 1-104.

Our holdings of *Osmoxylon*, *Boerlagiodendron*, Old World Balanophoraceae and Bignoniaceae, Elaeocarpaceae, Ficus, and twelve other, small, taxa have been annotated and reorganized according to recently published treatments. Some 1,000 sheets of Ficus and 1,289 of Elaeocarpaceae were so treated, and between one-third and one-half of the collections were in need of annotation.

The total number of sheets in the Arnold Arboretum herbarium at Cambridge at the end of the fiscal year was 1,091,886; 12,575 sheets were mounted and incorporated, 86 removed, and 9 added directly. In the cultivated plant herbarium in Jamaica Plain there were 167,238, of which 2,263 were additions. One hundred eight sheets in the two herbaria were repaired. Of the combined 7,557 accessions, 4,375 were received by exchange, 101 by special exchange, 2,217 by gift, 604 by subsidy, and 2,604 for identification. The principal provenances were Western Malesia (2,264), Papuasias (1,401), East Asia (756), Australia (595), and the West Indies (572). The total number of specimens sent on exchange was 527. During the year 65 loans, totaling 4,946 specimens, were received for study by staff members; and 35, totaling 5,231 specimens, for students; while 30,934 specimens were sent out in 261 separate loans.

The construction of the addition to the Harvard University Herbaria building is running behind schedule, but should be completed during the coming year. It will have twelve herbarium rooms with two compactors each, eleven to house the Arnold-Gray collections, and one to house the Orchid Herbarium of Oakes Ames. Fortunately, it has been found possible, by financial readjustment, to acquire all twenty-four compactors required, notwithstanding forewarnings to the contrary in the last annual report. One demonstration compactor has been installed for inspection.

The herbaria received 203 professional visitors during the fiscal year.

Dr. Norton G. Miller, Associate Professor and Associate Curator, continued to serve as chairman of the Herbarium Committee. During the year herbarium secretary Ms. Carolyn Hesterberg resigned and was replaced by Ms. Rita Silverman. This year, for the first time, the combined herbaria hired work-study students to assist in curation; both were Harvard students who had taken the Biology 18 course, Diversity in the Plant Kingdom.

The Seventh Annual Meeting of the Association of Systematics Collections was held at the Harvard Museums at the end of April 1979; the director presented the opening address.

THE LIBRARIES

The Library Committee is chaired by Mrs. Lenore Dickinson, the librarian.

At the close of the fiscal year, books and pamphlets in the libraries in Cambridge and Jamaica Plain totaled 87,027; 727 having been added, 470 by cataloguing and 257 by binding. Of these acquisitions, 137 were gifts. Major donors included: Dr. Shiu-ying Hu, Professor Richard Schultes, Professor J. Galil, Mr. Harvey Pofcher, Mr. Stefan Salyk, the Review Editor of *Scientific American*, Professor P. Barry Tomlinson, Mr. Larry E. Morse, Professor Peter F. Stevens, Miss Ethel E. Upham, Mrs. Julie Williams, Mrs. Richard Warren, Mr. Howland Atwood, and Professor Richard A. Howard.

During the period 1975-1977 one person was trained by the librarian to do original cataloguing, to revise records, and to bring up to standard many substandard cataloguing records. This position was supported from February 1976 through April 1977 by the NSF Curatorial Grant. In January 1978 the University Library Systems Office began its Monograph Cataloguing Support System (MCSS), under which individual libraries in the University Library System request searches of the Ohio College Library Center (CLC) data base. Every book coming into the library is searched on the OCLC data base unless the library has cataloguing in hand for the piece. The use of MCSS has meant that cataloguing has become current with receipts. Some 200 titles remaining in the backlog were given temporary cataloguing and assigned a shelf location in the stacks. As in the past, non-Western language material is catalogued for the libraries by the Harvard-Yenching Library; Slavic material is catalogued by the staff of the Slavic Department of the Harvard College Library. The exchange program maintained by the Slavic Department is the source of many titles in botany, forestry, and related fields for the libraries in Cambridge and in Jamaica Plain.

Steps are being taken to account for the number of books which appear to be missing. A shelf-reading project was begun in the herbaria libraries. The results of shelf reading during a two-month period have shown that most so-called missing books are really misshelved; others are mislabeled, or are labeled differently on the shelf card and on the main catalogue card. These discrepancies are being corrected. The experience in our libraries parallels closely that of Widener Library, where the Circulation Department conducted a study of a sample of "missing" books with similar results.

In Jamaica Plain, a project continues whereby main cards are duplicated to create a shelf list for books added to the collection before 1975. In general, no shelf card is known to exist for these books. When the card duplicating project is completed, shelf reading will begin.

The book collection on the third floor in Jamaica Plain was surveyed, and those books requiring leather preservation treatment have been treated by the volunteer team. Books which need repair or rebinding have been recorded and have been or will be sent to the bindery.

The NSF Curatorial Grant supported the rebinding or preparation of boxes for three Arnold Arboretum titles:

Kotzebue. *Entdeckungsreise in die Sudsee...Three volumes in one*. 1821. Kerner von Marilaun. *Darstellung vorzuglicherauslandischer Baeume und Gestraeuche*. 1796. Spix & Martius. *Reise in Brasilien*. Three volumes. 1823-1831.

Under the Strengthening Research Libraries Program provided by Title II-C of the Higher Education Act of 1965, the University has received a second grant for microfilming rare or deteriorating library material. An alphabetical list of plants which were growing in the botanical garden of the Atkins Institution of the Arnold Arboretum, at Soledad, north of Cienfuegos, Cuba, is now being filmed. The Charles Sprague Sargent [correspondence](#) file has been nominated for filming.

Mr. Charles Long, Director of the Library and Plant Information Services of the New York Botanical Garden, requisitioned and transmitted to the library the sum of \$250.00 from the Taxonomic Literature II Project, to be used by the Arnold Arboretum and the Gray Herbarium for the repair or rebinding of books photocopied by the Taxonomic Literature II Team.

Four quarterly accessions lists were prepared during the past fiscal year. A one-page handout was prepared to assist users in finding journals in the HUH and Jamaica Plain libraries.

Two hundred thirty-one requests for loan or photocopy were received; fifty-one requests were sent out. Requests for photocopies of correspondence between Charles Sprague Sargent and Ellen Willmot were received and filled. Copies of letters of William Purdom were supplied to a researcher.

Our libraries are intended for research and have never been generally accessible to students other than Harvard graduate students in botany. In the herbaria libraries in Cambridge, where the collections are heavily used by the botanical community and others, much time was spent in meetings between the directors and the Library Committee to devise a statement on library privileges which would limit access to members of the Harvard community and legitimate visitors to the library or herbarium. The library privileges policy which resulted requires that non-Harvard users pay a fee under conditions similar to those imposed by other research institutions on Divinity Avenue. Access to the stacks has been curtailed so that only key holders and graduate students whose advisors have offices in the herbaria building may

enter. A limited number of stack passes have been authorized by the directors of the Arnold Arboretum and the Gray Herbarium. One hundred seventy seven visitors registered to use the library in the herbaria building. A method is being devised to register use in the library in Jamaica Plain.

After the building extension is completed, space problems in the herbaria libraries will be alleviated to some extent by additional stack space provided on the second floor. Herbarium cases at present occupying that space are being shifted. The removal of one wall in the library staff work area will result in one large space to allow periodical check-in, bindery preparation, and processing for the shelves to be carried on in a logical sequence. Grouping these activities will promote efficiency in work flow and a saving of time for each function.

A leak which had developed around a roof drain carried through a pillar in the library was corrected in the course of the year. No books were damaged at this location. It was discovered, however, that there had been leakage through cracks in the ceiling two aisles away from the major source of the leak. Unfortunately, the cracks were discovered only after several books were found to have been water-soaked. All the damaged books were removed, cleaned, packaged, and shipped to the Preservation Office in the Harvard University Library, where they were fumigated to retard mold. Some volumes had extensive damage and had to be completely rebound. These titles are among eleven whose repair or rebinding was funded by the NSF Curatorial Grant. Arnold Arboretum books affected were:

1. La Condamine. *Relation Abregee d'un Voyagedans l'Interieur de l'Amerique Meridionale...* 1745.
2. D'Orbigny. *Viaje a la America Meridional.* 1945.
3. Lista. *La Patagonia Andina.* 1896.
4. Koster. *Travels in Brazil.* 1816.

The occasion of the visit of botanists from the People's Republic of China offered the library an opportunity to illustrate the scientific links existing between the Arnold Arboretum and China. *Gleditsia sinensis*, a species introduced into cultivation in the United States by the Arnold Arboretum, was followed briefly in the literature and displayed in publications and herbarium specimens. A description in Kiu huang pen ts'ao, with a woodcut dating from the fourteenth century, was kindly lent for the exhibit by the Harvard Yenching Library. Publications of Arnold Arboretum staff members were featured also, as well as publications by Chinese botanists who had worked or studied in the Arnold Arboretum or in one of the other botanical institutions of Harvard University. The exhibit continued through the meetings of the Visiting Committee.

The librarian attended the Annual Meeting of the Council on Botanical and Horticultural Libraries, held at the Landscape Arboretum in Minnesota.

Mr. Mark Belson, inter-library loan assistant, resigned in January 1979, and Miss Jill Skarstad, library assistant, resigned as of June 30, 1979.

RESEARCH

Owing to its geological history, the Far East possesses an exceptionally rich flora, and one of particular interest to the botanist, evolutionist, and horticulturist. As the institution with the preeminent facilities in the Americas for its study, we have great opportunities and a special responsibility to pursue research in and train students from that region. Our renewed contacts with botanists in the People's Republic of China will, it is hoped, augment our research opportunities in temperate Asia, and could prove invaluable to Dr. Spongberg's research into the temperate Asian woody flora, needed for his critical revision of Rehder's *Manual of Cultivated Trees and Shrubs*.

The forests of the Far Eastern tropics are currently the principal suppliers of hardwoods to the United States, and indeed to the industrial world as a whole, and as a consequence are expected to be reduced to small fragments within fifteen years. The director and Professor Stevens are planning a program of collaboration with colleagues in the Asian tropics with whom they have worked individually in the past. There is promise of excellent future opportunities for our students.

Professor Ashton worked toward completion of a taxonomic monograph of the major tree family *Dipterocarpaceae* for continental East Asia. With Dr. Bassett Maguire, Senior Scientist of The New York Botanical Garden, he prepared a further paper on the newly discovered South American dipterocarp subfamily *Pakaraimoideae*. Also, he continued preparation of papers for publication on the stand structure of the famed double coconut palm of the Seychelles, on the biogeography of Ceylon, and on the ecology of bat pollination. He presented papers at the International Symposium on Tropical Botany at Aarhus University, Denmark, in August 1978, and at the Eighth World Forestry Conference at Jakarta, Indonesia, in October 1978; lectured at the University of Massachusetts, Amherst, and at the University of Toronto; and curated the dipterocarp collection at the Royal Botanic Gardens, Kew, during June and July 1979. He continued to serve on a National Academy of Sciences committee, charged to establish research priorities in tropical biology, which met at St. Louis and at Xalapa, Mexico, during the year. He also served on the National Academy of Sciences/Commonwealth Science Foundation consultative panel on crop diversification in the West Indies at Port of Spain, Trinidad, in April 1979. In the coming year he is to be co-supervisor, with Professor Otto T. Solbrig, of Mr. Paul C. Cox, a graduate student, who has been studying the pollination ecology and other aspects of the climbing pandan *Freycinetia reyneckii* in Samoa.

Professor Richard A. Howard was on sabbatical leave for the year, during which time he held a Guggenheim Fellowship. During the period August 6 through 24, 1978, he studied at the Copenhagen, Aarhus, Stockholm, and Geneva herbaria, contributing a paper at the Aarhus Symposium. From October through February, and again from May 9 to early June, 1979, he was

based at the New York Botanical Garden. Between March 1 and May 2 he conducted field work in the West Indies where searches were successful in Martinique and Guadeloupe for plants described or reported by the early botanists, Plumier, Hahn, and Duss, and not re-collected recently. He collaborated in the establishment of plots on the Soufriere of Guadeloupe to study seral succession following the 1966-1967 eruption; in consultative work with the Guadeloupe Department of Forestry; and in further studies of seral succession on Pico del Oeste, Puerto Rico. From the middle of June he was in England, studying in the herbaria and libraries at Kew, the British Museum (Natural History), and the Linnean Society, and scheduled to return to the United States on August 1. Dr. Howard lectured on his visit to the People's Republic of China: in October 1978, in Weston for the Friends of the Arnold Arboretum, at the Harvard University Herbaria building, and at the University of Washington; in December, at the New York Botanical Garden; and in April, at the University of the West Indies at Montserrat. A lecture on the West Indies was presented in Professor Thomas Givnish's Tropical Ecology class, and other lectures were given in New York and Montserrat.

[Dr. Shiu-ying Hu](#), although retired, has continued her research on the flora of China and her studies of medicinal plants. She receives numerous requests for advice and identification of Chinese material medica, and consequently has submitted, for publication in Hong Kong, a checklist of 2,196 names of drugs, each with its classical name, transliteration and botanical identification, English equivalents and uses. Her special interest is in ginseng and other medicinal *Araliaceae*, and she contributed a paper at the Second International Ginseng Symposium in Korea in September 1978.

Professor Norton G. Miller finished a paper dealing with Pleistocene plant fossils from a deposit in northern Vermont, and has completed most of the research for another which will treat mosses recovered from this fossil bed. In addition, root nodules that contain the remains of a nitrogen-fixing actinomycete have been recognized in the fossil plant assemblage described in the paper just cited. Early in June, with Harvard graduate student Mr. Dwight Baker, he made a trip to the Gaspé Peninsula, Quebec, to collect modern root nodule specimens of *Dryas*, *Shepherdia*, and *Elaeagnus* for comparative purposes. These and the fossil nodules are now being studied, using scanning electron microscopy. The fossils appear to provide the first direct evidence of the presence of nitrogen-fixing plants in early late glacial settings.

With financial help from the Harvard Graduate Society, Dr. Miller completed an eighty-page manuscript catalogue detailing the fossil record of Quaternary bryophytes in North America. The catalogue is now in press. He also completed a manuscript on the topic, "Fossil Mosses as Paleocological Indicators of Late Glacial Terrestrial Environments." Dr. Miller attended the Fifth Biennial Meeting of the American Quaternary Association in Edmonton in September, and lectured at The Pennsylvania State University and at Cornell University on "Disjunct Populations in the Gulf of St. Lawrence Area: A Paleobotanical Perspective." He serves on the editorial boards of four journals. During the year, Dr. Miller directed the research of three graduate students, Peter Alpert, Cecilia Lenk, and Brent Mishler.

Dr. Bernice G. Schubert served as acting director at Cambridge for the first half of the fiscal year. In March 1979 she retired as editor of the *Journal of the Arnold Arboretum* to have more time to concentrate on her long-standing research into the genera *Desmodium* and its allies, and *Begonia* and *Dioscorea* in the Americas. This past year activity was devoted to Leguminosae subtribe *Desmodieae*, especially *Desmodium*; she participated in a working group on legume systematics at and above the generic level at Kew in August 1978. Some work has continued also on *Dioscorea*, where she has been working toward a monograph of the genus, which is very numerous from Mexico southward. Many species are tuberous, and some contain chemicals of pharmaceutical significance, such as the precursors of cortisone and the sex hormones. In spite of this there is no recent monograph or easily usable account to aid chemists and pharmacologists in identification.

Dr. Stephen A. Spongberg's research interests continue to center on the taxonomy and relationships of genera of woody plants, particularly those that are distributed in eastern North America and eastern Asia. It is from this group of genera that the large majority of our native exotic woody ornamentals have been selected, and it is the same group of genera that are so well represented in the Arnold Arboretum's living collections and in the herbaria. The taxonomic work with which he is currently engaged will result, over the course of years, in a series of treatments that can be brought together to form a basis for a new manual of cultivated trees and shrubs. While the new manual will be delayed if interrupted by monographic and revisionary studies, particularly those of large and complex genera such as *Sorbus*, the resulting manual treatments based on such studies will profit greatly, for these are the very groups that are the least satisfactory in Rehder's *Manual*.

During the past year a treatment of the *Lardizabalaceae*, prepared in collaboration with Ms. Ida H. Burch of the Arboretum staff, was published in the April number of the *Journal*, and the treatment of the *Cercidiphyllaceae* will appear in the July number. With regard to the latter, Dr. Stevens has collaborated in preliminary observations that, hopefully, will elucidate the growth patterns and architecture of this isolated and ancient family. Dr. Spongberg has also continued interest in the genus *Stewartia* of the *Theaceae*, a group which he revised in 1972. Subsequent to his revision, new information has come to light concerning hybridization, and it would seem that numerous plants in cultivation in western gardens are of hybrid origin. To supplement morphological studies and to resolve the status of putative hybrids more completely, an experimental hybridization program was undertaken in the Arboretum living collection during the summer of 1978 and was scheduled to be continued during 1979. In conjunction with this work he has continued a taxonomic review of members of *Hartia*, a genus that is doubtfully distinct from *Stewartia*. Indigenous to southeastern Asia, *Hartia* consists of upward of twenty evergreen species. He is also gathering materials of the genus *Sorbus* preliminary to taxonomic review of this poorly understood and difficult genus of the *Rosaceae*. Insofar as the Arboretum's excellent collection of *Sorbus* is available for experimental work and observation, he hopes to be able to supplement the morphological analysis with the kinds of biological information that can be gained from plants growing under cultivation. At the same

time, the information obtained may be used to assess generic boundaries within the *Maloideae*.

This year has seen the completion (for final typing) of Dr. Peter F. Stevens' monograph of the large, difficult, but important pantropical tree genus *Calophyllum* L. (Guttiferae), whose 178 species are concentrated in the Far East. This research, which he has pursued in both field and herbarium, has involved several novel approaches, including the use of seedling branching and leaf arrangement in discriminating between critical species. Just beginning is a survey of the seed structure of Indo-Malesian Vaccinieae (Blueberries, *Ericaceae*), including a comparison with other taxa in the tribe; also, with Dr. B.A. Bohm, Vancouver, a survey of leaf phenolics in tropical *Vaccinieae*, and a comparison of the variation found with that in morphological and anatomical characters. With a student, Mr. Paul Groff, Dr. Stevens is surveying the generic limits of the Phyllodoceae (*Ericaceae*), involving a study of growth pattern and anatomy, and comparison with the variation of morphological and other characters in the tribe. With Dr. Richard E. Schultes he is currently supervising graduate student Mr. Jeffrey Hart in his research into *Lepechinia* and other South American Labiatae.

Although he served as acting director at Jamaica Plain and Weston during the first part of the fiscal year, and has been busy with verification of plant identifications and the planning of the living collections accession policy, [Dr. Richard E. Weaver](#) has continued his research interests in *Staphylea* and cultivated *Hamamelidaceae*.

Professor Carroll E. Wood's research efforts have been concerned with the preparation of illustrations of monocotyledons for a new edition of his book, *A Student's Atlas of Flowering Plants*. The first edition, containing 120 illustrations of dicotyledons, was published in 1974, and 11,842 copies have been sold. For the second edition he plans to add two new fascicles of thirty two pages on monocotyledons, an additional glossary, and other material. Dr. Wood has continued to supervise Mr. Christopher Campbell's biosystematic researches into the *Andropogon virginicus* complex in the Southeast, as well as the work of Mr. Michael Donoghue, who is well advanced in his studies of Central American *Viburnum*.

EDUCATION

Graduate student projects have been reported under Research.

This year Dr. Stevens has taught his own graduate course, Biology 352 (Systematics of Tropical Plants). Also, he was responsible for the systematic part of Biology S-105 (Plants of the Tropics), in which he collaborated with Dr. P. Barry Tomlinson; and for the botanical part of Biology 148 (Principles of Systematics), which he taught with Dr. William L. Fink.

Dr. Wood scored exceptionally high ratings from his students with his introductory taxonomy course, Biology 103 (The Taxonomy of Seed-bearing Plants), and also with his part in the collaborative course, Biology 18 (Diversity in the Plant Kingdom). The rating for Biology 103

was the highest of any course in biology, and biology received the highest rating of any department in the University.

Dr. Miller, too, scored well with his part in Biology 18. Biology 305, his seminar for graduate students on Topics in Bryology and Paleobotany, was given both semesters.

Drs. Spongberg and Weaver's experimental University Extension Course, Biology E-146c (Botanical and Horticultural Practices at Arboreta), given to summer horticultural trainees at Jamaica Plain in 1978, and reported in the last Annual Report, was completed by the twelve participants. It was decided not to continue this course in the future as it was concluded, in a final discussion, that the benefits did not outweigh the considerable effort involved.

Our public education program is on the threshold of accelerated expansion. As part of our policy to augment public programs, we have created the new position of plant information coordinator with responsibility for answering inquiries, organizing exhibitions, and broadening our education program. Miss Eugenia Frey has been appointed to begin in July 1979. Course offerings in 1978-1979 have been increased from a standard ten or twelve of a few years ago to a total of thirty two for the year. Although we continue to offer many of the popular courses, such as those on pruning and plant identification, there has been increasing demand recently for more scientifically oriented courses. In response, we offered "Basic Tree Biology" and "Mosses and Liverworts" on a trial basis. Both had full registration. Among our own staff, Mr. Koller contributed to seven courses during the year; Dr. Weaver, five; Miss Margo Reynolds, three, Mr. Alexander and Mr. Burrows, two each; Dr. Miller and Mr. Williams, one each; and Ms. Burch, one, with the assistance of Mrs. Helen Fleming and Mrs. Anne Sholes.

Various staff members contributed to open monthly lunchtime lectures at Jamaica Plain during the winter, and to the "Meet the Staff" evenings at Weston during the spring.

PUBLICATIONS

The Arboretum publishes two periodicals: the [*Journal of the Arnold Arboretum*](#), an established medium for publication in systematics and other aspects of whole plant biology; and [*Arnoldia*](#), which is intended to be a high quality journal providing authoritative articles in plain English in all fields, scientific, historical, and aesthetic, for readers with a serious interest in the cultivation of woody plants. The Arboretum also publishes books and various brochures, maps, and post cards for public sale.

We are convinced that there is a considerably greater market for our publications than that which they serve at present, and that our publications as a whole could be made self-supporting; this will become vital as inflation increases. Therefore our publications program also has seen some major changes this year. Under the chairmanship of Dr. Schubert, the Arnold Arboretum, the Gray Herbarium, and the Farlow Herbarium, have formed a joint Publications Committee whose task it is to define policy for our various journals and to insure maintenance of the highest standards in all our publications. Also, an Editorial Committee has

been constituted for *Arnoldia*. This includes the editor, the managing editor, the public relations coordinator, and a professional horticulturist from outside the University. A new post has been created, that of publications officer, who will be responsible for the execution of all future publications at Jamaica Plain, and who will serve as managing editor of *Arnoldia*. Mr. Norton Batkin has been appointed to begin work in July 1979.

Dr. Schubert this year completed fifteen years as editor, and latterly as chairman of the Editorial Board of the *Journal of the Arnold Arboretum*. During this period she sacrificed much of her own research time to dedicate herself to maintenance of the highest standards in the Journal, thus continuing the tradition set by her predecessor, Dr. Wood. During her tenure Dr. Schubert stamped her own personality on the Journal through vigorous attention to both style and detail. We owe her a great debt. Dr. Spongberg assumed this chairmanship in early 1979, releasing Dr. Schubert to complete her various research projects. Ms. Elizabeth Schmidt continues as managing editor. During the fiscal year twenty-five papers from thirty-three authors have been published, comprising 554 pages.

The editorship of *Arnoldia* also changed during the year. Mrs. Jeanne Wadleigh, who had managed its affairs almost singlehandedly for seven years on a part-time basis, resigned in the spring. To her, too, we owe special gratitude. Working as she did under difficult, and sometimes very frustrating circumstances, nevertheless she saw *Arnoldia* improve in style and increase its circulation over the years. Her place as editor has been taken by Dr. Weaver. The six numbers of *Arnoldia* comprised 366 pages this year. They contained eleven articles, all by staff, and nineteen book reviews, of which seven were contributed by volunteers and one by a student intern.

Four books are in various stages of preparation at the Arboretum. The third volume of Dr. Howard's monumental *Flora of the Lesser Antilles*, and the first written largely by himself, is scheduled for publication in July. Its 586 pages treat the thirty-five monocotyledonous families occurring in the Islands. Dr. Howard is also collaborating with photographer and film director, Mr. Peter Chvany, on a book on the Life and Work of Ernest Wilson in China, richly illustrated with Wilson's photographs. Dr. Weaver is assisting Mrs. Esther Heins, a Friend of the Arboretum, to bring together into a book some of her eighty superb watercolors of plants growing in the Arboretum. The book promises to be a masterpiece.

Dr. Spongberg is working with Ms. Burch on a book on the poisonous plants of the northeastern part of the United States. This volume is to be a collaborative effort between the Arnold Arboretum and the Massachusetts Poison Control Center, which is a consortium of the university teaching hospitals in Boston and the Commonwealth of Massachusetts. They are working directly with Dr. Frederick H. Lovejoy, Jr., the director. In response to the public need to be informed about the potential hazard of the small group of plants toxic to man, the Arboretum produced its highly successful film, *Poisonous Plants*, and also devoted an issue of *Arnoldia* to the topic. However, a need still exists for a well illustrated guide to the

identification of these plants, and it is to this end that Dr. Spongberg and Ms. Burch have begun to work on this new book.

PUBLIC RELATIONS

The formation, in the spring of 1979, of a Public Relations and Education Committee, under the chairmanship of Miss Margo Reynolds, constituted the first step in a plan to increase the service provided by the Arboretum to the Friends of the Arnold Arboretum and to the public at large, particularly the citizens of Boston. We serve the public as an amenity as well as through *Arnoldia* and many of our other publications, through our course programs and exhibits, and through our public information program. The sections on Publications and Education have included reports on *Arnoldia* and the courses, while the number of requests to which we have responded by letter and telephone calls have been mentioned under Living Collections.

Our Volunteer Program provides a means by which the public may share our work. Over the years we have come to rely on our volunteers to the extent that it would be difficult for our work at Jamaica Plain to function without them. Through them we receive wise counsel and dedicated and faithful support, while their presence adds vitality and enthusiasm to our working atmosphere. We suspect that our volunteers reciprocate some of these feelings. We plan to encourage more volunteers to join us in the future, especially from our neighboring communities. Such individuals then may act as spokesmen for the Arboretum. This year we were privileged to have the assistance of thirty-six volunteers, of whom six have joined us since March in response to a new search system. Volunteers contributed by teaching classes, curating the slide collection, assisting in clerical work and several mailings, guiding, performing greenhouse work, compiling nursery inventories, preparing exhibits, helping with a survey of nursery catalogue holdings as has been mentioned, staffing the entrance desk, collecting specimens from the living collections, and participating in research into our early history.

Four exhibits, all new, were featured in the Arboretum's exhibition gallery during the year. From July through September a fine photographic exhibit of flower close-ups by David Stone was on display. A major exhibit was mounted in October, prepared by volunteer Mrs. Cora Warren with the assistance of Ms. Ida Burch. Entitled "Spreading Roots," it took a comprehensive look at the history of plant introductions in North America. Following an opening for Friends and their guests, on October 8, it continued until the New Year. On January 7, over 250 people, the largest crowd we had ever received, attended the opening of an exhibit entitled "Caribbean Flora," comprising the watercolors of subtropical and tropical flowers of the late Edith Farrington Johnson. Then on April 1, 300 people attended the opening of Mr. Harry White's remarkable "Fleurage," exhibiting his delicate and highly decorative petal montages.

The total number of registrations for our various classes, lectures, and exhibitions was 1,712, representing a considerable increase over the 763 of the previous year. Class registrations increased from 419 to 508.

Six traveling exhibits are now completed, and several are in various stages of preparation. Exhibits for our own gallery have been assembled in ways that will make them readily adaptable for travel.

As part of our public relations program we are intensifying a campaign to strengthen our ties with our neighboring communities. In the final negotiations over the fate of the Adams-Nervine property, we adopted a common stance with the committee of the Jamaica Hills Association, on which staff member Mr. Gary Koller now serves. We are maintaining and strengthening our ties with the Association by sharing our future plans with them, and are taking steps to do the same with other neighborhood associations. In this endeavor, Friend and Visiting Committee member Mr. Leo McCarthy has continued to give us valued advice and help. Certain citizens of Roslindale organized a meeting, to which we were invited, between representatives of their community, local police, and the police commissioner, to discuss the problem of security and of teen-agers drinking in the Peters' Hill section of the Arboretum. The director, superintendent of buildings and grounds Mr. Williams, and staff member and Jamaica Plain resident Ms. Burch attended. The meeting proved to be both lively and productive, leading to further contacts which we intend to develop.

In the spring of 1978 the Arboretum offered the Boston Urban Gardening Group the use of land on the South Street tract for a community vegetable garden. We agreed to disc the land in the spring and fall, sow it to a winter cover crop, provide lime and compost when available, also technical assistance and use of the Arboretum library at Jamaica Plain. During that first trial, the plots were plagued by water problems, vandalism, and inadequate organization by the gardeners. However, the gardeners refused to be beaten and, although the problems have not been overcome completely, an overwhelming number of these pioneers voted to try again this summer, with a new volunteer coordinator providing a much smoother, more efficient organization. The group is now installing a Savonius pump and water storage facility.

Mention has already been made of our reputation as a source of trusted information on poisonous plants, and of Dr. Spongberg and Ms. Burch's forthcoming new book on this subject. In April 1979 Dr. Spongberg and Ms. Burch attended a symposium at the New York Botanical Garden, entitled "Poisonous Plants in Urban and Suburban Environments."

Peter Shaw Ashton, Director