

Professor Fisher's Report on the Trees

THE following report on the condition of the trees in the University grounds was written last autumn by Professor R. T. Fisher for publication as an appendix to the President's report:

The most notable features of the past year's work on the University trees have been the generous gifts received from graduates, and the new plantations and improvements which these have made possible.

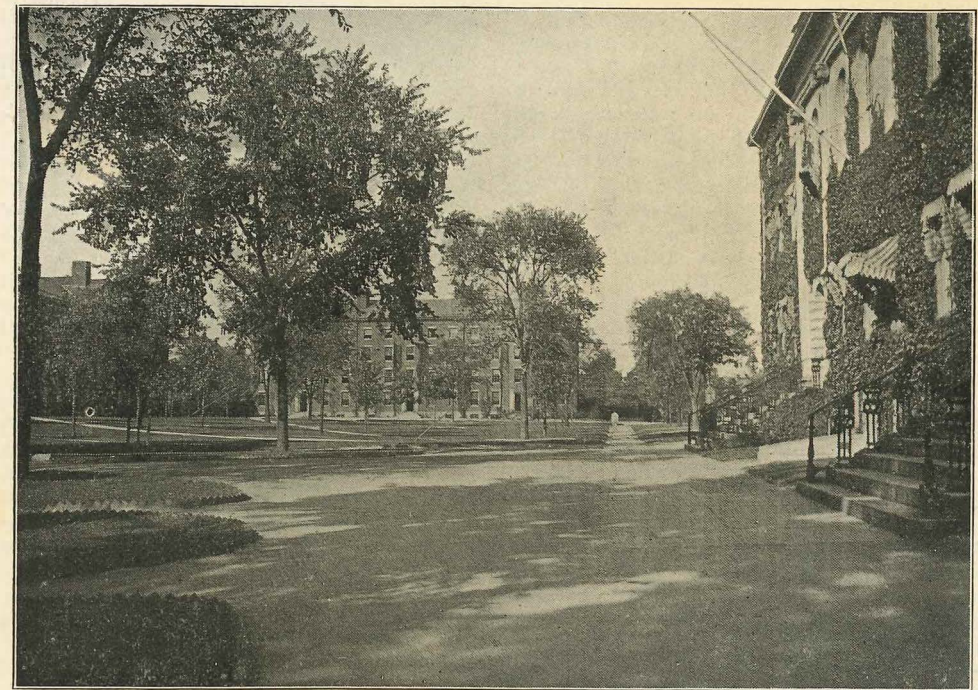
Last spring, fifteen elms, ranging from twelve to seventeen inches in diameter breast high, were set out. Thirteen of these, the gift of Mr. Arthur H. Lea, were put in the old Yard, and two, the gifts respectively of Professor A. C. Coolidge and Mr. E. B. Adams, near the northwest corner of the Widener Library. In the close behind the Freshman Dormitories there were planted thirteen English elms about two inches in diameter breast high, and in the Sever Quadrangle, in locations prepared according to the general planting plan, other saplings as follows: seven American elms (three of which were transferred from the Yard), one pin oak (also transferred from the Yard), two red oaks, and one American elm, about fifteen feet in height, which is a scion of the Washington Elm, and which was given to the College by Mr. L. W. Ross, superintendent of the Mount Hope Cemetery. Besides these gifts of trees, an exceptionally welcome fund of \$2,200 was presented through Mr. George von L. Meyer to help defray the expenses of soil preparation for the new plantations and to pay for additional vines and shrubs. With this aid it was possible not only to make twenty-five loam-pits for the reception of new trees, but also to carry out the revision and embellishment of the shrub groups as planned last year by Professor H. V. Hubbard. Under his direction, all shrubbery in the Yard, which did not serve some practical or esthetic purpose, was relocated, deficient or spindling plantations were filled in, and vines were planted wherever their presence seemed desirable. Most of the strictly new planting of smaller vegetation was done about the Widener Library. In spite of the fact that some of the largest expenditures, such as that for the re-soiling, cannot be expected to make an immediate showing, the general improvement in the looks of the grounds, particularly in the old Yard, where Mr. Lea's large elms were planted, is conspicuous.

Inasmuch as the moving of relatively large

shade trees (at least in the Boston region) is a comparatively new thing, some account of the Harvard plantation may be of interest. The most troublesome part of the work was the preparations—the finding of suitable trees, arrangements for purchase, permits for transportation, etc. These matters as well as the supervision of details during the actual moving were very efficiently looked after by Mr. Alfred MacDonald, a student of Forestry. To locate about twenty suitable trees he spent upwards of two months, went through every township within ten miles of Cambridge, and examined between twenty-five hundred and three thousand individual elms. The restrictions under which he had to work greatly prolonged the task. A satisfactory tree had to be at least twelve inches in diameter, shapely and vigorous, free from serious insect damage, growing on a site neither too wet, too dry, nor too rocky, and without mechanical obstruction to digging and moving, such as the roots of other trees, water pipes, foundations, or buildings. Even with all these conditions fulfilled there still remained the important requirement of a crown or head which could be tied in so as to pass under the standard trolley wire when the trees was laid horizontally on the moving machine. Finally, a good many trees, in every way desirable, could not be considered because their owners (quite naturally) would not part with them. Of the fifteen elms that were moved, three were donated, one by General Stephen M. Weld of Dedham, and two by Mrs. J. B. Tileston of Mattapan. The average price paid for the rest was about \$25. The following table gives a list of the places where the trees came from, the diameter of each, and the distance it was moved:

Original Location	Diameter Breast High	Distance Moved Miles
Watertown,	12 in.	5
"	15 in.	6
Cambridge,	17 in.	½
"	12 in.	½
Hyde Park,	13 in.	8
Readville,	14 in.	10
Milton,	12 in.	9
"	12 in.	9
Dedham,	12 in.	13
"	15 in.	12
"	12 in.	11
"	12 in.	11
Germantown,	13 in.	10
Arlington,	12 in.	5
"	12 in.	5

For the actual digging, moving and planting of the trees, the firm of Lewis & Valentine of



TWO VIEWS SHOWING THE RECENT IMPROVEMENT IN THE APPEARANCE OF THE COLLEGE YARD. The Upper Picture was taken in April, 1915, and the Lower in August, 1916.

Roslyn, New York, were engaged. They furnished a moving machine and a crew of skilled men for digging, loading and transporting the trees. With such a machine the trees can be clamped to a cradle and then tipped with block and tackle to a horizontal position on the truck of which the cradle is a part. The roots of each tree were cut off by ditching at a point at least twelve feet from the trunk. They were then dissected out of the soil for about half the distance to the bole and bound in bunches with wet straw. In each case as large a ball of earth as could be handled was left to be lifted with the tree, amounting to a diameter of six or eight feet. In the Yard, each tree was put in a pit of loam twenty feet across and three feet deep. The roots were set in a saucer-shaped excavation rising from two and one-half feet deep directly under the trunk of the tree, to less than a foot at the extreme tips of the roots; and where necessary, drainage was provided by a loose-tile drain running from the centre of the hole to beyond the margin. The trees were each guyed with four wires running to short timbers buried in the ground. The last operation, and one of the most important, was to prune the top so that the leaf surface should not be too large for the reduced root system. In doing this, each main branch was treated by itself, being cut back at the tip in such a way as not to change its general outline. The result of this method is to preserve the natural contour of the tree and prevent the great multiplication of terminal shoots which results when a tree-top is simply cut back evenly all over. The average cost of these trees in their final locations, and including the expense of preparing the loam-pits, amounted to approximately \$350 per tree.

The progress of the new plantation during the first, which is the critical, summer, was on the whole very satisfactory. Most of the fifteen grew as vigorously as nursery-grown saplings. Two languished from the start and were finally removed in August as being dead or certainly dying. A third which turned sickly in mid-summer was probably saved by timely treatment. All three suffered from a water-logging of soil which prevented the absorption of moisture and caused the roots to rot. This result was due mainly to imperfect drainage in rather heavy soil under an unusual rainfall, a condition that will be corrected in subsequent plantings by using a more sandy soil mixed with a small amount of ground limestone. The only other troubles which threatened the new trees were the leopard moth and the elm bark beetle. The former, which appeared on the new trees only in summer, was kept in check by regular inspection and removal of the larvae. The latter came

in two broods, one in late June, the other about the middle of August. From all the vigorous trees they were repelled or drowned out of their burrows by sap flow; and in the case of six small trees of the 1915 planting the same successful result was brought about artificially by plentiful watering immediately after the insects began to bore. Only on the two large trees above mentioned, and two sapling elms of a previous planting, were the beetles able to get in and lay their eggs—and then only because the trees were already too feeble to respond to treatment. Other than this (a secondary injury and not the cause of death) the insect damage to the new plantations was trifling—an outcome very largely owing to the conscientious work of the foreman of trees, Mr. Herlihy.

This plantation having wrought such a great and apparently permanent improvement in the appearance of the Yard, Mr. Lea has proposed to supplement it with a second, so that there may be enough large trees to cover all spaces that still look bare. As a result of this proposal it has been arranged to plant six more elms during the present autumn, two to replace those which died, two where small saplings had already been planted, and two in spaces hitherto vacant. This will leave a considerable number of the smaller oaks and elms to fill the gaps of the future. One more large elm, presented by an anonymous giver, will be planted behind University Hall in front of the Widener Library. The moving of these additional trees is already under way and should be finished before Christmas. When all are in place the Yard, which two years ago was nearly bare, will be substantially covered with elms that could not have been grown in less than thirty to forty years.

The routine care of the trees and shrubs is now well organized; and it seems increasingly clear that the unfavorable factors in Cambridge can be sufficiently mitigated, if not entirely corrected. The control of insects, particularly the leopard moth and the elm bark beetle, is still a difficult problem. With the hope of improving methods in this regard, an extended study was undertaken during the past summer by Mr. MacDonald. Its aim was first, to get more detailed knowledge of the habits and life history of the leopard moth by daily observation of its activities on certain selected trees, and second, to test the efficacy of various repellent sprays and washes against the attacks of the elm bark beetle. Still other observations, such as the varying susceptibility of trees of different ages and conditions, were included also. The results of the study, together with some additional notes on the general problem of restoring the trees

in the Yard, it is hoped to publish in a brief bulletin. In addition to the borers actually in the Yard there still remains a source of danger which is peculiarly difficult to reach. This lies in the great number of dying and insect-infested trees, which exist on the streets immediately surrounding the University grounds. From these broods of elm bark beetles and leopard moths periodically migrate to the Yard, and greatly magnify the difficulty of keeping the College trees in a healthy condition. The City of Cambridge, although willing to cooperate, is apparently unable to remove these trees, owing to the lack of funds

at the disposal of the Park Department. Last summer, with the consent and approval of the Park Superintendent, the College cut down two trees on Quincy Street, which were spreading elm bark beetles directly in the Yard. For the good of the City as well as Harvard College, such removals should be made on many of the streets about Harvard Square. In this work the University would certainly be willing to cooperate to any reasonable extent, and for the sake of future economy in the care of its own street trees, the City should make the necessary appropriation to the Park Department.

The University Crew

THE two eights, made up of the most promising candidates for the university crew, left the rowing machines and the tank last week and rowed on Lynn harbor. The West Lynn Boat Club offered the use of its house, and the Harvard men accepted the hospitality which made it possible for them to work in the open for the first time this spring. It is hoped that the ice may go out of the Charles River in a few days;

as soon as the river is clear, the crews will row from the Newell boat house.

The two university eights are now made up as follows:

Crew A—Potter, bow; Brown, 2; Cabot, 3; Franklin, 4; Coolidge, 5; Whitman, 6; Moody, 7; White, stroke; Cameron, cox.

Crew B—Darling, bow; Young, 2; Fisher, 3; Taylor, 4; Parkman, 5; Pope, 6; Brazer, 7; Emmet, stroke; Reed, cox.



THE CREW LAUNCHING ITS SHELL AT LYNN.