



## Annual Report 1928-1929

TO THE PRESIDENT OF THE UNIVERSITY:

SIR,

I have the honor to submit the annual report on the progress and condition of the Arnold Arboretum for the academic year ending June 30, 1929.

When it became apparent that the Charles Sprague Sargent Memorial Fund was about to be successfully completed, plans for broadening the scope of the work of the Arboretum were made and a department for the investigation of plant diseases was established. The new department was placed under the direction of Dr. Joseph Horace Faull of the University of Toronto. Dr. Faull joined the staff of the Arboretum on July 1, as Professor of Forest Pathology. It was found to be inexpedient, indeed unsafe, to develop a pathological laboratory in the Administration Building, and a new building was erected near the [Bussey Institution](#) for Research in Applied Biology. This building was completed toward the end of September, 1928, and was immediately assigned to Professor Faull.

Progress has been made in the study of several major problems. Rusts of firs and spruces have received attention, and a paper by Professor Faull, devoted to their origin and control, has been published. The browning of white pine transplants has been investigated by Mr. Abel Cutting under Professor Faull's guidance and it has been demonstrated that this prevalent trouble is physiological and may be avoided when the proper protective measures are adopted.

Phacidium blight of coniferous stock in northern nurseries and plantations has proved so destructive that extinction of the plants has been feared. The cause of the blight has been ascertained by Professor Faull, and a practical means of complete control has been indicated.

Mr. G. D. Darker, a graduate student acting as an assistant in the laboratory, has given close attention to the "needle cast" diseases of conifers and is preparing a monograph of the causal fungi with information regarding their pathogenicity and control. This monograph is well advanced.

Mr. K.S. Chester has been investigating diseases of the lilac with results that point the way to influential research. Work on the "red stains" of jack pine is almost finished, and a graph has been established showing the relation of the incidence of the disease to the age of the host.

In addition to the research work that is being done, many inquiries pertaining to plant diseases are given attention. The correspondence in our files indicates that these inquiries have come from different parts of the United States and from three foreign countries.

On September 1, 1928, [Dr. Karl Sax](#) joined the staff of the Arboretum as Associate Professor of Plant Cytology. Immediately after his arrival he undertook a cytological survey of the collections of living plants and in the spring made numerous crosses between species and varieties to test affinities and to obtain new hybrids of woody plants.

Chromosome counts have been obtained in more than two hundred species representing the genera *Syringa*, *Vitis*, *Lonicera*, and *Philadelphus*. Cytological investigations among several generic hybrids of the *Pomoideae* indicated very close botanical relationship among the genera involved. It became apparent early in the year that a greenhouse specially constructed for investigations in forest pathology and for the control of cytological material would be needed.

Plans for the greenhouse were approved in June and the completed structure will be fully equipped and ready for use by October, 1929.

[Mr. Ernest H. Wilson](#), Keeper of the Arnold Arboretum, has given close attention to the collections and to the coordination of the work in the different departments. More than six thousand letters containing advice and answering questions were sent from his office in the course of the year. In addition to his writings in the *Bulletin of Popular Information*, he has published another noteworthy contribution to horticultural literature: [China, Mother of Gardens](#).

In continuation of our exchanges with other institutions, there were received 18,583 plants (including grafts and cuttings), and 501 packets of seeds. There were sent out to correspondents in the United States, Canada, England, Germany, Poland, and Russia, 4,073 plants (including grafts and cuttings) and there were distributed in the course of the year in the United States, Canada, Cuba, New Zealand, Australia, Japan, England, France, Germany, Norway, India, and Java, 1,424 packets of seeds.

The herbarium has been increased by the addition of 17,406 sheets of mounted specimens and now contains 314,414 sheets. Among the new accessions there were 725 specimens consisting of duplicates and photographs from the Leveille collection in Edinburgh. Distributions of herbarium specimens to other institutions in continuation of exchanges were the largest ever made by the Arnold Arboretum.

To botanical institutions in the United States, Canada, Europe, Australia, and Africa 17,434 specimens were sent in the course of the year.

[Mr. Alfred Rehder](#), Curator of the Herbarium, spent several months in Europe where he made critical studies of botanical collections in Edinburgh, Upsala, and Leningrad. He made many photographic records of type specimens and opened the way for profitable exchanges.

Botanical explorations, partly or wholly financed by the Arboretum, have been carried on in different parts of the world, the more important ones being in Madagascar, Cuba, and the New Hebrides.

In Madagascar, Dr. H. Humbert collected from the beginning of July to the end of 1928. For three months he was accompanied by Charles F. Swingle of the United States Department of Agriculture.

From November to the middle of December, 1928, and from February to April, 1929, [Professor John G. Jack](#) of the Arboretum staff, was at the Biological Laboratory and Botanic Garden of the University in Cuba, where he assembled material for a flora of the region near Cienfuegos. He made substantial progress in his explorations of the Trinidad Mountains, especially in the vicinity of San Blas and La Sierra.

The explorations in the New Hebrides were conducted by [Mr. S.F. Kajewski](#). [Mr. E.J. Palmer](#) who has been collecting for the Arboretum in the southern part of the United States, made a profitable expedition to southeastern Missouri, Iowa, and the Black Hills of South Dakota.

Four numbers of the [Journal of the Arnold Arboretum](#) and eighteen numbers of the *Bulletin of Popular Information*, were issued in the course of the year. The *Journal*, either by subscription or as a medium of exchange, goes to all of the important botanical libraries in the world.

During the year there were added to the Library, 698 books, 275 pamphlets and 1,033 photographs. To relieve congestion and to provide proper protection for the collections, two stacks for pamphlets, two additional sections for books and eight steel cases for photographs and photographic negatives were added to our equipment.

OAKES AMES, Supervisor.