SHADE TREES FOR CITY STREETS: WHAT THEY FURNISH IN THE WAY OF BEAUTY, HEALTH AND COMFORT: BY ADA RAINNEY

The connection between public well-being, and the planting of shade trees on the streets of our towns and cities is yearly becoming more apparent. The connection is close and important. As we come to realize and act upon it so will our civic well-being develop, which is at the foundation of all our progress. During the past twenty-five years the increase in urban population has been enormous—out of all proportion to the total population. However much this may be deplored, the fact remains and the best way to face it is to meet the conditions in the most optimistic spirit—which is really the most scientific and progressive spirit. We must strive to make our cities more desirable places in which to live, we must promote interest in the trees as a means of beautifying and making more healthful the conditions of city life.

It has been proved that trees have a marked beneficial effect on the atmosphere. From the foliage, a large quantity of moisture is evaporated which on hot days helps cool the air to an appreciable extent. Not only do trees keep the glare from the streets and houses, but they purify the air by the taking up of carbon di-oxygen and the giving off of oxygen which vivifies the atmosphere and makes it far more healthful for human beings. The part of trees in the life cycle is an important one. This is becoming generally recognized, for by a recent recommendation of the Commissioner to the Board of Health in the city of New York it was advised to empower the Park Commissioner to plant trees in all parks and streets wherever possible for the benefit of the general health, especially of young children during the summer months. We have been so busy attending to the upbuilding of the commercial consideration that we have not until recently had time to think of our cities as places in which we live, but the living is quite as important as the business side. Indeed the two interact—the life of the one is directly dependent upon that of the other. For what is the use of extending our vast commercial activities if it narrows our lives, makes them barren and insensitive to the feeling of nature and its uplifting influence.

It is fortunate that aesthetic considerations are becoming recognized, even in our law courts. The Appellate Division of the New York Supreme Court recently sustained the judgment of a lower court which fixed the value of shade trees on a city street at five hundred dollars each. A construction company had been doing some work on a street and thought it was necessary to cut the roots of several large trees, thereby causing their death. The court fixed the value,
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stating it was not only the timber or commercial, but the æsthetic value that was important, for the tree could not be replaced for many years and in the meantime the community was deprived of its beauty and shade. An extra fine of one thousand dollars was imposed for wilful destruction.

Our forefathers unfortunately showed lack of foresight in planning and in the laying out of our cities. They neglected to provide ample space for proper parks or for broad avenues where trees could be planted. But perhaps they can scarcely be blamed for this. The forest was their great enemy to be dreaded; they could not foresee the time when these vast forests should be shorn of their power, when it would become necessary to conserve instead of destroying them.

There are signs of an awakening of the commercial consciousness to the value of beauty as an important factor in business. It is finding that beautiful streets are a good investment, a lot with trees on it brings more than one without, a beautiful city will bring in greater monetary returns than an ugly one. So the real-estate and other business men have taken to planting trees in front of their property and are becoming interested in shade trees in cities.

A city that is not beautiful lags behind the times nowadays, so we must see to it that as much as possible is being done in our own hometown. If a city has not a Shade-Tree Commission or a department which attends to parks or trees, much can be accomplished by a committee of citizens if they are sufficiently public spirited to take an interest in proper tree planting, to inform themselves of the best trees to set out, the most scientific way to plant them, and their proper care afterward. Trees have been successfully set out in many cities in some of the Eastern States, chiefly in New York, New Jersey, Massachusetts and Pennsylvania. Washington is perhaps the most beautiful of all our American cities, due largely to the artistic plan for the streets laid out by Le Notre in the eighteenth century, and the handsome shade trees carefully planted and cared for by the Government. It is an excellent object lesson for other cities to follow. It shows what can be done if a plan is adhered to and scientifically followed out.

In Berlin and Paris the trees add an important element to the beauty, healthfulness and charm of the respective cities. Paris in May, when the horse chestnuts are in bloom, is a delight to all who are sensitive to the beauty of trees and flowers. The Prefect of the Department of the Seine, who has charge of the trees, says that the soil of Paris is poor and the success met with in the growth and beauty of the trees is almost entirely due to the care that is bestowed on them. There are eighty-six thousand trees in the city. Of these about eighteen hundred are renewed each year. A municipal forest nursery is
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maintained by the government, where large trees are grown and kept ready for successful transplanting in the autumn. The annual cost of maintaining the street trees is eighty thousand dollars; about half that amount is expended in Washington for the care of a greater number of trees.

Boston has been most successful in the care and planting of trees in her parks and streets. Much excellent work has been done in East Orange, New Jersey, and in Newark, New Jersey. The Newark Shade-Tree Commission has been in existence about eight years. The report of this Commission is printed annually and contains valuable information about trees and their care.

But much more remains to be done than has yet been accomplished. Of the great number of our towns and cities, relatively few have taken adequate interest in tree planting. Indeed, the shade-tree movement is barely in its infancy.

There are really comparatively few varieties of trees that are suited to street planting. It is difficult to find trees that are hardy enough to stand the strain of the hard conditions that are not subject to insect pests. Strange to say the European varieties are better adapted to street use than the American. There are many conditions that should be taken into consideration for city planting, such as poor soil, lack of moisture, escaping gas underground, trolley wires, etc. We have in America in all about five hundred native trees, yet not more than a dozen of them are adapted for street use.

The selection of the best variety involves considerable study of local conditions such as the composition of the soil, amount of moisture and width of streets. To obtain the best results in street planting, one should look years ahead and plan for effective spacing when the tree will be fully grown. The neglect of this foresight is the cause of frequent overcrowding. The trees selected should all be of one variety, symmetrical in form and planted at equal distances, about forty feet apart.

Great care should also be taken to observe the correct proportions between width of roadway and sidewalk and to leave a strip of parking sufficiently wide for water and air for the trees. Residence streets are usually fifty feet wide. Of this ten feet on each side should be left for sidewalk and parking strip. The ideal width for a street is sixty feet, divided as follows: thirty for roadway, six feet for parkway, four feet for sidewalk, and five feet between fence lines and sidewalk. Trees should not be planted too near the curb, not more than two feet, otherwise they are liable to be interfered with by grocer carts, and to be gnawed by horses, even the guards put around them are apt to be broken frequently. It is also a fact that they should not be planted
nearer the houses than fifteen feet, for they shut out the light and their roots run against the foundation walls. On the curb side if too near, the roots meet the unfavorable condition under the street paving, which often retains too much moisture in the soil. Proper drainage should be provided for underground as well as the means of obtaining sufficient water above.

In general the best variety of trees for street planting is the Norway maple, which is a native of Europe. Local conditions vary much and it is impossible to state absolutely the best varieties for each section which should be decided upon by careful study of conditions. But the Norway maple withstands city conditions better than the native hard maple. It grows symmetrically with a tall straight stem and does not branch too low. These two conditions are important, for it is essential that the branches do not extend lower than seven feet from the ground, otherwise they interfere with pedestrians. The Norway maple is very hardy, flowers profusely in April and May and does not grow too quickly, which contrary to general opinion is not an asset for street trees. A quick growing tree always has soft, brittle wood likely to break easily in wind or under ice pressure and is not long lived. So a more slowly growing tree is always preferable, for it has better staying qualities.

The pin oak is another excellent variety. The oaks are usually thought to be very slow growers, but on careful consideration this will be found to be only relative. They grow only a little slower than hard maples and are indeed ideal trees. Both the pin and red oaks are very free from insect pests which is an important matter to consider. Twelfth Street in Washington City between North and South B Streets is planted with red oaks, is one of the most beautiful in that city of fine streets. The white oak is superior in vigor and longevity to all other trees, yet has fewer points to recommend it for street planting than the other varieties of oak, for it is more difficult to transplant and retains its leaves nearly all the winter. This makes litter in a city, which is disagreeable.

The lindens, both American and European, make good street trees. The latter is the better tree and withstands city conditions well. It grows perfectly straight in pyramidal form, has heart-shaped leaves and fragrant flowers, but is somewhat subject to insects.

The white or American elm is perhaps the most beautiful of all native trees, but it is subject to insects, to the elm-leaf beetle, the tussock moth, leopard moth and to borers. It is best adapted to parks and lawns or very wide streets. It has been successfully used in Hartford, Connecticut, where the wide streets shaded by old elms are beautiful.

Some of the other best trees for street use are the Oriental plane,
ROWS OF AMERICAN LINDENS ON MASSACHUSETTS AVENUE, WASHINGTON: BOTH AMERICAN AND EUROPEAN LINDENS ARE GOOD STREET TREES ESPECIALLY DESIRABLE BECAUSE OF THEIR FRAGRANCE; UNFORTUNATELY THEY ARE SOMEWHAT SUBJECT TO INSECTS.

THE GINKGO, A REMARKABLE TREE FROM JAPAN, IS VALUABLE FOR STREET USE: IT IS HARDY AND ENTIRELY FREE FROM INSECTS: THIS GROUP IS TO BE SEEN IN THE AGRICULTURAL GROUNDS OF WASHINGTON, D. C.
PIN OAKS ARE PLANTED ALONG ONE SIDE OF PENNSYLVANIA AVENUE IN WASHINGTON; THEY ARE MODERATELY SLOW GROWERS BUT ARE FREE FROM INSECTS AND IN THE COURSE OF A FEW YEARS MAKE SHADE OF A PLEASING QUALITY, SINCE THEIR FOLIAGE IS NOT SUFFICIENTLY DENSE TO PREVENT THE FREE PASSAGE OF AIR; IN THE AUTUMN THE LEAVES OF PIN OAKS TURN TO A RICH SHADE OF RED, GIVING TO THE SURROUNDING COUNTRY MUCH BRILLIANCE.

TWELFTH STREET IN WASHINGTON BETWEEN NORTH AND B STREETS IS PLANTED WITH RED OAKS AND IS ONE OF THE MOST BEAUTIFULLY SHADED AVENUES IN THE WORLD.
Elms in front of the public library, Washington: there is no more beautiful shade tree, when properly planted and pruned, than the elm; just at present it is somewhat under a cloud, as it seems more subject to insects than the hardy oak; in shape it is the most readily recognized of all American trees, its stem growing to a good height and then branching out like the spray of a fountain; in this respect it is different from the European elm, which it far outshines in ability to mark a landscape distinctively.

An avenue in Washington with elms, which so far seem to have escaped the blight that has overwhelmed so many beautiful elm avenues in America.
AN AVENUE OF HORSE CHESTNUTS IN WASHINGTON: THERE IS NO MORE BEAUTIFUL STREET TREE THAN THE HORSE CHESTNUT; IT IS GREEN ALMOST BEFORE THE SWALLOWS COME, BUT HERE IN AMERICA, WHERE IT IS NOT A NATIVE, OBJECTION IS MADE TO THE EARLY FALLING OF ITS LEAVES.

SHOWING AN AVENUE WITH DOUBLE PLANTING OF TREES: THIS IS ESPECIALLY BEAUTIFUL WHERE THE AVENUES ARE WIDE ENOUGH TO PERMIT SUCH AN ARRANGEMENT.
called the American button-ball, or sycamore, the white ash, the gingko—a remarkable tree from Japan, hardy and entirely free from insects, it has a beautiful fanlike leaf. The tulip-tree, of the magnolia family has a lovely tuliplike flower, difficult to transplant, which must be done in the spring, but is a symmetrical tree and adapted for very wide streets. The horse chestnut an Asiatic tree so beautiful in Paris, is difficult to suit to street conditions, for the pavement interferes with best conditions for growth. It is also subject to insects. The silver maple and Carolina poplar should not be planted on streets, for their wood breaks easily and they are subject to borers.

It is important to secure proper trees from a reliable nursery, for the nurseriesman keeps the young trees in the best condition for transplanting. The roots are cut back so as to prevent undue spreading and form a compact root system. The young trees are moved two or three times so they will better adjust themselves to the final transplanting. Trees from eight to twelve years old are best and should not be more than three inches caliper. The tops should be trimmed before planting.

The proper method of setting is of great importance. The best way is first to ascertain whether the underlying soil is good. It should not contain either too much clay or sand, the correct proportion is seventy percent. sand, twenty percent. clay and ten percent. humus. If this obtains along the length of the street, it is not necessary to remove so much soil. A hole about three feet long, three feet deep, three feet wide should be dug, the soil removed and new good soil substituted. This will secure a good growing condition for five or six years. If the parking strip is left as before suggested, the tree should do well, as the necessary amount of air and water will thus be insured. An abundant supply of water is necessary to the young tree for the first and second summers and should be given in the evening about every ten days during the first summer, or until the young tree is able to shift for itself. It must be remembered that air and moisture are the essential conditions of growth for trees. If these are provided with an abundance of good soil, excellent results will be obtained.

The most serious enemies to trees are the tree moths and borers. Of these the most formidable are the tussock moth, the gypsy moth, brown-tailed moth—the borers and elm-leaf beetle are the most deadly. The best treatment for the tussock moth is to go over the infested trees in midsummer and wet the eggs with creosote to which cold tar is added. The second method is to spray the leaves, which if done early enough is efficacious. The borers are difficult to manage. They work under the bark of the tree, girdle it and so cause its death. They can be detected by sawdust coming out of holes in the trunk, and
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work from April to November. The best way to treat them is to go over the trees killing the borers with a sharp pointed wire or by injecting bisulphide of carbon in the cavities where they are feeding and by closing the holes later with putty.

The importance of protection against insect pests can scarcely be overestimated, and proper legislation should be enforced. There is at present a law in New York State long disused, which compels each citizen to have the trees properly treated to keep moths and borers from spreading and so protect the neighboring trees. Mr. Hermann W. Merkel, chief forester of the New York Zoological Park is working to interest the proper authorities to enforce this law so important to the health of trees. It is difficult for the City Commission to expend time and money on treating trees if those belonging to private individuals are infected. If public opinion is aroused to the importance of thus protecting the trees, proper legislation can be secured. Gas escaping from underground pipes is also a great danger to the trees. Special precaution should be taken to see that the pipes are tight, otherwise the soil will become impregnated, and even if the tree dies and is removed and good soil substituted, the surrounding soil will be affected by the remaining gas and cause its injury. It is not a simple undertaking to plant and care for a large number of trees in a city. But the outlay of expense is amply repaid by the returns made by the trees. In Newark the cost for planting per tree is three dollars and seventeen cents. This includes all cost of transplanting, grading of street, etc.

The celebration of Arbor Day is an excellent means for arousing the interest of schoolchildren in trees. When children plant a tree in their own school grounds they have a feeling of proprietorship in that particular tree, and if this interest is stimulated will extend to trees in the town. To interest children in trees has become the aim in the movement which presses the children into a service brigade to help care for the trees on the street. When children have been interested in the life of trees, in their growth and development and shown how man is dependent upon trees for many of the important elements, they begin to know and love them. This knowledge and love will later on produce a nation of tree-loving and tree-protecting people. The excellent results obtained from the “Shade-Tree Protectors” is encouraging. This league was organized in nineteen hundred and nine in Newark by Mr. Carl Bannerwart, Secretary of the Newark Shade-Tree Commission. The children were first interested in a talk about trees—on what they do for us and what we can do for them. Leaflets were distributed on “what to do next,” explaining the needs of street trees, how to plant them, how to know them and how to recognize the injurious insects. Excellent work was done by the children. A
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thousand of them worked with varying degrees of intensity, their ages ranging from seven to fourteen years. Nearly two thousand street trees were watered and cultivated by the children in one summer. One “gang” of boys cultivated two hundred and eighty trees in two hours, working under a Shade-Tree representative. This enthusiasm overflows into cultivating and taking care of their own trees in school lots. The watchfulness of the children was rather trying for the violation of city ordinance, such as tying horses to trees, pouring salt water from ice-cream freezers at the roots of trees, etc. They were active in causing the arrests of a number of delinquents.

The scientific care and protection of street trees should of course be under municipal control. Individual landowners who care for the trees are never thorough or concerted enough in their action. There must be efficient service at the proper time to obtain the best results. In the past decade New York, Chicago, St. Louis, Cleveland, Buffalo, Hartford, New Orleans and Pittsburgh have all assumed control of their own street trees with most satisfying results.