



## Annual Report 1929-1930

TO THE PRESIDENT OF THE UNIVERSITY:

SIR,

[Ernest Henry Wilson](#), Keeper of the Arnold Arboretum, lost his life by accident on the afternoon of October 15, 1930.

He had joined the Arboretum staff in December 1906. In April 1919 he was appointed Assistant Director and in April 1927 he became Keeper.

Wilson was ranked as one of the foremost horticultural collectors of the world. His most successful explorations were carried on in China, from which country he introduced many plants that have become horticulturally important.

Climatic conditions throughout the year were extraordinarily abnormal. The rainfall in July, August and September was hardly sufficient to supply the needs of the trees and shrubs in the Arboretum. The winter was mild with very little snow. Fortunately the collections withstood these adverse climatic conditions and the conifers and Rhododendrons which it was feared would suffer heavy damage, passed through the winter for the most part unharmed.

In continuation of relations with other institutions there were distributed during the year 3,222 plants (including grafts and cuttings), a large proportion of this number being sent to Canada, Great Britain, Holland, Germany, Poland and Hawaii. There were distributed in the United States, Canada, Great Britain, Ireland, Finland, United Soviet Socialistic Republic, China and New Zealand 1,627 packets of seeds.

There were received 22,912 plants (including grafts and cuttings), 15,000 bulbs and 754 packets of seeds.

Our publications, the *Bulletin of Popular Information* and the [Journal of the Arnold Arboretum](#) have been issued regularly and their circulation has been increased. While still retaining its original character as a medium for the publication of articles chiefly devoted to the taxonomy of woody plants, the *Journal* has been broadened in its scope and made more important through the inclusion of articles on pathology and cytology. Indeed the *Journal* emphasizes in large measure the recent expansion that has taken place in the interests of the Arboretum and records the varied work of the staff.

The laboratory for research in forest pathology has been used to its full capacity throughout the year. Inquiries for advice and help have been received from about twenty States and from several Provinces of Canada. These inquiries came from nurseries, forest operators, institutions and from the owners of gardens. Often, as a result of these inquiries, the way is opened for the solution of new problems and for undertakings that are scientifically and economically significant.

In July 1929, Professor [Joseph Horace] Faull, at the request of the Provincial Forester, made a reconnaissance of the forest diseases of Nova Scotia, examining, from a pathological point of view, cross sections of forest.

It has been clearly demonstrated that work of this kind comes properly within the interests of the Arboretum as a preventive measure because as a result of Dr. Faull's observations there has been instituted a thoroughgoing study of a disease which has proved destructive among Nova Scotian beeches. If this disease should spread unchecked, it would doubtless reach the United States. Now that we know this disease and have recognized its virulence, measures may be taken toward controlling it and eradicating it before it becomes a menace in Massachusetts.

Throughout the academic year 1929-30, Dr. Christine J. Buisman of the Phytopathologisch Laboratorium "Willie Commelin Scholten," Baarn, Holland, was engaged at the Arboretum in studies of the diseases of the American species of elm.

Before coming to this country Dr. Buisman had made notable progress in her investigations of the pathology of the European elm and was recognized as the foremost authority in her special field of research. Toward the end of her sojourn here, a discovery of alarming importance was made among diseased specimens of elm found in Ohio. These specimens revealed the presence of an organism that proved to be identical with the causal organism of the much-feared Dutch elm disease.

As a direct result of Dr. Buisman's identification of the causative fungus, the Federal Bureau of Plant Industry has reached decisions of great importance and has taken measures to eradicate the disease in Ohio where, at present, it seems to be localized.

It is pleasing to report that Dr. Haven Metcalf, Principal Pathologist of the Bureau of Plant Industry, has written an appreciative letter in recognition of Dr. Buisman's critical identification and helpful suggestions.

In my report for 1928-29, I referred to the Phacidium blight of spruce and the extraordinary success that had characterized our efforts to control it in nurseries where its presence had been the cause of heavy monetary loss. Observations and experiments carried on by Dr. Faull in the nursery of the Brown Paper Company at Oquassoc, Maine, have proved conclusively that many species of coniferous plants other than spruces are susceptible to Phacidium blight.

The methods of control developed by Dr. Faull for the protection of spruce have proved completely successful when applied to the species of other coniferous genera. Mr. K.S. Chester has continued his researches in relation to diseases of the lilac and has ready for publication an important contribution to phytopathological literature. He has been able to demonstrate that one of the most serious diseases of the common lilac is the result of the prevalent and improper methods of propagation carried on in nurseries.

Among the other pathological subjects that have received attention at the Arboretum mention should be made of a disease of the Calla lily discovered by Mr. Chester in a commercial greenhouse in Martha's Vineyard. This disease is caused by a species of *Phytophthora*, that was originally discovered, shortly before 1927, in Europe. Until this year the disease had not been reported as occurring in America.

Methods of control have been proposed and have proved successful. Knowing as we do the tendency of diseases caused by *Phytophthora*, of whatever species, to spread rapidly, the recognition and eradication of the Calla disease should be recommended to avoid its increase to unwieldy proportions.

[Professor Sax](#) has made substantial progress with his cytological investigations and breeding experiments. During the year he published several papers that are of interest to geneticists and taxonomists. His studies of the genus *Syringa* have shown that most of the pure species have the same number of chromosomes, but that crossing is successful only between species that belong in equivalent taxonomic groups. Sax has also investigated the genus *Rhododendron* with regard to chromosome relationships and has found that between American and Oriental species which have been widely separated for millions of years, hybrids exhibit complete compatibility of the parental chromosomes, a fact which indicates extraordinary stability in their genetic constitution.

Investigations in the genus *Vitis* showed that the difference in the number of chromosomes characteristic of the subgenera *Euvitis* and *Muscadinia* seems to be associated with fundamental differences that preclude the formation of fertile hybrids between them. Breeding work with emphasis on the more important horticultural genera has been continued. Seedlings from the crosses made in the spring and summer of 1929 are growing in the greenhouse, but it is yet too early to report on their significance.

In February 1930, Professor Sax visited the Botanical Garden in Cuba to assemble material for a cytological study of tropical plants. There have been added to the herbarium, since my last report was submitted, 18,313 sheets bringing the total number to 333,369 sheets.

Botanical explorations partly or wholly financed by the Arnold Arboretum have been carried on in different parts of the world. Dr. H. Humbert, who collected in Madagascar during the second half of 1928, spent the greater part of 1929 in East Africa where he visited the region of the Great Lakes. He also collected in the tropical forests of the Upper Congo basin and

the Kenya Colony, returning to Algiers in the autumn of 1929 with more than 5,000 numbers with duplicates.

[Mr. S. F. Kajewski](#) spent the winter of 1929-30 in North Queensland, and in February visited the Solomon Islands.

Professor C. Y. Chiao of the University of Nanking went to Shantung in May 1930 and will collect in the central and western part of the province in territory which is still but little known botanically.

J. Bornmueller collected in Asia Minor, chiefly in Anatolia and Paphlagonia.

[Professor Jack](#) made two trips to Cuba to resume his work on the plants of the Cienfuegos region and to accumulate material for his forthcoming book on the flora of the Botanic Garden and the surrounding country.

[Mr. E.J. Palmer](#) from the middle of August to the middle of September collected for the Arboretum in southeastern Canada. In preparation for a revision of *Crataegus* he gave special attention to the species of this perplexingly technical genus.

There have been distributed from the herbarium 17,430 specimens. These were sent to forty-one institutions in the United States, Canada, Europe, Australia and Africa. To the library there have been added 647 bound volumes, 252 pamphlets, and 973 photographs. Of the photographs 400 were the gift of [Mrs. Susan D. McKelvey](#). Seventy-five were contributed by Miss Violet Edlman and 228, chiefly of type specimens, were obtained by [Alfred Rehder](#) in the herbaria he visited in Europe in 1928-29.

At the end of June 1930 there were in the library 39,082 bound volumes, 9,466 pamphlets, and approximately 15,508 photographs. Of the 400 periodicals, which are received from all parts of the world, 193 came to the library in exchange for the [Journal of the Arnold Arboretum](#). Among accessions of special interest are the following: the fifth volume of *North American Wild Flowers* by Mary V. Walcott, received as a gift from Mrs. Mary Ames Frothingham; *Landscape Gardening in Japan*, 1893, by Josiah Conder; *Catalogue of Plants in the Botanic Garden of Liverpool*, 1808; *Flora Erlangensis*, 1811, by A. F. Schweigger; *The Voyage of Captain John Saris to Japan*, 1613, reprinted 1900, by Sir E. M. Satow; *Catalogue Stirpium*, 1738, Charles Deering; *Plantarum Romuleae et Saturniae*, 1772, by G.F. Maratti; *A Dissertation on Oriental Gardening*, 1773, by William Changer; *Index Londonensis, II*, 1930 and *Aristocrats of the Trees*, 1930, by [E. H. Wilson](#), received as a gift from the author.

From Frederick A. Delano, in memory of his father, the library received 611 paintings of Chinese fruits, flowers and vegetables. These paintings were made by native artists between 1794 and 1866 and constitute the most valuable gift of this kind ever received by the library.

In the past, proposals have been considered from time to time with regard to establishing a branch of the Arboretum in a milder climate, preferably in the southern part of the United States.

In recent years, to the south and west, other arboreta have developed and it would be a duplication of effort if we attempted to establish a branch of the Arnold Arboretum in proximity to any of these. A tropical station might well be considered, and there are good reasons for considering a proposal to cooperate with the Botanic Garden in Cuba where a substantial beginning has been made in the planting of an arboretum of tropical trees. Whether or not the Arnold Arboretum would be justified in taking part in the development of the Cuban enterprise through contributions to its support is a debatable question notwithstanding the fact that the Botanic Garden in Cuba and the Arboretum are equally departments of the University, and are in their interests fundamentally alike.

OAKES AMES, Supervisor.