

TRANSACTIONS
OF THE
MASSACHUSETTS
HORTICULTURAL SOCIETY
FOR THE YEAR 1919

PART I



PUBLISHED BY THE SOCIETY
BOSTON
NINETEEN HUNDRED AND NINETEEN



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MASSACHUSETTS HORTICULTURAL SOCIETY.

1919.

The Transactions of the Society are issued annually in two parts under the direction of the Committee on Lectures and Publications.

Communications relating to the objects of the Society, its publications, exhibitions, and membership, may be addressed to William P. Rich, Secretary, Horticultural Hall, No. 300 Massachusetts Avenue, Boston, Massachusetts.

FRED A. WILSON, <i>Chairman</i>	} <i>Committee on Lectures and Publications.</i>
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THE INAUGURAL MEETING, JANUARY 11, 1919.

TRANSACTIONS

OF THE

Massachusetts Horticultural Society.

1919, PART I.

INAUGURAL MEETING.

The Inaugural Meeting of the Massachusetts Horticultural Society for the year 1919 was held at Horticultural Hall, Boston, on Saturday, January 11, at twelve o'clock, with President Saltonstall in the Chair.

The call for the meeting was read by the Secretary and the record of the previous meeting was read and approved.

Mr. Saltonstall remarked on the condition of the Society at the present time. He said that the Society was getting into a rut and that it should get out of the beaten track of the past and extend its influence over a wider field of activity for the advancement of the interest in horticulture. He said that he was confident that the new President would advance the work of the Society.

He then introduced President William C. Endicott who delivered the following Inaugural Address:

INAUGURAL ADDRESS OF PRESIDENT ENDICOTT.

Ladies and Gentlemen,

Members of the Massachusetts Horticultural Society:

On February 24, 1919, we celebrate our ninetieth birthday. A meeting of prominent horticulturists from Boston and its vicinity was held February 24, 1829, with a view to forming a permanent organization. A Constitution and By-laws were adopted on March 17, 1829, and officers of the organization were duly elected. An

Act to incorporate the Massachusetts Horticultural Society was approved June 12, 1829.

On looking through that Act of Incorporation, I see that the Trustees are unable to lay and collect assessments on members of the Society in excess of two dollars per annum. An annual assessment of two dollars seems inadequate. I do not believe that there is a Society of our importance where the assessment is so small. Before long this Act of Incorporation should be amended in such a way that it will read: "To lay and collect assessments on members in such sums as shall be decided from time to time by the Trustees."

Since the foundation of the Society, the membership fee for life members has been thirty dollars, with the exception of a few of the earlier years, when it was twenty dollars; and for annual members, an entrance fee of ten dollars and an annual payment of two dollars. The fee for life members might well be increased to fifty or even one hundred dollars, and for annual members an entrance fee of ten dollars as at present and the annual payment of new annual members of five dollars. Annual payments for annual members who have already joined the Society should not be changed. The Trustees, however, should be given full power to decide in future as to what fees are to be levied upon life and annual members. I doubt not that members of the Society would be willing to pay a larger assessment which would assist the Society financially and would enable the Trustees to extend their work.

It seems almost unbelievable that our membership on December 31, 1918, consisted of only 45 Honorary and Corresponding members, and of 985 life and annual members:

Honorary members	3	
Corresponding members	42	45
	<hr/>	
Life members	790	
Annual members	195	985
	<hr/>	

These are all the people in the Commonwealth of Massachusetts we have been able to persuade to join our Society. During the last two years, Mr. Saltonstall, on behalf of the Trustees, made a vigorous campaign for new members. Lists were carefully pre-

pared with a view of reaching men and women throughout the Commonwealth who might be interested in our work. In 1917, 83 new members were added, and in 1918, 24 new members were added to our lists. Owing to deaths, resignations, etc., we lose each year some 25 or 30 members. Our gain over losses during the past year was only six members:

December 31, 1918.....	985
December 31, 1917.....	979

A Gain of..... 6 members.

This small membership means one of two things; either that the people are indifferent to horticulture — which I cannot believe to be the case — or that the Society is not as well known throughout the Commonwealth as it should be. Our activities should be extended outside of Boston and its suburbs, so that the entire Commonwealth should feel that they can turn to us for information and instruction upon all subjects relating to horticulture.

It must not be forgotten that the Massachusetts Horticultural Society is a State Institution and not a local Boston society maintained for the benefit only of Boston and its immediate vicinity. Our property is free from federal and state taxes. As the oldest and best known Horticultural Society in the new world, much is expected of it and its progress and influence is watched and its example followed far beyond the borders of the Commonwealth. Each member of the Society should do all he can to increase our membership by proposing at least one member. Our membership should run into the thousands. Mr. Saltonstall said in his inaugural address last year, "Why, think of it, the list of Fellows in the Royal Horticultural Society of London in 1914 was 14,400."

The By-laws also seem to me to be unsatisfactory. I think they hamper the Trustees by compelling them to arrange six or more exhibitions each year of flowers, fruits, plants, and vegetables. I am sorry that a new By-law recommended by the Trustees at the last annual meeting, relating to this, was defeated. I recommend that at the next annual meeting this same By-law be amended and also that the By-law relating to the appropriation of money for the purpose of prizes and gratuities also be amended so that the

Trustees should have full authority to decide how many exhibitions are to be held each year, and also to decide how much money is to be awarded in prizes.

The action of the Trustees in eliminating money prizes during the past year was conservative and wise. As you undoubtedly know, the Society has twenty-one funds, the income of which (roughly speaking, \$2500) is distributed in money prizes. If these prizes, even with the additions made thereto from our general funds, are awarded each year, the sums are comparatively small and can be of little financial assistance to exhibitors, many of whom come from long distances and find the expense of travel and transportation burdensome. The terms of four of these gifts to the Society compel the awarding of annual prizes.

Unfortunately several of these funds are for objects which are now practically obsolete, thereby reducing the amount actually available for premiums by several hundred dollars. Some day your Trustees should apply to the Courts for permission to use the income of these funds for kindred purposes which, in the opinion of the Trustees, may be desirable and useful.

During the past year, the Society has done its share in War Relief Work by giving the Red Cross the use of its building, and also the receipts of its exhibitions.

As a war measure, the Society offered free practical demonstrations of the proper methods of vegetable growing. A plot of earth was brought into one of the halls, and a practical, competent gardener was engaged from May to August to give information on planting, transplanting, fertilizing, and other necessary subjects concerning the management of a successful vegetable garden. This was an innovation in the old methods of the Society. The results were very satisfactory, and I would suggest that something more in this line may well be considered in the immediate future, so that such demonstrations of horticultural work might be enlarged and extended to other parts of the Commonwealth.

The most important horticultural event was the Spring Exhibition, in March, which was a notable success, both horticulturally and financially. The proceeds of this exhibition, amounting to \$4500, were donated to the Boston Metropolitan Chapter of the American Red Cross. At this exhibition, a Tea Garden was run

in addition, by the Red Cross, which brought in a goodly sum to the Chapter.

The remainder of the exhibitions were far below the usual high standard of the Society. This result was doubtless due to prevailing war conditions, although the elimination of money prizes had something to do in diminishing the interest in the exhibitions, as, with many members of the Society, the plan was not popular, and the exhibitions consequently suffered.

For many years, indeed since its foundation, the Society has chiefly confined its efforts to increase the knowledge and love of horticulture by numerous exhibitions; by occasional lectures — many of which have been published in its Transactions — and by the formation and support of a Library which contains one of the largest and best collections of books relating to horticulture and kindred subjects in the world, and which ought to be made great use of by our members. While the members do not use the Library as often as one would expect, it is much used by writers on horticultural subjects. To such writers, it has become a necessity to consult our Library, and men and women come from all parts of the country to do so. It may not be generally known, as it should be, that books can be borrowed from this Library for use in our homes. The Librarian has been asked to give greater publicity to the value of this great Library; to inform members how they can obtain books for their own use; and to issue monthly bulletins of the additions made to the Library, which should be sent to each member of the Society and to other horticultural societies in the State. It is hoped that when these facts are more generally known, the Library will in the future be of more use to the public than it has been in the past.

In order to do our share in helping France, it would be well to consider the question whether we should not aid in replanting the districts which have been so frightfully devastated by this recent war. Other societies have done their share, such as the Royal Horticultural Society of London, the Horticultural Society of New York, and the Massachusetts Society for Promoting Agriculture. It would seem as if our Society should do its share, even if done in a moderate way, which, from our financial condition, must be the case unless we raise the money from our members.

The Society, in common with the rest of the world, must now face new conditions. There is everywhere a demand in every profession for better education and greater efficiency. The Society will fall short in its duty to the Commonwealth if it fails to take a more active part than it has in the past in the horticultural education of our people. A closer affiliation than now exists between our Society, other horticultural societies, the granges and the garden clubs of the State could not fail to be beneficial.

Among new conditions which make it desirable that we should be more active in extending the knowledge of horticulture, is the recent ruling of the Department of Agriculture of the United States, under which the importation of living plants from Japan is forbidden, and the importation of plants from Europe is either prohibited or so hedged around with troublesome restrictions that the plants which have been imported into this country for the last fifty years, in constantly increasing numbers, must now be raised here. To do this successfully, the country is not yet properly equipped. Nurserymen, florists, and gardeners of private estates require knowledge and experience to enable them to meet successfully these new conditions. Our Society should be in a position to furnish this knowledge.

It would seem that this Society, with its large body of intelligent and public-spirited members, should be able to advise wisely as to Federal and State legislation proposed for the improvement of horticulture and agriculture.

I shall ask your Trustees to authorize me to appoint one or more committees to carry out these suggestions.

I am quite sure that the Massachusetts Horticultural Society is not doing the work that it should, not only in this community, but in the State at large. It needs waking up and should have a broader vision than mere exhibitions. Exhibitions are important and should be held, but the question is a serious one. I certainly trust that the members will do all they can to extend our work in a vigorous and competent manner so that its power will be felt at all County Fairs, all flower exhibitions, and all garden exhibitions. We should keep in close touch with what is being done by the various Park Commissions all over the State, should advise them in regard to the planting of trees and shrubs, and should do our

work so well that we should not only, through our assistance and advice, improve conditions, but should make all men and women over the State feel that our Society is the proper one to turn to for advice upon all horticultural subjects. We should have experts ready at any and all times to render competent advice.

Our Trustees and members must have the same end in view — to do what is best for the interests of the Society. A lack of agreement with the Trustees on the part of members is much to be deplored. Whenever such a condition of things is manifest, the Society will always suffer in its work. Mutual confidence can alone bring about the best results. No society can accomplish its purposes satisfactorily without expanding and facing progress. Though no doubt the policy of the past has made the Society what it now is, it would be more than unwise to continue such a policy when it has served its time and generation.

At the close of his address President Endicott took the Chair and called for the annual reports of the officers and chairmen of the various committees which were presented in the following order:

Report of the Treasurer, Walter Hunnewell.

Report of the Board of Trustees, by the Secretary.

Report of the Committee on Prizes and Exhibitions, James Wheeler, Chairman.

Report of the Committee on Plants and Flowers, William Anderson, Chairman.

Report of the Committee on Fruits, Edward B. Wilder, Chairman.

Report of the Committee on Vegetables, John L. Smith, Chairman.

Report of the Committee on Children's Gardens, Henry S. Adams, Chairman.

Report of the Delegate to the State Board of Agriculture, Samuel J. Goddard.

Report of the Secretary and Librarian.

The various reports were separately accepted with thanks and referred to the Committee on Publications for record in the Transactions of the Society.

On motion of Vice President Kidder it was voted to refer the

address of President Endicott to the Committee on Publications and also that the recommendations and suggestions contained therein be referred to the Board of Trustees for further consideration.

Charles A. Ufford offered the following motion which was referred to the Board of Trustees for consideration:

First.— That the President and Directors consider the feasibility of making awards and prizes at the annual meeting.

Second.— That the January meeting be held at 3 P. M. followed by a collation.

Third.— That at the annual meeting in the P. M. special prizes and commendations be given to the amateur class and eliminate prize competition with those of the professional members.

Fourth.— Members' excursions have more publicity.

Other remarks were made by Messrs. Craig, Smith, and Horton suggesting that some plans be adopted for increasing the interest in these meetings of the Society.

The meeting was then dissolved.

WILLIAM P. RICH,
Secretary.

HORTICULTURAL PAPERS.

VARIETAL ADAPTATION OF CULINARY VEGETABLES TO LOCAL CONDITIONS.

BY WILL W. TRACY, WASHINGTON, D. C.

Delivered before the Society, January 11, 1919.

I am very glad of the opportunity to talk to you here in Horticultural Hall, on a subject in which I am much interested — The Adaptation of Plants which are Commonly Grown in Home Gardens to Local Conditions — and in doing so my mind goes back some sixty years when I, as a boy living at Andover, spent many an hour when I was supposed to be at school or studying my Latin and Greek, in tramping through the woods and fields, enjoying the beauty of wild plants and wondering at the size and vigorous growth of certain groups; and I put in a good many hours of hard work in trying to establish new and more accessible groups of the more pleasing strains. I failed in this so often that I came to the belief that even the wild uncultivated plants of the fields and woods often developed distinct varietal forms adapted to certain particular soils and exposures.

Since then my study and work for over fifty years have been devoted to seed breeding and growing and I have carefully examined and watched the growth of thousands of samples of varieties of vegetables and flowers grown from the same original stock, but under differing climatic and soil conditions and selected by different people. I have inspected hundreds of crops grown for seed in different locations from Maine to California and thus have had abundant opportunity to notice differences in strains grown in this country or Europe from the same original stock but under different conditions of soil and climate, which had resulted in the development, without increasing or even careful selection, but simply as the result

of differing soil and climatic conditions, of very distinct strains, each adapted to certain cultural conditions or consumers' requirements, and often as well worthy of being distinguished by distinct varietal name as those already found in seedsmen's catalogues.

Through this experience the belief of my boyhood has become the conviction of my later years, that every individual seed carries the same sort of potentiality and limitation of development as an egg or a new born rabbit. When we hatch the hen's egg under a duck the chick will not take to the water though the duck and the rest of the brood do so and will leave it alone upon the shore. Nor can we, by putting a still blind young rabbit to nurse with a litter of pups, teach it to bark.

Every seed is made up of a certain balanced sum of ancestral influences and fixed in character beyond the possibility of change by growth conditions, before it left the parent plant. There are often distinct differences in the varietal character of seeds from individual plants of the same breeding as well as in the yield of seeds in different locations. Seedsmen are quick to secure strains giving the largest yield of seed and have stock grown from them in the location giving the largest seed crop, with little attention to the yield and quality of usable vegetables.

Although the varietal character of every seed is fixed at its maturity, it is sometimes modified by climatic and other conditions while it was developing, and in some cases such modifications are transmitted to succeeding generations, so it is sometimes the case, that local grown seed will give a different return from that matured under other conditions and not infrequently seed grown in one's own garden will give better returns than that grown elsewhere.

Conditions may modify the size and health of the plant but cannot change its character any more than the mother duck and sister ducklings can induce the chick to swim, or the litter of pups teach the rabbit to bark; nor can the varietal character of the plant which may be grown from a seed be changed by cultural conditions, though we may secure its better development, and by carefully breeding from superlative individuals of a certain type gradually change its form and size, and a wise selection of the best plants is the foundation stone of all successful seed breeding.

The social conditions and ways of modern life have changed the general aims and practice of seed growing. Formerly the housewife looked each morning to her garden or called upon some nearby market gardener for her day's supply of vegetables, and table quality was of greater importance than appearance. Now, the cook orders what she may need from the gardener, or the market, and low cost and appearance are of the greatest importance. Then, the greatest interest was taken in the saving of seed from the best plants and the development or possession of a superior strain was a matter of family pride. Many of the best strains had been in the possession of certain families for many years. Now, both home and market gardeners look to the seedsmen for their supply, and yield and shipping quality and last but by no means least, the price at which it is offered determines the stock used.

Different species and varieties and even individuals of both animals and plants differ greatly in the extent to which variety of form or habit of growth occurs naturally or can be secured by cultivation and breeding. It is hard to distinguish the individuals of a well-bred flock of sheep and practically impossible to do so with a flock of guinea fowls, while it is easy to distinguish each one of an equally well-bred herd of cattle. In the same way, selection and breeding have given us less than a dozen but slightly different varieties of parsnip compared with scores of distinct sorts of carrots and beets, differing in size, form, color, and adaptation to certain uses.

You may ask what of the many varieties secured at Experiment Stations and by professional horticulturists? I can only reply that very generally such workers are so devoted to the study and demonstration of theories of heredity that they accomplish little in the way of developing superior strains of old sorts and still less in bringing them into general use by practical vegetable growers, chiefly, I think, because of the want of continuity of effort through many plant generations.

Although the varietal character of a seed is fixed at maturity, its development may in some cases be modified by the climatic and other conditions in which it was matured, and it is often possible to secure local grown strains of seed which will give better returns when planted in that vicinity than can be secured from stock equally well grown elsewhere.

I think the greatest possible betterment in vegetable growing is through its greater varietal uniformity and adaptation to local conditions. I once asked the best cabbage grower I ever knew: "What would it be worth to you if every plant in the field was like those ten?" pointing to some not better than many others, but so near alike that they could not be readily distinguished, and he replied: "If I could grow fields of cabbage 95% of which were as good and as near alike as those, I would plant 500 acres a year until I had made enough to retire."

I have been impressed with the uniformity of varietal character seen in some of the houses of lettuce in this vicinity and have been told that they were from home-grown and selected stock seed and I believe that was the most important feature of their success.

Again, I think I can say without exaggeration, that in the aggregate, though varying somewhat in different vegetables, fully 10% of the very best and most useful varieties I have ever known have never come into general use, or have disappeared and are no longer obtainable because, though heavy producers of market products or of superior quality, they were such poor seeders that seed could not be profitably handled by the seedsmen at the prices paid for most sorts. We think that the demand of gardeners for uniform prices for standard varieties, with cut rates in years of over-production, is one of the most unfortunate conditions in the trade and we hope that the high prices asked and paid last year for some species may lead to a change in this respect.

One of the most common complaints about the quality of seed, particularly if it was obtained from a seedsman, is want of viability, but in my experience this is not a common fault in stocks of reputable seedsmen. Failure to germinate is often due to the way the seed is planted. Well educated people will treat a lot of seed in as unreasonable a way as it would be to set a half-bushel basket of eggs into an incubator and expect three weeks later to find a half-bushel of chicks. This is not an exaggeration, generally two or three often five to ten, and not unfrequently ten to fifty seeds are sown in the space necessary for the best development of a single seedling. Again seeds are often covered too deep. Every year I hear of lettuce that was planted an inch or more deep and its failure to make a crop charged to want of viability of the seed.

I believe that where a good-sized garden is available it is possible to grow seed that will give more satisfactory returns when planted in that location, than can be grown by equally good cultivation anywhere else, and that it is quite practical to grow in even a small garden seed of one or more sorts which will give most satisfactory returns and in most cases it is feasible for even small gardeners to grow one or more varieties and then arrange for an exchange with some other growers in the vicinity so as to secure a supply of the most important sorts.

The home growing and saving of seed of garden vegetables is quite practical and by no means as difficult as is commonly supposed. The principal requisite is a wise choice of superlative plants and the thorough curing of the seed before storing. The way to accomplish this varies in different species. With peas and beans, selected plants should remain in place as long as possible without serious loss from shattering, then, while still damp from dew, should be gathered and stored where there is good circulation of air until the seed is perfectly dry, when it may be threshed out and stored in muslin bags.

In saving seed of sweet corn, as early as the probable character of the grain can be determined, strip down the husks on one side sufficiently to enable you to make a selection; turn back the husks and hold them in place by a rubber band. Mark the selected ears by covering them with a paper bag which will also save them from the sparrows. Allow the plants to stand in place until there is danger of a killing frost, then cut the stalks, store under shelter until *thoroughly* dry and save either on the ear or shelled, in paper bags.

In saving seed of tomato, pepper, eggplant, cucumber, melon and squash, selected fruits should be left on the vine as long as possible without their becoming so soft as to be disagreeable to handle, or being exposed to even a light frost. Then opened, the seed scraped out with as little of the pulp as possible, and allowed to sour and ferment for from one to four days, when the seed should be washed, using plenty of water and repeatedly pouring it off until seed is perfectly clean, when it should be spread out not over two grains deep until perfectly dry, then stored in muslin bags and kept in an airy place.

Selected plants of lettuce should be allowed to stand in place until there is danger of serious loss from shattering, then each plant covered with a large inverted paper bag, the lower end tied about the plant so as to save the early matured seed which drops, and allow to stand until most of the seed is matured. The plants still enclosed in the sacks may be cut and stored in any dry airy place until thoroughly dry, when the seed may be winnowed clean and stored.

Seeds of biennial plants like cabbage, beets, carrots, etc., are less easily grown and saved in the home garden than those maturing the first year, but it may in some cases be profitably done by planting the crop so late in the season that the plants will barely reach usable maturity before winter and then protect them from severe and repeated freezing and thawing by covering with earth and coarse litter, or by storing in a cool, moist cellar where they can be kept at a uniform temperature just above freezing, and uncovering or resetting the roots as early in the spring as they will be safe from severe freezing. The second season seed bearing plants should be treated as recommended for lettuce.

THE CULTURE OF CONIFERS.

BY A. H. HILL, DUNDEE, ILL.

Delivered before the Society, January 18, 1919.

IT is indeed a pleasure to be invited to appear before you for the discussion of so interesting a subject as The Culture of Conifers. It is a subject near to my heart, and my chosen life work, on the success of which, in a practical and commercial way, I depend for my daily bread; therefore, you will pardon me if, in the paper I am about to read, I seem to rely on plain nursery language, rather than technical phrases and descriptions.

I wish to say that I am indebted to my father, D. Hill, for such knowledge of fundamentals and practice that I have been enabled to acquire through many pleasant years of association with him in the work of propagating conifers.

In the treatment of this subject it is found that the operations are divided into four general divisions which will be taken up in the following order:

1. Seedlings.
2. Cuttings.
3. Grafts.
4. Layers and Divisions.

1. SEEDLINGS.

In the growing of conifer seedlings, generally speaking, the first point of importance in mapping out plans for production on a commercial scale is to locate a reliable and unfailing source of seed. It is easy enough to talk about producing a million little conifer seedlings, but in order to make this possible there must be seed of good quality and quantity. At first thought, it would seem easy to secure the seed necessary, when one thinks of the native evergreen forests with their range covering the whole country.

However, the problem is different from that which confronts the farmer when he wants wheat or agricultural seeds for the growing of his annual crops. But fortunately the procuring of tree seeds is now rendered less difficult because there are a number of excellent firms in America which specialize in tree seeds, among which I might mention, Conyers Fleu, Philadelphia; J. M. Thorburn, New York City; Otto Katzenstein & Co., Atlanta, Ga.; Thos. H. Lane, Dresher, Pa.; Barteldes' Seed Co., Denver, Colo.; and several others.

It is a source of great satisfaction to know that The Department of Agriculture in Washington has a seed-testing laboratory in which germination and purity tests are made and the number of seeds per pound determined of all species collected. In addition to germination tests, the seed testing laboratory is conducting experiments to determine the relative merits of a number of methods of storing conifer seeds.

Too much importance can not be laid on the necessity of obtaining the best and hardiest types, and this requires constant research, traveling, and experiments. While on the subject of seed supply, permit me to explain briefly some of the interesting points concerned therewith. To the grower who is desirous of continually improving the type and controlling his source of supply of seed, the first thing is to build up a list of local seed collectors in various parts of the country, and then educate these seed collectors to get what you want. It is not an easy task, I assure you. The ordinary woodman is not acquainted with the various varieties, and the differences between the Fir and Spruce mean but little to him. It requires a great deal of patience. You must be willing to pay for his mistakes; sometimes he collects the cones too early and the seed is worthless; another time he waits until the seed has fallen from the cones and the operation is a failure.

We have had collectors ship several hundred pounds of Juniperus berries, and not one berry in the entire consignment contained a live germ. It requires two years for the berries of some of the Juniper varieties to develop into maturity. The ripe, matured berries are a deep purple in color, and usually located back among the foliage near the center of the tree, while the green, immature berries are out on the tips of the branches, and are the ones that the

collector will naturally gather. It is a good plan to keep in touch with your collector throughout the entire year. Write to him often; ask him to send samples of the young cones, even though the samples are worthless and of no value; it helps to keep his interest up.

Collecting the cones. It is found that there are three methods of collecting cones; from felled trees, from standing trees, and from the squirrel hoards. Where logging is going on, it is often possible to pick cones from the felled trees on the ground after the brush is piled. In collecting from standing trees it may or may not be necessary to climb. Cones can often be stripped from short-limbed trees by cone hooks fastened to poles or even picked off by hand. Squirrels' caches are often excellent places from which to get cones. Pine squirrels collect and store large quantities. The squirrels do not put by seed for winter only, but continue to collect as long as the supply lasts and the weather permits. It is not uncommon to find in a single one of their caches from eight to twelve bushels of good cones. These caches are located in hollow logs, springy places, and muck, as well as under bushes and felled tree tops. The squirrels do not confine their collecting to a few species, but appear to relish a large variety. Among the species of cones which are often obtained from the squirrels' hoard, are Douglas Fir, Engelmann Spruce, Blue Spruce, Ponderosa Pine, and White Pine. Usually, however, the cones of but one species are found in a single cache.

Take White Pine, as an example. It grows naturally over the New England States. It is also scattered generally over Michigan, Wisconsin, Minnesota, and portions of Canada. In certain years, the White Pine in Canada will bear a good crop of cones, while the cone crop elsewhere is a failure; it is therefore necessary to have a number of collectors in all sections where the desired conifers are growing. The conifers of the Rocky Mountains grow rather generally all over the range from New Mexico north, and the Pacific Coast produces trees well over the entire western slope.

Seeds are collected in quantity during the seeding year, which occurs only two, three or more years apart. In most varieties of conifers it is therefore necessary to secure seed during the seeding year, to store until fresh seed is again available. Many of the

varieties lose their germinating power rapidly after they have been taken from the cones. However, this difficulty is overcome in various ways. Take, for instance, the Douglas Fir, from Colorado; if seed has been stored over for two years it will be necessary to plant double the quantity of seed to give the necessary amount of seedlings per square foot. Sometimes the collectors extract the seed from the cones in the woods, others ship the cones just as they are gathered, and the nurseryman or seed dealer removes the seed from the cones. This is rather a simple operation in most varieties providing you have the proper equipment, which consists of trays and a room, steam heated, where the temperature can be forced and held for eight to ten hours at 140 degrees, the temperature necessary to force the cones of *Pinus Banksiana* to release the little seeds.

Yield from the cones. The yield of seeds from the cones depends upon the quality of the cones, the thoroughness of drying and extracting, and the manner of cleaning. There is a great variation in the yield of seeds from a bushel of cones. The cones of any species fill better during a "seed year" than during "off years," so that in the former there is greater bulk, and especially greater weight of seed.

Cutting test. The usual test for quality of conifer seed made by the propagator is what is known as the cutting test, which merely means counting one hundred seeds and cutting them with a sharp knife. This will determine the percentage of sound seed, but it will not tell their power to germinate. Many seeds will show a sound germ, which for some reason will not have the power to germinate.

The result of extensive experiments with germinating tests has developed that most of the conifer seeds will respond to the treatment and show a sufficient germination in thirty days to determine the quality of the seed. Some varieties, however, with hard shells, like *Pinus Cembra* and *Pinus Coulteri*, require from one to two hundred days to determine their growing power.

The treatment of seed. Now, after the nurseryman has secured his yearly requirements, in each and every variety of conifer seed, to take care of his annual planting, we have reached the point where it is necessary to give some thought to the treatment of

seeds before planting. The method of sowing and more especially the treatment of seeds before sowing is of great importance. Generally speaking, the practice of causing the various seeds to germinate before being sown will insure the successful culture of many varieties which, without treatment, are almost impossible to grow.

Steeping, sweating, and stratifying are the various methods used to force the seeds to germinate. However, I will have this to say from my experience in the handling and treatment of conifer seeds, requiring treatment to force germination, I prefer the slow stratification treatment to the quicker methods of applying artificial heat, together with moisture, causing steeping and sweating to stimulate rapid germination.

The usual method of stratifying seeds is to mix the seed with sand or soil, with a sufficient amount of moisture added to prevent drying. Store the seeds thus treated in a bin for a sufficient length of time to allow the germ to become well started. There is seldom danger of loss from seeds that have started growth in the stratification bin, in fact, the common practice with varieties of Oak acorns is to force a small tender root growth of several inches before the acorns are planted, the theory being that the seedlings develop a better fibrous root system when handled in this manner.

Through the skilful handling of the seed before sowing it is possible to produce maximum results with a minimum quantity of seed, which is the secret of the successful culture of nearly all varieties of conifers by experienced propagators. Many varieties of conifer seeds require a short period of treatment to prepare them properly for planting, while some varieties require a slow, careful treatment, covering a period of several months. Make frequent tests of the seed in the stratification bin; cut the seed lengthwise and examine carefully with a powerful glass. This will show you exactly what is taking place; if the germ is developing too rapidly, it may be necessary to remove some of the moisture from the mass and lower the temperature. The object is to have the seed at just the right point for germinating at the proper time for sowing.

The Time for Sowing Conifer Seeds. For some varieties the best results are obtained from sowing the seed in late autumn; others respond and give better germination when planted in the early spring. However, in spring planting the propagator must bear

in mind the fact that the little seedlings should be well above the ground before the hot sun of summer is ready to beat down upon them.

The Best Type of Soil for Seed Beds. Every propagator has his own idea regarding the proper soil for the production of coniferous seedlings. However, a visit to the nurseries located throughout the United States and Europe will show that coniferous seedlings are being successfully grown upon almost every type of soil, from a pure sand to a heavy clay. There is just one point to bear in mind, and that is the fact that the soil must have good bottom drainage. It has always appeared to me that the treatment of the soil to put it in a proper condition for sowing was of as much importance as the type of soil itself. I want to emphasize the fact that the physical condition of the soil is of as much importance as the chemical composition.

In preparing the area which has been set apart as ground suitable for the production of coniferous seedlings it is necessary to have enough land to take care of an annual planting every year for five years. Under this system you will be in position to remove the seedlings clean from the beds at the end of the third year, thus leaving the area vacant for the application of fertilizer or the growth of a cover crop to have the soil in fine condition to receive the second planting of seed beds. A soil may be rich with all of the necessary chemical elements but what the grower demands is that the soil can be readily worked. Therefore, I say that the physical condition of the soil is of as much importance as the chemical composition.

Windbreaks for Summer and Winter Protection. Plant evergreen windbreaks completely around the area selected for seed beds. Plant a single row of evergreens every 150 feet across the area, running parallel with the beds. These windbreaks temper the cold drying winds of winter and assist in maintaining a more uniform temperature over the enclosed area in the summer. These windbreaks should take the form of neat, well-grown hedges, six to twelve feet high.

Preparing the Soil. To place the soil in the best possible condition for the planting and growing of conifer seedlings one or more cover crops should be plowed into the soil. Cow-peas or Red

Clover give very good results. The decayed vegetable matter keeps the soil from packing and furnishes plenty of food for the young seedlings.

It is a good plan, in fact it is very necessary, that the area set aside for planting of the seed bed, be given thorough cultivation for at least one, or better, two years, before the sowing of the seeds takes place. Soil handled in this manner will be practically free from weed seeds, and this is a point of real importance in the production of conifers from seed; it is impossible to produce sturdy young seedlings and a crop of weeds on the same area. It is also a great deal cheaper to remove the weeds with a harrow and a two-horse team, a year or two in advance of planting, when you compare this cost with the expense of having the seed beds weeded clean by hand after the young seedlings have started to grow. Of course, there will be much hand-weeding necessary even when the soil has been given clean cultivation for the entire two years before planting. And right here I might add that it is mighty important in keeping the tender young seedlings free from weeds, that the work is begun just as soon as the little seedlings appear above the ground. Do not let the weeds get a start. Weeding, of course, is only a detail, but is an important detail, and I have come to the conclusion throughout my experience in producing conifers from seed, that it is only by giving the strictest attention to these seemingly unimportant details that we get the maximum results. It is seldom any one great calamity happens; it is usually a lack of attention to a number of small details that causes failure.

The Size of the Seed Bed. The seed beds in most of the nurseries throughout Europe are three and a half feet wide by sixty-five feet long. I have never been able to find out why this size was uniformly adopted by the growers of Europe. I infer, therefore, that the size of the seed bed is of minor importance. However, it is necessary that you have a standard size for all beds to facilitate the keeping of the necessary production records. I have therefore based my operations upon a standard bed four feet wide and one hundred seventy-six feet long. The four-foot width is made necessary from the fact that the standard lath used for making the rack shades comes in four-foot lengths. The length of the bed was determined from the fact that part of the labor, which is

the plowing over of all soil, is accomplished by horse power, which necessitates longer beds than would be necessary if only man labor was used.

Making the Seed Beds. Three beds are made, end to end. If a bed of shorter dimensions were used it would mean lost motion and loss in area. I will explain the exact manner in which the bed is prepared ready for the sowing of the seed. One straight, deep furrow is plowed across the entire area, necessary to make three beds each 176 feet long. The labor required is two teams for the plowing and 15 men for the raking, five men per bed. As soon as the furrow is plowed the men rake the ground smooth and level. This raking takes place as fast as each single furrow is plowed. I find that it is much more satisfactory to rake each individual furrow, as it is plowed, than to wait until the whole four-foot area has been plowed over and then attempt to rake it down smooth and level. After the beds have been raked and re-raked until each small lump of earth has been broken and leveled the surface should be as level as a table top and free from lumps of unbroken soil.

Sowing the Seed. After first ascertaining the correct germination percentage of the seed to be sown it will be necessary to decide how thick to sow it, reckoned on the basis of so many seeds to the square foot depending on the nature of the variety, and the length of time they are to be left in the seed beds. For instance, take some of the Piceas, with a maturity date of three years, and assuming they will reach an average height at that time of six to eight inches, one square foot of ground will accommodate about one hundred plants, and seed should be planted accordingly, or the seedlings thinned to that number while small.

The seed is sown by two men, one on each side of the bed, each sower covers one half of the bed. After the seed has been sown it is rolled into the soil firmly with a wooden roller. This insures every seed coming into direct contact with the soil. The seed is now ready to be covered. The usual rule in planting conifer seed is to put the covering on twice the diameter of the seed. This operation we used to do by hand, using clear sand, the men taking it from pails and putting it on the beds. We now make use of a specially constructed machine, which is drawn from one end of the

bed to the other by horses, sprinkling the sand over evenly, covering the seed the desired thickness.

In Europe the surface of the seed beds is left rounding. I have found that the germination is greatly retarded along the edges of the bed when the surface is left rounded, therefore I use only the flat surface, due to the fact that the lath shades which are used for covering fit more closely and evenly over the surface when it is flat.

Shade for the seedlings. After the seeds are sown, rolled, and the bed covered with sand, the lath shades are placed over the beds. These lath shades are four feet square and the laths are nailed to a two-inch cleat, leaving space enough between each lath to allow another lath to be laid without nailing; thus when the rack is lying flat on the ground with the loose lath filling the opening, it covers completely with a little wooden roof the newly planted seeds.

It is important and necessary that these racks be placed over the seeds as soon as planted. It is a strange fact, but nevertheless true, that germination takes place more rapidly and more evenly in total darkness beneath the rack than the same seed planted under the same conditions and allowed full light of the sun. This lath covering also acts as a roof to keep the pelting rains from disturbing the surface of the newly made beds. If all goes well, the seed of most conifers will start to germinate in the spring, in from one to three weeks. The little seedlings push through the soil, growing up toward the light. The lath shade is now raised to the height of one inch above the surface of the ground. It is left in this manner until all of the seedlings have grown high enough for their tops to touch the lath. The lath shades are then raised to a height of ten inches and placed on pegs driven into the ground. Most varieties of conifers now demand a little more sunlight. It is therefore necessary to go over the beds and remove the unnailed lath. The seedlings are now protected from the sun and driving rain by a four-foot rack shade, with the laths nailed one and a half inches apart. This gives the seedlings what is known as a shifting shade; the shade moves as the sun travels across the sky.

To some perhaps, these details are rather uninteresting, but to the grower of young seedlings, who strives for maximum results, each and every one of these operations must be given careful consideration.

Watering. The watering of the young evergreen seedlings is an essential operation, and any one considering the culture of conifers on a commercial basis must first arrange for plenty of water available to all parts of the seed bed area. The water is not used as a means to force added growth to the seedlings; it is an insurance against prolonged and severe drought at a time when the seeds are germinating. Some seasons not a drop of water will be required, the rains coming at just the right time to give the necessary moisture to induce the maximum germination. The next year's conditions may be just the reverse, and after the seed is planted and the time for germinating at hand if the weather is dry the seed will germinate poorly if not supplied with moisture at this time. Therefore it is necessary that the water be available when it is needed, otherwise the seed beds will show an uneven appearance.

Thinning the seed beds. The plan followed is to plant the seed thick enough to be assured of a heavy stand; the theory is that if the young seedlings come too thick they must be thinned to the desired quantity upon a given area. However, if they do not come thick enough, the growth is seldom good, due to the fact that the ground is not shaded by the young seedlings and their growth is retarded. Therefore, be generous with your seed at planting time, knowing that if they are too thick they can be thinned, but if the stand is poor it never grows better. In fact, the little trees seem to disappear and at the end of the second year most of them have succumbed to the elements. It may be necessary throughout the long hot dry summer to water the bed; if watering is necessary, it should be done in a thorough manner; soak the ground so that the water reaches down to the roots of the seedlings. It is best applied in the late afternoon or evening, in fact we usually water the seed beds during the night. This prevents the sun from burning the little seedlings while the foliage is wet.

Winter protection. It is necessary in northern Illinois to give every seed bed a blanket or overcoat for winter. Leaves, rye, straw or wild hay are scattered lightly over the tops of the little seedlings and the rack shade let down on top to prevent the wind from blowing the covering away. There is danger of molding if the covering is placed on too thick. The covering must be removed as soon as the frost is gone in the spring. This covering is not to

protect the seedlings from winter killing, because most varieties would stand severe freezing, it is to prevent them through the action of freezing and thawing from being heaved out of the soil. At the beginning of the growing season of the second year, all lath shades are removed from *Pinus* varieties, and *Juniperus Virginiana*, *Piceas*, and *Abies* are left with shade until the end of the second year.

Diseases and insects. The common disease causing loss in the seed beds is the damping-off fungus. This is a most serious fungus disease, attacking the little new grown seedlings while they are in the baby foliage. It works on the roots and along the surface of the ground, causing the little seedlings to decay and die. The fungus works in patches, sometimes a few inches in diameter, killing every seedling affected. These patches may spread from a few inches to the entire bed.

In coöperation with the U. S. Department of Agriculture, we have carried on extensive experiments for several years to secure means of controlling this fungus, and bulletins are now available giving the results of these experiments with various methods of treatment which in many cases have proven wonderfully successful. I would suggest to all propagators of coniferous evergreen seedlings that they make a careful study of the Government formulas recommended for the control of damping-off fungus. The fungus blighting the *Juniperus Virginiana* in the seed beds has been so serious through the country that the successful growing of this variety was thought to be impossible. However, it has been found that the disease can be readily controlled through the use of lime sulphur or Bordeaux mixture sprays. Spray the young seedlings as soon as they are out of the ground, and keep them well saturated with the mixture throughout the entire growing season, remembering always that Bordeaux mixture is only a preventive measure and not a cure, and unless the work is thoroughly done it is just as well not to attempt it.

Considerable losses in the seed beds have resulted from white grubs eating the tender roots. When this condition exists it is impossible to take any action because the grubs are in the ground and can not be reached with spray. The means of control is fall plowing of the land set aside for the seed bed area. This plowing of the land in the fall disturbs the grubs and causes winter freezing.

Another source of annoyance in fall planted seed beds is the field mice, not from the amount of seed which they consume, but due to the fact that they burrow around, cross and criss-cross, over the surface of the newly made beds, causing a condition that results in uneven germination in the spring of the year. This trouble can be easily averted by plowing all of the land surrounding the seed bed area. These little mice will not run very far across open plowed ground, while they will travel a great distance if given protective covering of grass and weeds.

Accurate Records. It is very important that accurate, complete and detailed records are kept covering all steps taken. This will show exactly what has been accomplished and the reasons for success or failure. Unless these records are kept, year after year, the grower is working in the dark.

Summing up Growing of Conifer Seedlings. In summing up the points to keep in mind, the following stand out as the most important:

- (1st) Good seed.
- (2nd) Well-drained soil.
- (3rd) Proper amount of shade to prevent sun-burning.
- (4th) Plenty of water when the seed is germinating.
- (5th) Keep the beds free from weeds.
- (6th) Winter protection, to prevent heaving.
- (7th) Accurate records.

It can be said, in all sincerity, that eternal vigilance and painstaking attention to detail is the price of success in the growing of conifer seedlings.

I now come to the second division of my subject, which treats on the growing of conifers from cuttings.

II. CUTTINGS.

- (a) Greenhouse Cuttings.
- (b) Outdoor Frame Cuttings.

Many of the conifers are reproduced by cuttings. This is necessary from the fact that seeds are not available and the garden varieties and hybrids seldom come true from seeds.

Greenhouse. The greenhouse, more properly called the propagating house, should be a well planned, permanent structure with the heating pipes beneath the benches. Provision should be made for a supply of water and equipment necessary to furnish artificial light at night to permit the propagator to record the varying temperature and make other inspections both night and day so necessary to the successful production of conifers from cuttings.

Supply of Sand. A good supply of sharp, clean sand is necessary for filling the flats in which the cuttings are rooted. The sand should be of fine texture to allow for firm packing in the flats after the cuttings are planted. It should be absolutely clean from all dirt and vegetable matter to prevent the growth of fungus. The test for good propagation sand is made by adding a handful of sand to a glass full of clear water. The sand should settle to the bottom of the glass without causing the slightest cloudiness in the water.

Cutting the Wood. The usual time for cutting the wood for making into cuttings is in the autumn when the growth is well ripened. It is well to wait until several good sharp frosts assure you that the wood is in a perfect state of maturity. Small branches are cut, using only the strong, vigorous shoots from the sides near the top of the plant. If the variety is a strong grower each branch cut will produce, when properly divided, several desirable cuttings. Do not cut the wood when it is in a frozen condition. Place the clippings in a basket or bag as soon as they are cut, to prevent drying.

Making the Cuttings. With nearly all varieties of conifers, in making of the cuttings, use only wood of the past summer's growth. It does not matter whether it is a leader or side branch, just so wood is firm and well matured. Remove all of the foliage from the sides of the cutting, leaving a small amount only on the top. Make the cuttings of a uniform length by cutting the bottom end of the stem with a light, sharp knife. Cuttings of uneven length must never be planted in the same flat because the smaller ones do not receive the same light and air as the cuttings of greater length and the small ones are smothered.

Planting the Cuttings. The cuttings are now ready for planting. Some propagators fill the benches with sand for the planting of

cuttings. I prefer a small flat, 24 inches long, 15 inches wide, and $3\frac{1}{2}$ inches deep, made of light pine boards. If flats are used they can be removed from the house in the spring when the cuttings are rooted and placed in frames on the ground out of doors where the fresh air and sunlight stimulate a more healthy root action.

In planting, each cutting is spaced $\frac{1}{4}$ to $\frac{1}{2}$ inch apart in the row, and space enough left between each row to permit the air and sunlight to penetrate through the foliage down to the surface of the sand for preventing the growth of fungus. A liberal supply of water is given the cuttings when planting in the flat is completed. The water settles the sand firmly around the newly planted cuttings and the flats are then placed on the greenhouse bench.

Care of the Cuttings while Rooting. Give the cuttings a gentle bottom heat. Loss frequently results from lack of control of the bottom heat with newly planted cuttings. Further watering is not required until the sand in the flats shows dryness. Do not open the ventilators in the house until the cuttings are well rooted. Allow the full sunlight to fall upon the cuttings. Shade from the sun will not be needed until the late spring and early summer.

The cutting of most conifers will develop a callus before the roots appear. Most of the *Arbor Vitaes* and *Junipers* begin the formation of a callus soon after planting, the callus completely covering the cut surface at the bottom of the cutting. Some varieties develop the tender young rootlets as soon as the callus has formed. Other varieties wait for months after callousing before the roots appear. While in some varieties, such as the *Juniperus Virginiana* forms, which are unusually difficult to propagate from cuttings, they will remain in a well calloused condition into the second year before roots are formed.

Care of the Cuttings when rooted. After the cuttings have completed their rooting, which will be sometime in June, they may safely be given a good supply of fresh air daily and an even coating of whitewash sprayed over the top of the propagating house to prevent any danger of sun scalding the tender young top growth which has developed on the cuttings.

The flats in which the cuttings are growing can now be removed from the house and placed directly on the ground in a partially shaded frame out of doors. The fresh air and sunlight stimulate

good, healthy root action and reduce the danger of loss from decaying roots, which always causes serious loss throughout the summer when cuttings are not given the most natural growing conditions. The cuttings must remain in the flats until the following spring when they are in a perfect condition for potting or planting in beds.

Outdoor Frame Cuttings. Some varieties of conifer cuttings are successfully rooted in frames out of doors during the midsummer and late summer season. The frames are built slightly below the surface of the ground. The soil is removed from inside the frame to allow for one foot of stable manure for supplying the required heat. The frame should be rightly constructed to prevent entering of air currents through any cracks or openings. The top of the board or concrete forming the sides of the frame must be level and smooth so that the glass sash covering fits perfectly. A light frame is built at the height of four feet above the top of each frame as a support for the muslin cloth used for shade. Fresh stable manure is firmly packed in the bottom of the frame and soaked with water. This will supply steady, even, bottom heat for the cuttings. The sand is now spread evenly in the frame to a depth of four inches and the frame is ready for cuttings.

Soft Wood and Half Ripe Wood Cuttings. The cuttings are made from young wood in a partly ripened condition. Experience has shown that cuttings made from side branches root equally as well as leading shoot under this method of propagation. The cuttings are planted in the sand and thoroughly watered, after which the close fitting glass sash is placed over the top of the frame and the muslin shade placed over the supports to prevent any of the direct rays of sunlight from falling on the tops of the newly made cuttings. Air is not admitted into the frame until the cuttings have started rooting. Some varieties root in three weeks while others require two months.

All cuttings should be well rooted before the time for heavy freezing. The best treatment for cuttings, rooted in outdoor frames, is to pot them up in October and place in a cool greenhouse or heated frame over winter. There is always danger of heavy loss with conifer cuttings propagated in this manner if left in the frames over winter. Only a limited variety of cuttings give the maximum

results when propagated in outdoor frames. The Biota forms root readily from this method of treatment.

III. GRAFTING OF CONIFERS.

(a) Greenhouse Grafting.

(b) Outdoor Grafting.

The propagation of conifers by grafting in the greenhouse is without doubt the most interesting mode of culture practiced by the propagator, and good results are always obtained when the necessary operations are carefully and skilfully performed.

In greenhouse grafting the work is carried on in the greenhouse throughout the winter and early spring. The reason why the propagation of conifers from greenhouse grafting is so uniformly successful is due to the fact that the operations are performed inside the greenhouse where all conditions are under control of the propagator.

The grafting of conifers as means of propagation is only used with varieties which propagate poorly or not at all from seed or cuttings. Some varieties of Juniperus Virginiana, such as Juniperus Glauca, Juniperus Schotti, Juniperus Counarti, and Juniperus Elegantissima, together with most of the garden forms of Pines, Spruces, and Firs, form a list of the varieties grafted.

The necessary equipment consists of a greenhouse with the benches built up on both sides to a height of twelve inches. Over the top of the bench a close fitting glass sash is placed. This gives a closed box or grafting bench, twelve inches deep, covered with glass sash on top. Heat is supplied from pipes beneath the benches.

Understocks for Grafting. After the greenhouse with its benches has been properly arranged for taking care of the grafts, the next important detail is a supply of seedlings to pot for use as understocks in grafting. The required quantity of understocks grown in pots is necessary before any grafting can take place, and these seedlings used for understocks are usually potted several months in advance so they may become established in the pots, therefore plans must be made and stock secured in ample time. All Juniper varieties are commonly grafted on Red Cedar seedlings. For the Thuya

forms the common American Arbor Vitae is used. The Norway Spruce is a congenial stock for all of the Spruces, while the Pines are grafted upon an understock which carries the same number of needles per bundle as the scion used for the graft. The young seedlings in pots should be placed in the grafting house several weeks before the time for grafting is at hand, to allow for root action, which is to supply the flow of sap necessary to stimulate healing.

Making the Grafts. When the understock shows a good, healthy root growth the time for making the graft is at hand. The operation consists in carefully fitting the cut edges of the scion to the cut edges of the bark of the understock and tying securely in place with strong light twine. Waxing of any kind is not necessary.

The newly grafted plant is now laid away carefully in a partly inclined position in the grafting bench. The inclined position is necessary to permit the full light to fall upon the wound where the plant was cut in making the graft. This light hastens the healing process in the wound. The pots are imbedded in damp peat moss and the sash placed over the top of the bench. The damp moss prevents the pots from becoming dry, as watering is not permitted after the grafts have been placed inside the bench. The wound starts healing immediately and the cut edges of the bark on the scion and understock gradually become firmly united. The sash is removed and fresh air allowed to enter inside the grafting bench for a short time every day. The fresh air aids in disposing of the excess moisture which develops inside the bench.

At the end of four weeks the scion is fairly well established upon the understock. The grafts are all gone over and a portion of the top foliage is removed from the understock to induce a greater flow of sap to the scion. The grafts are replaced in the grafting benches, where they remain another four weeks. At the end of that time the scion and stock have become perfectly united. The balance of the top of the understock is now removed and the young grafts are placed in an upright position, with the grafting bench open to give the grafts plenty of fresh air. The season is now well advanced toward the first of April and in another month the grafts can be removed from the pots and planted in a shaded bed of well prepared soil out of doors.

Outdoor Grafting. I have never attempted to propagate conifers by grafting in the open air out of doors, therefore have no suggestions to offer. It is, however, a method of propagation practiced extensively by the growers of France and said to give most satisfactory results.

IV. LAYERS AND DIVISIONS.

Conifers are sometimes propagated by layering and division. Propagation from layers is usually confined to the prostrate and creeping forms of Junipers and other dwarf or low growing forms of conifers. A portion of the branch is covered with soil and roots develop along the stems. The rooted stems are removed from the plant and planted in beds of prepared soil. The usual time required for rooting layers is one year and is an inexpensive and easy method for the propagation of some varieties.

Division. Propagation of conifers by division is hardly worthy of consideration for production on a commercial scale and is seldom used by the modern propagator.

V. SUMMING UP AND CONCLUSION.

In concluding my paper, permit me to say a word in behalf of American propagators. Right here in America there is a loyal, brave band of growers who are entitled to your encouragement and support. They have struggled bravely on through years and years of adversity, with hardly any recognition whatever, always in the face of merciless competition from abroad. In a way, the spirit of their endeavors is likened to what Lincoln said of himself, "I will study and prepare myself and maybe my chance will come."

There are over a hundred propagating firms in America, big and little, many of whom, had they been able to operate commercially, with a half-way fair chance at their own market, would have been world famous. I mention with the greatest admiration such names as Jackson Dawson, J. R. Trumpy, Josiah Hoopes, Robert Douglas, the Berkmans, the Farquhars, the Meehans,

Robert George, E. Y. Teas, E. M. Sherman, Ellwanger & Barry, Thomas McBeth, F. M. Carr, who have supplied American horticulture with traditions rich with accomplishment. I am not one of those who believe that the intelligence of American nurserymen is inferior to European growers.

I was surprised recently when one of the editors of a horticultural paper said, "Where are we going to get the patience, skill, and experience to grow stocks in this country?" Astonishing, such a statement as this, showing a lamentable lack of confidence in American enterprise, especially in view of recent American accomplishments in every line of activity.

We have only to look back to the horticultural achievements of thirty and forty years ago when the Parsons Nurseries at Flushing, New York, were supplying the growers of Europe with choice, hardy varieties of Conifers and Rhododendrons, which are to-day, in many cases, the sorts grown in Europe for export to America. Thirty years ago Robert Douglas of Illinois supplied the growers of Europe with a choice collection of American Conifers.

The United States Department of Agriculture through the Forest Service has established in various parts of the West Government nurseries for supplying young trees for reforestation. Each nursery has an annual output of several million young seedlings for forest planting. Eight individual states maintain state nurseries for the growing of young trees to supply planting material for state controlled lands and distribution to property owners for forest planting.

In recent years fruit tree seedlings to be used by American nurserymen for budding and grafting have been produced on an extensive scale by nurserymen in Kansas. Upwards to sixteen million young roses have been grown annually by Ohio nurserymen. There are fifteen commercial nurseries making a specialty of the propagation of young conifers from seeds, cuttings, and grafts. A good assortment of young ornamental and flowering shrubs is being grown on a commercial scale by experienced propagating nurserymen through the East and central West.

It is a matter of interest to many that the Federal Horticultural Board has recently promulgated a very valuable protective measure to secure this country against depredations of European and

Asiatic insect pests and diseases. While there are some objectors at present, we believe that eventually everyone will realize the wisdom of this action.

It is preposterous to think of endangering our extensive horticultural, agricultural, forestry, and nursery interests, worth hundreds of millions of dollars, for a few thousands spent each year on imported nursery stock. It was only through quick concerted action on the part of our Department of Agriculture that our American White Pine forests were saved from utter destruction, by reason of the White Pine Blister Rust which was imported on nursery stock from Europe.

With all this energy being expended on the propagation of young stock, the American nurserymen are assured of a constant and increasing supply. There has already been established on the Pacific Coast an extensive plant with over one million dollars invested for the culture of Azaleas, Bulbs, Boxwoods, and other florists' forcing and decorative material which have heretofore been imported. I predict the next few years will see a number of decided changes with American growers producing the stocks required for American needs, and the money which was sent to Europe will stay in America to build up and develop horticulture in our own country.

DISCUSSION.

Exceptions were taken by several of the horticulturists present to Mr. Hill's approval of Quarantine Order No. 37, recently issued by the Federal Horticultural Board, by which practically all foreign grown nursery stock is to be excluded from the United States. It was stated that a large majority of the nurserymen, seedsmen, and private growers were decidedly opposed to the drastic regulations of this ruling.

Mr. Farquhar said that it was not practicable to produce in this country such plants as orchids, rhododendrons, azaleas, bay trees, boxwoods, and other species largely used by florists, and that the embargo placed upon them would seriously affect the business of many horticultural interests.

Even if these plants could be grown here it would take years before they could be produced and few growers would be willing to invest the large capital required in their production with the uncertainty of the continuance of the proposed exclusion of foreign products.

HOME GARDEN FRUITS.

By M. G. KAINS, COLUMBIA UNIVERSITY, NEW YORK.

Delivered before the Society, with stereopticon illustrations, January 25,
1919.

While the past five, and especially the last three, decades have seen more remarkable improvements in horticultural practices than did the previous five, for instance, the development of modern tillage, fertilizing, cover cropping, spraying, and rational pruning, which have made the fruit growing industries of to-day highly specialized arts, perhaps the most significant development of all is the increased and steadily increasing public demand for fruit varieties of high quality.

For this growth, particularly so far as apples are concerned, Oregon, Washington, Colorado and other Western orchardists doubtless deserve considerable credit; first, because they boldly nailed their colors to high standards of excellence, both as to variety and to character of specimen, and second, because they deliberately set about the education of the public with respect to such standards. In these two directions they have not only themselves benefited, but they have performed a service alike to the consuming public and to fruit growers in general. Fruit growers in other sections have been steadily falling into line and the markets of our larger cities are annually being more liberally supplied with high quality fruits.

Where did these Western and other growers of choice fruits get their standards? Did they adopt the *caveat emptor* (let the buyer beware) policy which so often tends to arouse the righteous ire of the long-suffering and hoodwinked public? Not at all. Did they go to the growers of Ben Davis apple, Kieffer pear, Elberta peach, Lombard plum, Lady Thompson strawberry, and other low quality varieties for their standards of flavor? No indeed! Doubt-

less they are no more entitled to halos than are our Eastern growers for the honesty of their pack, because the cost of transportation prohibits their adoption of dishonest packing methods; they have been forced to pack honestly or go to the wall. But where *did* they get their standards of flavor? Certainly not in the big commercial orchards of the middle West and the East, orchards of Gano, York Imperial, Baldwin, Rhode Island and other at best culinary varieties. No; they ignored these plantations and went to sources which for them held vivid and desirable ideals, the fruit plantations of their boyhood.

Those plantations were neither set out by specialists nor primarily for profit. Their main reasons for existence were that the family enjoyed good fruit and wanted a continuous succession and an abundant supply throughout the year. Though doubtless many of these plantations were larger than necessary to supply even the largest families of those days, the surplus was just so much to give away to less fortunate relatives and to neighbors or to sell in the local market.

One of the most pleasing customs of those good old days, one that deserves to be revived today, owed its charm to the choice fruit grown in the family plantation. When visitors dropped in for the afternoon or the evening the *au fait* thing was to have the company enjoy some home grown fruit before departing. This was not served in the modern sense, now too frequently employed, to indicate that the social session is at an end, but in the whole-souled spirit of hospitality in the extending of which both host and hostess could take a keener pleasure in serving a home grown product and feeling that the favorable comments upon it were more genuine than is possible when purchased provender is provided. What would have happened if Ben Davis apple, Kieffer pear, Elberta peach, or Lombard plum had been used instead of the choice varieties? Might not the guests have felt that as direct a hint was being given them as when in baronial times the cold shoulder of mutton was trotted out to apprise the guests that they had outlasted their welcome? But who would have planted or grown such inferior fruits with bore-bouncing intent? Would it not have wasted valuable land and time and also indicated a lack of resourcefulness on the part of host and hostess?

Upon no members of the family or of the district in those days was the influence of choice fruit so profound as upon the boys. Setting aside mothers' testimonies as biased we may perhaps accept the popular view that boys are voracious animals, but it is slanderous to accuse them of having indiscriminating tastes, accepting all as grist that comes to their mills. If the confession of one of them, now grown up, be insisted upon he would be forced to admit that he could always find the choicest specimens of the choicest varieties not merely in his father's and his near, and more or less dear relatives' plantations, where he normally would be expected to be welcome by day, but in a very considerable range of territory and at hours when his elders had relegated their vigilance to less somnolent watchers, dogs, to be explicit, with which, however, he made it a point for obvious business reasons to be on terms of intimate friendliness.

The Ontario village in which my boyhood was spent is typical of hundreds of that day from New England to Michigan and as far south as Maryland, if not of a much wider area. Practically every home had its garden and fruit plantation, which often consisted of an acre or more. Here I had unlimited range in five fruit plantations, my father's, my grandfather's and those of three uncles, and a more restricted range in many neighbors' gardens. Each of these had been planted to meet the personal taste of the family and to furnish a liberal supply of fruit throughout the whole year. Often the last of the apples would be taken from storage when the first strawberries were gathered.

Again, since the smallest of these plantations was more than an acre set in the interplanted plan popular in those days, the aggregate was a large list of varieties. Like many another boy of my day, while still in my teens, I knew fifty or more varieties of apples, twenty-five or thirty of pears, ten or fifteen of peaches, grapes, and plums, six or eight of cherries and a goodly list of bush fruits and strawberries. This knowledge was fostered, supplemented and extended by studying varieties at the county fair where many of the boys, as well as their fathers, made exhibits.

While a reasonable proportion of the boys in those days went direct from school into some branch of farming and planted orchards more or less like the ones I have described, and while a few took up

commercial fruit growing, the majority went into other lines of business; but among these last are many, the influence of whose boyhood led them later in life to take up fruit growing either for business or for pleasure. So far as I have been able to discover, they have with remarkably few exceptions chosen the varieties with which they were familiar during boyhood, or other varieties of equally high quality.

In those boyhood plantations fruits of low quality were conspicuous by their absence. Our fathers thought that what was not good enough for them was not good enough for other people. They turned deaf ears to the arguments that such varieties are robust, prolific, have fine color, and that the lowering of quality will not be noticed by the public in general. They knew better perhaps than the present generation of commercial fruit growers that nothing so tends to develop an extensive demand as a really fine article. For, to quote a favorite proverb, "The remembrance of quality lives long after the price has been forgotten." The man who eats a poor or indifferent fruit will not be tempted soon to eat or buy again; whereas the man who eats a good one wants another specimen right away. Not until money making became the ruling passion in orcharding were low quality fruits planted more extensively than for testing.

Though Ben Davis apple and Elberta peach must bear much responsibility for curbing public appetites for apples and peaches respectively, it seems safe to declare that no one fruit variety has played such havoc with public taste as has the Kieffer pear. The train loads of this whited sepulchre of a fruit that for the past twenty years or more have flooded the large city markets have led the public to believe that pears in general are inferior fruits, fit only for canning, if that. Even the Bartlett has had its skirts soiled by the commercialism that prompts California growers to gather it too green and ship it to Eastern markets where its consequently flat flavor belies its fine color and thus begins what the Kieffer finishes, the suppression of the public appetite. Thus the rising generation has had little chance to learn the truth that the pear is one of our richest, most luscious and delectable of fruits.

To be sure the reaction against such bar sinister influences has set in; men who have learned that the public is willing to eat really

fine pears have begun to risk the difficulties of pear culture and to plant the choicer varieties, especially those that reach the market after the California Bartlett season has passed. The rising generation may therefore fare better than the present one.

While this commercial growing of fine varieties speaks well for the prospective improvement of public taste, it is just as much to be desired that the family plantation should become as prominent as in days of yore. In such plantations should be at least some of the choice varieties too difficult to grow or too sparsely productive to be considered for commercial ventures. For they certainly minister to the esthetic admiration of color, form, fragrance, and flavor, to say nothing of the pleasure of achievement in their production. But they exercise a still more subtle and important influence: they maintain and pass on to the rising generation high standards of excellence toward which commercial fruit ventures should always strive.

It seems necessary to criticize adversely much of the present day literature and many of the specialists of the agricultural colleges and experiment stations. The great majority of the writings on fruit growing within the past twenty-five or thirty years have too strongly emphasized commercial phases and given too little heed to the stigmatized "amateur" features of fruit growing as if these were of an inferior instead of a potentially superior order. Amateurs are frequently connoisseurs. The writers seem to have the dollar so close to their eyes that they see nothing else. As a matter of fact, the great authorities on fruit growing — Coxe, Prince, Barry, Thomas, Warder, Brincklé, Lyon, the two Downings, and the galaxy of New Englanders, Kenrick, Wilder, Hovey, and the Mannings, to name only a few — were all amateurs, yet what does not the American public and especially the fruit grower owe them?

They made fruit growing popular, not only in their day but for ours. They undertook and with their own private capital completed monumental works. Nowadays the Government and the individual states pay their successors and supply the funds to solve modern fruit problems. Therefore, it behooves these successors to make broad instead of narrow specialists of themselves so they may sympathize with and encourage amateur as well as commercial fruit growing in their respective regions; for among the amateurs

probably far more than among the commercial fruit growers are our authorities of the rising and future generations to be found. To determine the truth of this statement I suggest that my auditors examine the list of present day investigators, teachers, and writers on fruit growing to see how few are the sons of commercial, and how many of amateur fruit growers. The result I venture to say will be surprising.

Let me hasten to say my audience is mistaken if it has concluded from any of my remarks that I advocate a return to the hit-or-miss methods of former days. I most certainly do not. I am a firm advocate of every method that makes for better fruit and more of it. What I have striven to emphasize is the importance of replacing the now largely decrepit fruit plantations with new ones of the choicest varieties to be handled according to the best modern methods. By the establishment of such plantations the standards of excellence will continue to rise or at least be maintained. Thereby we may confidently look for improvement in the general standard of excellence; for as the floor of a valley is raised by the descent of soil from the mountains, so must the refinement of taste be improved by the increased popularity of high quality fruits. Fruit growing should, and thereby can, be made to minister, perhaps as favorably as music, art, and literature, to the sensibilities of the family, the community, and the nation. Such environments as superior family fruit plantations afford seem to be the most favorable for the training of future fruit lovers and specialists among the rising generation.

In these days of government and state departments of agriculture, of agricultural colleges, and experiment stations, and of huge commercial fruit growing interests, amateur fruit growers are too prone to consider themselves as "merely amateurs" and therefore relegated to a less useful class than that of the scientists. From the spectacular standpoint they are doubtless correct, because they have neither institution nor title to push them, whether worthy or not, into prominence. Nevertheless, without the least intention to belittle the work of the scientists it must be said that the world owes an incalculable debt of gratitude, to say nothing of monetary considerations, to countless amateurs — printers, merchants, doctors, lawyers, lumbermen, millers, editors, factory

hands and last, but by no means least, nurserymen and farmers — who had no “college training” in agriculture, who in no sense considered themselves scientists, but who used what knowledge they had to solve pomological problems for the love of still better knowledge to give to the world.

Perhaps the greatest service they have rendered is in the origination of new varieties. In this work they were largely gropers because the laws of plant breeding a generation ago were far less understood than today. Through enhanced knowledge this same field of variety origination offers even more wonderful opportunities than in the past. While beyond the scope of this address; I am eager to point out that herein lies the greatest interest for the amateur — this matter of variety origination; for, just as in the past, the originator of new varieties may do his work in a back yard, as did Edward Staniford Rogers in his garden, of which Marshall P. Wilder wrote, “It is 150 years old; a cold matted soil, filled with old apple and pear trees, currant bushes, flax and everything mingled together. . . a close, hived up place in the city of Salem”; nowadays with increased knowledge of the laws of plant breeding we have far greater chances of making fortunate combinations of parents and of finding varieties superior to those now under cultivation than in bygone years.

In support of this contention let it be remembered that Luther Burbank, himself a Massachusetts product, started his business life as a factory hand but became a grower of vegetables and seeds before he became a variety originator. Though the practical results of his work have been exploited, magnified, distorted, and even caricatured by the press, they doubtless compare favorably with those of other less conspicuous plant breeders; but his results, though great, seem to be of smaller consequence than his influence in awakening general interest in plant breeding. He has proved that plants unlike anything hitherto known can be originated, so his work has become an inspiration to countless amateurs who seek to follow in his footsteps or blaze new trails for themselves. In this direction therefore lie the greatest rewards, not perhaps of money, but of interest and service in the growing of home garden fruits.

GARDENING AFTER THE WAR.

BY LEONARD BARRON, GARDEN CITY, NEW YORK.

Delivered before the Society, February 1, 1919.

Does anyone believe that the war time reaction on our gardening will be other than constructive? That is the problem before us.

The war itself marks a convenient period from which we may review the past and measure the future. The general conditions to be considered may not have been entirely brought about by what was officially called the "existing emergency," but it has had the effect of drawing the threads together so that we have been able to realize the crystallizing into concerted action, and horticulturally as in other affairs we shall be able to measure things as "before the war" and "after the war."

Everybody, every man and woman of us, has as the uppermost question in mind at this time: What is going to happen to business now; particularly, what is going to happen to his or her own particular interest. When war broke upon us with its consequent cessation of ordinary interests we were shocked, startled; and the first feeling was an outlook into untold calamity. Our gardening stopped. As time went on things seemed to get worse and the climax was brought about by the various rulings of the War Industries Board and the Fuel Administration; with the restricted supplies and the draft on labor the outlook was none too rosy. But things have changed, and with the coming of peace, there is a general feeling of optimism openly expressed in all industries, an optimism in which the horticulture of the country seems destined to share in its proportion.

Gardening touches the life of the people in two phases, which we may call the essential and the non-essential. In the first case comes the whole question of the raising of food crops, fruits, and vegetables. In the second, the more delightful refinements of

artistic enjoyment in the development of parks, pleasure gardens, and other esthetic surroundings.

Both these divisions react according to conditions of the wealth and welfare of the people. As men prosper, so do we find them enjoying more and more the delights of beauty and luxury in their surroundings. And so we may ask ourselves fairly, how do we as a people stand today? Are we richer or poorer? What are our resources, and how is our present condition likely to react on the horticultural interests? The president of the National City Bank of New York in a recent magazine asks this same question in regard to the general reaction. He says:

“Do you recall the gloomy predictions which many men made when the war broke out? They said that the wealth which had been accumulated would be swept away; that the world would be set back a hundred years; that the billions that would be spent would be pure waste; that we would exhaust our wealth, and have nothing to show for it but debts. Is it true that we have exhausted our wealth? I do not think so.

“There are three kinds of wealth: first, there are natural resources — forests, minerals, and water power, and so on; second, there is wealth in the form of production and distribution agencies — factories, equipments, railways, ships, and so on; third, there is what is called consumable wealth in the form of goods on hand — such as food, clothing, and all the things we use in living.

“Our natural resources have been more highly developed; new mines have been opened; food production has been stimulated; more land has been brought under cultivation.

“Undoubtedly there is a balance on the credit side to the second class of wealth — factory buildings as equipment and so forth.

“The pessimist lays emphasis on the depletion of the third kind of wealth. It is true that some stocks have been heavily drawn down, but this is only a temporary and not vital thing. It is not the *amount of goods on hand* that counts most, it is the ability to *keep up a flow of goods*. Our power of production is greater than ever before. We have increased our productive power in many of our old industries and have started some entirely new ones. It is the power to produce efficiently upon which emphasis should be laid.”

May we not learn a lesson from those remarks?

It cannot be denied that impulses and tendencies born under the stress and strain of great national crises, or out of necessity, frequently perpetuate themselves because they are found to fill a void that, though existing before, was not realized because the situation could not be seen in proper perspective.

PRE-WAR CONDITIONS.

Before the war home gardening, both as concerns vegetables and flowers, was spasmodic, intermittent, local. Indeed, it was confined largely to the fairly well-to-do members of the population; to those in whom the love of the beautiful was developed, and who had the wherewithal to satisfy any reasonable longings. War conditions changed matters, and particularly on this side of the Atlantic. Both in Canada and the United States a new interest suddenly burst into being. Where formerly the suburban lot dweller attended to his garden needs with more or less of an apology in public, today we find that the apology is offered rather by the man or woman who does *not* cultivate the soil.

Times change and we change with them. It is no longer considered the height of humor for the comic papers to picture Mr. Suburbanite living in Lonesomehurst, and carrying home the family vegetables from the city.

The continually soaring prices of common necessities,—the high cost of living,—rendered necessary the tilling of available land quite apart from the more or less spectacular (if more or less ineffective) bursts of enthusiasm that led people here and there to become "Potatriots" as it has been expressed, to demonstrate their patriotism "by wearing a potato on the front lawn."

Yes, notwithstanding these misdirected efforts (and they were nothing but the faults of ignorant enthusiasm), excellent results of national importance have attended the cultivation of suburban lots, and thousands of dollars worth of vegetables were last year raised on land that hitherto had remained unproductive.

This year equally impressive totals are anticipated, and though we may turn back through the garden gate, back to the ways of

peace, we surely cannot lose entirely the momentum which has thus been gained; and wonder of wonders, the energy of the vast army of children has been given intelligent direction towards gardening.

The reaction from war has been more fruitful in the development of children's gardening than all the organized school garden movement, and all the other spasmodic efforts of a generation before. School gardens and children's gardening have been given a direct incentive, a thing which they hitherto had lacked. The young generation, the trustees of posterity, are brought into close contact with the phenomena of nature, and let us hope, to look up, through nature, to nature's God.

The incidental lessons thus received by hosts of people will surely stand as one of the triumphant credits in the larger world. Working in the garden with living things reacts in stimulating the moral and esthetic view of life. The direct lessons in cause and effect, planning, coöperation, and a realization that each individual can and must contribute to his own maintenance—is indeed the architect of his own fortune,—may likely enough have its foundation in the work of a child in the garden.

HEALTH AND OUTDOOR WORK.

If there be any truth in the healthfulness of outdoor occupation then there must be an improvement of the national standard of health, something greatly to be desired since the war has revealed to us the alarming fact that only 60% of the manhood of the nation could qualify for military duty. With healthy bodies we get healthy minds. The healthy human individual is a national asset.

Man power and woman power are essential to the nation. Welfare depends upon vigorous and enduring health of the individual. Gardening is a national asset, serving all these ends, because it gives outdoor occupation, productive occupation with recreation, education, and profit all at one time. Is there any other occupation under the sun that can do all these?

The general impetus that has been given to gardening during the last eighteen months has started a movement that cannot

suddenly cease. The necessity for continued food production close at home is as great as ever, and the householder and his wife who have learned for the first time what fresh vegetables in abundance really mean will continue the interest they have begun. The beginners of last year are the veterans of this, their work will be less discursive, more direct in results and better planned to meet their individual needs.

Conditions for the coming year will be more stable. Commercial growers have been able to measure, with some degree of exactness, the demands that will be made upon them in the production of staple crops to supply the nation's needs in contributing their share of the increased demand for export to the stricken nations of Europe.

The many people who raised crops in their own gardens will continue to do so and the demand for fresh vegetables will be met largely by local supplies. The actual quantity produced F. O. B. the kitchen door is a great national asset.

"WAR GARDEN" RESULTS.

The National War Garden Commission in a recent letter stands by its originally published estimates of last summer which places the value of food stuffs raised in emergency war gardens in 1918 at the prodigious total of \$525,000,000. The number of individual plots according to the same authority is 5,250,000, an increase of 51% over the previous year. And the dawn of peace does not change the food situation as it will probably be several years before the normal food reserves of the world can be restored.

Surely with little indication of any material reduction in the immediate future of the present high cost of living an augmented interest in home gardening may be counted upon. At all events, the incentive for cultivating the suburban back yard and the vacant lot is urging on the home gardener with even greater insistence. And he has learned how.

With the change in industrial conditions and a resumption of activity in building (which is already under way) the numbers of small to moderate sized home gardens will be even greater than

before. The high wages that labor has enjoyed, and seems likely to enjoy for some time to come, means increased purchasing power of a greater number of people and in the ultimate a demand for higher standards of living with improved home surroundings.

The newcomers into this class may be counted upon to fall in line with the established standard. Is it not reasonable to expect that thousands of people who have enjoyed the results of their labors, and have come to know what independence of the green-grocer means will never again willingly submit to the older conditions? It may be that one beneficial reaction of the war will be a new conception of the suburban home life.

The change that is upon us will probably not occur in the great estates so much as in the average small holding; for there it is, indeed, that the awakening has come. The large estate has indeed suffered. Development of many private places has stopped. Not only has the withdrawal of man power interfered with their upkeep, but the demand of war time finance and a heavy income tax have curtailed the operations of their owners.

The increase of country living that has been going on so rapidly for the past 25 years had prepared the ground, had laid the foundation for the favorable reception of the garden impetus.

WOMAN AS A NEW FACTOR.

One nurseryman of my acquaintance, referring to his own business, points out that the individual owners have been, during that period, showing a greater and increasing interest in their home surroundings, and he says the biggest factor is the women. Twenty-five years ago there was only one lady who came to his nursery to look at new plants; now more than half the checks passing through his office are signed by the women. They are running country places, large and small, and they are doing it sometimes to the discomfiture of the old time gardener.

The inauguration of the Women's Land Army is significant in this connection; in all the warring countries women have assumed their share of responsibility and labor. It is no small thing that the Women's Land Army of America stepped into the breach to supply labor for the farms, and did it successfully.

It is difficult at this time to arrive at exact figures, for the Land Army work is so new; but it has been linked up with the Department of Labor and has become part of the United States Employment Service system.

The Women's Land Army of America was organized primarily for increasing food production during the war, meeting the farmers' needs by providing units or groups of women who live in separate houses with a chaperon-housekeeper or supervisor, and furnishing their own food and cooking. This patriotic organization of volunteer workers came into existence in New York City in December, 1917, and, from the beginning, has operated in cooperation with the U. S. Employment Service with a degree of success far beyond the utmost expectations of its creators and the country at large, as is shown by its reports to the Department of Labor at Washington.

Wherever the Army members have operated they have left an enviable record, and many an estate manager, superintendent and farmer, skeptical at first as to the practicability of employing women to do men's work on the place, is now wholly convinced of their value in this field.

According to available figures, as reported to the Department, ten thousand women worked in land camps last summer and, it is estimated, at least five thousand more have gone out in groups, or singly, to lend their assistance in saving crops that otherwise would have perished. Now it is significant that these women were drawn from the ranks of college girls, school teachers, seasonal workers out of employment, hitherto unused sources. They have taken hold of the hardest of tasks and accomplished results that it has been popularly supposed only men could do.

In the state of Illinois the Land Army established a training farm where girls and women passed through a period of intensive training prior to being sent out to work on farms. They are said to have learned quickly and to have accomplished in the period of their training much more than their instructors had considered possible, and the quality of their work after leaving the school is said to have completely won over the Illinois farmers and convinced them that in the women of the Land Army lies one solution of the labor troubles that had been perplexing them for years.

Forty states now have Land Army chairmen where committees

are at work, and in twenty of these states active work has been done in placing women on the farms. In the eastern states, as well as in the far west, the Army has been particularly active and in several instances the women are credited with having, through their enthusiastic work, saved the crops of entire counties and thousands of dollars to the farmers that otherwise would have been lost, besides furnishing vast quantities of food to the world at a time when greatly needed.

The Land Army has opened a new channel to thousands of women who view life from a new angle, especially with reference to its applications to outdoor pursuits, and what is more, they have gained in mental vision and in physical strength, in happiness as well as achievement, to a degree far in advance of their sanguine expectations.

These women worked on about three thousand different places — farms and estates; fifteen thousand of them at an average wage of \$2.00 a day for approximately two months each. As conditions again approach the normal are not these women destined to place their impress upon the new era of gardening?

THE SCHOOLS' AND CHILDREN'S GARDENS.

I have already referred casually to the work of the children. Perhaps some figures concerning the United States School Garden Army will also be suggestive of the possibilities of the times that are ahead of us. This organization which was established just a year ago, in the spring of 1918, was able to show 1,500,000 children in home or school gardens by the end of the season; 1,500,000 garden lesson leaflets, manuals, and posters distributed; and a return, on a fair basis of estimation, of \$15,000,000 in vegetables produced for home consumption, and a great quantity of them canned for winter use. These figures are official.

A few typical cities will interest you. In Lexington, Kentucky, 8,000 garden army children raised \$100,000 worth of vegetables; Fresno, Cal., 3,100 children, \$48,000 crop; Rochester, N. Y., 3,200 children, \$16,246 crop; Chattanooga, Tenn., 5,000 children, \$62,171 crop; Richmond, Va., 1,597 children, \$43,936 crop;

Tacoma, Wash., 3,966 children, \$191,425 crop (probably adult gardens are included in this figure); Cincinnati, Ohio, 11,000 children, \$38,000 crop; Seattle, Wash., 8,000 children, \$60,000 crop; Boston, Mass., 10,000 children, \$100,000 crop.

Wherever school garden work has been done previously to some degree, the U. S. S. G. A., with its insignia, posters, and direct pledge to the Government was found to greatly increase the enrollment of pupils, and in other cities it made the introduction of such work possible. The scope of the work for 1919 was therefore greatly enlarged. To the five regional and one general director previously appointed were added nineteen assistant regional directors, who have spent the fall and winter in the field organizing for a total of 5,000,000 gardens this spring. They have influenced local boards of education to appropriate money for garden supervision, have coöperated with agricultural colleges in putting on short courses this spring for the intensive training of teachers, have furnished tens of thousands of garden manuals and leaflets, all freshly written, for class room use.

May we not now answer the question presented at the opening and agree that the war time reaction on our gardening is entirely and abundantly constructive? The year 1919 will be the greatest garden year yet realized, the pledge of the Food Administration for "two-thirds more food for export" imposing as great an obligation upon the small gardens as did the war itself.

We have then as never before a background, or foundation upon which to work for an expansion of gardening in the immediate future, viz: greater commercial activity; liquid assets; accelerated interest in outdoor affairs; thousands upon thousands of recruits of the present generation; a live children's interest; development of new homes; organized knowledge among women of an intelligent class; and above all, the public sanction that has been given to the tiller of the soil.

A RENAISSANCE?

What now are the agencies through which this great latent power can be turned into effective use? All these recruits to garden activity are creating a demand for more supplies, tools,

equipment, plants, seeds, trees, and so forth; the machinery of gardening.

Is the skilled horticulturist preparing to properly direct his energies so as not to let the present opportunity pass by? Are the teachers going out to meet the new comer at least half way? Are our organized institutions — societies, garden clubs, etc.— prepared to lend the helping hand? Will our writers realize more than ever that their work is effective in proportion as they interest those hungry for knowledge of exact facts? Will they learn to write more of the things the masses need to know and less of academic discussion among themselves? Will the dealer go to his market and not be content merely to sit down and wait for the market to come to him? It should be as easy to buy the things for the garden as it is to buy the things for the house. All the agencies are needed to work together with one common viewpoint if a renaissance in gardening is to be the outcome of the active conditions.

What is a renaissance? I cannot do better than quote a paragraph from Mary Delan's "Short History of France."

"It is difficult to know what causes a renaissance — one of those rare revivals and renewals of beauty and mind, invention and creation, which at long intervals transfigure the world and inaugurate a new order. I think they are always preceded by much coming and going on the surface of the earth, vast interchanges of ideas and experience among the nations of men."

Surely the prescribed conditions exist.

That we are on the threshold of a renaissance in horticultural affairs is forcibly impressed upon me from many angles. To some of these I have already called your attention. Who would have expected two years ago that there could be easily launched a strongly supported movement to commemorate the deeds of our soldiers by the memorial plantings of trees on a nation wide scale? Yet it is an actual fact.

COMMUNITY TREE PLANTING.

The movement, launched I believe by a nurseryman, Mr. Moon, has been fostered and hardly a dissenting voice has been heard.

Various state departments have indorsed the plan for setting out memorial trees along the highways, to lend not only shelter and shade to the traveler, but at the same time, to add largely to the timber resources of the country.

In one Ohio county an oak tree is being planted for each soldier who gave his life on the battlefields of Europe. Is this a symbol of a renaissance? Such movements are worthy of the support of all horticultural organizations because each one is a step in the right direction.

What would be the effect if over the whole land each family planted its own honor tree in recognition of the service given by its members in arms? It would grow in dignity and in association; and as a living thing needing and receiving the loving care and attention of those who planted it, would increase in sentiment and affection as it grew in stature. The tree as a soldier's memorial is sanctified to us too, by the words of one of our own younger poets, Joyce Kilmer, sacrificed in the European holocaust, who leaves us these delightful lines:

I think that I shall never see
A poem lovely as a tree —
A tree whose hungry mouth is prest
Against the earth's sweet flowing breast.

A tree that looks at God all day
And lifts her leafy arms to pray;
A tree that may in summer wear
A nest of robins in her hair.

Upon whose bosom snow has lain;
Who intimately lives with rain.
Poems are made by fools like me,
But only God can make a tree.

The nurseryman, it would seem, has but to stretch out his hand to grasp the opportunities that in manifold ways are unfolding at his doors. He should cultivate a renewed interest in fruit tree planting to meet the demands of the new gardeners, the legacy of the war gardens.

Certainly nurserymen should lead in the increased trade movement because the goods they have to offer to the people in some

of their forms, at all events, produce the most food for the least labor and for the longest time after the initial investment is made. Being an isolated business man from the very nature of his enterprise the nurseryman is somewhat slow to inaugurate a new, progressive program to increase his output and to meet the demand. But he must do his part in fostering and developing the renaissance. New methods of selling must be evolved. If the market is opening before him in the way that has been unfolded in the preceding remarks, he too needs to become aggressive.

The new gardener will stand in need of education not only in methods but in materials. The nurseryman's opportunity will be developed according to his intelligence and persistence in keeping himself in the limelight of public notice and offering goods that satisfy.

SOMETHING MORE THAN VEGETABLES.

Thousands of these people who have been gardening are ready to go a step beyond the mere cultivation of vegetables. Indeed they will be lost unless their interest is fed new worlds to conquer. It is a trite, but perfectly reasonable observation, that having once tasted the joys of gardening as a matter of necessity or patriotic duty, they will be ready to continue for enjoyment and recreation.

I think it reasonable that the after war gardeners will in due time turn more or less from vegetable production to the growing of fruits, flowers, and ornamentals. Fruit production has not been maintained during the past four years and none of the land newly brought under cultivation has been set in fruit. New planting has ceased, old plantations have been neglected. This to such a degree that many nurserymen have done little propagation during recent years.

The price of nursery stock will unquestionably be higher and for some time to come commercial planting of orchards will be on a reduced scale. This is the opportunity for both the home gardeners and of the nurserymen catering to them. Having found that growing plants is after all not such a difficult or serious affair they

will be inclined to go a step farther and set out berry plants and bush fruits, and ultimately orchard trees.

Having learned through their recent experiences that the home grown product is of a vastly superior quality they will be more readily open to conviction that the same thing is true of the fruits. Here, the nurseryman must be a missionary serving his customer to the best of his ability and teaching him that market varieties are not the best available for the home garden.

In fact the two ideals are diametrically opposed, and one might almost go so far as to say that a variety of superlative market quality is, by that very token, scored down for the home.

Here in this state, under the auspices of this very organization that in the past has rendered such valued service in introducing the fanciest fruits to the gardens of New England, it seems fitting at this time to again direct attention to the home standard of qualities in fruits. Have we not lost something in recent years? Is there to be a renaissance in this?

THE RETURNING SOLDIER.

Is the returning soldier to be a factor in our renaissance? Surely there have been "much coming and going on the surface of the earth, vast interchanges of ideas and experiences among the nations of men." Already, indeed, we have some evidence that those who are returning, despite the appalling scenes of horror and devastation, are coming back with visions of the beauty of the European home garden. They have seen thousands of them, hundreds of thousands of them, scenes of roadside and rural beauty that have been as bywords to the initiated horticulturist, who, however, has largely failed hitherto to find a responsive public.

Not in vain have the "Poppies on Flanders field" bloomed before the eyes of our men, for they have seen with their own eyes what the growth of flowers may do to redeem tragedy and horror. They have seen flowers waving a welcome of color and delight away from the battlefield.

We have been told how the people of France and England welcomed the troops with garlands and bouquets of flowers. When

our troops paraded in Paris on the 4th day of July the civilians along the line of march ran out and handed flowers to the fighting men. I have seen it, you have seen it, in the motion picture films. The people with one accord in giving expression to their joy wanted to "say it with flowers."

Flowers have carried their messages of consolation into the hospitals. There will be a different response when the men again meet flowers around their own homes. If they are not met with flowers don't you think they will be missing something, these hundreds of thousands? They will look for them; can we afford to let their home coming discover us down at the heels?

It seems to me that chief effort in holding on to and developing the latent possibilities here met, is very largely in the hands of those gentlemen who are also destined to reap the greatest benefit. I mean the various branches of the horticultural trade. It may be fairly questioned whether in the past the dealer has done his share in fostering and developing the market before him, but, however that may be, he must in the future do more to cultivate his market.

The florists have set a good example in their combined publicity campaign and their insistence upon the thought that whenever you have anything to say you can "say it with flowers." The same kind of concrete idea should be put behind the publicity work of the allied branches. Publicity — advertising — is a big factor in the business world of to-day.

The dealer in horticultural products has not yet learned the good business sense of putting himself in the customer's shoes. The average seed or nursery catalogue does little to help the prospective customer. As evidence let me introduce a letter written by a prominent business man on Fifth Avenue, New York City, and it is representative of others. For obvious reasons I have substituted A and B for definite names:

"I have bought A's seeds for a number of years, but I was drawn to B because his catalogue is so much better than A's; that is, the arrangement seems more intelligent.

"How on earth is a man like me to buy seeds from the kind of catalogues that are sent out by the seedsmen? These do not seem to be written for either the plain simp like myself or the market

gardener. I have an idea that they are written for competitors.

"Surely every specimen or variety of one vegetable or flower cannot be Mammoth, Colossal, the Earliest, the Largest, the most Prolific. Take Peas, for instance. How is one to select Peas from A's catalogue? What do these different varieties mean? I find that some of the names given to the varieties are the exclusive property of the seedsman, and others seem common to the vegetable world.

"I decided to have Savoy Cabbage because we like that better than any other kind, having eaten it a great deal in England, but Savoy Cabbage is not catalogued in either A or B. By good luck I find an article in a magazine on raising cabbage, which says that the best of the Savoys is the Drumhead. I find Drumhead in both catalogues, but neither description mentions that the Drumhead is Savoy. How are we to know these things?

"You may possibly reply that the catalogue is not written for such an ignoramus as I am, but there must be a lot like me. I think that an intelligent advertising man could work a revolution in seed catalogues by making them so anybody can select seeds intelligently.

"Restrictions have been put upon numbers and styles of many businesses on account of the war. In certain lines manufacturers were ordered to cut out variations that merely multiply, and the restrictions placed on the use of paper combined to simplify the situation. Shoemakers, stationers, tire manufacturers, had hitherto carried unnecessary numbers in various lines with very little idea of selling them, but rather to dazzle the trade and the public.

"Every time Jones got a new style in his particular line Smith, Brown, and Robinson hastened to rush out a similar style to compete with it. To dress the line, not to sell. Nearly all these manufacturers welcomed the necessity to cut them out; and few of them will go back to the old method. Is it possible that a good many of the different strains and varieties that the seedsmen think it necessary to show are inspired by the same motive?"

What will the seedsman answer?

It is difficult for a man to stand off and get perspective on his own case, and under existing conditions the seedsman's outlook is none too bright for the immediate future and perhaps for a couple

of years to come. Certain stocks for which dependence has been placed on the European growers in the past are naturally uncertain quantities to-day. It will be difficult to maintain standards. In some cases the energies of the men who grew the seeds have been diverted into the destruction of war. This is equally true of both France and Germany. Some of the finer strains of certain lines may be lost for all time.

On the other hand, the American grower has spread out considerably and it has been suggested that an infant industry that is showing great vitality might be carefully nursed to large proportions; and that the work of seed growing opens up a productive and suitable field for reëducated American soldiers, who have been so unfortunate as to have suffered such injuries as prevent their engagement in heavy labor. Seed growing seems to offer congenial occupation for the physically weak but mentally alert man.

Supply and demand are interrelated. The nurseryman and florist see their outlook somewhat darkly to-day as they come to realize that recent government regulation is affecting them. I refer to the condition brought about by the action of the Federal Horticultural Board in restricting imports of foreign stock, which ruling becomes effective on the first of June.

Of course, there is a division of opinion on this; but, if the ruling stands as issued the reaction in our gardens, especially on our private estates and the better kept gardens, will be startling and although not directly connected with after war reaction, still its effects will be synchronous, and may properly be considered to-day.

If, and as I honestly believe, it is the universal belief that we are on the verge of a greatly increased demand for all kinds of horticultural products, then the proposed embargo has a close relationship to our present discussions.

Effective June 1st, 1919, the order practically prohibits all foreign imports and this affects seriously the supplies of a great many of the most popular and commonly cultivated garden plants. There will be no Azaleas, Rhododendrons, Spiraeas, Araucarias, Dracaenas. Boxwood with its "fragrance of eternity" will no more be available for edgings and so forth.

The Orchid collector will see his gems gradually diminishing with no chance of replenishment. The gardens and nurseries of

Europe which have given us novelties in Dahlias, Iris, Peonies, and many other favorites of our hardy border may no longer be drawn upon.

Importations from abroad will be restricted to Lily bulbs, Lily-of-the-Valley, Narcissus, Hyacinths, Tulips, and Crocus free from soil; no other bulbs. Our Rose gardens will have to wait some years before the novelties of the world can be introduced into American gardens.

Commercial importation of ordinary articles of the nursery trade is absolutely prohibited. Why? Say the authorities: "to exclude dangerous insect pests." The order will permit the importation of fruit stocks, seedlings, scions, and buds of fruits for reproduction, Rose stocks for reproduction purposes including Manetti, Multiflora, Brier, and Rugosa.

You will be permitted, however, to import seeds of forest ornamentals and shade trees, deciduous and evergreen shrubs and hardy perennials. The exclusion of budded Rose plants and the admission of stock on which named novelties are budded or grafted may be worthy of further consideration. It is hard to see how a budded or grafted plant bearing a modern variety can be more dangerous to the country than the same root and stem not budded.

Provision is made for the importation through official channels for material for propagation which is to be kept under observation and distributed when "in the opinion of the officials" it shall be safe.

Is it any wonder that the nursery trade is protesting that the board in this order is stepping dangerously on to the questions of trade policy and tariff reform? What a picture we present! "We pity you, Belgium, and hope from the bottom of our hearts that you will reestablish your industries. We shall gladly see you once again resume your place in the commerce of the world, but don't expect us to buy anything from you; by all means, no." Killing the dog to destroy the fleas!

But there are many people, whose opinion is worth considering, who believe that the ultimate reaction of this embargo will be for the benefit of the entire industry. It will shorten the available supply in the immediate future along certain lines. They believe it will stimulate our own plantsmen and nurserymen into new lines

of industry, exploiting new stocks of little known plants, and through the desire for new creations the achievements of certain American horticulturists of more than a generation ago may be repeated. Perhaps, as the bard of Avon wrote,

We, ignorant of ourselves,
Beg often our own harms, which the wise powers
Deny us for our good; so find we profit.

There is a very evident confusion of two entirely different issues. On the one hand there is the restricted business of those who deal largely in imported novelties and certain other material produced in great quantities by the trade in Europe; and, on the other hand, there is the stimulating effect on those who are anticipating an opportunity to supply the hitherto existing demand with something of a different character or type. The effects of any such action will do much to change the general character of our gardens. Some foresee in this, material aid to an all-American type of ornamental gardening that will be founded upon the available material. It has been openly confessed for a long time past that certain goods produced cheaply in Europe and planted indiscriminately in American gardens have constituted a drag anchor on our progress.

Of course this is really befogging the main issue of the exclusion problem which would largely prevent us getting many things and would build up a barrier against interchange and progress. If the order remains in effect we shall undoubtedly have to start creating a great deal of the material on which progressive horticulturists have been depending, and it will take time.

It may be fitting for this society at this time to indulge in interchanges of ideas on this very pertinent subject of plant exclusion and perhaps to take such action as may seem desirable.

Organized societies, such as the one under whose auspices we meet to-day, must recognize their share of responsibility in the renaissance. It would be very unfortunate if the present gardening interest should wane and die out through inaction here. It seems to me we should make an extra effort to reach the amateur. Societies might offer additional prizes for beginners; perhaps they should hold exhibitions exclusively for those who have never exhibited previously. Prizes should be honor awards of cups and

medals which the winner may keep, rather than money which is soon spent.

The foundation of scholarships for instruction in practical gardening by the Women's National Farm and Garden Association is a step in the right direction. These are held at the state colleges.

Awakened love of gardening; valued physical benefits therefrom; aroused interest from old world contact; properly stimulated rivalry in competition; and a keener civic pride will accomplish great things in the future for American gardening.

What has been said may not be very constructive after all; indeed it may be all wrong from beginning to end. But I have tried to lay before you conditions as they seem to me, and personally I hope for much from the future, and besides as it has been expressed by another (J. P. Peabody in *The Piper*),

It is so glad and sad and strange,
To find out what will happen next.

PROTECTING AMERICAN CROP PLANTS AGAINST ALIEN ENEMIES.

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THE JOHN LEWIS RUSSELL LECTURE.

IN a recent publication issued by the Bureau of Entomology, U. S. Department of Agriculture, there is listed, partly figured, and partly described, something over 2,200 species of dangerous insects that are likely to be introduced into this country. The publication also sets forth a list of about 110 insect pests already introduced which cause losses to our crop plants of more than five hundred million dollars annually. Similar lists of introduced and likely to be introduced plant diseases have not yet been prepared. There is sufficient evidence at hand, however, to warrant the statement that the number of diseases produced by fungi and related organisms likely to be introduced and already introduced is fully equal to the number of insects.

The injuries which these introduced diseases are causing are fully as great as the injuries produced by insects. The U. S. Department of Agriculture is now carrying in its annual budgets appropriations to the amount of about one million dollars to be used solely and exclusively in fighting a small number of the more important alien crop enemies that have recently been brought into this country. The million dollars is expended largely for combative, curative, and eradivative measures. The sum, in other words, is an annual tax levied on the people in order to help hold in check certain pests that have already been brought here.

In addition to the million dollars spent as described, several millions more are being annually expended by the Federal and State Governments in the control of pests which have long been with us, and which for the most part are undesirable immigrants that came in with our earlier commercial plant importations. More than fifteen million dollars has been spent in the New England States by the Federal Government, the States themselves, private individuals, and others in combating the gipsy moth since its introduction.

We might proceed with such examples indefinitely, but it is hardly necessary before this audience to advance further arguments as to the damage caused by these enemies. They are recognized everywhere and the very fact that they are so common is probably one reason why they have come to be looked upon as part of the price we must pay for being a very big country, a very rich country, and a very thriftless country when it comes to the prevention of needless wastes. Granting the facts as presented, let us see if we can not develop a sort of background for what we shall have to say regarding practical working protective measures that have been adopted and that may be adopted against these alien enemies to our crop plants.

First. Alien enemies to our crop plants may be actual or potential. They exist in all parts of the world. Many of the enemies have been listed and studied and their powers for injury determined. Many more have not been studied and their power for injury may only be surmised. Because an insect or plant disease is destructive in a foreign country is not always a criterion that it will be destructive here if introduced. On the other hand, an insect or disease that may not be occasioning any serious damage in a foreign land may after introduction here sweep like fire through our fields or through our forests. For example, the chestnut blight disease has for centuries existed among the chestnut trees of China, but its damage there is more or less negligible in comparison with the havoc it has caused here since its introduction. The cotton boll weevil rested in peace and quiet for centuries in its Guatemalan mountain home, but suddenly it found its way through Mexico into Texas and in fifteen years has caused losses aggregating more than a billion dollars and has worked a revolution in our agricultural practices of the South.

We have these plant enemies, therefore, both actual and potential, in all foreign countries. We shall always have them, and the more intensive our agricultural and horticultural practices become, the more likely are we to suffer from alien plant foes.

Second. No system of plant inspection or no plan of plant exclusion will suffice to entirely control the spread of these foreign crop foes. There are no longer hermit kingdoms in the world. Barring periods of war, men must move about freely over the earth and the waters of the sea. Travel and commerce are international. The good things of mankind and the bad things of mankind go with mankind. Wherever he goes they go. Willingly or unwillingly, knowingly or unknowingly, consciously or unconsciously, man is the direct and indirect agent for the transportation of things that may make him or things that may break him. Recognizing these fundamental truths, there are two things that man may do to meet the situation. He may adopt a *laissez-faire* doctrine and say that what is to be will be, or he may take measures which while not curative will at least be palliative.

Third. The elaborate and systematic activities for the prevention of the spread of diseases among man and domestic animals and the preliminary steps that have been taken with respect to plants along this line are all palliative. Despite every precaution, diseases come in, but it has come to be recognized as a fundamental tenet that these palliative measures pay. Every civilized country in the world now practices these measures. Naturally the most intensive efforts have been made in the direction of protecting the health of mankind. Next, the most elaborate and to some extent the most perfect system has to do with the prevention of the spread of animal diseases throughout the world. These palliative or protective measures, therefore, have come to be regarded by all civilized countries as a form of insurance, highly essential and necessary to the public welfare.

We have now seen that actual and potential enemies to our crop plants exist in all parts of the world; that no system of inspection or exclusion will completely keep these enemies out; that we may fold our hands and let matters take care of themselves, or we may adopt certain measures which are palliative and which are well worth while, for they constitute a form of insurance that civilized countries have found it to their interests to carry.

It has taken a good many years to crystallize public sentiment where it recognizes the principles we have here set forth. Public sentiment is the barometer recording the things the people want done. It usually manifests itself through those agencies which the people set up to represent them, namely, their legislative bodies. Ten years ago a number of states had begun legislation with the object of protecting themselves against outside enemies in the shape of insects or diseases or both. Even earlier there was legislation such as the peach yellow laws, plum black knot law, San José scale law, and other laws.

Nursery inspection came into existence, so that gradually there grew in the public mind the demand for protection against plant enemies that were coming to us each year from foreign countries. Six years ago pressure for some Federal action in the matter of meeting these alien foes became so great that congressional action was finally secured, resulting in the passage of the Federal Plant Quarantine Act. This law went into effect in 1912. The law, like many others of similar nature, was a compromise. It represented on the one hand the views of a group of specialists who had been face to face with a series of problems of a most serious nature, which unrestricted commercial plant importations had thrust upon the country. On the other hand, there was a coterie of men who had large commercial interests at stake and who did not look with favor on any steps that might tend to interfere with what they considered their legitimate business operations.

The Plant Quarantine Act carried with it the authority for the appointment of a Board by the Secretary of Agriculture, to be known as the Federal Horticultural Board. The Act further provided that the Board should be made up of representatives from each of the large bureaus in the Department interested in plants, namely, the Bureau of Entomology, the Bureau of Plant Industry, and the Bureau of Forestry. Fortunately the Act gave wide discretionary power to the Secretary of Agriculture, which through him is vested in the Board. I am not a member of the Board, therefore I may be permitted to speak with the freedom of one who has watched its work and the effects of what it has done on certain agricultural and horticultural activities in which I have long been interested.

During the six years of its existence, the Board, by its eminently fair attitude toward the industries affected and the painstaking way in which it has met and handled the various problems presented to it, has gained the confidence of the public. Its work necessarily had to be evolutionary. It must continue so because hard and fast lines can at no time be drawn in such matters. After very careful investigation in each case, the Board issued a number of special foreign and domestic quarantines which unquestionably have done much to protect the country from alien plant enemies and the further spread of some of those we are so unfortunate as to have already with us.

The Board has developed a system of organized inspection, which beyond doubt is the best of its kind anywhere in the world. The results secured by its trained corps of workers are such as to make practicable the ability to detect many of the serious enemies by rigid and intensive systems of inspection. The very fact that so much has been accomplished along these lines has shown the inadequacy of the usual inspection methods and points to the need of more effective protective action in the exclusion of the host plants themselves.

During the past two or three years the need for plant exclusion has been more strongly felt. Public sentiment demanded action and has been quite insistent on greater protection. As evidence of this, various organized agencies have taken action. Such bodies as the state departments of agriculture and horticulture, state nursery inspectors, state entomologists, American Association of Forestry, American Phytopathological Society, and various other organizations have voiced their opinion as to the need for action which would meet the situation. The Federal Horticultural Board gave all these matters careful consideration. Hearings were held from time to time and many discussions took place with representatives of horticultural interests and other workers in this country.

While these matters were under consideration by the Board, certain legislative action of a very drastic nature was proposed. Bills were introduced which were referred to the Department and which upon the recommendation of the Board were left unconsidered. It was believed that the Federal Horticultural Board had

full power under the law to take whatever action was necessary in the premises. The Federal Horticultural Board, not content with the opinion of its own members, called upon plant experts of the Department who gave the matter very careful study, with the result that it recommended that while complete exclusion would afford the greatest measure of safety, it would be necessary under existing conditions to permit the entry of certain plants under restrictions, and this was the action finally taken by the Board in the issuing of Quarantine Order No. 37.

The speaker from this point illustrated his remarks by means of lantern slides, many of which were colored. First was discussed the scope and effect of Quarantine Order No. 37, it being pointed out that certain plant materials like fruits, vegetables, cereals, and other plant products imported for food, medicinal, or manufacturing purposes, and all vegetable, field, and flower seeds could come in as heretofore without restrictions. Certain nursery stock and other plants and seeds not covered by special quarantines might be imported from foreign countries when free from sand or soil or when packed in sand or soil properly sterilized.

These plants and plant materials consist of lily bulbs, lily of the valley, narcissus, hyacinths, tulips, and crocus; stocks, cuttings, scions, and buds of fruits for propagation; rose stocks for propagation, including Manetti, Multiflora, Brier rose, and *Rosa rugosa*; nuts, including palm seeds, for propagation; seeds of fruit, forest, ornamental, and shade trees, seeds of deciduous and evergreen ornamental shrubs, and seeds of hardy perennial plants.

The special foreign quarantines already in existence were then discussed. It was pointed out why these quarantines were put into effect and the objects that had been accomplished thereby. Special mention was made of a new corn disease which is known to exist in certain tropical countries, notably Java, and which is now receiving special study from experts in the Department. It is believed by the experts of the Department that if this disease is introduced into the United States, it would prove a very serious enemy to our greatest of all crops — Indian corn.

Diagrams were shown indicating the plants which automatically would not be permitted entry after the quarantine went into

effect. This includes practically all ornamentals, a considerable list of what is commonly known as florist stock, bush fruits, fruit trees, grapevines, etc. It was pointed out that it would still be practicable under the new quarantine regulations to bring in novelties for the use of horticulturists and others. The proposed methods for bringing in these novelties were described. This work will be handled through the Office of Foreign Seed and Plant Introduction in the Department of Agriculture. The novelties will be received and cared for at the inspection houses in Washington and when found to be free from dangerous insects and diseases will be forwarded to the importers.

The work of the Office of Foreign Seed and Plant Introduction was then described. This office for more than twenty years has been bringing into the country plants, seeds, and other plant products from all parts of the world for the purpose of aiding and building up our own crop industries. More than 50,000 introductions have been made. Five special stations have been established for the purpose of growing, testing, and propagating these new introductions. Many hundreds of collaborators are also engaged in this work. It has been the primary object of the office to bring in and introduce plants only after it was certain they were entirely free from injurious insects and diseases.

To this end the office has collaborated with the Federal Horticultural Board and has established well equipped inspection houses, quarantine houses, detention houses, etc., in Washington, D. C. The methods pursued in the inspections and the proper care of the plants were then fully described and illustrated by means of lantern slides. If at any time it is found that certain plants brought in are suspected of harboring some obscure disease which is not immediately evident, provision is made for growing such plants in quarantine under very careful isolation methods.

The speaker stated that it was the object of the Office of Foreign Seed and Plant Introduction to aid horticulturists and others in every practical way in the development of their work. The methods that have been followed in the introduction and establishment of some of the more valuable foreign plants were described. The Office of Foreign Seed and Plant Introduction is now engaged in quite elaborate investigations of stocks for our fruit and orna-

mental plants. Special attention is being given to the pear and the rose. The office has introduced more than 400 different kinds of pears in the last twenty years. Recently some valuable discoveries have been made in connection with blight-resistant pears. Most of these pears are proving valuable adjuncts to our collection for use as stocks. One of these was introduced by the Arnold Arboretum and the original tree is growing there at the present time. This is known as *Pyrus calleryana* and is one of the most promising stocks now being tested.

Experiments and investigations in coöperation with nurserymen were described showing the methods being followed in testing out these stocks. The Office of Foreign Seed and Plant Introduction has made some valuable introductions in the way of roses which may prove useful for stocks. These, together with other promising types, are being tested in various parts of the country.

The equipment and work of the several field stations were described and the speaker stated that all of these facilities were at the disposal of horticulturists in connection with any lines of constructive work that might be of value in advancing the horticultural interests of the country.

CONCLUSIONS.

The conclusions in reference to protecting American crop plants against alien enemies were summarized as follows:

1. There are many thousands of insects and diseases not yet introduced here, which are known to attack plants in foreign countries. Since the organization of the Federal Horticultural Board in 1912 and the development of careful systems of inspection, an average of about 100 dangerous insects and about the same number of fungous and related parasites have been discovered each year on stock shipped to this country from Holland, Belgium, France, England, Germany, and Japan. Holland is credited with 148 such insects, Japan 108, France 89, Belgium 64, England 62, and Germany 15.

2. The material proving the greatest source of danger consists of balled or potted plants with earth about their roots. It is

impracticable to properly inspect such material here and the certificates of foreign inspectors have proved to be of little or no value. From one of the smaller European countries 1,236 separate and distinct shipments were examined in the past six years and each shipment was found to be infested with one or more dangerous insects. Three hundred seven of these shipments were azaleas.

3. No system of inspection will prevent the spread of dangerous insects and diseases. The very best system of inspection may delay the spread and for this reason properly conducted inspection pays, for it may be regarded as a form of insurance. Exclusion of the plants themselves is not always an absolute safeguard, but it is the safest method known and has been adopted in one form or another by practically all civilized countries.

4. After careful study of all phases of the subject the Federal Horticultural Board decided on a system of limited exclusion. Under this plan the governing principle is to limit commercial plant importations to the classes of plants which have been represented by the plant interests concerned in this country as being essential to plant production; in other words, the raw material out of which salable fruit trees, roses, etc., are made. To these have been added certain classes of plants, including bulbs and seeds, which could be reasonably safeguarded by inspection and disinfection.

5. The main features of the new quarantine are as follows:

Requires permits and compliance with regulations for importation of lily bulbs, lily of the valley, narcissus, hyacinths, tulips, and crocus; stocks, cuttings, scions, and buds of fruits for propagation; rose stocks for propagation, including Manetti, Multiflora, Brier Rose, and Rosa Rugosa; nuts, including palm seeds, for propagation; seeds of fruit, forest, ornamental, and shade trees, seeds of deciduous and evergreen ornamental shrubs, and seeds of hardy perennial plants.

Leaves unrestricted, except in special cases, importations of fruits, vegetables, cereals, and other plant products imported for medicinal, food or manufacturing purposes; and field, vegetable, and flower seeds.

Excludes all other classes of plants for propagation, including fruit trees, grapevines, bush fruits, grafted and budded roses, forest, ornamental, and deciduous trees, ornamental and deciduous

ous shrubs, pine trees of all kinds, broad-leaved evergreens (such as azaleas and rhododendrons), and a long list of plant material commonly known as florists' stock.

Excluded plants may still be imported through the agency of the Department of Agriculture, in limited quantities to supply the country with novelties and necessary propagating stock, such entry being safeguarded by highly-developed inspection and quarantine service which has been organized by the Department.

6. The Office of Foreign Seed and Plant Introduction in the Department of Agriculture will act as an agency to aid horticulturists and others in the importation of novelties and plants for propagating, etc. The office has been introducing new and rare plants for more than twenty years and during that time it has brought in more than 50,000 lots. It has developed special facilities for the care of plants during inspection and has established five field stations where its introductions are propagated and tested. It is engaged in constructive work on stocks for American fruit trees and stocks for roses and other ornamental plants. Studies are also being made of the regions which offer the best conditions for the growing of ornamentals and other plants now imported in large numbers but which under the new quarantine will be excluded.

DISCUSSION.

A spirited and at times acrimonious discussion followed Dr. Galloway's lecture, especially that part of it referring to the recent regulations of the Federal Horticultural Board governing the importation into the United States of plants and plant products, as embodied in Plant Quarantine No. 37, effective June 1, 1919.

William N. Craig said he considered Dr. Galloway's defence of Quarantine No. 37 to be rather weak and pitiful. He asked the Lecturer whether there was any more danger in importing such bulbs as iris, snowdrops, chionodoxa, fritillarias, gladioli, begonias, and gloxinias than in tulips, narcissi, hyacinths, crocus, and lilioms. Was there any remote possibility that the former should be any greater carriers of pests or diseases than the latter, and could he enumerate any dangerous pests which had come in on bulbs?

The statement in the recent memorandum issued by the Federal Horticultural Board that debarred plants "could be promptly produced in this country" was entirely contrary to facts. Was he aware that it required 5 to 10 years to raise orchids from seed to the flowering stage? That bay trees such as are demanded here are 10 to 25 years old, boxwoods 12 to 15 years old, and rhododendrons, azaleas, araucarias, and other plants, including the growing of stocks to be grafted on, 6 to 7 years old? Who was willing to begin the propagation of these plants here and wait long years without any financial returns and probably have a new Federal Horticultural Board take off the quarantine?

We could not produce satisfactory fruit and rose stocks here and had to import them. Holland threatened to prohibit exports of these stocks. If Britain and France did likewise what would growers here do? Rose stocks were to be admitted and grafted roses debarred. Was there any more possible danger from one than the other? The Lecturer admitted that all of heroic Belgium's products were to be debarred, as there was grave danger of injurious pests coming in on soil. Why did they permit the unchecked importation of one thousand bales of peat moss litter uninspected and unfumigated from the same country?

Why did not the Lecturer tell the audience that the gipsy moth, our worst New England pest, did not come in on nursery stock but was turned loose by an entomologist near Boston? That the corn root borer came in on hemp stock or rope, which latter commodities are still permitted entry? That the pink boll worm and Hessian fly did not come in on nursery stock? That the white pine blister rust came in on an importation made by the U. S. Government itself, and that the chestnut bark disease arrived on the hoofs of animals sent to the New York Zoölogical Gardens?

The whole measure was full of inconsistencies and clearly showed the folly of allowing a board which contained no practical horticulturists to make up so iniquitous a quarantine. This board was created to protect our plants from enemy alien pests but it looks as if they were endeavoring to put through a tariff measure at the behests of a small minority of propagators and nurserymen.

Attempts to produce azaleas and rhododendrons on a large scale on the Pacific coast had resulted in complete failure. There was

no proof that bulbs of a satisfactory quality could be produced here and long years of patient work would be needed to give us the plants now debarred from our European allies. It was unfriendly legislation and was sure to be resented abroad. If enacted it would do immense harm to horticulture, render our gardens, greenhouses, and exhibitions far less interesting, and bring serious loss and ruin to many growers.

Mr. Craig said there seems to be no valid reason why careful inspection by properly trained men before shipment and after arrival should not amply safeguard our growers at home. He considered this quarantine unjust, unfair, and very discriminating. In it Germany is distinctly favored, while friendly nations have practically all their products debarred. It was his earnest belief that this quarantine should not go into effect on June 1, and that no such action should be taken which does not properly safeguard the increasingly important horticultural interests of America.

Mr. Craig offered a series of resolutions embodying the suggestions made in his remarks which were approved by a majority of those present.

In reply to Mr. Craig's strong denunciation of the proposed Quarantine No. 37, Dr. Galloway remarked that this quarantine would go into effect on June 1 and stay there forever, no matter if you pass forty resolutions, and that orchids and the other flowers mentioned do not amount to a bagatelle.

John E. Lager said that he had devoted the best part of his life to horticulture; especially in orchid collecting and growing. He asked if the Lecturer could tell him of any case of infestation coming in through orchid importations. Orchids were grown in greenhouses, so do not get outside to any extent.

Dr. Galloway replied that it was difficult to examine and disinfect orchid plants without serious injury to them and that numerous insects had been found on them, some of which might have proved dangerous.

W. H. Wyman remarked that most of our injurious plant pests had not come through nursery stock. He had attended the hearings in Washington and had protested without effect the autocratic rulings of the Federal Horticultural Board which threatened to throttle the horticultural interests of the country.

John K. M. L. Farquhar said that he had kept in touch with the subject for some time and had attended the hearings of the Federal Horticultural Board in Washington. He said that the action of the Board was unwise and if carried out would set back horticulture in the United States fifty years and would reduce the interest in it forty per cent. He had been disappointed that the Board should have adopted such drastic measures and that it was the duty of horticulturists to oppose the order.

George N. Smith said he regretted that the beautiful flowers produced in Europe could no longer be seen here. It was evident that the consensus of opinion at this meeting was against the adoption of Quarantine Order No. 37, and that we should not consent to it but should oppose it strongly.

TRANSACTIONS
OF THE
MASSACHUSETTS
HORTICULTURAL SOCIETY
FOR THE YEAR 1919

PART II



PUBLISHED BY THE SOCIETY
BOSTON
NINETEEN HUNDRED AND TWENTY

TRANSACTIONS

OF THE

Massachusetts Horticultural Society

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BOSTON

PRINTED FOR THE SOCIETY

NINETEEN HUNDRED AND TWENTY

MASSACHUSETTS HORTICULTURAL SOCIETY.

1919.

The Transactions of the Society are issued annually in two parts under the direction of the Committee on Lectures and Publications.

Communications relating to the objects of the Society, its publications, exhibitions, and membership, may be addressed to William P. Rich, Secretary, Horticultural Hall, No. 300 Massachusetts Avenue, Boston, Massachusetts.

FRED A. WILSON

Chairman

THOMAS ALLEN

JOHN K. M. L. FARQUHAR

} *Committee*
on

} *Lectures and*
} *Publications.*

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ANNUAL REPORTS FOR THE YEAR 1919.



TRANSACTIONS

OF THE

Massachusetts Horticultural Society.

1919, PART II.

REPORT OF THE BOARD OF TRUSTEES FOR THE YEAR 1919.

The Board of Trustees of the Massachusetts Horticultural Society presents herewith to the members a summary of the business transacted at its meetings during the year 1919.

January 11. Mr. Saltonstall for the special committee on the finances of the Society submitted the following report which was accepted and adopted:

At a meeting of the Special Committee of the Massachusetts Horticultural Society held on the 21st day of November, 1918, at which Messrs. Gen. Stephen M. Weld, Charles W. Moseley, and R. M. Saltonstall were present, also Mr. Walter Hunnewell, Treasurer, Mr. F. A. Theall, Mr. Hunnewell's assistant, and Mr. William P. Rich, Secretary, the report of Harvey S. Chase & Company on the audit of the accounts of the Society for the year ending Dec. 31, 1917, was again considered and notably the matter of the item of \$48,500.95 carried on the Treasurer's books as Surplus Income, and after due consideration, it was determined advisable that there should be sundry charges made against this item of Surplus Income as follows:—

First:— Investment Account: It was determined advisable to charge off certain premiums to bring the book value of bonds down to par, and for this account a total amount of \$8,625.25 was charged against Surplus Income and credited to the Investment Account.

Second:— Library Equipment: It was determined advisable to add

\$1,470.00 to the book values of Library Books and Equipment, and Accumulated Income credited with that amount.

Third: — Plates and Copies of Histories Account: It was determined advisable to charge off \$235.50 on this account as the articles represented thereby were of doubtful value, and Accumulated Income charged this amount.

Fourth: — Furniture and Exhibition Ware: It was deemed advisable that the book value of the same should be reduced by the amount of \$2,814.35, and said amount charged to Accumulated Income.

Fifth: — Society's Building: It was found that no repairs had been charged against the book value of the building of the Society corner of Massachusetts and Huntington Avenues, and it was thought proper that a charge for depreciation against the value of the building against Accumulated Income should be made of \$20,000.00, and this amount therefore was credited to the Building Account.

Sixth: — Special Prizes: The books showed that there were a number of small special prizes with balance of \$112.00 which had never been closed out, and Accumulated Income was credited with said amount of \$112.00.

The result of the foregoing changes is as follows:

Surplus Income Credited:

Special Prizes	\$112.00
Library Equipment	1,470.00
Surplus Income	48,500.95

\$50,082.95 Jan. 1, 1918.

Surplus Income Debited:

Investments	8,625.25
Plates and Copies of Hist.	235.50
Furniture & Ex. Ware	2,814.35
Society's Building	20,000.00

31,675.10

\$18,407.85 Balance of Surplus.

It was voted that beginning January 1, 1919, the entire receipts for life membership fees be credited to the permanent funds of the Society.

The suggestion made by William N. Craig at the Annual Meeting of the Society, November 16, 1918, that the Trustees be requested to make an appropriation for exhibits of plants and flowers at the exhibitions of the year 1919, was presented and approved. Mr.

Saltonstall stated that the Advisory Committee had recommended to the Committee on Prizes and Exhibitions that \$500 of the annual appropriation be used for that purpose.

A synopsis of the Schedule of Prizes and Exhibitions for the year 1919 was presented by the Advisory Committee and approved by the Board.

An appropriation of \$400 was voted for the library for the year 1919 and an appropriation of \$500, to include the income of the John Lewis Russell Fund, was voted for lectures in 1920.

Walter Hunnewell was appointed Treasurer of the Society for the current year and William P. Rich was appointed Secretary, Librarian, and Superintendent of the Building. James Wheeler was appointed Superintendent of Exhibitions with a salary of \$300.

The nominating committee consisting of Messrs. Allen, Roland, and Saltonstall reported the following list of the Standing Committees of the Society for the current year which was approved and adopted:

COMMITTEES FOR 1919.

Finance: — Walter Hunnewell, Chairman, Arthur F. Estabrook, Stephen M. Weld.

Membership: — Thomas Allen, Charles W. Moseley, Thomas Roland, Richard M. Saltonstall, Edwin S. Webster.

Prizes and Exhibitions: — James Wheeler, Chairman, Robert Cameron, William N. Craig, Duncan Finlayson, T. D. Hatfield.

Plants and Flowers: — William Anderson, Chairman, Douglas Eccleston, S. J. Goddard, Donald McKenzie, William Sim.

Fruits: — Edward B. Wilder, Chairman, Isaac H. Locke, James Methven, Fred A. Smith.

Vegetables: — John L. Smith, Chairman, Edward Parker, William C. Rust.

Gardens: — Richard M. Saltonstall, Chairman, John S. Ames, William Nicholson, Charles Sander, Charles H. Tenney.

Library: — Charles S. Sargent, Chairman, Ernest B. Dane, Nathaniel T. Kidder.

Lectures and Publications: — Fred A. Wilson, Chairman, Thomas Allen, John K. M. L. Farquhar.

Children's Gardens: — Henry S. Adams, Chairman, Dr. Harris Kennedy, Miss Margaret A. Rand, Mrs. W. Rodman Peabody, James Wheeler.

February 12. Communications from Henry A. Dreer, Inc., The New England Nurserymen's Association, and the Elliott Nursery Company were presented requesting the Society to protest Quarantine Order No. 37 of the Federal Horticultural Board. It was voted to express the Society's opposition to the order in its present form.

The special committee, consisting of Messrs. Endicott, Farquhar, and Sargent, appointed to consider and report upon the future policy of the Society, presented the following report which was referred for further consideration to the next meeting of the Board.

Report on the Future Policy of the Society. The sub-committee of the Advisory Committee of the Society appointed to suggest plans for extending the usefulness of the Massachusetts Horticultural Society begs to submit the following:

That the Massachusetts Horticultural Society must be considered an educational institution is shown by the fact that the State of Massachusetts and the City of Boston allow it to hold real and personal property without taxation. There is, however, a feeling in this community that the Society is not accomplishing as much in increasing the love and knowledge of horticulture as it has the right to expect from it in return for the large benefits it receives from the public.

For many years the principal educational efforts of the Society have taken the form of exhibitions of flowers, fruits and vegetables. It is doubtful if many of these exhibitions held by the Society in recent years have had much educational value or have been worth to the public what they have cost in money and labor. Horticultural exhibitions are valuable when they make known to persons interested in horticulture new plants, fruits or vegetables, that is, plants which are not in general cultivation but should find a place in gardens. Exhibitions are valuable, too, when they contain examples of exceptionally good cultivation or artistic arrangement of material. It is doubtful, however, if prizes of a few dollars offered year after year for plants which have long been familiar objects in Massachusetts' greenhouses, or for six summer or winter apples, or for six heads of lettuce which can be found in any fruit shop or market in the city, can be

held to improve the standard or increase the knowledge of horticulture; yet for years the Massachusetts Horticultural Society has spent large sums of money for such prizes.

Horticultural exhibitions should not be abandoned; they can be made useful and stimulating, but your Committee believes that the public will be better instructed by a few important exhibitions than by many small ones, especially in a state like Massachusetts where there is not available an unlimited supply of material suitable for exhibition. For Massachusetts, although the business of the florist has been successfully developed here to a higher condition of efficiency probably than any other part of the country, is not a great nursery center, and it must be remembered that really successful horticultural exhibitions depend chiefly on commercial gardeners. It is the Veitches, the Turners, the Waterers, the Pauls, the Vilmorins, the Van Houttes, the Verschaffelts, the Margostans, and the Marliacs, not the owners of private gardens, who have made possible the great flower shows of Europe. Recognition in these exhibitions has been the most effective method of advertising that nursery gardeners could obtain. It has been a part of their regular business to exhibit, while for the owners of a private garden the exhibition of plants and fruits is often a serious inconvenience and considerable expense.

It has often been stated that it is impossible to stage an exhibition here without the inducement of money prizes. This is probably true in the case of those members of the Society whose interest in it is in the few dollars they can obtain in the form of prizes rather than in a desire to aid the Society in performing its duty to the community. It should not be forgotten, however, that no prizes were offered at the four most successful exhibitions given under the auspices of the Society — the Hunnewell exhibition of Rhododendrons on Boston Common, the exhibition which inaugurated the opening of the present hall, the outdoor exhibition of June, 1917, and the March exhibition of 1918. Their success was due to the public spirit of members of the Society who devoted time, money and effort to the uplifting of the horticulture of the state. We believe that members of the Society can always be found to make possible occasional exhibitions worthy the name of the Society.

The Society, if it is to accomplish what is expected of it, should not confine its educational efforts to holding exhibitions. It should be in a position to cooperate actively with similar societies throughout the state; it should teach the best methods of cultivation by actual demonstration wherever in the state there is a demand for such demonstration. It might well aid its members and the public with advice which would enable them successfully to control the insects and diseases which endanger their crops. It is believed that the production of vegetables and fruits can be greatly increased in the state by the drainage of lands which now unimproved could be made to yield great crops of vegetables for almost an indefinite period. Much land in the state is only partly productive on account of want of moisture and such land can be greatly increased in

value by irrigation. These are subjects in which a body of intelligent citizens like the members of the Massachusetts Horticultural Society should have some voice and exert some influence. The Society might well exert its influence also to secure a better understanding and better care of the parks and other public grounds of the state.

The library of the Society contains one of the largest and best collections of books relating to horticulture and kindred subjects in the world. Your Committee believes that it would be of more general value if the members of the Society realized that books could be borrowed from the library for their use at home, and we suggest that the librarian be instructed to give greater publicity to the library and to inform members how they can borrow its books. A monthly Bulletin of the additions to the library should be sent to members and to other horticultural societies in the state.

Attempts have been made for many years to increase the educational importance of the Society by courses of free lectures. Some of the lectures have been valuable but the money available for this purpose has not been sufficient to secure always the best men for this purpose. Your Committee believes that better results can be obtained by reducing the number of lectures in these courses, and by increasing the amount of the honorarium offered the speakers.

The suggestions which we have made will, if they are carried out successfully, require the efficient, energetic and intelligent efforts of the Society.

Its affairs have always been managed by committees, and it is a fact which few business men will dispute that the highest efficiency is not secured by committee management. Institutions, both educational and commercial, which have been managed by one man have always been the most successful; and your Committee believes that if the general management of the Society could be put in charge of one man directly responsible to the Board of Trustees he would be able gradually to inaugurate the plans for more active educational work which your Committee recommends. Such a man we believe would be able to unite in one common aim all the horticultural interests in the state, devise new methods of instruction and gradually convert the Massachusetts Horticultural Society from a local institution into a University of Horticulture in the broadest sense of the word capable of good which would be felt far beyond the borders of the state.

WILLIAM C. ENDICOTT

(Signed) C. S. SARGENT

JOHN K. M. L. FARQUHAR

Other votes were adopted as follows:

That a committee consisting of Messrs. Saltonstall, Allen, and Farquhar be appointed to represent the Society in matters of horticultural and agricultural legislation and public policy with authority to employ assistance when necessary.

To amend Act of Incorporation Mass. Special Laws, 1829, Chapter 22, Pages 814 and 815, so that it will read: — To lay and collect assessments on members in such sums as shall be decided from time to time by the Trustees.

To amend the By-laws as follows: —

That Section IX, Clause (7) which reads:

They shall arrange for six or more exhibitions of flowers, plants, fruits, and vegetables in each year, and shall have the entire charge of all arrangements for conducting the same. Such exhibitions may be arranged for by them not more than three years in advance and shall be announced each year at the annual meeting of the Society.

Be amended so as to read:

They shall arrange for such exhibitions of flowers, plants, fruits, and vegetables in each year as they may deem desirable, and shall have the entire charge of all arrangements for conducting the same. Such exhibitions may be arranged for by them not more than three years in advance and shall be announced each year at the annual meeting of the Society. They may also adopt such other methods for promoting the interest in horticulture as they may deem advisable. The proposed amendments to the By-laws were referred for action by the Society at the next annual meeting.

That the President be authorized to appoint a committee to study and report on systems of land drainage and a scheme for bringing them to the attention of the public.

That a committee be appointed with full powers to consider the question of applying to the Courts in regard to the payment of the income of certain Trust Funds, the terms of which bequests are obsolete. Referred to the Legislative Committee.

That no exhibitions of plants, flowers, fruits, and vegetables in the future be allowed in the Society's Building without the approval of the President, Vice-President, and Secretary.

That Messrs. Farquhar, Roland, and Sargent be appointed a

committee to consider and report on the Schedule of Prizes and Exhibitions for the year 1920.

April 30. Mr. Farquhar reported that the protest of the Society against the recently adopted Quarantine Order No. 37 had been forwarded to the Secretary of Agriculture at Washington.

The recommendation of the Advisory Committee concerning an exhibition of orchids and other plants in March, 1920, was approved and adopted together with an appropriation of \$5,000 for the same.

A further appropriation, not exceeding \$2,500, to include the income of the special prize funds of the Society, was voted for other exhibitions in the year 1920. It was voted also that the exhibitions of that year shall not exceed six in number. It was voted to refer the matter of publicity of the March Exhibition to the Advisory Committee with full power to act.

The matter of the report of the special committee on the future policy of the Society, presented at the previous meeting, together with the suggestions of President Endicott in his inaugural address was referred for further consideration to the Advisory Committee.

October 20. The special committee consisting of Messrs. Allen, Farquhar, and Sargent, appointed by the President to prepare a list of nominations of the standing committees of the Society for the year 1920, presented through Mr. Farquhar the following list which was approved and adopted:

COMMITTEES FOR THE YEAR 1920.

Finance: — Walter Hunnewell, Chairman, Richard M. Saltonstall, Stephen M. Weld.

Membership: — Thomas Allen, Thomas Roland, Edwin S. Webster.

Prizes and Exhibitions: — Thomas Allen, Chairman, Duncan Finlayson, T. D. Hatfield, James Wheeler, Ernest H. Wilson.

Plants and Flowers: — Samuel J. Goddard, Chairman, Douglas Eccleston, Julius Heurlin, Donald McKenzie, Thomas Roland.

- Fruits: — Edward B. Wilder, Chairman, Walter H. Golby, Isaac H. Locke, James Methven, John E. Thayer.
- Vegetables: — William N. Craig, Chairman, Edward Parker, William C. Rust.
- Gardens: — Richard M. Saltonstall, Chairman, John S. Ames, Charles W. Moseley, William Nicholson, Charles Sander.
- Library: — Charles S. Sargent, Chairman, Ernest B. Dane, Nathaniel T. Kidder.
- Lectures and Publications: — Fred A. Wilson, Chairman, Thomas Allen, John K. M. L. Farquhar.
- Children's Gardens: — James Wheeler, Chairman, Miss Marian R. Case, Dr. Harris Kennedy, Miss Margaret A. Rand.

James Wheeler was appointed Superintendent of Exhibitions at a salary of \$300.

A copy of the Schedule of Prizes and Exhibitions for the year 1920, as prepared by the Committee on Prizes and Exhibitions, was presented for the consideration of the Board. It provided for ten exhibitions during the year carrying an appropriation of \$8,500, of which amount \$1,000 was a special contribution for four exhibitions provided for by Miss Marian R. Case and to be entered under the heading of Hillcrest Farm Prizes. It was voted to approve the Schedule as presented by the committee.

An appropriation of \$300 was voted for the Exhibition of the Products of Children's Gardens in 1920, the appropriation to include whatever amount may be offered for this purpose by the State Department of Agriculture.

The special committee on the award of the George Robert White Medal of Honor for the year 1919 reported the name of Vilmorin-Andrieux Co. of Paris, France. Mr. Farquhar in presenting the report stated that this firm of seedsmen had done a great work in the introduction of improved forms of garden plants and vegetables. They were also deserving of this honor for supplying seeds of vegetables and flowers during the past few years, thus making them available in this country in the absence of other sources of supply on account of the war. The recommendation of the committee

for the award of the George Robert White Medal for 1919 was approved.

On motion of Mr. Hunnewell it was voted to express the Society's appreciative thanks to Miss Marian R. Case of Hillcrest Farm, Weston, for her generous offer of \$1,000 for four additional exhibitions during the season of 1920.

The following named persons were elected to corresponding membership in the Society: M. Séraphin Joseph Mottet, Verrières-le-Buisson, France; J. C. Williams, Esq., Gorran, Cornwall, England; Lt. Col. Sir George Holford, Tetbury, Gloucestershire, England; Sir Edmund G. Loder, Bt., Horsham, Sussex, England; M. Eugene Schaettel, Paris, France.

Mr. Saltonstall, to whom was referred the matter of proposed amendments to the Charter and By-laws of the Society, made a report recommending that these proposed amendments be laid over for another year.

WILLIAM P. RICH,
Secretary.

REPORT OF THE COMMITTEE ON PRIZES AND EXHIBITIONS FOR THE YEAR 1919.

BY JAMES WHEELER, CHAIRMAN.

The work of this Society last year with the demonstration garden and instructors was a great success and did much towards creating a lasting interest in home gardening.

It seems very important that our Society should have an exhibition at least every other Saturday so that there may be an opportunity for any one having new or rare plants, flowers, fruits, or vegetables to bring them here for the committee to examine and for the public to see when they are at their best.

This year Mr. Albert C. Burrage made a display of orchids at the Fruit and Vegetable Show in September that would have been appreciated by thousands but was seen only by very few as there were no prizes offered to bring flower lovers to the exhibition. The same exhibitor made a wonderful display of *Cypripediums* at the annual election of officers, there being no exhibition in November at which they could be shown. They were seen by about thirty members.

The School Children's exhibition attracts the most competition of any show in the year. In some instances there have been as many as eighty entries in one class. Each year shows marked improvement both in interest and in the quality of productions. When these children reach the age of 18 years we shall have to drop them if there is no opportunity for us to retain their interest by having frequent exhibitions and classes in which they may compete. If these summer exhibits are dropped all our previous efforts will have been in vain.

The Board of Directors appropriated \$7,500 for the Committee on Prizes and Exhibitions to make the 1920 schedule, with instruction that \$5,000 be used for the Orchid Exhibition in March and that the number of exhibitions be limited to six for the year. Your

committee was very much opposed to the small number of exhibitions for we all felt that there was need of even more than we had last year. Your Chairman, speaking to Miss Marian R. Case, one of the exhibitors who stood so loyally by our Society during the year 1918 when no money prizes were given, told of our disappointment at having to omit some of the exhibitions and Miss Case immediately said she would contribute \$1,000. The money was accepted by the Board of Directors who instructed that four more exhibitions be added to the schedule. This has been done and the schedule has been accepted by the Board of Directors and is nearly ready for distribution.

The exhibitions the past year have shown marked improvement both in the number of exhibitors and in attendance. There was great interest shown by amateur growers. The war gardens especially aroused enthusiasm and taught many how to raise fresh vegetables and flowers.

JAMES WHEELER	}	<i>Committee on Prizes and Exhibitions.</i>
ROBERT CAMERON		
WILLIAM N. CRAIG		
DUNCAN FINLAYSON		
T. D. HATFIELD		

REPORT OF THE COMMITTEE ON PLANTS AND FLOWERS FOR THE YEAR 1919.

BY WILLIAM ANDERSON, CHAIRMAN.

The report of your committee must necessarily be brief owing to the elimination of plants and flowers from the Schedule at what have been usually regarded as the principal shows of the season, the March and November Exhibitions. This was considered necessary by the management of the Society on account of unsettled industrial conditions, high cost of labor, and the curtailment in production of plants and flowers on many of the large estates near Boston.

Many rare and valuable orchids have been exhibited during the year, Albert C. Burrage (Douglas Eccleston, Superintendent) being the principle exhibitor. Mr. Burrage is rapidly developing the largest private collection of orchids in this country.

At the Inaugural Meeting, January 10, Nathaniel T. Kidder, Milton (William Martin, gardener) exhibited a hybrid *Primula*, a cross between *Malacoides* and *Chinensis*, distinct in foliage and with larger flowers than *Malacoides*. It was awarded Honorable Mention. On January 25 Duncan Finlayson was awarded a Silver Medal for a plant of *Cymbidium* Queen Alexandra, one flower spike carrying thirteen blossoms.

On March 8-9 the most noteworthy display came from Albert C. Burrage who put up a fine exhibit of orchids covering over 500 square feet of space. Included in the group were numerous large specimens of *Cattleya Trianae*, *Cattleya Schroderae*, and various hybrids, also a fine collection of *Cymbidiums*, *Phalaenopsis*, *Cypripediums*, *Lycastes*, *Oncidium*s, *Odontoglossums*, *Angraecums*, *Vandas*, and other genera. A Gold Medal was awarded for this fine display. John L. Smith was awarded a Silver Medal for the beautiful *Brasso-Cattleya Menda Alba* and a similar award went to F. J. Dolansky for four plants of *Cattleya Trianae Alba*.

At the May Exhibition James Marlborough, Topsfield, was awarded a Cultural Certificate for a splendid vase of carnation Laddie and the Blue Hill Nurseries had on exhibition a plant of *Thuya occidentalis* Gwynn's Variety, a new *Thuya* of undoubted merit which originated at the Blue Hill Nurseries. Later in the year the Silver Medal offered by the Society of American Florists for a new or meritorious plant was awarded to this variety.

At the Iris Exhibition, June 7-8, there was a good display of irises staged by J. K. Alexander, George N. Smith, H. F. Chase, and Miss Grace Sturtevant. A table of rhododendrons was shown by T. C. Thurlow's Sons and a large collection of hardy herbaceous plants by Wm. N. Craig. T. C. Thurlow's Sons were awarded a Silver Medal under the Hunnewell Fund No. 3 for the best new hardy rhododendron grown two or more years in the open. The new variety was named for William P. Rich.

The Peony Exhibition, June 14-15, was one of the season's best exhibits and was largely attended. J. K. Alexander of East Bridgewater had 150 varieties, some of the best being Innocence, Felix Crousse, Monsieur Dupont, and Flashlight. R. & J. Farquhar & Co. was also a large exhibitor. In the competitive classes T. C. Thurlow's Sons were the heaviest prize winners. E. J. Shaylor showed some handsome seedlings which received Honorable Mention. A similar award went to R. & J. Farquhar & Co. for seedlings. The American Peony Society's medal for the best collection of herbaceous peonies was won by T. C. Thurlow's Sons.

The Rose Show was held June 21-22. A. J. Fish of New Bedford was the principal exhibitor, showing many fine varieties of climbing roses, the most striking of which was the Silver Moon. Mr. Fish was awarded as Silver Medal for his exhibit. Other exhibitors of roses were John B. Wills, Hillcrest Farm, A. L. Stephen, David Tyndall, and William C. Winter. T. C. Thurlow's Sons put up a fine exhibit of peonies, the most notable of which were the Milton Hill and Walter Faxon.

The Sweet Pea Exhibition was held July 5-6 during the worst heat wave experienced in many years. W. G. Taylor of Newport, R. I., was the only exhibitor. He showed some splendid flowers. Collections of native plants were shown by Hillcrest Farm and Mrs. F. C. Upham.

The Gladiolus Exhibition, August 9-10, was a notable one. Flowers of splendid quality filled the Main Hall. H. E. Meader, Dover, N. H., and S. E. Spencer of Woburn exhibited magnificent groups of the best varieties, prominent among which were Mrs. Dr. Norton, Mrs. Frank Pendleton, Ida Van, *Rosea Superba*, *Scarsdale*, *Myrtle*, *Lily White*, *Blue Bell*, *Golden Girl*, Mrs. Watt, Diener's White, and Panama.

The Boston Cut Flower Co. arranged a table with gladioli in vases and baskets and was awarded a Silver Medal. A. E. Kunderl, Goshen, Indiana, exhibited a number of choice varieties among which were *Peach Rose* and *Salmon Beauty*, both of which were awarded Certificates of Merit. H. E. Meader received a similar award for *Lilac Royal*. Eugene N. Fischer, Jamaica Plain, exhibited some fine seedlings, the variety Mrs. Frederick C. Peters, a large white flower with rich crimson-maroon throat receiving a Certificate of Merit. B. Hammond Tracy, Wenham, received Honorable Mention for a fine display of *Primulinus* hybrids. C. W. Brown had many fine seedlings. G. N. Smith was first for twelve varieties of herbaceous phloxes.

The Dahlia Show, September 13-14, was one of the largest and most popular of the year. The large exhibition hall was well filled with exhibits. The tables of dahlias and gladioli, staged by the Fottler, Fiske, Rawson Co. and that of J. K. Alexander were of splendid quality and were well staged. Each exhibitor was awarded a Silver Medal. Honorable Mention was awarded W. A. Manda for dahlia *Mandaiana* and also to J. K. Alexander for seedling Peony-flowered dahlia *Lavender Beauty*, seedling Peony-flowered dahlia *Miss Lymena Baxter*, seedling Cactus dahlia *Alice B. Rand*, and to W. D. Hathaway for display of dahlias. E. B. Dane (Donald McKenzie, gardener) was awarded a Silver Medal for a plant of *Sophro-Cattleya Blackii* (*Sophronitis Grandiflora* × *Cattleya Hardyana*).

At the Fruit and Vegetable Exhibition held September 25-28, Albert C. Burrage put up a magnificent group of orchids in the Lecture Hall, covering 500 square feet of space. The group was tastefully arranged with a background of palms and ferns and masses of *Oncidiums*, *Phalaenopsis*, *Vandas*, *Cattleyas*, and many other genera were very effectively used in the arrangement. A

Gold Medal was awarded the group and Certificates of Merit for *Cypripedium* Sir Redvers Buller and for *Laelio-Cattleya* Harold. The Blue Hill Nurseries had on exhibition a nice collection of hardy asters and other perennials.

On October 18, Albert C. Burrage placed on exhibition a very rare and beautiful orchid plant in flower for which he was awarded a Gold Medal. It was *Brasso-Laelio-Cattleya* The Baroness, a cross between *Brasso-Cattleya* *Leemanniae* and *Laelio-Cattleya* *Ophir*. It is the only specimen of this hybrid in the United States and was publicly exhibited for the first time. The flower is a rich golden yellow with light purple markings at the base of the beautifully fringed labellum. Mr. Burrage exhibited also a specimen of *Cattleya* *Moira Alba*, a cross between *Cattleya* *Mantini* and *Cattleya* *Fabia Alba*. Its sepals and petals are pure white, lip crimson with the yellow throat markings of *Cattleya* *Dowiana*. This was awarded a Silver Medal.

On November 8, in connection with the Fruit and Vegetable Show, a few exhibits of plants were made. Wm. C. Rust was awarded a Silver Medal for a well-flowered plant of *begonia* *Pink Perfection*. Peter Arnott exhibited a plant of *Cypripedium* *Doris* for which he was awarded a Silver Medal. A similar award went to Donald McKenzie for *Cypripedium* *Dreadnaught*.

At the Annual Meeting of the Society, November 15, Albert C. Burrage put on exhibition an interesting collection of *Cypripediums* of numerous species and hybrids. It was awarded a Silver Medal. Mr. Burrage exhibited also a plant of *Laelio-Cattleya* *Alice Burrage*. It is a cross between *Laelio-Cattleya* *Lustre* and *Laelio-Cattleya* *Rubens*. This was also awarded a Silver Medal.

WILLIAM ANDERSON	} Committee on <i>Plants and Flowers.</i>
DOUGLAS ECCLESTON	
SAM'L J. GODDARD	
DONALD MCKENZIE	
WILLIAM SIM	

PRIZES AND GRATUITIES AWARDED FOR PLANTS AND
FLOWERS.

1919.

MAY EXHIBITION.

MAY 17 AND 18.

John Allen French Fund.

WILD FLOWERS: 1st, Hillcrest Farm.

Gratuity: — T. E. Proctor, display of flowering plants.

IRIS EXHIBITION.

JUNE 7 AND 8.

H. H. Hunnewell Fund, No. 3.

RHODODENDRONS, 12 varieties: 1st and 2d, T. C. Thurlow's Sons, Inc.

John Allen French Fund.

IRISES, 24 vases: 1st, H. F. Chase; 2d, G. N. Smith. 12 vases: 1st, J. K. Alexander. HARDY HERBACEOUS FLOWERS (For non-commercial growers only): 1st, Faulkner Farm.

PEONY EXHIBITION.

JUNE 14 AND 15.

John Allen French Fund.

HERBACEOUS PEONIES, 20 varieties, double: 1st, T. C. Thurlow's Sons, Inc.; 2d, H. F. Chase. 12 varieties, double: 1st, T. C. Thurlow's Sons, Inc.; 2d, J. K. Alexander. Specimen bloom, double: 1st, G. N. Smith, Therèse; 2d, H. F. Chase, Germaine Bigot. 12 varieties, single: 1st, T. C. Thurlow's Sons, Inc. 6 varieties, double, White: 1st, T. C. Thurlow's Sons, Inc.; 2d, Mrs. D. W. McKissock. Rose Pink: 1st, T. C. Thurlow's Sons, Inc.; 2d, Mrs. D. W. McKissock.

Salmon Pink: 1st, T. C. Thurlow's Sons, Inc.; 2d, Mrs. D. W. McKissock. Red or Crimson: 1st, T. C. Thurlow's Sons, Inc.; 2d, Mrs. D. W. McKissock.

Gratuity: — G. P. Gardner, display of Hydrangeas.

ROSE AND STRAWBERRY EXHIBITION.

JUNE 21 AND 22.

John Allen French Fund.

ROSES, Climbing and Pillar: 1st, A. J. Fish. Hybrid Tea, 24 varieties: 1st, J. B. Wills. 12 varieties, 1st, J. B. Wills; 2d, Hillcrest Farm. 6 blooms, Pink: 1st, David Tyndall. Red: 1st, A. L. Stephen; 2d, Robert Seaver. Yellow: 1st, David Tyndall; 2d, J. B. Wills. SWEET WILLIAMS: 1st, A. L. Stephen; 2d, Miss Cornelia Warren. HARDY HERBACEOUS FLOWERS, 25 vases: 1st, Faulkner Farm.

John C. Chaffin Fund.

ROSES, Hybrid Perpetual, 12 varieties: 1st, W. C. Winter. 6 varieties: 1st, J. B. Wills; 2d, A. L. Stephen. 6 blooms White (For amateurs only): 1st, A. L. Stephen; 2d, David Tyndall. Pink: 1st, A. L. Stephen; 2d, Robert Seaver. Red: 1st, A. L. Stephen; 2d, Robert Seaver.

Gratuities: — Miss Cornelia Warren, collection of Roses; J. B. Wills, collection of Roses; Faulkner Farm, Herbaceous Peonies.

SWEET PEA EXHIBITION.

JULY 5 AND 6.

John Allen French Fund.

SWEET PEAS, 25 sprays, White: 1st, W. G. Taylor, Constance Hinton. Crimson or Scarlet: 1st, W. G. Taylor, King Edward. Deep Pink: 1st, W. G. Taylor, Hercules. Lavender: 1st, W. G. Taylor, Florence Nightingale. Purple: 1st, W. G. Taylor, Royal Purple. Any other color: 1st, W. G. Taylor, King Manoel. Best vase (Commercial growers excluded) White: 1st, W. G. Taylor, Constance Hinton. Dark Pink: 1st, W. G. Taylor, Hercules. Lavender: 1st, W. G. Taylor, Florence Nightingale. Scarlet: 1st, W. G. Taylor, King Edward. Any other color: 1st, W. G. Taylor, King Manoel. IRIS KAEMPFERI: 1st, Miss Cornelia Warren. HOLLYHOCKS, 24 blooms:

1st, Miss Cornelia Warren; 2d, W. C. Winter. 12 spikes: 1st, C. W. Walker; 2d, Faulkner Farm. WILD FLOWERS: 1st, Hillcrest Farm; 2d, Mrs. F. C. Upham.

Gratuity: — E. A. Clark, Larkspur and Gladiolus.

GLADIOLUS AND PHLOX EXHIBITION.

AUGUST 9 AND 10.

John Allen French Fund.

PERENNIAL PHLOXES, 12 varieties: 1st, G. N. Smith. 6 trusses: 1st, G. N. Smith. GLADIOLI, 6 varieties; White: 1st, A. L. Stephen. Pink: 1st, A. L. Stephen; 2d, E. M. Powers. Red: 1st, A. L. Stephen. Yellow: 1st, A. L. Stephen; 2d, Faulkner Farm. Lavender or Mauve: 1st, A. L. Stephen. 6 spikes, any *Primulinus Hybrid*: 1st and 2d, Faulkner Farm. Best seedling *Gladiolus*: E. M. Brewer.

DAHLIA EXHIBITION.

SEPTEMBER 13 AND 14.

Theodore Lyman Fund, No. 2.

DAHLIAS, Show and Fancy: 1st, W. D. Hathaway; 2d, C. L. Alling. Cactus: 1st, C. L. Alling; 2d, A. E. Doty. Decorative: 1st, R. W. Clark; 2d, T. J. Murphy. Peony-flowered: 1st, J. K. Alexander; 2d, C. L. Alling. Pompon: 1st, C. L. Allen; 2d, A. E. Doty. One vase, any variety: 1st, J. E. Jones; 2d, T. J. Murphy.

John Allen French Fund.

WILD FLOWERS; 1st, Mrs. F. C. Upham.

FRUIT AND VEGETABLE EXHIBITION.

SEPTEMBER 25-28.

Gratuity: — H. L. F. Naber, collection of wild flowers.

AUTUMN EXHIBITION OF FRUITS AND VEGETABLES.

NOVEMBER 8 AND 9.

Gratuity: — E. A. Clark, large bloom single-stem *Chrysanthemums*.

GOLD MEDAL.

- March 8. A. C. Burrage, group of orchids in flower.
 July 14. T. D. Hatfield, Rhododendron Miss Louisa Hunnewell.
 September 25. A. C. Burrage, exhibit of orchids and foliage plants.
 October 18. A. C. Burrage, Brasso-Laelio-Cattleya The Baroness (*Brasso-Cattleya Leemanniae* × *Laelio-Cattleya Ophir*).

SILVER MEDAL.

- January 25. Weld Garden, Cymbidium Queen Alexandra.
 March 8. A. W. Preston, *Brasso-Cattleya Menda alba*.
 " " F. J. Dolansky, *Cattleya Trianae alba*.
 May 24. A. C. Burrage, *Cattleya Mossiae* Mrs. Alice Burrage.
 June 7. T. C. Thurlow's Sons, Inc., Rhododendron Wm. P. Rich.
 June 21. A. J. Fish, collection of climbing Roses.
 " " T. C. Thurlow's Sons, Inc., display of Peonies.
 August 9. S. E. Spencer, display of Gladioli.
 " " H. E. Meader, " " "
 " " Boston Cut Flower Company, arrangement of Gladioli in baskets and vases.
 September 13. E. B. Dane, *Sophro-Cattleya Blackii* (*Sophronitis grandiflora* × *Cattleya* × *Hardyana*).
 " " J. K. Alexander, display of Dahlias and Gladioli.
 " " Fottler, Fiske, Rawson Company, display of Dahlias and Gladioli.
 October 18. A. C. Burrage, *Cattleya Moira alba* (*C. Mantinii* × *C. Fabia alba*).
 November 8. W. C. Rust, Begonia Pink Perfection.
 " " E. S. Webster, Cymbidium Doris.
 " " E. B. Dane, Cypripedium Dreadnaught (*C. Leeantum Clinkaberryanum* × *C. insigne* Harefield Hall).
 " 15. A. C. Burrage, Laelio-Cattleya Alice Burrage (*Laelio-Cattleya Lustre* × *L.-C. rubens*).
 " " A. C. Burrage, group of Cypripediums, species and varieties.

SILVER MEDAL OFFERED BY THE SOCIETY OF AMERICAN FLORISTS.

- May 17. Blue Hill Nurseries, Seedling *Thuja occidentalis* Gwynns var.

SILVER MEDAL OFFERED BY THE AMERICAN PEONY SOCIETY.

- June 14. T. C. Thurlow's Sons, Inc., for the best collection of Herbaceous Peonies.

BRONZE MEDAL.

August 9. J. K. Alexander, display of Gladioli, Phlox, and Dahlias.

FIRST CLASS CERTIFICATE OF MERIT.

March 8. Strout's, Carnation Maine Sunshine.
 August 9. A. E. Kunderd, *Gladiolus primulinus* Salmon Beauty.
 " " " " " Gladiolus Peach Rose.
 " " E. N. Fischer, seedling Gladiolus Mrs. Frederick C. Peters.
 " " H. E. Meadèr, seedling Gladiolus Lilac Royal.
 " 30. E. N. Fischer, Gladiolus Priscilla.
 September 25. A. C. Burrage, *Cypripedium* Sir Redvers Buller.
 " " " " " *Cattleya* × Harold (*C. Gaskelliana* × *C. Warscewiczii*).

CULTURAL CERTIFICATE.

May 17. James Marlborough, Carnation Laddie.
 August 9. A. L. Stephen, table of Gladioli.
 " " S. E. Spencer, display of Gladioli.

HONORABLE MENTION.

January 11. N. T. Kidder, *Primula malacoides* Hybrid.
 May 24. A. C. Burrage, *Epidendrum oncidioides*.
 June 7. Miss Grace Sturtevant, Iris Dream.
 " " " " " Valkyrie.
 " " " " " Jennett Dean.
 " 14. E. J. Shaylor, seedling Peonies Mildred, Luella Shaylor, and No. 75.
 " " R. & J. Farquhar & Co., collection of seedling Peonies.
 " " " " " " " display of Peonies.
 " " G. N. Smith, collection of Peonies.
 " " T. C. Thurlow's Sons, Inc., collection of Peonies.
 " " J. K. Alexander, display of Peonies.
 " 21. R. M. Saltonstall, Foxgloves.
 August 9. T. M. Proctor, Gladioli.
 " " Cedar Acres, (B. H. Tracy), display of *Gladiolus primulinus*.
 " " E. N. Fischer, seedling Gladiolus Henry C. Goehl.
 " " " " " seedling *Gladiolus primulinus* Red Start.

- August 9. C. W. Brown, seedling Gladiolus No. 1716 D.
 " " " " " " " " No. 1730 D.
 " " S. E. Spencer, " " No. 741.
 " " " " " " " " No. 885.
 " " " " " " " " No. 102.
 " 30. E. N. Fischer, seedling Gladiolus Mrs. A. G. Nelson.
- September 13. W. A. Manda, *Dahlia Mandaiana*.
 " " J. K. Alexander, seedling Cactus Dahlia Alice B. Rand.
 " " " " " " Peony-flowered Dahlia Miss Ly-
 mena Baxter.
 " " " " " " Peony-flowered Dahlia Laven-
 der Beauty.
 " " " " " " Decorative Dahlia Wm. Stark
 Smith.
 " " W. D. Hathaway, display of Dahlias.
 " 25. Blue Hill Nurseries, exhibit of hardy Asters and other
 flowers.

REPORT OF THE COMMITTEE ON FRUITS FOR THE YEAR 1919.

BY EDWARD B. WILDER, CHAIRMAN.

The Fruit Committee is glad to report a decided improvement in the display of fruits during the year.

Although the "war conditions, shortage of labor and poor transportation" noted in our report for 1918 still continue, the two latter problems being even more acute than at that time, the growers of fruit have rallied bravely to the call of the Society in the enlarged Schedule and money prizes offered and have more than tripled the prizes awarded last year.

This fact is largely due to the inducements offered at the Fruit and Vegetable Exhibition, September 25-28, for which this Society is greatly indebted to the Massachusetts State Department of Agriculture which offered \$600 in money prizes for fruits and vegetables.

The display of strawberries at the Exhibition June 21-22, though not large was of good quality. Richard M. Saltonstall of Chestnut Hill, Hillcrest Farm (Miss Marian R. Case) Weston, and W. C. Cooper of Weston having the best exhibits.

There was no fruit of special note at the Sweet Pea Exhibition, July 5-6, or the Gladiolus and Phlox Exhibition, August 9-10, with the exception at the latter show of a fine display of branches from peach trees in full fruit by the Faulkner Farm, Brookline, Wm. N. Craig, Superintendent.

The Fruit and Vegetable Exhibition scheduled to take place September 11-14, in conjunction with the Dahlia Exhibition was postponed to September 25-28, the former date being altogether too early for most of the fruit and vegetables to have reached maturity. At this show 125 money prizes were offered, all awards being made for merit. The specimens of fruit were excellent and the display of native grapes was one of the finest seen in the

hall for years. John Bauernfeind of Medford took eight First Prizes including the First Prize for collection of six varieties of native grapes.

W. G. Kendall of Atlantic, Charles W. Libby of Medford, and Oliver Ames of North Easton also made large displays and took many First Prizes. E. R. Pierce of Wellesley Farms exhibited two fine bunches of foreign grapes grown under glass.

E. A. Adams of West Medway received Honorable Mention for an exhibit of five varieties of seedling native grapes. H. A. Cook of Shrewsbury also had a fine collection of seedling native grapes and your committee was particularly interested in his seedling grape No. 3, a cross between King Philip and Worden, which seems to be a grape of great promise. Mr. Cook was awarded a Certificate of Merit for this grape.

The apples were excellent and your committee was encouraged to see a new exhibitor take the largest number of prizes for this fruit. Dexter T. Dodd of Hudson took the First Prize for the best 50 Gravenstein apples, the best 50 McIntosh apples, and six First Prizes for individual plates of apples. Parker Brothers of Fiskdale, were close behind him with First Prize for best 50 apples any other variety, the Blue Pearmain, and First Prize for six individual plates of apples.

F. W. Dahl of Roxbury won First Prize for collection of eight varieties of pears and Edward A. Clark of Jamaica Plain, First Prize for best four varieties of the same fruit. The general exhibit of individual dishes was better than usual.

At the Exhibition, November 8-9, Hillcrest Farm, Weston, took First Prize for collection of six varieties of apples, First Prize for collection of three varieties, and First Prize for individual plate of apples. Also a fine table of apples arranged for decorative effect was exhibited by Miss Case and another by Mrs. R. Goodnough of West Roxbury.

In summing up the work of the year your committee feels that the large Fruit and Vegetable Exhibition of September 25-28 has demonstrated beyond a doubt that the money prizes create a stimulus which nothing else can do to forward the display of fruit besides giving a fair compensation to the originator and grower who cannot afford to give the time needed to grow, transport, and

set up a display without this assistance; and much of our most valued fruit has been originated by such men.

EDWARD B. WILDER	} <i>Committee</i>	
WILLIAM N. CRAIG		<i>on</i>
ISAAC H. LOCKE		<i>Fruits.</i>
JAMES METHVEN		

PRIZES AND GRATUITIES AWARDED FOR FRUITS.

1919.

INAUGURAL MEETING EXHIBITION.

JANUARY 11.

Theodore Lyman Fund, No. 2.

APPLES: 1st, Hillcrest Farm, Baldwin.

ROSE AND STRAWBERRY EXHIBITION.

JUNE 21 AND 22.

Theodore Lyman Fund, No. 2.

STRAWBERRIES, 6 plates: 1st, Hillcrest Farm. 1 plate, any variety with foliage: 1st, R. M. Saltonstall; 2d, Dr. F. S. DeLue. 1 plate Barrymore: 1st, Hillcrest Farm. Golden Gate: 1st, W. C. Cooper. Marshall: 1st, R. M. Saltonstall. Senator Dunlap: 1st, Hillcrest Farm. Any other variety: 1st, W. C. Cooper; 2d, Louis Graton. CHERRIES: 1st, F. W. Dahl.

Gratuities: — Louis Graton, St. Martin Strawberries; Dr. F. S. DeLue, Judith Strawberries.

SWEET PEA EXHIBITION.

JULY 5 AND 6.

Benjamin V. French Fund, No. 2.

CHERRIES, any Red variety: 1st, Hillcrest Farm; 2d, Faulkner Farm. Any Black variety: 1st, Mrs. R. Goodnough; 2d, Faulkner Farm. Any White or Yellow variety: 1st, Mrs. M. J. Merrill; 2d, Faulkner Farm. CURRANTS, 3 varieties: 1st, John Bauernfeind. 1 variety: 1st, John Bauernfeind. GOOSEBERRIES, 3 varieties: 1st, John Bauernfeind; 2d, W. C. Winter. Any White or Yellow variety: 1st, John Bauernfeind; 2d, W. C. Winter. RASPBERRIES, 4 varieties: 1st, Hillcrest Farm. Any Red variety: 1st, John Bauernfeind; 2d, Mrs. R. Goodnough.

Gratuity: — Mrs. R. Goodnough, basket of small fruits.

GLADIOLUS AND PHLOX EXHIBITION.

AUGUST 9 AND 10.

Benjamin V. French Fund, No. 2.

APPLES, Summer, collection of 3 varieties: 1st, Hillcrest Farm. 12 specimens, any variety: 1st, Hillcrest Farm, Sweet Bough. PEACHES, 3 varieties: 1st, Hillcrest Farm; 2d, Parker Bros. 1 variety: 1st, Hillcrest Farm, Greensboro; 2d, Hillcrest Farm, Mayflower. PEARS: 1st, Mrs. Elbridge Torrey, Clapp's Favorite; 2d, Mrs. R. Goodnough, Clapp's Favorite. PLUMS, 4 varieties: 1st, Faulkner Farm. 1 variety: 1st, Faulkner Farm, Belgian Purple; 2d, Mrs. R. Goodnough, Abundance. BLACKBERRIES: 1st, E. A. Clark, Agawam. BLUEBERRIES: 1st, J. A. Neal.

Gratuity: — Faulkner Farm, exhibit of Peaches on branches.

FRUIT AND VEGETABLE EXHIBITION.

SEPTEMBER 25-28.

Prizes Offered by the Mass. State Department of Agriculture.

APPLES, 12 specimens, Baldwin: 1st, Faulkner Farm; 2d, Parker Bros. Blue Pearmain: 1st, Parker Bros. Fall Pippin: 3d, W. C. Winter. Fameuse: 1st, Oliver Ames. Golden Russet: 1st, Parker Bros.; 2d, A. P. Smith. Gravenstein: 1st, D. T. Dodd; 2d, A. P. Smith, 3d, G. V. Fletcher. Hubbardston: 1st, D. T. Dodd; 2d, E. A. Clark; 3d, Oliver Ames. King: 1st, Parker Bros. McIntosh: 1st, D. T. Dodd; 2d, A. P. Smith; 3d, Parker Bros. Maiden's Blush: 1st, T. D. Hatfield; 2d, Oliver Ames. Northern Spy: 1st, Parker Bros.; 2d, E. A. Clark. Palmer Greening: 1st, Parker Bros. Porter: 1st, G. V. Fletcher; 2d, Parker Bros.; 3d, A. P. Smith. Pound Sweet: 1st, G. V. Fletcher. Roxbury Russet: 1st, Faulkner Farm; 2d, D. T. Dodd. Sutton: 1st, Oliver Ames. Tolman Sweet: 1st, D. T. Dodd; 2d, Parker Bros. Twenty Ounce: 1st, D. T. Dodd; 2d, E. A. Clark; 3d, W. C. Winter. Yellow Bellflower: 1st, Parker Bros. Wealthy: 1st, A. P. Smith. Wolf River: 1st, D. T. Dodd; 2d, W. C. Winter. Any other variety: 1st, Oliver Ames, Rome Beauty; 2d, T. D. Hatfield, Cox's Pomona; 3d, D. T. Dodd, Middlesex. 50 specimens, Gravenstein: 1st, D. T. Dodd. McIntosh: 1st, D. T. Dodd; 2d, Parker Bros. Any other variety: 1st, Parker Bros., Blue Pearmain. CRAB APPLES, Hyslop: 1st, Faulkner Farm; 2d, Parker Bros.; 3d, W. C. Winter. Any other variety: 1st, W. A. Norris, Transcendant; 2d, F. W. Dahl, Transcendant. PEARS, 12 specimens,

Anjou: 1st, John Bauernfeind; 2d, E. A. Clark; 3d, F. W. Dahl. Bartlett: 1st, G. V. Fletcher; 2d, F. W. Dahl. Belle Lucrative: 1st, E. B. Wilder; 2d, F. W. Dahl. Bosc: 1st, W. G. Kendall; 2d, John Bauernfeind; 3d, Mrs. R. Goodnough. Louise Bonne de Jersey: 1st, F. W. Dahl; 2d, Mrs. M. J. Merrill; 3d, Mrs. Elbridge Torrey. Seckel: 1st, W. G. Kendall; 2d, D. T. Dodd; 3d, F. W. Dahl. Sheldon: 1st, Mrs. R. Goodnough; 2d, John Bauernfeind; 3d, Mrs. M. J. Merrill. Any other variety: 1st, Mrs. Elbridge Torrey, Marie Louise; 2d, W. G. Kendall, Dana Hovey; 3d, F. W. Dahl, Urbaniste. Collection of pears, 8 varieties: 1st, F. W. Dahl. 4 varieties: 1st, E. A. Clark; 2d, E. B. Wilder. PEACHES, 3 varieties: 1st, G. V. Fletcher; 2d, Parker Bros. 12 specimens, any variety: 1st, Mrs. R. Goodnough, Hale; 2d, J. A. Neal, Elberta; 3d, G. V. Fletcher, Foster. PLUMS: 1st, Oliver Ames, October Purple; 2d, Oliver Ames, Satsuma; 3d, F. W. Dahl, Bradshaw. GRAPES, Brighton: 1st, John Bauernfeind; 2d, C. W. Libby; 3d, W. G. Kendall. Concord: 1st, John Bauernfeind; 2d, Oliver Ames; 3d, W. G. Kendall. Delaware: 1st, Oliver Ames. Herbert: 1st, John Bauernfeind; 2d, C. W. Libby. Moore's Diamond: 1st, John Bauernfeind; 2d, W. G. Kendall; 3d, Oliver Ames. Niagara: 1st, John Bauernfeind; 2d, W. G. Kendall; 3d, Oliver Ames. QUINCES: 1st, E. A. Clark; 2d, I. H. Locke; 3d, G. V. Fletcher. MELONS, Salmon-flesh: 1st, H. W. Hayes; 2d, Faulkner Farm; 3d, Oliver Ames. Watermelons: 1st, Faulkner Farm.

Marshall P. Wilder Fund.

GRAPES, Salem: 1st, W. G. Kendall; 2d, John Bauernfeind. Worden: 1st, John Bauernfeind; 2d, W. G. Kendall; 3d, Mrs. R. Goodnough. Any other variety: 1st, John Bauernfeind, Wilder; 2d, W. G. Kendall, Gaertner; 3d, C. W. Libby, Lindley. Collection, 6 varieties: 1st, John Bauernfeind; 2d, W. G. Kendall.

John S. Farlow Newton Horticultural Society Fund.

FOREIGN GRAPES, any Black variety: 1st, E. R. Peirce.

Gratuities: — Mrs. R. Goodnough, display of native fruit; Mrs. V. J. Loring, basket of Grapes; Mrs. R. Goodnough, basket of Eaton Grapes; L. E. Crouch, seedling Peach; Oliver Ames, dish of Apples; Mrs. R. Goodnough, basket of Bosc Pears.

AUTUMN EXHIBITION OF FRUITS AND VEGETABLES.

NOVEMBER 8 AND 9.

Josiah Bradlee Fund.

APPLES, 6 varieties: 1st, Hillcrest Farm; 2d, G. V. Fletcher. 3 varieties: 1st, Hillcrest Farm. 1 variety: 1st, Hillcrest Farm; 2d, J. R. Ness.

Theodore Lyman Fund, No. 1.

COLLECTION OF FRUIT, arranged for decorative effect: 1st, Mrs. R. Good-nough. QUINCES: 1st, E. A. Clark.

Marshall P. Wilder Fund.

PEARS, collection of 6 varieties: 1st, G. V. Fletcher; 2d, F. W. Dahl.
Collection of 3 varieties: 1st, John Bauernfeind; 2d, E. B. Wilder.
1 variety: 1st, John Bauernfeind; 2d, G. V. Fletcher.

Society's Prizes.

COLLECTION OF NATIVE AND FOREIGN FRUIT, arranged for effect: 1st, Hillcrest Farm, a Silver Medal.
Gratuity:— J. R. Ness, Baldwin Apples.

FIRST CLASS CERTIFICATE OF MERIT.

September 25. H. A. Cook, native seedling Grape No. 3.

HONORABLE MENTION.

June 7. Hillcrest Farm, Wilfrid Wheeler Strawberry No. 7.
" 14. " " collection of Strawberries.
September 25. E. A. Adams, 5 varieties of seedling Grapes (King Philip × Worden).
" " H. A. Cook, collection of seedling native Grapes.

REPORT OF THE COMMITTEE ON VEGETABLES FOR THE YEAR 1919.

BY JOHN L. SMITH, CHAIRMAN.

The year 1919 has been a very successful one and particularly for the Committee on Vegetables. I think I may well say that we have not had for several years such a successful year in the exhibition of vegetables as we have had this year. The Fall Exhibition was especially fine, the competitors were many, and the competition was keen and intelligently directed. We attribute the success of the exhibition of vegetables largely to the fact that money prizes were offered and we feel that this is a practice that should be continued in future exhibitions. We are impressed, too, with the necessity of continuing efforts to stimulate interest upon the part of the public in the raising of vegetables. Anything that can be done that will add to our production of wealth we know is an economic benefit. The continuance of our Society can be justified by the benefits which it confers upon the community. We gather not merely for the purpose of meeting one another but more especially to work ourselves and interest others in devoting a part of their time at least to the production of essentials; this has been one of the purposes of our committee and we feel that our successors will continue the work in the same spirit.

With the rendering of this report I close my duties as Chairman of the Vegetable Committee and I desire to express my deep appreciation for the fine feeling that has been shown by the other members of the committee towards me and also the spirit of cooperation that has been manifested by all of the members of the committee. I have found the work exceedingly interesting and at the same time helpful and shall always be subject to the call of any future committee.

JOHN L. SMITH	}	<i>Committee on Vegetables.</i>
EDWARD PARKER		
WM. C. RUST		

PRIZES AND GRATUITIES AWARDED FOR VEGETABLES

1919.

INAUGURAL MEETING EXHIBITION.

JANUARY 11.

MUSHROOMS: 1st, Hillcrest Farm.

MARCH EXHIBITION.

MARCH 8 AND 9.

MUSHROOMS: 1st, Hillcrest Farm; 2d, E. A. Clark. RHUBARB: 1st, Hillcrest Farm.

MAY EXHIBITION.

MAY 17 AND 18.

ASPARAGUS: 1st, Oliver Ames. CAULIFLOWER: 1st, Faulkner Farm.

LETTUCE: 1st Oliver Ames; 2d, Faulkner Farm. COLLECTION OF

VEGETABLES: 1st, Faulkner Farm; 2d, Oliver Ames.

Gratuity: — Faulkner Farm, collection of forced vegetables.

IRIS EXHIBITION.

JUNE 7 AND 8.

John A. Lowell Fund.

CAULIFLOWER: 1st, Hillcrest Farm. CARROTS: 1st & 2d, Hillcrest Farm.

LETTUCE: 1st, Hillcrest Farm. ANY OTHER VEGETABLE: 1st, Hill-

crest Farm, Beets; 2d, Faulkner Farm, String Beans. COLLECTION

OF VEGETABLES, grown in 1919: 1st, Hillcrest Farm; 2d, Faulkner

Farm.

ROSE AND STRAWBERRY EXHIBITION.

JUNE 21 AND 22.

William J. Walker Fund.

BEANS, String: 1st & 2d, Faulkner Farm. BEETS: 1st & 2d, Hillcrest

Farm. CABBAGE: 1st, Hillcrest Farm. LETTUCE, Cabbage: 1st &

2d, Oliver Ames. Cos or Romaine: 1st, Hillcrest Farm. PEAS, 1 variety: 1st, Oliver Ames; 2d, Hillcrest Farm. TOMATOES: 1st & 2d, Oliver Ames.

Gratuities: — Faulkner Farm, collection of Tomatoes; Oliver Ames, plate of Onions.

SWEET PEA EXHIBITION.

JULY 5 AND 6.

John A. Lowell Fund.

BEANS, String: 1st, Faulkner Farm; 2d, Hillcrest Farm. CARROTS: 1st & 2d, Hillcrest Farm. PEAS: 1st & 2d, E. A. Clark. POTATOES: 1st, Hillcrest Farm, Uncle Gideon; 2d, Hillcrest Farm, Early Ohio. TOMATOES: 1st, Faulkner Farm, John Baer; 2d, Faulkner Farm, Carter's Sunrise. COLLECTION OF VEGETABLES, 8 varieties: 1st, Hillcrest Farm. 4 varieties: 1st, J. A. Neal; 2d, E. A. Clark.

Gratuity: — Faulkner Farm, collection of ten varieties of Tomatoes.

GLADIOLUS AND PHLOX EXHIBITION.

AUGUST 9 AND 10.

Benjamin V. French Fund, No. 2.

BEANS, Horticultural: 1st, Hillcrest Farm. Lima: 1st & 2d, Hillcrest Farm. EGG PLANT: 1st, Hillcrest Farm; 2d, E. A. Clark. ONIONS: 1st, J. A. Neal; 2d, E. A. Clark. PEPPERS: 1st, F. W. Dahl. SQUASH: 1st, J. A. Neal. SWEET CORN: 1st, E. A. Clark; 2d, Hillcrest Farm. TOMATOES: 1st, J. A. Neal; 2d, Faulkner Farm. COLLECTION OF VEGETABLES, 12 varieties: 1st, Hillcrest Farm. 6 varieties: 1st, J. A. Neal.

Gratuities: — Hillcrest Farm, collection of Potatoes; E. A. Clark, Crookneck Squash.

DAHLIA EXHIBITION.

SEPTEMBER 13 AND 14.

Gratuities: — J. F. Madden, display of vegetables; Mrs. Gordon Abbot, display of vegetables.

EXHIBITION OF FRUITS AND VEGETABLES.

SEPTEMBER 25-28.

Theodore Lyman Fund, No. 2.

ARTICHOKES: 1st, E. A. Clark. BRUSSELS SPROUTS: 1st, Mrs. J. W. Blodgett, Dobbie's Exhibition; 2d, J. A. Neal, Little Gem; 3d, E. A. Clark, Dobbie's Exhibition. BEANS, Green string: 1st, Mrs. Stewart Duncan, Masterpiece; 2d, Oliver Ames, Masterpiece; 3d, Faulkner Farm, Sutton's Plentiful. Wax string: 1st, Oliver Ames, Pencil Pod; 2d, J. L. Smith, Hodson Wax; 3d, E. L. Lewis. Lima: 1st, Mrs. J. W. Blodgett, King of the Garden; 2d, W. J. Clemson; 3d, Mrs. Stewart Duncan, Burpee's. Shelled Horticultural: 1st, A. L. Stephen, Dwarf Horticultural; 2d, Faulkner Farm, Dwarf Horticultural. Shelled Prolific Tree: 1st, Faulkner Farm. Shelled Yellow-eye: 1st, A. L. Stephen; 2d, Faulkner Farm; 3d, Mrs. J. W. Blodgett. Any other variety: 1st, A. L. Stephen, Ivory; 2d, Faulkner Farm, Stringless White Wax; 3d, A. L. Stephen, Red Kidney. BEETS, Egyptian Turnip: 1st, Oliver Ames; 2d, E. L. Lewis; 3d, W. J. Clemson. Any other variety: 1st, E. A. Clark, Detroit Blood Red; 2d, E. L. Lewis, Edmand's; 3d, W. J. Clemson, Farquhar's Midsummer. Swiss Chard: 1st, Faulkner Farm, Lucullus. CABBAGE, Drumhead type: 1st, E. L. Lewis, World Beater; 2d, E. L. Lewis, Sure Head. Ballhead Type: 1st, Faulkner Farm, Danish Ballhead. CARROTS, Long: 1st, J. A. Nixon, Long Orange; 2d, J. A. Neal, New Intermediate; 3d, E. L. Lewis, Long Orange. Half-long: 1st, E. L. Lewis, Chatenay; 2d, J. A. Neal, Danver's half-long; 3d, E. L. Lewis, Danver's half-long. CAULIFLOWER: 1st, E. L. Lewis, Snowball. CELERY, Paris Golden: 1st, E. L. Lewis; 2d, J. A. Nixon; 3d, J. F. Madden. White or Pink Plume: 1st, Mrs. Stewart Duncan; 2d, J. A. Nixon; 3d, Michael Cahalan. Boston Market: 1st, Michael Cahalan. Giant Pascal: 1st, J. A. Nixon; 2d, E. L. Lewis; 3d, W. H. Heustis. Any other variety: 1st, E. L. Lewis, Early Blanching; 2d, Michael Cahalan, Early Blanching; 3d, W. H. Heustis, Early Blanching. CELERIAC: 1st, F. W. Dahl. SWEET CORN, Stowell: 1st, Mrs. Stewart Duncan. Any other white variety: 1st, J. A. Nixon, Potter's Excelsior; 2d, Mrs. Stewart Duncan, Mammoth. Any yellow variety: 1st, Dr. F. S. DeLue, Golden Giant; 2d, Faulkner Farm, Golden Giant. FIELD CORN, yellow: 1st, E. L. Lewis, Davis Flint; 2d, Faulkner Farm, Longfellow. Any other color: 1st, E. L. Lewis, R. I. White. Popcorn: 1st, H. W. Hayes, Egyptian; 2d, A. L. Stephen, Golden Queen; 3d, A. L. Stephen, Golden Tom Thumb. CUCUMBERS, White Spine type: 1st, J. A. Neal, Davis Perfect; 2d, Mrs. J. W. Blodgett, White Spine; 3d, E. L. Lewis, White Spine.

English type: 1st, Mrs. Stewart Duncan, Telegraph; 2d, Mrs. J. W. Blodgett, Model; 3d, J. A. Neal, Every Day. EGG PLANT: 1st, Mrs. J. W. Blodgett, Black Beauty; 2d, Oliver Ames, New York Improved; 3d, Mrs. Stewart Duncan, Black Beauty. ENDIVE: 1st, J. A. Nixon, Batavian; 2d, Faulkner Farm, Batavian; 3d, Faulkner Farm, Curled French. KALE OR BORECOLE: 1st, Faulkner Farm, Scotch Green Curled; 2d, Faulkner Farm, Variegated. KOHL RABI: 1st, Oliver Ames, Purple Vienna; 2d, F. W. Dahl, White. LEEKS: 1st, E. A. Clark, Musselburgh; 2d, J. A. Neal, Musselburgh; 3d, Mrs. J. W. Blodgett, Lyon. LETTUCE, Cabbage: 1st, E. L. Lewis, Black-seeded Tennis-ball. Cos or Romaine: 1st, J. A. Nixon, Little Gem. OKRA OR GUMBO: 1st, Mrs. Stewart Duncan. ONIONS, Ailsa Craig: 1st, Mrs. Stewart Duncan; 2d, J. A. Neal. Prizetaker: 1st, J. A. Neal; 2d, W. J. Clemson; 3d, Michael Cahalan. Any other straw-color or yellow variety: 1st, Oliver Ames, Southport Yellow Globe; 2d, Oliver Ames, Australian Brown; 3d, Mrs. Stewart Duncan, Cranston's. Danvers: 1st, Oliver Ames; 2d, Mrs. J. W. Blodgett; 3d, Michael Cahalan. Red, any variety: 1st, E. A. Clark, Danvers Red Globe; 2d, Mrs. J. W. Blodgett, Early Red Globe. White, any variety: 1st, Mrs. J. W. Blodgett, White Portugal. PARSNIPS: 1st, E. L. Lewis, Hollow Crown. PARSLEY: 1st, Mrs. J. W. Blodgett, Dobbie's Exhibition; 2d, Faulkner Farm, the same; 3d, E. L. Lewis, the same. PEPPERS: 1st, E. L. Lewis, Chinese Giant; 2d, E. L. Lewis, Magnus Deluge; 3d, Mrs. J. W. Blodgett, Bullnose. POTATOES, Green Mountain: 1st, J. A. Nixon; 2d, E. R. Peirce; 3d, J. A. Neal. Early Ohio: 1st, A. L. Stephen. Delaware: 1st, E. L. Lewis; 2d, W. J. Clemson. Irish Cobbler: 1st, E. A. Clark. Vermont Gold Coin: 1st, W. J. Clemson. Any other white variety: 1st, E. L. Lewis, Sir Walter Raleigh; 2d, J. A. Nixon, Norcross; 3d, J. A. Neal, Norcross. Any red or rose variety: 1st, E. L. Lewis, Spaulding Rose; 2d, J. A. Nixon, Spaulding Rose; 3d, Mrs. J. W. Blodgett, Early Rose. PUMPKIN, Sugar: 1st, Faulkner Farm; 2d, J. A. Neal. Any other variety: 1st, Faulkner Farm, Winter Luxury; 2d, H. W. Hayes, Mammoth. Heaviest Pumpkin: E. A. Clark, King of Mammoth. RADISHES, Early type: 1st, J. L. Smith, Scarlet Globe; 2d, Mrs. J. W. Blodgett. Winter type: 1st, Oliver Ames, Icicle; 2d, Oliver Ames, Chinese Pink. SHALLOTS: 1st, Mrs. Stewart Duncan; 2d, Faulkner Farm. SPINACH, Round leaf type: 1st, E. L. Lewis. New Zealand: 1st, E. A. Clark; 2d, Mrs. J. W. Blodgett.

William J. Walker Fund.

SQUASH, Boston Marrow: 1st, E. L. Lewis. Hubbard: 1st, E. R. Peirce. Vegetable Marrow: 1st, Mrs. J. W. Blodgett, Moore's Green-striped; 2d, J. A. Neal, Long White. Any other variety: 1st, Mrs. J. W.

Blodgett, Crookneck; 2d, E. L. Lewis, the same. TOMATOES, any red variety: 1st, Oliver Ames, Livingston's Stone; 2d, J. A. Neal, Bonnie Best; 3d, J. A. Nixon, Stone. Any yellow variety: 1st, Faulkner Farm, Golden Queen; 2d, J. A. Neal, the same. Greenhouse culture: 1st, Oliver Ames, Crocker's Alaska; 2d, Mrs. Stewart Duncan, Carter's Sunrise. Collection of small-fruited varieties: 1st, A. L. Stephen; 2d, Faulkner Farm. TURNIPS, White Rutabaga: 1st, E. L. Lewis. Yellow Rutabaga: 1st, E. L. Lewis. White Egg: 1st, Faulkner Farm. ANY OTHER VEGETABLE, not mentioned in the foregoing list: 1st, Faulkner Farm, Scorzonera; 2d, E. A. Clark, Sweet Potatoes. COLLECTION OF SWEET AND POT HERBS, fresh: 1st, Faulkner Farm; 2d, J. A. Nixon.

Prizes offered by the Mass. State Department of Agriculture.

COLLECTION OF SALAD PLANTS: 1st, J. A. Neal; 2d, E. L. Lewis. COLLECTION OF VEGETABLES, 18 varieties: 1st, E. L. Lewis; 2d, J. A. Neal; 3d, J. A. Nixon. 12 varieties: 1st, E. A. Clark; 3d, A. L. Stephen.

Special Prizes offered by the Society for the Products of Amateur Home Vegetable Gardens.

BEANS, Green string: 1st, A. L. Stephen, Masterpiece; 2d, C. O. Bergenheim, Bountiful. Wax: 1st, C. O. Bergenheim; 2d, Henry Archibald. Lima, pods: 1st, John Bauernfeind; 2d, J. A. Nixon. Lima, shelled: 1st, John Bauernfeind; 2d, Michael Cahalan. Prolific Tree, shelled: 1st, A. L. Stephen. Any other variety, shelled: 1st, A. L. Stephen; 2d, John Bauernfeind. BEETS: 1st, Michael Cahalan; 2d, J. A. Nixon. SWISS CHARD: 1st, Michael Cahalan; 2d, A. L. Stephen. CABBAGES, White: 1st, H. W. Hayes; 2d, Michael Cahalan. CARROTS, Long: 1st, C. O. Bergenheim; 2d, Michael Cahalan. Half-long: 1st, Michael Cahalan; 2d, C. O. Bergenheim. CAULIFLOWER: 1st, J. A. Nixon, Snowball; 2d, Michael Cahalan, the same. CELERY: 1st, Michael Cahalan, White Plume; 2d, C. O. Bergenheim, Golden Self Blanching. SWEET CORN: 1st, Michael Cahalan, Potter's Excelsior; 2d, Henry Archibald, the same. CUCUMBERS: 1st, C. A. Dickinson; 2d, C. O. Bergenheim. ENDIVE: 1st, A. L. Stephen, Batavian. KOHL RABI: 1st, F. W. Dahl; 2d, J. A. Nixon. LETTUCE: 1st, Michael Cahalan. ONIONS: 1st, C. O. Bergenheim, Ailsa Craig; 2d, Michael Cahalan, Prizetaker. PARSLEY: 1st, A. L. Stephen; 2d, F. W. Dahl. PARSNIPS: 1st, Michael Cahalan, Hollow Crown. PEPPERS, Green: 1st, C. A. Dickinson, Ruby King; 2d, Michael Cahalan, Sweet Mountain. POTATOES, Green Mountain: 1st, A. L. Stephen; 2d, W. R. Tuttle. Any other variety: 1st, A. L. Stephen,

Irish Cobbler; 2d, Michael Cahalan, Delaware. PUMPKINS, Sugar: 1st, Michael Cahalan. Heaviest specimen: 1st, H. W. Hayes; 2d, Michael Cahalan. RADISHES: 1st, G. O. Bergenheim; 2d, Michael Cahalan. SCOTCH KALE: 1st, Michael Cahalan. SPINACH, New Zealand: 1st, C. O. Bergenheim. SQUASH, Delicious: 1st, Michael Cahalan. Hubbard: 1st, H. W. Hayes; 2d, Michael Cahalan. Any other variety: 1st, J. G. Mistho; 2d, Michael Cahalan, Golden Marrow. TOMATOES, Stone: 1st, Michael Cahalan. Any other variety: 1st, A. L. Stephen, Sunrise; 2d, Mrs. E. F. Endicott, Aeme. TURNIPS: 1st, J. A. Nixon, White Egg. ANY OTHER VEGETABLE, not mentioned in this list: 1st, J. A. Nixon, Leeks; 2d, Michael Cahalan, Leeks. COLLECTION OF VEGETABLES, 8 varieties: 1st, C. O. Bergenheim; 2d, Michael Cahalan.

Benjamin V. French Fund, No. 2.

CEREALS, one half bushel Wheat: 1st, T. D. Hatfield. One half bushel Oats: 1st, Faulkner Farm. One half bushel Winter Rye: 1st, Faulkner Farm.

AUTUMN EXHIBITION OF FRUITS AND VEGETABLES

NOVEMBER 8 AND 9.

John A. Lowell Fund.

COLLECTION OF VEGETABLES, 6 varieties: 1st, E. A. Clark.

SILVER MEDAL.

September 25. D. R. McLean, superior cultivation of Onions.
 " " T. J. Grey Co., collection of vegetables.

HONORABLE MENTION.

March 8. Hillcrest Farm, Japanese Cronos.

REPORT OF THE COMMITTEE ON CHILDREN'S GARDENS.

BY HENRY SAXTON ADAMS, CHAIRMAN.

The annual exhibition of the products of children's gardens was held at Horticultural Hall, Saturday and Sunday, August 30th and 31st, 1919. There were 183 prizes offered for displays of vegetables and flowers grown by children under 18 years of age in their home and school gardens all of which, with two exceptions, were awarded.

The total amount of prizes offered was \$250.00 of which \$100.00 was given by the State Department of Agriculture for the encouragement of gardening among the children of the Commonwealth. In addition the Massachusetts Horticultural Society offered, for the first time, silver and bronze medals to the children having the best gardens in thirty cities and towns within ten miles of the State House. This proved an interesting and valuable feature and should be carried on and the area enlarged another year.

The exhibition, which was free to the public, was open Saturday from 12 to 6 and Sunday from 1 to 6 o'clock. While many visited and enjoyed the exhibition more members of the Society should make an effort to visit these exhibitions. The exhibits have improved year by year and the encouragement given to the children by showing them that the Society as a whole is interested in their work would be a great stimulus. The committee would appreciate suggestions from the members which would be given if more visited the show.

In looking backward over the exhibitions since the first, more than ten years ago, which only partly filled the small exhibition hall, one is impressed with the great improvement in quality of material as well as with the increase in the exhibitors and quantity of exhibits, filling as it has during the past few years all three halls. In the class of vegetables this year there were 528 single entries of beans, beets, etc., with probably more than 800 separate exhibits

in all classes of flowers and vegetables. This is truly a fine showing and every effort should be made to increase the number of exhibitors over as large an area as possible. Should Brockton, for instance, fail to exhibit a serious falling off in numbers would result.

The exhibits from the school gardens were excellent and much could be said about them. As a whole they were better arranged, better in quality and condition than formerly, and showed a better understanding of what the committee is striving for in the way of exhibits. The canning exhibits were better than ever.

The schedule was more satisfactory this year than last owing to our increased appropriation and every class offered was competed for. Your Chairman suggests that the appropriation be sufficiently increased to meet the growing needs of the committee and that a special effort be made to extend the area covered by the exhibitors. We should have every city and town in eastern Massachusetts represented at our exhibit.

The thanks of the Society as well as of the Chairman are extended to those who worked so hard and faithfully to make the exhibit of 1919 so successful.

A list of the principal awards is given herewith.

For the best collection of fifteen varieties of vegetables from a school garden established previously to May 1, 1915:

First.— McKinley School, Brockton	\$10.00
Second.— Norfolk House Centre, Roxbury	8.00
Third.— Dorchester Industrial School, Dorchester	6.00
Fourth.— Deerfield Street Garden, Boston	4.00
Fifth.— Copeland School, Brockton	2.00

For the best collection of ten varieties of vegetables from a school garden established since May 1, 1915:

First.— Elihu Greenwood School, Hyde Park	8.00
Second.— Jamaica Plain Neighborhood House	6.00
Third.— Trescott School, Hyde Park	4.00
Fourth.— Roxbury Charitable Society	2.00
Fifth.— Community House, North Brighton	1.00

For the best collection of vegetables from a school garden within two and one-half miles of the State House:

First.— Boston Common Garden	5.00
Second.— Jefferson School, Boston	3.00

For the best collection of flowers from a school garden:

First.— Deerfield Street Garden, Boston	6.00
Second.— McKinley School, Brockton	4.00
Third.— Dorchester Industrial School	2.00
Fourth.— Norfolk House Centre, Roxbury	1.00
Fifth.— John Winthrop School, Dorchester	1.00

For the best collection of eight varieties of vegetables from a child's garden:

First.— Emil L. Erickson, Brockton	5.00
Second.— Wilfred R. Tuttle, Arlington	4.00
Third.— William O'Brien, Brockton	3.00
Fourth.— Sumner Metcalf, Saugus	2.00
Fifth.— Francis Hines, Arlington	1.00

For the best collection of four varieties of vegetables from a child's garden:

First.— Donald W. Rust, Jamaica Plain	3.00
Second.— Evald Lawson, Brockton	2.00
Third.— Joseph O'Brien, Brockton	1.00
Fourth.— Robert Calpin, Mattapan	1.00
Fifth.— Ruth Sjoquist, Mattapan	1.00

For the best collection of flowers from a child's garden:

First.— Elsa Naber, Grove Hall	3.00
Second.— Marcia E. Tuttle, Arlington	2.00
Third.— Sibyl Murphy, Dorchester	1.00
Fourth.— Ernest Oetinger, Boston	1.00
Fifth.— Wm. T. Miller, Jr., Roslindale	1.00

For the best collection of wild flowers:

First.— Helen E. Knight, Newbury	8.00
Second.— Ruth Naber, Grove Hall	5.00
Third.— Marcia E. Tuttle, Arlington	3.00
Fourth.— Elizabeth H. Kress, Hingham	1.00

For collection of vegetables put up in glass jars:

First.— Brighton Girls' Canning Club	5.00
Second.— Happy Home Harvest Helpers, Ashmont	4.00
Third.— Gold Star Canning Club, Hyde Park	3.00
Fourth.— Arlington Victory Canning Club	2.00
Fifth.— Brockton High School Canning Club	1.00

Special Prize for decorative garden exhibit:

Mary Hemenway School, Roxbury 10.00

HENRY SAXTON ADAMS

DR. HARRIS KENNEDY

MRS. W. RODMAN PEABODY

MISS MARGARET A. RAND

JAMES WHEELER

} *Committee
on Children's
Gardens.*

REPORT OF THE SECRETARY AND LIBRARIAN FOR THE YEAR 1919.

The year 1919 completes the ninetieth of the Society's history. The adverse conditions of the past two years are gradually passing and the ten exhibitions of the Society held during the year have shown a marked improvement. The appropriation for prizes was \$3,500 of which only \$500 was devoted for flower exhibits, and this for outdoor grown flowers exclusively. Thus the greater part of the prizes offered was for the encouragement of the fruit and vegetable interests resulting in very satisfactory exhibits and competition in these important classes.

The old-time exhibits of greenhouse flowering and foliage plants have notably diminished in recent years due to the fact that many private estates have felt obliged to close their greenhouses in whole or in part on account of the necessity of conserving fuel and also by reason of the scarcity and high cost of labor.

The summer and autumn shows of roses, peonies, irises, gladioli, and dahlias showed the increasing interest in these popular outdoor plants.

The largest show of the year was the Fruit and Vegetable Exhibition, September 25-28, at which 581 prizes were offered and 388 competed for and awarded. At this exhibition a section of special prizes for exhibits of the products of home vegetable gardens was scheduled, embracing 42 classes of two prizes each nearly all of which had numerous entries. This innovation is one that should receive more encouragement in future schedules. The Massachusetts State Department of Agriculture offered at this exhibition and the Children's Garden Exhibition \$700 in prizes all of which was awarded.

The experience of the year as well as in all the years of the Society's history has shown pretty conclusively that if exhibitions of garden products are to be maintained as prominent features of its work encouragement must be offered to exhibitors and that money prizes seem to be the most acceptable.

A new feature of the Society's work during the year has been the publication of a Bulletin of which two numbers have been issued. The object of the Bulletin is to present to the members matters of interest concerning the activities of the Society and to stimulate a greater interest in its work. It is planned to continue its publication as suitable material accumulates.

The customary two issues of the Transactions of the Society have been published and distributed to the members and exchanges.

THE LIBRARY.

Part 1 of the new catalogue of the library was issued in April. This part contains an alphabetical list of authors and titles in 364 quarto pages and the few copies distributed have elicited highly complimentary notices. The material for Part 2 is ready for printing but owing to the disturbed condition of the printing trade and the enormous advance in cost it has been deemed advisable to delay its publication awaiting more favorable conditions.

Appreciative thanks are due Mrs. Henrietta Page, Oakes Ames, Thomas N. Cook, and C. Harman Payne for gifts of acceptable material for the library.

Additions to the collection of horticultural trade catalogues numbering 105, have been made during the year making the total number January 1, 1920, 10,930. This collection is proving of much historical value and is frequently consulted by authors of horticultural publications.

An addition of \$1,454.59 to the John D. W. French Fund has been received during the year from the estate making the amount of the fund \$6,454.59. This fund, established in 1901 under the will of John D. W. French, provides that the income shall be used for the purchase of books for the library.

With the additions being constantly made to the library the aim is to maintain its position as the leading horticultural library in the country.

WILLIAM P. RICH,
Secretary and Librarian.

REPORT OF THE TREASURER FOR THE YEAR 1919.

INCOME.

Income from Interest on Investments and Bank			
	Interest	\$14,281	36
"	" Rents	8,446	42
"	" Massachusetts	700	00
"	" Membership Fees	492	00
"	" Donations	73	75
"	" Sale of lots in Mt. Auburn Cemetery	2,088	11
		\$26,081	64

EXPENSE.

Operating Expense		\$17,225	47
Viz: Salaries	\$4,355	92	
Insurance	3,012	72	
Heating	1,491	75	
Labor	3,849	11	
Incidentals	1,352	09	
Stationery and Printing	965	59	
Lighting	1,427	35	
Library	432	22	
Postage	175	00	
Repairs	163	72	
		978	25
Prizes			
Viz: Plants and Flowers in excess of Income from Special Funds	29	00	
Fruits in excess of Income from Special Funds	288	00	
Vegetables in excess of Income from Special Funds	404	00	
Childrens' Gardens	257	25	
		1,225	97
Expenditures by Committees			
Viz: Lectures and Publications	277	00	
Medals	144	88	
Prizes	323	09	
Plants	200	00	
Fruits	143	00	
Vegetables	138	00	
		\$19,429	69
Forward		\$26,081	64

Brought forward	\$19,429 69	\$26,081 64
Expenses paid from Funds	1,467 19	
Viz: John Allen French	\$ 211 00	
Benj. V. French	122 00	
Geo. Robert White	5.35	
John C. Chaffin	30 00	
John Lewis Russell	48 00	
W. J. Walker	114 00	
Marshall P. Wilder	49 00	
John S. Farlow	65 46	
J. D. W. French	143 38	
John A. Lowell	54 00	
Theodore Lyman	527 00	
Josiah Bradley	21 00	
John S. Farlow	6 00	
H. H. Hunnewell	71 00	
Library Catalogue	1,828 02	
Legal Expense	389 35	
		\$23,114 25
Balance of Income from Funds for year 1919, unexpended	1,034 97	
Excess of Income over Expenditures	1,932 42	\$26,081 64

ASSETS.

Real Estate	\$498,564 63
Furniture and Exhibition Ware	7,982 61
Library	46,580 47
\$2,000 Kansas, Clinton & Springfield 5% Bds. 1925	1,980 00
\$10,000 Lake Shore & Mich. Southern R. R. 3½% Bds. 1997	10,000 00
\$21,000 City of Newton 4% Bds. 1928	21,000 00
\$50,000 Atchison Topeka & Santa Fé 4% Bds. 1995	44,693 25
\$50,000 Chicago, Burlington & Quincy, Neb. 4% Bds. 1927	50,000 00
\$11,300 Pere Marquette R. R. 5%	9,933 75
\$25,000 Kan. City, Ft. Scott & Memphis 6% 1928	25,000 00
\$50,000 C. B. & Q., Ill. Div. 3½% 1949	50,000 00
\$8,000 Boston & Maine R. R. 4½% 1944	8,000 00
\$4,000 Am. Tel. & Tel. Co. Convert. 4% Bds. 1936	4,000 00
\$4,000 Interborough Rapid Transit 5% 1966	3,920 00
\$12,000 Pacific Telephone Co., 5% 1937	11,670 00
280 Shares General Electric Co.	11,806 48
Hayes & Loring	2,308 66

\$12,000 United States Liberty Bonds	12,000 00
\$5,000 United States Steel 5% Bds.	5,043 75
Treasurer's Cash	13,528 00
Bursar's Cash	347 67

\$838,359 27

LIABILITIES.

Samuel Appleton	Fund	. . . . .	\$ 1,042 00	
John A. Lowell	"	. . . . .	1,026 00	
Theodore Lyman	"	. . . . .	11,353 00	
Josiah Bradlee	"	. . . . .	1,059 00	
Benj. V. French	"	. . . . .	540 00	
H. H. Hunnewell	"	. . . . .	4,249 00	
W. J. Walker	"	. . . . .	2,428 75	
Levi Whitcomb	"	. . . . .	540 00	
Benj. B. Davis	"	. . . . .	540 00	
Marshall P. Wilder	"	. . . . .	1,003 00	
John Lewis Russell	"	. . . . .	1,022 00	
Francis Brown Hayes	"	. . . . .	10,800 00	
Henry A. Gane	"	. . . . .	1,304 00	
John S. Farlow	"	. . . . .	2,690 45	
J. D. W. French	"	. . . . .	6,752 63	
Benj. H. Pierce	"	. . . . .	864 00	
John C. Chaffin	"	. . . . .	1,275 89	
Benj. V. French	"	. . . . .	3,118 00	
John Allen French	"	. . . . .	5,189 00	
George Robert White	"	. . . . .	7,833 23	
John S. Farlow	"	. . . . .	3,126 42	
Helen Collamore	"	. . . . .	5,000 00	\$72,756 37
Capital and Reserve		. . . . .	765,602 90	

\$838,359 27

CHANGES IN CAPITAL ACCOUNT DURING YEAR ENDED DEC. 31, 1919.

RECEIPTS.

50% of Receipts from Mt. Auburn Cemetery	\$2,088 11	
General Electric "rights"	143 40	
Life Membership Fees	1,050 00	
Library Catalogue	100 00	\$3,381 51

EXPENDITURES.

Library Catalogue	\$270 00	
Capital Increase	3,111 51	\$3,381 51

BALANCE SHEET — JANUARY 1, 1920.

ASSETS.

Cash:

Treasurer	\$13,528 88
Bursar	347 67
Investments	269,047 23
Property, Massachusetts & Huntington Avenues	498,564 63
Furniture and Exhibition Ware	7,982 61
Library Equipment	46,580 47

 \$836,051 49

FUNDS AND CAPITAL.

Life Membership Fees	\$6,000 00
Mount Auburn Cemetery Fund	9,225 79
Sundry Funds	72,756 37
Bequest of F. B. Hayes	\$247,489 27
Less Guardian Acct. \$82,496 43	-
Trustee Acct. 2,308 66	84,805 09
	162,684 18
Capital Account	564,524 70
Less loss on bonds	2 50
	564,522 20
Accumulated Reserve	20,862 95
Total Funds and Capital	\$836,051 49

MEMBERSHIP.

December 31, 1919.

Life Members, December 31, 1918	790
Added in 1919	36
	826
Deceased	26
	800
Annual Members, December 31, 1918	195
Added in 1919	15
	210
Deceased	1
Resigned	1
Changed to Life	3
Dropped for non-payment of dues	3
	8
Membership, December 31, 1919	1002

INCOME FROM MEMBERSHIP.

33 New Life Members at \$30	\$990 00
15 New Annual Members at \$10	150 00
3 Annual Members changed to Life	60 00
Dues for 1919	342 00
	<hr/>
	\$1,542 00

WALTER HUNNEWELL,
Treasurer.

AUDITOR'S CERTIFICATE.

40 STATE STREET, BOSTON,
MARCH, 2, 1920.

To the Finance Committee of the
MASSACHUSETTS HORTICULTURAL SOCIETY.

Gentlemen:

As requested by you I have made a thorough audit of the books and general accounting affairs of the MASSACHUSETTS HORTICULTURAL SOCIETY for the year which ended with the thirty-first day of December, 1919, and herewith submit to you my report of the same.

REPORT.

I reviewed and checked all additions, entries and postings in the books of the Society which dealt with the income and outgo of moneys; examined the checks and approved vouchers representing disbursements, which were in all instances adequate to sustain the charges of moneys expended; saw that all income was deposited in banks to the credit of the Society and found the amount of cash required by the cash book upon the first day of January, 1920, to have been on hand.

I examined the securities of the Society and they were in all details in accordance with the requirements of the records. All postings from the journal and cash books were traced into the ledger and I certify that the balance sheet of the 31st day of December, 1919, is a correct abstract and that the Treasurer's statement of the assets and liabilities of the Society upon said date is true to the best of my knowledge and belief.

In short, I satisfied myself that the work in connection with the accounting affairs of the Society is being intelligently and faithfully performed and that the books and papers of the Society are in commendable condition.

Yours very respectfully,

ANDREW STEWART,
Certified Public Accountant.



THE ANNUAL MEETING, NOVEMBER 15, 1919.



ANNUAL MEETING FOR THE YEAR 1919.

The Annual Meeting of the Massachusetts Horticultural Society for the year 1919 was held at Horticultural Hall, Boston, at twelve o'clock, noon, on Saturday, November 15, with Vice-President Kidder in the Chair. The call for the meeting was read by the Secretary and the Chair appointed Messrs. E. B. Wilder, J. A. Crosby, and W. P. Rich a committee to receive, assort, and count the ballots, and to report the number. He then declared the polls open, to remain open until three o'clock.

The record of the preceding meeting of the Society was read by the Secretary and duly approved. The Chair announced that the following appropriations for prizes and exhibitions for the year 1920 had been made and approved by the Board of Trustees:

Society's appropriation for six exhibitions, \$7,500, to include the income of the special prize funds.

A contribution of \$1,000 for four additional exhibitions offered by Miss Marian R. Case of Weston to be entered under the heading of Hillcrest Prizes.

An appropriation \$300 for children's garden prizes.

At three o'clock the Chair declared the polls closed and Mr. Wilder, for the committee, reported the result of the balloting as follows:

Whole number of ballots cast 26.

For President, William C. Endicott had 22.

For Vice-President (for two years), Charles S. Sargent had 18.

For Trustees (for three years), Albert C. Burrage had 26; Ernest B. Dane, 26; Edwin S. Webster, 26; Fred A. Wilson, 19.

For Trustee (for two years), Arthur H. Fewkes had 22.

For Nominating Committee, Oakes Ames received 23; William Anderson, 26; John K. M. L. Farquhar, 26; Samuel J. Goddard, 26; John E. Thayer, 26.

Vice-President Kidder then declared that the following list of officers of the Society for the year 1920 had been duly elected:

President	WILLIAM C. ENDICOTT
Vice President (for two years)	CHARLES S. SARGENT
Trustees (for three years)	ALBERT C. BURRAGE ERNEST B. DANE EDWIN S. WEBSTER FRED A. WILSON
Trustee (for two years)	ARTHUR H. FEWKES
Nominating Committee	OAKES AMES WILLIAM ANDERSON JOHN K. M. L. FARQUHAR SAMUEL J. GODDARD JOHN E. THAYER

No other business being offered the meeting was then dissolved.

WILLIAM P. RICH,
Secretary.

NECROLOGY, 1919.



NECROLOGY, 1919.

Admitted		Died
1902	HORACE EVERETT WARE	January 27
1865	MRS. ELLEN M. GILL	January 29
1885	WILLIAM J. STEWART	February 23
1914	ALEXANDER COCHRANE	April 10
1892	GEORGE FRANCIS PIERCE	April 21
1896	CHARLES HENRY TENNEY	April 27
1888	THOMAS PAGE SMITH	April 29
1899	MRS. ALICE ROBESON THAYER	May 16
1887	FRANK WHEELER	May 26
1905	E. EVERETT HOLBROOK	June 25
1904	ARTHUR F. BARNEY	July 1
1914	WILLIAM BENTLEY WALKER	July 2
1905	WILLIAM BREWSTER	July 11
1915	WILLIAM B. BUCKMINSTER	July 27
1897	ARTHUR F. ESTABROOK	July 27
1899	MRS. CHARLES S. SARGENT	August 13
1892	EBED L. RIPLEY	August 21
1899	THOMAS DENNIE BOARDMAN	September 6
1909	ARTHUR WAINWRIGHT	October 2
1899	JOHN MASON LITTLE	October 24
1900	MISS MARY RODMAN	November 12
1911	MRS. JAMES G. FREEMAN	November 26



OFFICERS, COMMITTEES, AND MEMBERS, 1919.



MEMBERS OF THE MASSACHUSETTS HORTICULTURAL
SOCIETY, 1919.

Revised to December 31, 1919.

HONORARY MEMBERS.

Members and correspondents of the Society and all other persons who may know of deaths, changes of residence, or other circumstances showing that the following lists are inaccurate in any particular, will confer a favor by promptly communicating to the Secretary the needed corrections.

- 1900 DR. HENRY S. PRITCHETT, Washington, D. C.
1900 ALBERT VIGER, President of the National Society of Horticulture of France, Paris.
1897 HON. JAMES WILSON, Ex-Secretary of Agriculture.

CORRESPONDING MEMBERS.

- 1889 DR. L. H. BAILEY, Ithaca, N. Y.
1898 JOHN GILBERT BAKER, F. R. S., F. L. S., Kew, England.
1918 ISAAC BAYLEY BALFOUR, M. D., LL. D., F. R. S., Regius Keeper of the Royal Botanic Garden, Edinburgh, Scotland.
1875 PROFESSOR WILLIAM J. BEAL, Amherst, Mass.
1918 DÉsirÉ BOIS, Editor of La Revue Horticole, Paris, France.
1918 LÉON CHENAULT, Orléans, France.
1911 W. J. BEAN, Royal Botanic Gardens, Kew, England.
1911 JOHN DUNBAR, Park Department, Rochester, N. Y.
1887 SIR W. T. THISELTON DYER, K. C. M. G., F. R. S., "Witcombe," Gloucester, England.
1918 WILLIAM C. EGAN, Highland Park, Ill.
1887 H. J. ELWES, F. R. S., Colesborne, Cheltenham, England.
1918 BERTRAND H. FARR, Wyomissing, Pa.
1893 B. E. FERNOW, University of Toronto, Toronto, Ontario.
1900 DR. BEVERLY T. GALLOWAY, Department of Agriculture, Washington, D. C.
1877 GEORGE LINCOLN GOODALE, M. D., Cambridge, Mass.
1918 PROFESSOR N. E. HANSEN, Brookings, So. Dak.
1911 PROFESSOR U. P. HEDRICK, New York Agricultural Experiment Station, Geneva, N. Y.

- 1907 AUGUSTINE HENRY, F. L. S., M. R. I. A., Professor of Forestry,
Royal College of Science, Dublin, Ireland.
- 1897 J. W. HOFFMANN, Colored State University, Orangeburg, S. C.
- 1919 LT.-COL. SIR GEORGE HOLFORD, Tetbury, Gloucestershire, England.
- 1918 CHARLES L. HUTCHINSON, Chicago, Ill.
- 1906 SENOR DON SALVADOR IZQUIERDO, Santiago, Chile.
- 1918 MRS. FRANCIS KING, Alma, Mich.
- 1911 ÉMILE LEMOINE, Nancy, France.
- 1919 SIR EDMUND GILES LODER, Bt., Horsham, Sussex, England.
- 1918 J. HORACE MCFARLAND, Harrisburg, Pa.
- 1875 T. C. MAXWELL, Geneva, N. Y.
- 1911 WILHELM MILLER, Superintendent of Horticulture, University of
Illinois, Urbana, Illinois.
- 1898 SIR FREDERICK W. MOORE, Curator of the Royal Botanic Gardens
Glasnevin, Dublin, Ireland.
- 1918 DR. GEORGE T. MOORE, Director of the Missouri Botanical Garden,
St. Louis, Mo.
- 1887 SIR DANIEL MORRIS, C. M. G., D.Sc., M. A., F. L. S.
- 1919 M. SÉRAPHIN JOSEPH MOTTET, Verrières-le-Buisson (Seine-et-Oise),
France.
- 1912 C. HARMAN PAYNE, London, England.
- 1906 SIR DAVID PRAIN, C. I. E., C. M. G., F. R. S., Director of the Royal
Botanic Gardens, Kew, England
- 1894 CAVALIÈRE ENRICO RAGUSA, Palermo, Sicily.
- 1906 DR. HENRY L. RIDLEY, C. M. G., F. R. S., Kew, England.
- 1898 BENJAMIN LINCOLN ROBINSON, PH.D., Curator of the Gray Her-
barium of Harvard University, Cambridge, Mass.
- 1875 WILLIAM ROBINSON, London, England.
- 1899 WILLIAM SALWAY, Superintendent of Spring Grove Cemetery,
Cincinnati, O.
- 1919 M. EUGÈNE SCHÆTTEL, Paris, France.
- 1875 ROBERT W. STARR, Wolfville, N. S.
- 1893 PROFESSOR WILLIAM TRELEASE, University of Illinois, Urbana,
Illinois.
- 1918 DR. WALTER VAN FLEET, Bureau of Plant Industry, U. S. Depart-
ment of Agriculture, Washington, D. C.
- 1882 H. J. VEITCH, Chelsea, England.
- 1912 PROFESSOR HUGO DE VRIES, University of Amsterdam, Amsterdam,
Holland.
- 1918 F. GOMER WATERER, Bagshot, Surrey, England.
- 1894 WILLIAM WATSON, Curator of Royal Botanic Gardens, Kew, England.
- 1919 J. C. WILLIAMS, Gorran, Cornwall, England.
- 1906 MISS E. WILLMOTT, Essex, England.
- 1911 E. H. WILSON, Jamaica Plain, Mass.
- 1901 PROFESSOR L. WITTMACK, Secretary of the Royal Prussian Horti-
cultural Society, Berlin, Prussia.

LIFE MEMBERS.

-
- | | |
|--|---|
| 1899 Adams, Mrs Charles Francis,
South Lincoln. | 1890 Atkins, Edwin F., Belmont. |
| 1907 Adams, George E., Kingston,
R. I. | 1899 Ayer, James B., Boston. |
| 1897 Adams, Henry Saxton, Jamaica
Plain. | 1912 Bache, James S., Sharon, Conn. |
| 1899 Agassiz, Mrs. George R., Yar-
mouth Port. | 1905 Backer, Clarence. A., Melrose. |
| 1894 Allen, Hon. Charles H., Lowell. | 1914 Bacon, Miss E S., Jamaica
Plain. |
| 1916 Allen, Edward Ellis, Water-
town. | 1905 Badger, Walter I., Cambridge. |
| 1905 Allen, Mrs. Sarah R., Wilming-
ton. | 1902 Bailey, Robert M., Dedham. |
| 1898 Allen, Thomas, Boston. | 1902 Baker, Clifton P., Dedham. |
| 1899 Ames, F. Lothrop, North
Easton. | 1901 Baker, James E., South Lincoln. |
| 1914 Ames, Mrs. F. L., North
Easton. | 1904 Balch, Joseph, Dedham. |
| 1899 Ames, John S., North Easton. | 1909 Baldwin, Frank F., Ashland. |
| 1894 Ames, Oakes, North Easton. | 1888 Barber, J. Wesley, Newton. |
| 1899 Ames, Oliver, North Easton. | 1905 Barnard, George E., Ipswich. |
| 1867 Amory, Frederic, Boston. | 1866 Barnes, Walter S., Brookline. |
| 1899 Anderson, Larz, Brookline. | 1867 Barney, Levi C., Boston. |
| 1911 Anderson, William, South Lan-
caster. | 1917 Barrett, Mrs. William Emerson,
West Newton. |
| 1864 Andrews, Charles L., Milton. | 1897 Barry, John Marshall, Boston. |
| 1871 Appleton, Hon. Francis H.,
Boston. | 1901 Bartlett, Miss Mary F., Boston. |
| 1914 Appleton, Francis R., New
York, N. Y. | 1914 Bartol, Dr. John W., Boston. |
| 1913 Appleton, Henry Saltonstall,
Boston. | 1915 Bartsch, Hermann H., Waver-
ley. |
| 1914 Apthorp, Mrs. Harrison O.,
Milton. | 1901 Bates, Miss Mary D., Ipswich. |
| 1900 Arnold, Mrs. George Francis,
Brookline. | 1915 Bauernfeind, John, Medford. |
| 1894 Ash, John, Pomfret Centre,
Conn. | 1899 Baylies, Walter C., Taunton. |
| | 1914 Beal, Mrs. Boylston, Boston. |
| | 1905 Beal, Thomas P., Boston. |
| | 1891 Becker, Frederick C., Cam-
bridge. |
| | 1876 Beckford, Daniel R., Jr., Ded-
ham. |
| | 1894 Beebe, E. Pierson, Boston. |
| | 1890 Beebe, Franklin H., Boston. |
| | 1905 Bemis, Frank B., Beverly. |
| | 1914 Bemis, Mrs. Frank B., Beverly. |
| | 1899 Bigelow, Albert S., Cohasset. |

- 1914 Bigelow, Charles, Brookline.
 1899 Bigelow, Joseph S., Cohasset.
 1899 Bigelow, Dr. William Sturgis, Boston.
 1899 Black, George N., Manchester.
 1885 Blake, Mrs. Arthur W., Brookline.
 1914 Blake, Benjamin S., Auburn-dale.
 1897 Blake, Edward D., Boston.
 1919 Blake, Hallie C., Lexington.
 1919 Blake, Kenneth Pond, Lexington.
 1918 Blanchard, Archibald, Boston.
 1908 Blood, Eldredge H., Swamp-scott.
 1905 Boardman, Miss Eliza D., Boston.
 1914 Boit, Miss Elizabeth E., Wakefield.
 1894 Bosler, Frank C., Carlisle, Penn.
 1887 Bowditch, Charles P., Jamaica Plain.
 1883 Bowditch, James H., Brookline.
 1894 Bowditch, Nathaniel I., Framingham.
 1877 Bowditch, William E., Roxbury.
 1913 Brackett, C. Henry B., Boston.
 1912 Bradley, Charles H., Boston.
 1914 Brandegee, Mrs. Edward D., Brookline.
 1900 Breck, Joseph Francis, Waban.
 1914 Breck, Luther Adams, Newton.
 1871 Bresee, Albert, Hubbardton, Vt.
 1914 Brewer, Edward M., Milton.
 1914 Brewer, Joseph, Milton.
 1918 Brewer, William C., Newton Centre.
 1919 Briggs, George E., Lexington.
 1910 Briggs, Mrs. George R., Plymouth.
 1897 Briggs, William S., Lincoln.
 1873 Brigham, William T., Honolulu, Hawaii.
 1909 Brooke, Edmund G., Jr., Providence, R. I.
- 1914 Brooks, Henry G., Milton.
 1899 Brooks, Peter C., Boston.
 1899 Brooks, Shepherd, Boston.
 1912 Brooks, Walter D., Milton.
 1909 Brown, Mrs. John Carter, Providence, R. I.
 1907 Brush, Charles N., Brookline.
 1919 Buff, Louis F., Jamaica Plain.
 1906 Buitta, Vincent, Newton Upper Falls.
 1914 Bullard, Alfred M., Milton.
 1918 Burgess, George Arthur, Marblehead.
 1897 Burlen, William H., East Holliston.
 1895 Burnett, Harry, Southborough.
 1911 Burnett, John T., Southborough.
 1914 Burnett, Robert M., Southborough.
 1914 Burnham, Miss Helen C., Boston.
 1909 Burr, I. Tucker, Milton.
 1906 Burrage, Albert C., Boston.
 1919 Burrage, Mrs. Albert C., Boston.
 1918 Burrage, Albert C., Jr., Hamilton.
 1918 Burrage, Charles D., Boston.
 1918 Burrage, Russell, Beverly Farms.
 1907 Butterworth, George William, South Framingham.
 1906 Butterworth, J. Thomas, South Framingham.
 1905 Buttrick, Stedman, Concord.
 1902 Cabot, George E., Boston.
 1914 Cabot, Henry B., Brookline.
 1870 Calder, Augustus P., Brookline.
 1896 Cameron, Robert, Ipswich.
 1913 Campbell, Chester I., Wollaston.
 1891 Campbell, Francis, Cambridge.
 1905 Carr, Samuel, Boston.
 1893 Carter, Charles N., Needham.

- 1899 Casas, W. B. de las, Malden.
 1911 Case, Miss Marian Roby, Weston.
 1918 Chalifoux, Mrs. H. L., Prides Crossing.
 1873 Chamberlain, Chauncy W., Waban.
 1909 Chamberlain, Montague, Groton.
 1903 Chapman, John L., Prides Crossing.
 1917 Chase, H. F., Andover.
 1909 Chase, Philip Putnam, Milton.
 1895 Cheney, Mrs. Elizabeth S., Wellesley.
 1894 Christie, William, Everett.
 1876 Clapp, Edward B., Dorchester.
 1919 Clapp, Robert P., Lexington.
 1871 Clapp, William C., Dorchester.
 1896 Clark, B. Preston, Cohasset.
 1917 Clark, Edward A., Jamaica Plain.
 1896 Clark, Miss Eleanor J., Pomfret Centre, Conn.
 1907 Clark, Herbert A., Belmont.
 1890 Clark, J. Warren, Millis.
 1910 Clark, Winslow, Milton.
 1899 Clarke, Eliot C., Boston.
 1914 Clifford, Charles P., Milton.
 1895 Clough, Micajah Pratt, Lynn.
 1894 Cobb, John C., Milton.
 1906 Codman, Miss Catherine A., Westwood.
 1914 Codman, James M., Jr., Brookline.
 1901 Coe, Miss Mary Alma, Boston.
 1903 Cogswell, Edward R., Jr., Newton Highlands.
 1882 Collins, Frank S., North Eastham.
 1914 Collins, William J., Brookline.
 1917 Comley, Henry R., Lexington.
 1902 Comley, Norris F., Lexington.
 1917 Converse, E. W., Newton.
 1899 Converse, Col. H. E., Marion.
 1913 Cook, Thomas N., Watertown.
 1917 Cooley, Arthur N., Pittsfield.
 1914 Coolidge, Charles A., Boston.
 1902 Coolidge, Harold J., Boston.
 1899 Coolidge, J. Randolph, Chestnut Hill.
 1899 Coolidge, Mrs. J. Randolph, Chestnut Hill.
 1919 Copeland, Miss E. Gertrude, Melrose.
 1914 Cotting, Charles E., Boston.
 1914 Cotting, Mrs. Charles E., Boston.
 1892 Cottle, Henry C., Boston.
 1917 Cotton, Miss Elizabeth A., Brookline.
 1914 Councilman, Dr. W. T., Boston.
 1917 Cowey, S. R., Lynnhaven, Va.
 1913 Cox, Simon F., Mattapan.
 1914 Crafts, Miss Elizabeth S., Boston.
 1901 Craig, William Nicol, Brookline.
 1917 Crane, Charles R., New York, N. Y.
 1917 Crane, Mrs. R. T., Jr., Chicago, Ill.
 1891 Crawford, Dr. Sarah M., Roxbury.
 1917 Crocker, Mrs. George U., Boston.
 1914 Crompton, Miss Isabel M., Worcester.
 1887 Crosby, George E., West Medford.
 1914 Crosby, Mrs. S. V. R., Boston.
 1901 Cross, Alfred Richard, North Cohasset.
 1909 Cumner, Mrs. Nellie B., Brookline.
 1856 Curtis, Charles F., Jamaica Plain.
 1899 Curtis, Charles P., Boston.
 1906 Cutler, Mrs. Charles F., Boston.
 1919 Cutler, Clarence H., Lexington.
 1903 Cutler, Judge Samuel R., Revere.

- 1897 Damon, Frederick W., Arlington.
 1908 Dane, Ernest B., Brookline.
 1908 Dane, Mrs. Ernest B., Brookline.
 1919 Danforth, Joseph A., Danvers.
 1899 Daniels, Dr. Edwin A., Boston.
 1909 Danielson, Mrs. J. DeForest, Boston.
 1902 Davis, Arthur E., Dover.
 1902 Davis, Mrs. Arthur E., Dover.
 1913 Davis, Bancroft Chandler, Westton.
 1916 Davis, Miss Helen I., Wellesley.
 1914 Davis, Livingston, Milton.
 1909 Dawson, Henry Sargent, Jamaica Plain.
 1905 Day, Henry B., West Newton.
 1917 Day, Mrs. Mary E., Newton.
 1873 Denny, Clarence H., Boston.
 1917 Dexter, George T., Boston.
 1904 Dexter, Gordon, Beverly Farms.
 1904 Dexter, Philip, Beverly.
 1896 Donald, William, Cold Spring Harbor, N. Y.
 1900 Donaldson, James, Roxbury.
 1907 Doten, Scott T., Lincoln.
 1917 Doty, George H., Boston.
 1914 Douglass, Alfred, Brookline.
 1917 Downs, Jere Arthur, Winchester.
 1910 Downs, William, Chestnut Hill.
 1917 Dowse, Charles F., Boston.
 1893 Dowse, William B. H., West Newton.
 1917 Draper, B. H. Bristow, Hopedale.
 1899 Draper, George A., Hopedale.
 1897 Dumaresq, Herbert, Chestnut Hill.
 1899 Duncan, James L., New York, N. Y.
 1902 Duncan, John W., Spokane, Wash.
 1896 Dunlap, James H., Nashua, N. H.
 1915 Dunn, Stephen Troyte, F.L.S., F.R.G.S., Twickenham, Eng.
 1915 Dupee, William Arthur, Milton.
 1909 Dupuy, Louis, Whitestone, L. I., N. Y.
 1880 Dutcher, Frank J., Hopedale.
 1917 Dutcher, Miss Grace M., Hopedale.
 1902 Dyer, Herbert H., Arlington.
 1912 Eaton, Harris D., Southborough.
 1918 Eccleston, Douglas, Beverly Farms.
 1911 Edgar, Mrs. Rose H., Waverley.
 1912 Edgar, William Percival, Jamaica Plain.
 1895 Eldredge, H. Fisher, Boston.
 1887 Elliott, Mrs. John W., Boston.
 1888 Elliott, William H., Brighton.
 1903 Ellsworth, J. Lewis, Worcester.
 1907 Emerson, Nathaniel W., M.D., Boston.
 1917 Emmons, Mrs. R. M., 2nd, Boston.
 1894 Endicott, William, Boston.
 1899 Endicott, William C., Danvers.
 1919 Endicott, Mrs. William C., Danvers.
 1919 Endicott, Mrs. William C., Jr., Danvers.
 1919 Engstrom, Richard, Lexington.
 1915 Ernst, Mrs. Harold C., Jamaica Plain.
 1905 Estabrook, Mrs. Arthur F., Boston.
 1907 Eustis, Miss Elizabeth M., Brookline.
 1907 Eustis, Miss Mary St. Barbe, Brookline.
 1914 Evans, Mrs. Robert D., Boston.
 1915 Fairbanks, Charles F., Milton.
 1881 Fairchild, Charles, New York, N. Y.
 1877 Falconer, William, Pittsburg, Pa.

- 1884 Farlow, Lewis H., Boston.
 1896 Farnsworth, Mrs. William, Dedham.
 1890 Farquhar, James F. M., Roslindale.
 1891 Farquhar, John K. M. L., Roxbury.
 1915 Farquhar, Mrs. John K. M. L., Roxbury.
 1884 Farquhar, Robert, North Cambridge.
 1873 Faxon, John, Quincy
 1899 Fay, H. H., Woods Hole.
 1908 Fay, Wilton B., West Medford.
 1914 Fearing, George R., Jr., Boston.
 1917 Fenno, Mrs. Pauline Shaw, Rowley.
 1899 Fessenden, George B., Allston.
 1917 Fessenden, Sewell H., Boston.
 1883 Fewkes, Arthur H., Newton Highlands.
 1904 Finlayson, Duncan, Jamaica Plain.
 1892 Finlayson, Kenneth, Jamaica Plain.
 1901 Fisher, Peter, Ellis.
 1910 Flanagan, Joseph F., Newton.
 1882 Fletcher, George V., Belmont.
 1883 Fletcher, J. Henry, Belmont.
 1917 Foot, Nathan Chandler, M.D., Milton.
 1914 Forbes, Alexander, M.D., Milton.
 1909 Forbes, Charles Stewart, Boston
 1909 Forbes, Mrs. J. Malcolm, Milton.
 1914 Forbes, W. Cameron, Westwood.
 1909 Forbes, Mrs. William H., Milton.
 1917 Fosdick, Lucian J., Boston.
 1914 Foster, Alfred D., Milton.
 1899 Foster, Charles H. W., Needham.
 1917 Foster, Miss Fanny, Newport, R. I.
 1885 Fottler, John, Jr., Dorchester.
 1914 Fraser, Charles E. K., South Natick.
 1910 French, Mrs. Albert M., Reading.
 1892 French, S. Waldo, Newtonville.
 1893 French, W. Clifford, Brookline.
 1917 Frishmuth, Miss Anna Biddle, Boston.
 1882 Frohock, Roscoe R., Boston.
 1903 Frost, Harold L., Arlington.
 1900 Frost, Irving B., Belmont.
 1899 Frothingham, Mrs. Louis A., Boston.
 1905 Fuld, Maurice, New York, N.Y.
 1917 Gage, Mrs. Homer, Worcester.
 1910 Galloupe, Frederic R., Lexington.
 1914 Gannett, Samuel, Milton.
 1914 Gardiner, Robert H., Gardiner, Maine.
 1901 Gardner, Mrs. Augustus P., Hamilton.
 1895 Gardner, George P., Boston.
 1899 Gardner, John L., Boston.
 1899 Gardner, Mrs. John L., Brookline.
 1899 Gardner, William Amory, Groton.
 1910 Garland, Mrs. Marie T., Buzzards Bay.
 1904 Garratt, Allan V., Holliston.
 1899 Gaston, William A., Boston.
 1911 Gavin, Frank D., Manchester.
 1910 Geiger, Albert Jr., Brookline.
 1911 Gill, Miss Adeline Bradbury, Medford.
 1911 Gill, Miss Eliza M., Medford.
 1887 Gill, George B., Medford.
 1919 Gilmore, George L., Lexington.
 1907 Goddard, Samuel J., Framingham.
 1904 Goodale, Dr. Joseph L., Boston.
 1885 Goodell, L. W., Dwight.
 1917 Gordon, Donald, Lincoln.
 1899 Gray, Mrs. John C., Boston.

- 1914 Greene, Edwin Farnham, Boston.
- 1905 Greenough, Mrs. Charles P., Brookline.
- 1912 Greenough, Mrs. David S., Jamaica Plain.
- 1914 Grew, Mrs. Edward S., Boston.
- 1914 Grew, Edward W., Boston.
- 1919 Griffin, Arthur E., Marion.
- 1897 Hale, James O., Byfield.
- 1873 Hall, Edwin A., Cambridgeport.
- 1912 Hall, Mrs. George G., Boston.
- 1899 Hall, Jackson E., Cambridge.
- 1897 Hall, Osborn B., Malden.
- 1910 Halloran, Edward J., Roxbury.
- 1917 Hammond, Mrs. E. C., Auburndale.
- 1913 Handler, Max Paul, South Natick.
- 1914 Harding, Charles L., Dedham.
- 1918 Harding, Mrs. Edward, Plainfield, N. J.
- 1871 Hardy, F. D., Cambridgeport.
- 1905 Hardy, Miss Susan White, Boston.
- 1889 Hargraves, William J., Jamaica Plain.
- 1887 Harris, Thaddeus William, A. M., Littleton, N. H.
- 1910 Harris, Prof. William Fenwick, Cambridge.
- 1909 Hart, Francis R., Milton.
- 1899 Hartshorn, Arthur E., Worcester.
- 1914 Hartt, Arthur W., Brookline.
- 1895 Harwood, George Fred, Newton.
- 1884 Hastings, Levi W., Brookline.
- 1906 Hawthaway, Edwin D., Sharon.
- 1914 Havemeyer, Theodore A., New York, N. Y.
- 1891 Hawken, Mrs. Thomas, Rockland, Me.
- 1899 Hayward, George P., Chestnut Hill.
- 1914 Haywood, H. T., Franklin.
- 1905 Head, Thomas W., Lake Forest, Ill.
- 1913 Heeremans, F., Lenox.
- 1903 Hellier, Charles E., Boston.
- 1888 Hemenway, Augustus, Canton.
- 1899 Hemenway, Mrs. Augustus, Canton.
- 1914 Hemenway, Augustus, Jr., Boston.
- 1884 Henshaw, Joseph P. B., Boston.
- 1899 Henshaw, Samuel, Cambridge.
- 1901 Heurlin, Julius, South Braintree.
- 1894 Hewett, Miss Mary Crane, Cambridge.
- 1900 Higginson, Francis L., Boston.
- 1902 Higginson, Mrs. Henry L., Boston.
- 1866 Hilbourn, A. J. Boston.
- 1886 Hittinger, Jacob, Belmont.
- 1911 Hittinger, Richard, Belmont.
- 1895 Hoitt, Hon. Charles W., Nashua, N. H.
- 1918 Holbrook, Miss Grace Ware, Boston.
- 1914 Hollingsworth, Valentine, Boston.
- 1899 Hollingsworth, Z. T., Boston.
- 1881 Hollis, George W., Allston.
- 1891 Holmes, Edward J., Boston.
- 1900 Holt, William W., Norway, Maine.
- 1899 Hood, The Hon. Mrs. Ellen, Sheen, Surrey, Eng.
- 1914 Hornblower, Henry, Boston.
- 1888 Horsford, Miss Kate, Cambridge.
- 1912 Horton, Arthur E., Lexington.
- 1902 Hosmer, Oscar, Baldwinsville.
- 1907 Houghton, Clement S., Chestnut Hill.
- 1910 Houghton, Miss Elizabeth G., Boston.
- 1872 Hovey, Charles H., South Pasadena, Cal.

- 1884 Hovey, Stillman S., Woburn.
 1917 Howard, Everett C., Belcher-
 town.
 1904 Howard, Henry M., West New-
 ton.
 1896 Howard, Joseph W., Somerville.
 1915 Howes, Mrs. Ernest, Boston.
 1917 Howes, Osborne, Brookline.
 1896 Hubbard, Charles Wells, Wes-
 ton.
 1917 Hubbard, Eliot, Boston.
 1865 Hubbard, James C., Everett.
 1913 Huebner, H., Groton.
 1875 Humphrey, George W., Holly-
 wood, Cal.
 1917 Hunnewell, Mrs. Arthur,
 Wellesley.
 1912 Hunnewell, F. W., Wellesley.
 1893 Hunnewell, Henry Sargent,
 Wellesley.
 1912 Hunnewell, Mrs. Henry S.,
 Wellesley.
 1882 Hunnewell, Walter, Wellesley.
 1912 Hunnewell, Walter, Jr., Welles-
 ley.
 1917 Hunt, Miss Belle, Boston.
 1892 Hunt, Dudley F., Reading.
 1919 Hunt, William, Lexington.
 1880 Hunt, William H., Concord.
 1904 Hutchins, Rev. Charles Lewis,
 Concord.
 1919 I'Anson, George, Beverly
 Farms.
 1893 Jack, John George, East Wal-
 pole.
 1886 Jackson, Charles L., Boston.
 1914 Jackson, Mrs. James, Jr., West-
 wood.
 1884 Jackson, Robert T., Peter-
 borough, N. H.
 1916 Jahn, Paul H., East Bridge-
 water.
 1916 Jahn, William O., East Bridge-
 water.
 1902 James, Ellerton, Milton.
 1902 James, Mrs. Ellerton, Milton.
 1913 Jeffries, John Temple L., Cam-
 bridge.
 1899 Jeffries, William A., Boston.
 1865 Jenks, Charles W., Bedford.
 1905 Johnson, Arthur S., Boston.
 1914 Johnson, Edward C., Boston.
 1885 Johnson, J. Frank, Malden.
 1907 Jones, Mrs. Clarence W.,
 Brookline.
 1897 Jones, Dr. Mary E., Boston.
 1897 Kellen, William V., Marion.
 1886 Kelly, George B., Jamaica
 Plain.
 1848 Kendall, D.S., Woodstock, Ont.
 1891 Kendall, Dr. Walter G., At-
 lantic.
 1909 Kennedy, Harris, M. D., Mil-
 ton.
 1905 Keyes, Mrs. Emma Mayer,
 Boston.
 1891 Keyes, John M., Concord.
 1889 Kidder, Charles A., South-
 borough.
 1910 Kidder, Mrs. Henry P., Boston.
 1880 Kidder, Nathaniel T., Milton.
 1899 Kimball, David P., Boston.
 1903 Kimball, Richard D., Waban.
 1899 Kinney, H. R., Worcester.
 1906 Kinnicutt, Mrs. Leonard P.,
 Worcester.
 1904 Kirkland, Archie Howard,
 Reading.
 1899 Lamb, Horatio A., Milton.
 1913 Lancaster, Dr. Walter B.,
 Brookline.
 1899 Lanier, Charles, Lenox.
 1917 Lapham, Henry G., Brookline.
 1895 Lawrence, Amos A., New York,
 N. Y.
 1873 Lawrence, John, Groton.
 1899 Lawrence, Rt. Rev. William,
 Boston.

- 1895 Lee, Daniel D., Jamaica Plain.
 1914 Lee, George C., Westwood.
 1914 Lee, Mrs. George C., Westwood.
 1880 Leeson, Hon. Joseph R., Newton Centre.
 1902 Leighton, George B., Monadnock, N. H.
 1914 Leland, Lester, Boston.
 1914 Leland, Mrs. Lester, Boston.
 1871 Lemme, Frederick, Charlestown.
 1903 Libby, Charles W., Medford.
 1917 Liggett, Louis K., Chestnut Hill.
 1899 Locke, Isaac H., Belmont.
 1891 Lodge, Richard W., Redlands, Cal.
 1897 Loomis, Elihu G., Bedford.
 1899 Loring, Augustus P., Beverly.
 1919 Loring, Augustus P., Jr., Prides Crossing.
 1905 Loring, David, Boston.
 1914 Loring, Miss Katharine P., Prides Crossing.
 1914 Loring, Miss Louisa P., Prides Crossing.
 1919 Loring, Mrs. Rosamond B., Prides Crossing.
 1899 Loring, Mrs. William Caleb, Beverly.
 1899 Lowell, Abbott Lawrence, Boston.
 1902 Lowell, Miss Amy, Brookline.
 1903 Lowell, James A., Chestnut Hill.
 1903 Lowell, John, Newton.
 1904 Lowell, Miss Lucy, Boston.
 1917 Luke, Arthur F., West Newton.
 1899 Luke, Otis H., Brookline.
 1895 Lunt, William W., Hingham.
 1918 Lyman, Arthur, Boston.
 1914 Lyman, C. Frederic, Boston.
 1895 Lyman, George H., Wareham.
 1898 Mabbett, George, Plymouth.
 1919 McGregor, Frank J., Newburyport.
 1912 McKay, Alexander, Jamaica Plain.
 1911 McKenzie, Donald, Chestnut Hill.
 1868 Mahoney, John, Boston.
 1892 Mallett, E. B., Jr., Freeport, Me.
 1884 Manda, W. A., South Orange, N. J.
 1887 Manning, J. Woodward, Reading.
 1884 Manning, Warren H., North Billerica.
 1909 Marlborough, James, Topsfield.
 1876 Marshall, Frederick F., Everett.
 1898 Marston, Howard, Brookline.
 1917 Martin, Edwin S., Chestnut Hill.
 1899 Mason, Miss Ellen F., Boston.
 1919 Mason, Miss Fanny P., Boston.
 1896 Mason, Col. Frederick, Taunton.
 1914 Mathews, Miss Elizabeth Ashby, Newton Center.
 1901 Matthews, Nathan, Boston.
 1906 Maxwell, George H., Newton.
 1917 Mead, Francis V., West Somerville.
 1902 Melvin, George, South Framingham.
 1905 Meredith, J. Morris, Topsfield.
 1919 Merriam, Edward P., Lexington.
 1881 Merriam, Herbert, Weston.
 1917 Methven, James, Readville.
 1884 Metivier, James, Waltham.
 1914 Mifflin, George H., Boston.
 1914 Miller, Peter M., Mattapan.
 1888 Milmore, Mrs. Joseph, Washington, D. C.
 1917 Mink, Oliver W., Boston.
 1915 Minot, Mrs. Charles S., Readville.
 1908 Minot, Laurence, Boston.
 1892 Monteith, David, Hyde Park, Vt.

- 1896 Montgomery, Alexander, Natick.
 1902 Montgomery, Alexander, Jr., Natick.
 1896 Moore, George D., Arlington.
 1881 Moore, John H., Concord.
 1897 Morgan, George H., New York, N. Y.
 1914 Morgan, Mrs. J. P., New York, N. Y.
 1913 Morison, Robert S., Cambridge.
 1899 Morse, John T., Boston.
 1909 Morse, John Torrey, 3d., Boston.
 1910 Morse, Lewis Kennedy, Boxford.
 1913 Morse, Robert C., Milton.
 1900 Morse, Robert M., Jamaica Plain.
 1914 Morss, Charles A., Chestnut Hill.
 1914 Morss, Mrs. Charles A., Chestnut Hill.
 1902 Morton, James H., Huntington, N. Y.
 1896 Moseley, Charles H., Roxbury.
 1909 Moseley, Charles W., Newburyport.
 1896 Moseley, Frederick Strong, Newburyport.
 1914 Munroe, Howard M., Lexington.
 1900 Murray, Peter, Fairhaven.
 1897 Mutch, John, Waban.
 1917 Neal, James A., Brookline.
 1899 Nevins, Mrs. David, Methuen.
 1914 Newbold, Frederic R., New York, N. Y.
 1874 Newman, John R., Winchester.
 1874 Newton, Rev. William W., Pittsfield.
 1919 Nichols, Mrs. W. L., Brookline.
 1914 Nicholson, William R., Framingham.
 1906 Nickerson, William E., Cambridge.
 1914 Norman, Mrs. Louisa P., Newport, R. I.
 1881 Norton, Charles W., Allston.
 1912 O'Conner, John, Brookline.
 1898 Olmsted, Frederick Law, Jr., Brookline.
 1892 Olmsted, John C., Brookline.
 1898 Orpet, Edward O., Chico, Cal.
 1919 Osgood, Miss Alice J., Wellesley Hills.
 1917 Osgood, Miss Fanny C., Hopedale.
 1909 Page, George, Newton Highlands.
 1909 Page, George William, South Lincoln.
 1900 Page, Mrs. Henrietta, Cambridge.
 1884 Paige, Clifton H., Mattapan.
 1914 Paine, Robert Treat, 2d, Boston.
 1908 Parker, Augustine H., Dover.
 1913 Parker, Edgar, North Easton.
 1911 Parker, Edward, North Easton.
 1915 Parker, Miss Eleanor S., Bedford.
 1917 Parkhurst, Lewis, Winchester.
 1891 Parkman, Henry, Boston.
 1914 Patten, Miss Jane B., South Natick.
 1897 Patten, Marcellus A., Tewksbury.
 1909 Peabody, Francis, Milton.
 1909 Peabody, Mrs. Francis, Milton.
 1899 Peabody, George A., Danvers.
 1881 Peabody, John E., Brookline.
 1907 Peirce, E. Allan, Waltham.
 1916 Peirce, Edward R., Wellesley Farms.
 1914 Peirson, Charles Lawrence, Boston.
 1915 Penn, Henry, Brookline.
 1899 Pentecost, Mrs. Ernest Harvey, Topsfield.

- 1873 Perry, George W., Malden.
 1917 Peterson, George H., Fair Lawn, N. J.
 1899 Pfaff, Col. Charles, South Framingham.
 1900 Phillips, John C., North Beverly.
 1899 Phillips, Mrs. John C., North Beverly.
 1899 Phillips, William, North Beverly.
 1895 Pickman, Dudley L., Boston.
 1902 Pickman, Mrs. Ellen R., Boston.
 1881 Pierce, Dean, Brookline.
 1905 Pierce, Wallace L., Boston.
 1905 Pierson, Frank R., Tarrytown, N. Y.
 1914 Pingree, David, Salem.
 1919 Pocock, Frederick, Beverly Farms.
 1900 Pond, Preston, Winchester.
 1892 Porter, James C., Wollaston.
 1884 Pratt, Laban, Dorchester.
 1914 Pratt, Waldo E., Wellesley Hills.
 1898 Pray, James Sturgis, Cambridge.
 1899 Prendergast, James M., Boston.
 1858 Prescott, Eben C., New York, N. Y.
 1914 Preston, Andrew W., Swampscott.
 1903 Preston, Howard Willis, Providence, R. I.
 1911 Priest, Lyman F., Gleasondale.
 1912 Proctor, Henry H., Boston.
 1901 Proctor, Thomas E., Boston.
 1899 Putnam, George, Manchester.
 1900 Putnam, George J., Brookline.
 1886 Quinby, Hosea M., M.D., Worcester.
 1889 Rand, Harry S., North Cambridge.
 1908 Rand, Miss Margaret A., Cambridge.
 1903 Rawson, Herbert W., Arlington.
 1882 Ray, James F., Franklin.
 1890 Raymond, Walter, Pasadena, Cal.
 1891 Read, Charles A., Manchester.
 1902 Reardon, Edmund, Cambridge.
 1892 Reardon, John B., Boston.
 1912 Reiff, William, Forest Hills.
 1905 Remick, Frank W., West Newton.
 1889 Rice, George C., Worcester.
 1887 Rich, William P., Chelsea.
 1876 Richards, John J., Brookline.
 1899 Richardson, Mrs. F. L. W., Charles River Village.
 1912 Richardson, H. H., Brookline.
 1918 Richardson, William K., Nahant.
 1900 Richardson, Dr. William L., Boston.
 1905 Riggs, William Allan, Auburndale.
 1917 Riley, Charles E., Newton.
 1886 Ripley, Charles, Dorchester.
 1903 Robb, Russell, Concord.
 1909 Roberts, Miss Anna B., Boston.
 1909 Robinson, Alfred E., Lexington.
 1871 Robinson, John, Salem.
 1911 Rogers, Dexter M., Allston.
 1914 Rogers, Dudley P., Danvers.
 1899 Rogers, Mrs. Jacob C., Peabody.
 1900 Roland, Thomas, Nahant.
 1910 Ross, Harold S., Hingham.
 1895 Rothwell, James E., Brookline.
 1899 Roy, David Frank, Marion.
 1881 Ruddick, William H., M. D., South Boston.
 1917 Rueter, Mrs. C. J., Jamaica Plain.
 1875 Russell, George, Woburn.
 1900 Russell, James S., Milton.

- 1914 Russell, Mrs. Robert S., Boston.
 1919 Ryder, Charles W., Newtonville.
 1893 Salisbury, William C. G., Brookline.
 1915 Saltonstall, Mrs. Caroline S., Milton.
 1912 Saltonstall, John L., Beverly.
 1912 Saltonstall, Mrs. John L., Beverly.
 1899 Saltonstall, Richard M., Chestnut Hill.
 1898 Sanger, Mrs. George P., Boston.
 1870 Sargent, Charles S., Brookline.
 1902 Sargent, Charles Sprague, Jr., Cedarhurst, N. Y.
 1899 Sargent, Mrs. Francis W., Wellesley.
 1896 Scorgie, James C., Cambridge.
 1864 Scott, Charles, Newton.
 1895 Sears, Miss Clara E., Boston.
 1899 Sears, Dr. Henry F., Boston.
 1914 Sears, Horace S., Weston.
 1899 Sears, Mrs. J. Montgomery, Boston.
 1898 Sharp, Miss Helen, Boston.
 1914 Shattuck, Dr. Frederick C., Boston.
 1914 Shattuck, Mrs. Frederick C., Boston.
 1899 Shaw, Francis, Wayland.
 1914 Shaw, Henry S., Milton.
 1899 Shaw, Mrs. Robert G., Wellesley.
 1901 Shea, James B., Jamaica Plain.
 1906 Sherman, J. P. R., Newton.
 1865 Shorey, John L., Lynn.
 1901 Shurtleff, Josiah B., Revere.
 1893 Siebrecht, H. A., New Rochelle, N. Y.
 1917 Silber, Miss Charlotte G., Needham.
 1917 Silsbee, Miss Katharine E., Boston.
 1899 Sleeper, Henry Davis, Boston.
 1903 Smiley, Daniel, Lake Mohonk, N. Y.
 1888 Smith, Charles S., Lincoln.
 1872 Smith, Edward N., San Francisco, Cal.
 1919 Smith, Ernest E., Boston.
 1911 Smith, John L., Swampscott.
 1874 Snow, Eugene A., Cambridge.
 1899 Sohler, Col. William D., Beverly.
 1918 Spalding, Miss Dora N., Boston.
 1908 Spaulding, John T., Prides Crossing.
 1908 Spaulding, William S., Prides Crossing.
 1897 Sprague, Isaac, Wellesley Hills.
 1884 Stearns, Charles H., Brookline.
 1893 Stearns, Frank W., Newton.
 1896 Stedman, Henry R., M. D., Brookline.
 1914 Stevens, Mrs. Nathaniel, North Andover.
 1919 Stewart, George F., Waltham.
 1918 Stimpson, Harry F., Chestnut Hill.
 1901 Stone, Charles A., Newton.
 1889 Stone, Charles W., Boston.
 1910 Stone, Mrs. Francis H., South Dartmouth.
 1914 Stone, Galen L., Brookline.
 1896 Stone, Prof. George E., Amherst.
 1914 Stone, J. Winthrop, Watertown.
 1914 Stone, Nathaniel H., Milton.
 1917 Storey, Moorfield, Boston.
 1905 Storrow, James J., Boston.
 1918 Stranger, David C., West Newbury.
 1905 Stratton, Charles E., Boston.
 1906 Strout, Charles S., Biddeford, Me.
 1914 Sturgis, Miss Evelyn R., Manchester.
 1902 Sturgis, Richard Clipston, Boston.

- 1916 Sturtevant, Miss Grace, Wellesley Farms.
- 1910 Sullivan, Martin, Jamaica Plain.
- 1912 Swan, Charles H., Jamaica Plain.
- 1891 Sweet, Everell F., Malden.
- 1916 Swett, Raymond W., Saxonville.
- 1904 Sylvester, Edmund Q., Hanover.
- 1899 Taylor, Charles H., Boston.
- 1900 Taylor, Mrs. Thomas, Jr., Columbia, S. C.
- 1913 Tedcastle, Mrs. Arthur W., Hyde Park.
- 1917 Thacher, Miss Elizabeth B., Roxbury.
- 1912 Thatcher, Arthur E., Bar Harbor, Me.
- 1898 Thatcher, William, Brookline.
- 1900 Thayer, Mrs. Bayard, South Lancaster.
- 1899 Thayer, Mrs. Eugene V. R., South Lancaster.
- 1903 Thayer, Henry J., Boston.
- 1899 Thayer, John E., South Lancaster.
- 1899 Thayer, Mrs. John E., South Lancaster.
- 1899 Thayer, Mrs. Nathaniel, Lancaster.
- 1899 Thiemann, Hermann, Owosso, Mich.
- 1899 Thomas, W. B., Manchester.
- 1910 Thurlow, George C., West Newbury.
- 1913 Thurlow, Winthrop H., West Newbury.
- 1874 Tolman, Miss Harriet S., Boston.
- 1896 Toppan, Roland W., Newburyport.
- 1899 Tower, Miss Ellen May, Lexington.
- 1901 Tower, Mrs. Helen M., Cambridge.
- 1914 Towle, L. D., Newton.
- 1893 Trepess, Samuel J., Glencove, L. I., N. Y.
- 1917 Tufts, Bowen, Medford.
- 1910 Turner, Chester Bidwell, Stoughton.
- 1914 Tyler, Charles H., Boston.
- 1919 Tyndall, David, Brockton.
- 1910 Underwood, Henry O., Belmont.
- 1901 Underwood, Loring, Belmont.
- 1917 Van Brunt, Mrs. Agnes, Readville.
- 1919 Vander Voet, Christian, Jamaica Plain.
- 1873 Vander-Woerd, Charles, Waltham.
- 1899 Vaughan, William Warren, Boston.
- 1884 Vinal, Miss Mary L., Somerville.
- 1916 Wagstaff, Archibald, Wellesley Hills.
- 1876 Walcott, Henry P., M. D., Cambridge.
- 1895 Waldo, C. Sidney, Jamaica Plain.
- 1896 Walsh, Michael H., Woods Hole.
- 1901 Waltham, George C., Dorchester.
- 1907 Walton, Arthur G., Wakefield.
- 1902 Warburton, Chatterton, Fall River.
- 1912 Wardwell, Mrs. T. Otis, Haverhill.
- 1894 Ware, Miss Mary L., Boston.
- 1909 Warren, Bentley W., Boston.
- 1884 Watson, Thomas A., East Braintree.
- 1914 Watters, W. F., Boston.

- 1905 Webster, Edwin S., Chestnut Hill.
 1914 Webster, Mrs. Edwin S., Chestnut Hill.
 1905 Webster, Frank G., Boston.
 1907 Webster, George H., Haverhill.
 1896 Webster, Hollis, Cambridge.
 1905 Webster, Laurence J., Holderness, N. H.
 1909 Weeks, Andrew Gray, Marion.
 1902 Welch, Edward J., Dorchester.
 1914 Weld, Mrs. Charles G., Brookline.
 1917 Weld, Rudolph, Boston.
 1899 Weld, Gen. Stephen M., Wareham.
 1914 Weld, Mrs. Stephen M., Wareham.
 1912 Wellington, Mrs. Arthur W., Boston.
 1917 Wellington, William H., Boston.
 1882 West, Mrs. Maria L., Neponset.
 1919 Wheeler, Everett P., Rockland.
 1889 Wheeler, James, Natick.
 1897 Wheeler, Wilfrid, Concord.
 1919 Whitcomb, Myron L., Haverhill.
 1865 Whitcomb, William B., Medford.
 1901 White, Mrs. Charles T., Boston.
 1899 White, George R., Boston.
 1909 White, Harry K., Milton.
 1917 Whitehouse, Mrs. Francis M., Manchester.
 1905 Whitman, William, Brookline.
 1894 Whitney, Arthur E., Winchester.
 1894 Whitney, Ellerton P., Milton.
 1899 Whitney, Henry M., Cohasset.
 1917 Whittemore, Charles, Cambridge.
 1915 Wigglesworth, Frank, Milton.
 1899 Wigglesworth, George, Milton.
 1863 Wilbur, George B., Boston.
 1889 Wilde, Mrs. Albion D., Canton.
 1881 Wilder, Edward Baker, Dorchester.
 1899 Williams, Miss Adelia Coffin, Roxbury.
 1905 Williams, George Percy, Boston.
 1899 Williams, John Davis, Boston.
 1905 Williams, Mrs. J. Bertram, Cambridge.
 1905 Williams, Mrs. Moses, Brookline.
 1911 Williams, Ralph B., Dover.
 1915 Wilson, E. H., Jamaica Plain.
 1914 Wilson, Fred A., Nahant.
 1919 Wilson, James A., Lexington.
 1881 Wilson, William Power, Boston.
 1917 Winslow, Arthur, Boston.
 1905 Winsor, Robert, Weston.
 1906 Winter, Herman L., Portland, Me.
 1914 Winthrop, Grenville L., Lenox.
 1914 Winthrop, Mrs. Robert, New York, N. Y.
 1914 Winthrop, Mrs. Robert C., Jr., Boston.
 1870 Wood, William K., Franklin.
 1905 Woodberry, Miss E. Gertrude, Cambridge.
 1905 Woodbury, John, Canton.
 1906 Woodward, Mrs. Samuel Bayard, Worcester.
 1917 Wright, George S., Watertown.
 1919 Wyman, Walton G., North Abington.
 1900 Wyman, Windsor H., North Abington.

ANNUAL MEMBERS.

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| 1913 Adams, Charles F., Jamaica Plain. | 1918 Clarke, Hermann F., Brookline. |
| 1919 Alexander, J. K., East Bridgewater. | 1918 Cogger, Thomas, Melrose. |
| 1896 Anderson, George M., Milton. | 1914 Colt, James D., Chestnut Hill. |
| 1912 Babcock, Miss Mabel Keyes, Wellesley Hills. | 1907 Colt, Mrs. James D., Chestnut Hill. |
| 1911 Bacon, Augustus, Roxbury. | 1919 Conant, Miss Margaret W., West Medford. |
| 1915 Baker, Mrs. G. B., Chestnut Hill. | 1917 Conant, Mrs. William C., Boston. |
| 1918 Barnes, Rowland H., Newton Highlands. | 1917 Coolidge, Mrs. W. H., Boston. |
| 1898 Barr, John, South Natick. | 1915 Copson, William A., Roslindale. |
| 1916 Barron, Leonard, Garden City, N. Y. | 1914 Crocker, Mrs. George Glover, Boston. |
| 1917 Beal, Thomas P., Jr., Boston. | 1914 Crocker, Joseph Ballard, Chatham. |
| 1917 Blodgett, Mrs. John, Beach Bluff. | 1914 Crompton, Miss Mary A., Worcester. |
| 1917 Bögholt, Christian M., Newport, R. I. | 1881 Crosby, J. Allen, Jamaica Plain. |
| 1901 Bradley, Miss Abby A., Hingham. | 1917 Curtis, Allen, Boston. |
| 1913 Bradley, Miss Julia H., Roxbury. | 1875 Curtis, Joseph H., Boston. |
| 1873 Breck, Charles H., Newton. | 1914 Cushing, Mrs. Harvey, Brookline. |
| 1902 Breed, Edward W., Clinton. | 1912 Cutler, Mrs. N. P., Newton. |
| 1909 Brigham, Mrs. Clifford, Milton. | 1910 Dahl, Frederick William, Roxbury. |
| 1914 Brown, F. Howard, Marlboro. | 1917 Dalton, Philip S., Milton. |
| 1916 Brown, Mrs. G. Winthrop, Chestnut Hill. | 1889 Davis, Frederick S., West Roxbury. |
| 1914 Campbell, Ernest W., Wollaston. | 1911 Dolansky, Frank J., Lynn. |
| 1910 Camus, Emil, Boston. | 1918 Donald, James, Wellesley. |
| 1917 Carlquist, Sigurd W., Lenox. | 1897 Dorr, George B., Bar Harbor, Me. |
| 1904 Chandler, Alfred D., Brookline. | 1919 Emery, Frederick L., Lexington. |
| 1918 Chick, Isaac W., Boston. | 1916 Estabrooks, Dr. John W., Wollaston. |
| 1917 Child, H. Walter, Boston. | 1902 Farlow, Mrs. William G., Cambridge. |
| 1910 Churchill, Charles E., Rockland. | |
| 1919 Clark, William Edwin, Sharon. | |

- 1917 Farr, Mrs. Betty K., Stoneham.
- 1919 Farrington, Edward G., Weymouth Heights.
- 1917 Fiske, David L., Grafton.
- 1901 Fiske, Harry E., Wollaston.
- 1894 Fitzgerald, Desmond, Brookline.
- 1917 Flood, Mrs. Mary, Woburn.
- 1903 Freeman, Miss Harriet E., Boston.
- 1919 French, C. H., Dorchester.
- 1912 Gage, L. Merton, Groton.
- 1919 Golby, Walter H., Jamaica Plain.
- 1912 Goodwin, Mrs. Daniel, East Greenwich, R. I.
- 1917 Gordon, George, Beverly.
- 1917 Graton, Louis, Whitman.
- 1900 Grey, Robert Melrose, Belmont, Cuba.
- 1897 Grey, Thomas J., Chelsea.
- 1919 Hall, Joseph B., Cambridge.
- 1908 Hamilton, Mrs. George Langford, Magnolia.
- 1912 Hardy, John H., Jr., Littleton.
- 1894 Hatfield, T. D., Wellesley.
- 1917 Hathaway, Walter D., New Bedford.
- 1918 Hayes, Herbert W., Waban.
- 1910 Hayward, Mrs. W. E., Ipswich.
- 1918 Hecht, Prof. August G., Amherst.
- 1891 Heustis, Warren H., Belmont.
- 1916 Hibbard, Miss Ann, West Roxbury.
- 1914 Higginson, Mrs. Alexander H., Manchester.
- 1902 Hildreth, Miss Ella F., Westford.
- 1902 Hill, Arthur Dehon, Boston.
- 1884 Hill, J. Willard, Belmont.
- 1912 Hollingsworth, Mrs. Sumner, Boston.
- 1913 Holmes, Eber, Montrose.
- 1913 Houghton, Mrs. Clement S., Chestnut Hill.
- 1917 Howard, W. D., Milford.
- 1900 Howden, Thomas, Hudson.
- 1917 Howe, Henry S., Brookline.
- 1902 Hubbard, Allen, Newton Centre.
- 1893 Hubbard, F. Tracy, Brookline.
- 1913 Jenkins, Edwin, Lenox.
- 1916 Jenks, Albert R., Newtonville.
- 1903 Johnston, Robert, Lexington.
- 1898 Kelsey, Harlan P., Salem.
- 1898 Kennard, Frederic H., Newton Centre.
- 1912 Kirkegaard, John, Bedford.
- 1889 Lancaster, Mrs. E. M., Roxbury.
- 1914 Leach, C. Arthur, South Hamilton.
- 1914 Leary, Dr. Timothy, Jamaica Plain.
- 1917 Leonard, John E., Wellesley.
- 1904 Leuthy, A., Roslindale.
- 1902 Lewis, E. L., Taunton.
- 1896 Lincoln, Miss Agnes W., Medford.
- 1901 Loring, Mrs. Thacher, Boston.
- 1896 Loring, William C., Beverly.
- 1903 Lumsden, David, Ithaca, N. Y.
- 1912 McCarthy, Nicholas F., South Boston.
- 1904 MacMulkin, Edward, Boston.
- 1890 Manning, A. Chandler, Wilmington.
- 1917 Meader, H. E., Dover, N. H.
- 1919 Millett, Charles H., Malden.
- 1917 Mixter, Dr. Samuel J., Boston.
- 1914 Morse, Frank E., Auburndale.

- 1919 Morse, Miss Madeline K., Wollaston.
 1913 Murray, Peter, Manomet.
 1916 Nehrling, Prof. Arno H., Crawfordsville, Ind.
 1895 Nicholson, William, Framingham.
 1904 Nicol, James, Quincy.
 1903 Nixon, J. Arthur, Taunton.
 1913 O'Brien, Mrs. Edward F., Brookline.
 1915 Parker, A. S., Stoneham.
 1914 Parker, Miss Charlotte E., Ipswich.
 1906 Parker, Eliab, Roxbury.
 1909 Parker, W. Prentiss, Washington, D. C.
 1908 Peabody, Mrs. W. Rodman, Readville.
 1914 Pembroke, A. A., Beverly.
 1898 Pierce, Mrs. F. A., Brookline.
 1902 Pritchard, John, Bedford Hills, N. Y.
 1912 Proctor, Dr. Francis I., Wellesley.
 1883 Purdie, George A., Wellesley Hills.
 1913 Putnam, Frank P., North Tewksbury.
 1906 Rane, Prof. F. W., Waban.
 1897 Rea, Frederic J., Norwood.
 1912 Reed, H. B., Auburndale.
 1914 Rees, Ralph W., Ithaca, N. Y.
 1893 Rich, Miss Ruth G., Dorchester.
 1888 Rich, William E. C., Ocean Park, Maine.
 1900 Robb, Peter B., Whitinsville.
 1893 Robinson, Walter A., Arlington.
 1917 Rooney, John P., New Bedford.
 1915 Rosenthal, Wolf, Boston.
 1892 Ross, Henry Wilson, Newtonville.
 1903 Ross, Walter D., Worcester.
 1909 Russell, Charles F., Castine, Maine.
 1910 Rust, William C., Brookline.
 1918 Rutherford, William D. F., Norfolk.
 1918 Ryder, Robert L., Lexington.
 1907 Sanborn, Edward W., Boston.
 1897 Sander, Charles J., Brookline.
 1875 Saunders, Miss Mary T., Salem.
 1896 Searles, E. F., Methuen.
 1910 Sears, Prof. F. C., Amherst.
 1907 Seaver, Robert, Jamaica Plain.
 1886 Sharples, Stephen P., Cambridge.
 1907 Sim, William, Cliftondale.
 1915 Slamin, John, Wellesley.
 1910 Smith, D. Roy, Boston.
 1914 Smith, George N., Wellesley Hills.
 1914 Spaulding, Mrs. Samuel S., Springfield Center, N. Y.
 1914 Sprague, George H., Hamilton.
 1917 Stephen, A. L., Waban.
 1914 Stevenson, Robert H., Readville.
 1914 Storey, Mrs. Richard C., Boston.
 1914 Sturgis, Miss Lucy Codman, Boston.
 1904 Symmes, Samuel S., Winchester.
 1919 Tenney, Albert B., Lexington.
 1914 Thayer, John E., Jr., Lancaster.
 1919 Thommen, Gustave, Somerville.
 1919 Tillinghast, Joseph J., Hyde Park.
 1909 Tracy, B. Hammond, Wenham.
 1913 Tuckerman, Bayard, Ipswich.
 1911 Ufford, Charles A., Dorchester.

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| 1881 Vaughan, J. C., Chicago, Ill. | 1919 Wheeler, Harry A., Lexington. |
| 1915 Wadsworth, Ralph E., Northboro. | 1897 Wheeler, Henry A., Newtonville. |
| 1917 Warren, Miss Cornelia, Waltham. | 1917 White, Mrs. Joseph H., Brookline. |
| 1914 Washburn, Paul, Boston. | 1901 Wilder, Miss Grace S., Dorchester. |
| 1914 Waterer, Anthony, 3d, Philadelphia, Pa. | 1897 Wilkie, Edward A., Newtonville. |
| 1914 Waterer, Hosea, Philadelphia, Pa. | 1913 Williams, Mrs. Emile F., Cambridge. |
| 1889 Welch, Patrick, Dorchester. | 1919 Williams, Henry M., Plaistow, N. H. |
| 1915 Wetterlow, Eric H., Manchester. | 1889 Winter, William C., Mansfield. |
| 1909 Wheeler, George F., Concord. | |

