

**SB 483**

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THE COMMISSIONERS OF  
FAIRMOUNT PARK, PHILADELPHIA

Jesse T. Vogdes  
Chief Engineer and Superintendent

REPORT  
ON THE TREES OF  
FAIRMOUNT PARK



PREPARED BY  
OGLESBY PAUL  
LANDSCAPE GARDENER OF THE PARK

July, 1908

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Trunk of veteran White Oak, showing splendid development of this species as a forest tree. Note the lack of fertile leaf mould about it owing to trampling by the public



REPORT *on the* TREES  
*of* FAIRMOUNT PARK

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A STUDY OF THE TREES  
GROWING NATURALLY IN THE PARK FORESTS  
AND OF THOSE PLANTED FOR SHADE *or* DE-  
CORATIVE PURPOSES, INCLUDING THE  
OUTLINE *of a* GENERAL FORESTRY  
POLICY SUGGESTED FOR  
THEIR FUTURE CARE



P R E P A R E D B Y  
O G L E S B Y P A U L  
Landscape Gardener of the Park

July, 1908

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O present the unsatisfactory condition of the trees of Fairmount Park at the present time, and the necessity of an increased expenditure annually for their improvement and welfare, is the purpose of this report. Those in charge of large parks, boulevards, and suburban estates are now a unit in declaring that the trees under their care need constant and intelligent attention, and that the old policy of trusting to nature to provide for them when established is a treacherous one and almost certain to end in disaster. That the noble specimens in our own park should be exposed to injurious influences without the necessary remedies is little short of a calamity; many of these old monarchs, representing as they do the growth of generations, could not be replaced, and should we not therefore maintain them in a way that would be a credit to the city, and a source of pleasure to all for many years to come? Think what good friends we have in the trees, of the delicious shade they give through the hot summers, and the stately majesty and beauty they symbolize at all seasons of the year! Surely they may count on our watchful care to enable them to live out their lives in this same beauty, instead of becoming objects of pity to the passerby. A tree growing within the limits of a great city, particularly if it be a manufacturing center, like our own,

has many adverse forces to contend with, and its life at best is a constant struggle against such odds as escaping gases, which poison the roots, clouds of soot and dust, which clog the stomata or pores of the leaves, and killing drought from the waterproof coated streets. Trees so placed are also more susceptible, by their weakened condition, to injury from fungus-diseases and insect plagues. In the woodlands of a park a further evil arises from trampling by the public, which kneads the ground to the consistency of brick clay, destroys the protecting undergrowth, bruises exposed roots, and on hilly land starts washing of the surface in a way which often threatens the very existence of the wood itself.

These difficulties are now recognized in every well-established park, and more attention is given to the care of the trees in many of them, particularly in Europe, than to any other single work. In New England tens of thousands of dollars are annually spent in fighting the gipsy and brown-tailed moths alone, while in Brooklyn a similar activity is recorded against the tussock moth. A commission of experts reported several years ago that because of previous neglect \$150,000 would be required to put the trees of Central Park, New York, in condition and restore the exhausted ground in which they were growing. Many additional instances can be adduced to show that the conditions described in this report, while urgently claiming attention, are by no means unique, as they have existed, or do still exist, in other cities besides our own.

Owing to the age of Fairmount Park, our work here may best be compared to that in Central Park. There Mr. Parsons, the Commissioner for Manhattan, has asked for \$50,000 for the care of the trees and shrubs for the ensuing year. Though our area is nearly four times that of Central Park, we received last year \$3500 for exactly the same purpose. In



Belmont Avenue, showing Elms which were threatened with destruction by scale. Pruning and spraying these trees have restored them as shown here. Unfortunately, no work could be done to preserve them this summer, and they are rapidly reverting to an unsightly condition.

other words, we are struggling to keep our trees pruned, sprayed, cleaned of insect eggs, and finally removed when decayed for an average expenditure of \$1.15 per acre annually; and this in the face of the facts that fifty large trees frequently stand on a single acre of our park and that certain species therein require at least two sprayings annually, to say nothing of periodical pruning and cleaning by high climbers. An examination of the data in this report should convince any one that an increase from \$3500 to at least \$10,000 for the Forester's item is not only reasonable, but absolutely necessary, if the park is to be maintained in a creditable way. To do this work properly requires men trained at mounting the highest trees fearlessly, and with sufficient intelligence to perform their work thoroughly and conscientiously, though perched high above ground. The average laborer is both unable and unwilling to assume such risks. The general park force, as at present constituted, contains no men, save those in the Forester's gang, who are of any real assistance in this work, a fact demonstrated after repeated efforts in this direction.

### Shade and Ornamental Trees; Artificially Planted

The principal shade and ornamental trees planted in the park have been American Lindens, Elms, Silver and Norway Maples, Oriental Planes, and Oaks. Lindens, Maples, and Elms were the chief deciduous trees used in the early plantings, and in addition thousands of Norway Spruces were introduced for evergreen effects. These Spruces have since nearly all disappeared, unable to contend against the soot which coated the trees. The Lindens, Silver and Scotch



Large Elm on Lemon Hill suffering from scale. This tree was dying when sprayed in 1907, and if not sprayed regularly for several years will unquestionably succumb. Note the young growths striving to recover the tree. If these are kept clean of scale, the tree can in time recover.

Maples, and Elms have proved very difficult trees to keep in good condition, though they are all handsome when well grown. Their chief enemies are oyster-shell and glover's scales, tussock moth caterpillars, elm leaf beetles, and red spiders, placed in the order of their importance. The young scale insect is carried to the trees by birds and wind, and first appears as a minute orange or yellow speck, moving about on the limbs. In a short time it attaches itself to the bark, and driving its slender proboscis through the tissues, sucks out the sap, thus robbing the tree, and still further injures it by injecting a poison in its stead, which discolors the wood a dark red. In a few weeks the scale becomes coated with a hard shell, under which it deposits its eggs and then dies. Owing to the number of these eggs, the scale multiplies with amazing rapidity, and will soon destroy a tree if allowed to work unmolessted. By spraying the trees with whale-oil soap or kerosene emulsion, in the two breeding seasons of May and July, the young scales can be readily destroyed and this dangerous plague kept under control. The tussock moth does an immense amount of damage to the trees during dry summers, such as the present, and sometimes strips them entirely of leaves. Like the scale, it has two hatching seasons, one in May and the other in August; and if a tree be closely examined at that time, thousands of young caterpillars, so minute as to be scarcely visible to the naked eye, may be detected ascending the trunks in search of food. After six weeks or more, devoted to rapaciously devouring the foliage, they attach themselves to limbs, etc., by silken cocoons, and presently emerge as gray moths. The male moth is winged and active, but the female is able to crawl only a few inches from the cocoon, where she deposits a cluster of pearl-like eggs. Fortunately, these egg clusters may easily be seen on the trees





July 15, 1908, in the old park. The Elms and Horse Chestnuts in the foreground have been stripped by the tussock moth. This not only renders them unsightly, but seriously weakens the tree. Careful forest work would render this condition impossible.

in groups of 400 or 500 eggs each, and if destroyed, will prevent the subsequent hatching of the caterpillars. As it is practically impossible to find all the hiding-places in which the clusters of eggs have been placed, many of them being under stones, eaves of buildings, etc., we have found it necessary to band the trunk of each tree, when cleaned, with a strip of "tanglefoot." This the young caterpillars are unable to cross, and, collecting in great numbers below the bands, are readily killed with wire brushes. Their natural foes, several small beetles, also find this territory a happy hunting-ground, and may be seen in thousands destroying the helpless caterpillars. As a still further protection, a solution of arsenate of lead may be added to the kerosene spray used on these trees for the scale insects, and thus poison the food of the caterpillars. This same preparation, if applied early in the spring, will also serve to keep in check the elm beetle, a small but extremely active enemy of the Elm tree, which at times does great damage to the foliage. The red spider appears only in dry weather, usually in August and September, in this latitude, and confines its attacks to the lower sides of the leaves. The foliage of a tree infested with red spiders soon turns brown and becomes unsightly. Several sprayings each season, during the dry weather, would keep this pest in control. In other words, to maintain a 40-foot Elm in the park in good health is a perfectly practicable and possible matter, but it costs approximately the following amount of money per annum to do it:

Cleaning of egg clusters in winter, approximately . . .	\$1.00	per tree
Spraying with arsenate of lead and whale-oil soap for tussock moth, scale, and elm beetle—three sprayings at 60 cents each . . . . .	1.80	" "
Banding the tree in May . . . . .	.10	" "
Total . . . . .	<u>\$2.90</u>	" "



White Oak tree in West Park killed by scale. Frequent sprayings would without doubt have saved it, but no funds were available.

This, of course, takes no account of the pruning required every second or third year, which costs approximately \$1.00 per tree of average size. These figures are reasonably accurate only, but are low rather than high, taking all conditions under consideration. Frost & Co., of Boston, and Thomas Meehan & Co., of Philadelphia, two of the leading spraying companies, charged us 75 cents, plus the cost of materials, for each spraying of a 40-foot tree, but we find the work can be done at approximately 60 cents by our own Forester's men. As there are several thousand trees of these species in the park, the total cost would be considerable for this work alone. Moreover, the tussock moth has begun to feed on the Norway Maple, Willow, and Horse Chestnut, so these trees must be included in our list of species damaged by this plague.

Turning to the Oriental Planes and the Oaks, we find less costly trees to maintain, but still each needs constant attention here. The Plane is attacked annually by a turtle-shaped scale and a large gray aphid, both dangerous plagues. A caustic spray of lime and sulphur applied in winter, and the whale-oil soap spray used at the hatching season in July, have proved effective means of destroying this scale. The gray aphid belongs to a group of insects peculiarly difficult to keep in check—a statement readily understood, since every twenty-four hours suffices to develop from a single insect a progeny of several hundred. They may be detected in September in dense masses on the under side of the limbs, sucking out the sap. Frequent sprayings with a mixture of kerosene emulsion and tobacco are, we find, absolutely necessary to prevent serious damage at that time.

The red and black Oak are here practically immune from insect or fungus-diseases. Of the other species, the White and Chestnut Oaks are suffering severely from a green scale

(*Asterolecanium variolosum*), one of the most difficult and injurious insects we have yet encountered. I first noticed it in 1906 on a handsome White Oak, and have spared no efforts to eradicate it ever since. Unlike other scales, it embeds itself in the bark, appearing as a sunken green spot, the size of a pinhead, and is therefore very difficult to reach with the spray. Caustic washes, soluble oil, kerosene emulsion, and whale-oil soap have all been tried on it, and wherever possible infested branches have been removed. When we have been able to give the trees repeated sprayings, no serious damage has resulted, but many trees not so protected have succumbed. The Pin Oak has suffered recently from San José scale and the gray aphid, but in both cases, by vigorous pruning and spraying with caustic washes, we have been able to avoid any serious damage. The English Oak has given much trouble, owing to the attacks of turtle scale and red spiders, but after two years of hard work with the sprayers, the trees were put in excellent shape.

In the vicinity of Philadelphia and New York the Beeches are suffering from oyster-shell scale and a bluish aphid (*Phylloxera fagi*), and those already infested here will require numerous sprayings to save them. In the wilder portions of the park we are troubled annually by the bag worm and the forest tent caterpillar, both very injurious pests, although they have done less damage than the ones already described. It requires several weeks' work of a large gang of men each season to collect and destroy the nests of both these plagues, as, if left undisturbed, they might become fully as destructive as the tussock moth is today.

Of fungus-diseases, the most serious is one attacking the Chestnut. Borne by the wind as a minute spore, it gains a lodgment in some cut or wound in a healthy Chestnut tree and

works its way into the tissues in the living or cambium layer beneath the bark, breaking down the cell structure and cutting off the flow of sap to the limb above the point of attack. The leaves then turn yellow and the branch dies. Its life-cycle now complete, the fungus reappears on the surface of the branch as rusty brown pustules, which burst and release new millions of the spores to spread the disease to new trees or branches. This fungus, traveling west from New York, where it was first reported and studied in 1905, has now reached us, and already killed many trees. The extinction of the Chestnut here within a few years seems certain to occur if some protective steps be not taken. Owing to its work being done entirely within the trees, it is nearly impossible to exterminate it when once it has gained a lodgment. Fortunately, the fungus cannot pierce healthy bark, but can enter only through an open wound. The safeguard is, therefore, to remove all diseased or broken limbs and paint all scars or fractures with tar paint. The gravity of the situation is apparent in view of a recent letter received from the entomologist of the New York Zoölogical Gardens, to the effect that they have no healthy Chestnuts left in Bronx Park. While absolute proof is not at hand, it seems probable that the disappearance of the Chestnut trees from one or two of the southern States, reported by Mr. Beadle, although he found plenty of Chestnut rail fences, is attributable to this same disease.

Owing to the enforced abandonment of spraying and insect destruction this year, ground gained at great labor during the previous two seasons is being rapidly lost, and each month shows a further retrogression. For example, careful cleaning of the old park last winter, and a thorough spraying and banding of all the trees there this spring, would have



View showing Beech trees in West Park. Though still very beautiful, the trees here shown are suffering from scale and aphids, and require immediate attention, and at least three sprayings annually, or their death within three years may be prophesied with certainty. Note that foliage is already becoming thin in upper half of the tree.

rendered impossible its recent devastation by tussock moths. I therefore respectfully request that a sum sufficient for the proper performance of this work be secured as soon as possible. Tons of spraying materials are used annually in other large park systems in just such work, and without this it seems a hopeless struggle to try to maintain these trees under the urban conditions here. As a further safeguard, I would advise using in those sections most exposed to gas and similar unfavorable factors only those trees best able to resist them and least subject to these insect plagues. Such trees are the following: the Ginko (*Salisburia adiantifolia*), the Turkey Oak (*Q. Cerris*), the Cucumber Tree (*Magnolia acuminata*), the Red Oak (*Q. rubra*), the Pin Oak (*Q. palustris*), the Austrian Pine (*P. Austriaca*), Norway Maple (*Acer platanoides*), the Oriental Plane (*Platanus Orientalis*), the Hawthorn (*Crataegus oxycantha*), American Thorns (*Crataegus crusgalli*), etc. None of these, with the exception of the Ginko, are iron-clad in all respects, but they are the trees most easily cared for.

### Forest Areas in the Park

A considerable area in the park is covered with natural forest growth, some of which has undoubtedly come down to us from the days when primeval forest covered the Schuylkill hills, as there are trees standing in them fully a century and a half old. The general public apparently considers that, as nature planted these trees in such glorious munificence, she is amply providing for their welfare and perpetuation. Careful studies, extending over several years, of the composition and condition in detail of these forests, have convinced me that in the majority of cases they are failing or deteriorating, that nature is



unequal to the task of overcoming the hardships endured by these forests, that each year shows an increase in the ratio of loss, and that prompt, energetic, and sustained efforts by man alone can remedy the evil.

As these statements are of so serious a nature that they call



Black Oak and Hickory trees, showing noble character of these hardwoods in all situations. These trees once stood in a forest.

for convincing evidence to warrant their use, I submit here data upon which they are based, that you may verify my conclusions. The figures in these schedules comprise the results of a careful census of the wooded areas. In the smaller tracts the trees were counted and the species noted, together with

the diameter of the trunk, breast-high. In the larger ones typical strips, approximately 200 feet wide, through the woods at selected points, were so measured and counted, and these results multiplied by the area of the forest (this being the



A grove of Hickory, Oak, and Tulip trees in Lansdowne Valley. Such forest trees standing in cleared ground are apt to deteriorate unless carefully pruned and fertilized from time to time, as they now lack the undergrowth and bed of leaves which formerly supplied them with nourishment.

accepted system among foresters). Notes were also made of the condition of the timber, the character of the undergrowth, and the nature of the humus or soil. The Forester was also directed to keep a record book showing all trees cut or heavily

pruned by him, with the apparent cause of their diseased state or death, and these data were studied with these census records and the facts tabulated in the lists given at the end of this report.

An analysis of these figures gives some very interesting results. The large trees, or trees over 30 inches in diameter, are practically confined to seven species—the White, Red, and Black Oaks, the Chestnut, the Tulip, the American Beech, and the Black Walnut. The other species seldom attain 30 inches in diameter in the forests, and therefore do not contribute greatly to the list of large trees, usually failing for one cause or another when of moderate size. If we desire to preserve or obtain the dignity which noble forests of large trees give to a park, we must therefore rely for our results on the seven species named above, as they are evidently best able to produce such forests. The accomplishment of this end is of special importance because the individual forests of the park are small (if we exclude the Wissahickon, which I am expressly excluding from this report, reserving it for separate consideration), and while a grove of a dozen large trees will carry with it a great deal of dignity and beauty, an acre of half-grown forest may appear meager.

It is, therefore, a serious matter to observe that in the entire twenty woodlands analyzed and plotted the White Oak, the noblest of our trees, is reproducing satisfactorily in one tract alone (area 1). In the others, White Oak saplings are either entirely lacking or occur in scant numbers. The Black and Red Oaks make an even worse showing and the Black Walnut is equally unfortunate. Moreover, the existing Walnut and White Oak trees are suffering from insects, as shown by the forest records, and this is causing a larger death-rate among these veteran trees than usual. We are therefore

facing the certain loss of both the Oaks and the Walnuts in the near future if conditions continue as at present.

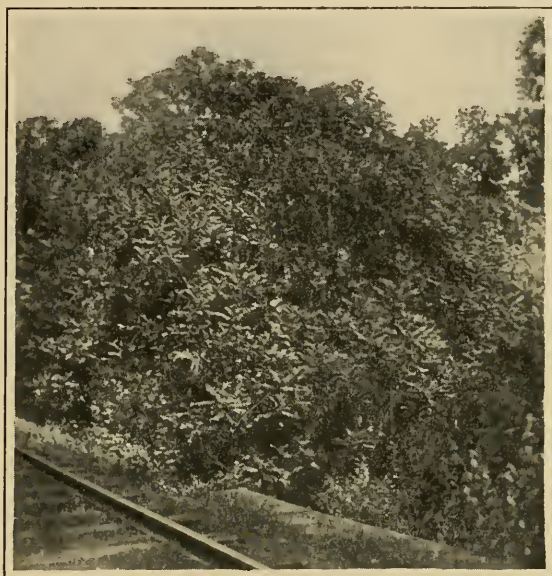
Turning to the Chestnut, Tulip, and Beech in the schedules, we find reproduction satisfactory in about one-half the areas only, namely, those where the humus is thick and rich,



Catalpa trees, showing the meager growth which results where this tree takes possession of a forest area and replaces the hard-woods.

as on areas 3, 5, 6, etc., but failing where the humus is thin, as on areas 1, 4, 17, etc. By the forest records it will be noted that the Beech and Chestnut are suffering badly from insects and fungus-diseases, thus shortening greatly the life of these existing large specimens.

As regards the Hickory, Sour Gum, and Chestnut Oaks—all valuable and handsome large trees—conditions are very similar. The Gum is failing at both ends, the large specimens suffering from scale, and no young trees rising to replace



The Ailanthus trees shown here are very handsome at this age, but will soon die back to the ground, leaving a mass of dead trunks and branches. This is due to winter killing, and renders this tree objectionable, as it crowds out more long-lived species.

them. The others are reproducing in less than half the forest areas, and the standing trees are starving from lack of humus in many places.

In contrast with this showing, observe the records of Red Maple, Ash, Bitternut, Blue Beech, and Catalpa. These

species are gaining ground in many places and maintaining themselves in others. But seldom do they attain to large size, rarely exceeding 18 inches in diameter, and they are therefore valuable as incidents in a forest, but not as the chief constituents.

Turning to the Wild Cherry, Ailanthus, and Sassafras, all trees of moderate size, we find abundant reproduction, saplings of these species springing up in the places vacated by dead trees of other kinds. The Ailanthus is particularly undesirable, as a cold winter not infrequently kills large numbers of them. The Wild Cherry is the favorite host for the tent caterpillar, an undesirable distinction, and the Sassafras, though beautiful in its autumnal coloring, has otherwise little value as a forest tree.

Broadly speaking, the forests are therefore steadily changing in character, and the change is not for the better. The nobler trees are gradually giving way to the less worthy kinds, and in the end this must inevitably impair the stately dignity of these forests.

Let us examine these records from another view-point, considering the forests merely as wooded tracts, regardless of their composition, and observe what is occurring. So little natural reproduction is taking place at (1) George's Hill, (4) Beechwood, (21) Woodside, (16) Mt. Pleasant, (18) Snyder's Woods, (17) Fountain Green, that these forest areas are actually disappearing. The humus in all of them is very thin and there is little or no undergrowth. The forest covering in some cases is of grass; in others the public is trampling out the young growths; in others the forest floor is frequently burned over. One or usually more of these conditions prevail in each case and make it impossible for nature to carry out its work. Left unaided, these woodlands are doomed, I believe.



View showing a portion of Snyder's woods near Oxford Street entrance. Note the dead limbs on the Chestnut trees in center of picture; these trees are suffering from Chestnut tree fungus-disease, one of the most dangerous enemies to the forest vegetation. Prompt cutting out of infested wood is most important in such cases, as no cure has yet been discovered for this new enemy of the Chestnut.

At Lansdowne Valley, Belmont Valley, City Line (north of the river), and Ormiston the places of the failing trees are in part being filled by saplings of the Cherry, Ailanthus, and other weedy trees, though it is a struggle for even these trees to make headway in many locations, owing to fires and the trampling by the public.

At the Sheep Barn tracts, Greenland, Lilacs, City Avenue (south end), and Rockland the forests are holding their own, in both character and extent, as they are freer from injury by man and his agencies.

At the Country Club alone do we find a perfectly healthy forest, with an adequate proportion of forest cover, veterans, and saplings to insure its future existence and character.

To meet these difficulties I suggest the adoption of the following forest policy, and request—(1) that the Michaux Fund and its accumulated income be annually expended in carrying out so much of the suggested plantings as that small sum may permit, and (2) that the forestry appropriation be increased sufficiently to enable the necessary pruning, thinning, and replanting to be carried out in an energetic and consecutive manner.

The first step should be to extend the life of the present large trees in every possible way. The most vital points are the roots, which are nearly all close to the surface, seldom extending far into the ground, as may be observed when a large tree is uprooted in a storm. Upon the surface fertility of the soil a hard-wood tree largely depends, and when the humus is deepest, a hard-wood forest will thrive best. By checking the forest fires and preserving a thick undergrowth we could do much to produce this condition. Renewed vigor can also often be obtained in failing trees by heading them in. This is particularly true of the White Oak. The following





Oyster-shell scale has damaged these Walnut trees almost beyond repair. Careful pruning and spraying for several consecutive years I believe will still save them. These sprayings will cost approximately 75 cents per tree each time.

scale insects are also now playing havoc with the forests: oyster-shell scale, green oak scale, and San José scale. The oyster-shell scale is now doing most damage, infesting particularly Beeches, Walnut, Sour Gum, and Red Maples. Our work spraying the Elms and Lindens along the drives for this pest has been so successful that I am satisfied we can control this scale in the forests if given a sufficient appropriation. The new green scale so far has baffled our efforts to stamp it out, though every accessible authority has been consulted when our best efforts proved only partially effective. Fortunately, it confines its attacks to the forms of White Oak alone, and we can by spraying keep it under control. When the trees are standing in open groves, as at Snyder's Woods and Sweet Briar, where the ground is dry and poor and covered with turf, a fertilizing with manure, or, better, manure water, would be of great benefit, as the trees show evidence of flagging from starvation. All this work will be costly and laborious, but the results will unquestionably justify the expenditure.

A second step should be directed toward aiding the natural reproduction in the forests. One of the chief reasons for the excellent condition of the Country Club woods is the thorough forestry work we did there three years ago. Numbers of windfalls and dead and dying trees were cut out at that time, thus affording a chance for the surrounding trees to seed into the open spaces, and also admitting sunlight and air to the young saplings already struggling for foothold. Similar work should be done in the other woodlands where there is any hope of natural reproduction proving successful. Special attention should be given to any young Oaks or other hard-wood trees appearing in these natural thickets of seedlings, and every effort made to encourage them and keep the quicker growing

soft-woods from crowding them out. Many of the undesirable kinds of seedlings should be cut out and the space replanted with longer lived trees. Some policy of checking forest fires is absolutely essential if good results in any of the forests near the railroads are to be secured. The present park guards are



Forest of sprout growth Chestnut trees at Beechwood. These trees are dying rapidly, and prompt replanting with seedlings is needed in every opening.

unable to accomplish this apparently, and damage amounting to thousands of dollars is annually done by this cause alone. The detailing of two or three men to act as forest rangers during the danger seasons of fall and spring is therefore an apparent necessity. Last winter almost the entire Roberts' Hollow

tract was burned over, as well as one-half of Belmont Valley, Sweet Briar, Beechwood, and Fountain Green forests. And, as is well shown on the schedule cards, these fires not only injure the younger trees and destroy entirely the rising generation of seedlings, but they consume the humus or peat to such an extent that the ground is left too poor to sustain the existing



Forest at George's Hill, showing slope bare of undergrowth and washing. These trees are starving and dying in large numbers.

large trees. The rate of decay among the older trees in these tracts, where fires readily start from the railroad sparks, is alarming (see foot-note on schedule for Beechwood, page 37).

Of equal importance is the work of replanting where there is little or no natural seeding or where the hard-woods are

dwindling away. Healthy young Oaks, Walnuts, Beeches, Chestnuts, and the like nobler trees of our forests should be planted in every opening in the woods. A special effort could well be made in this work to obtain added local interest by planting masses of Oaks in one section, Beeches in another, mixed hard-woods in a third, etc., thus providing for both the



Locust seedlings in West Park. This is a weedy tree, useful only for temporary cover on bad ground, as it soon falls prey to borers.

delightful variety of the Appalachian forests and the grandeur of the pure stands, as among the evergreens of the west and north. While we are unable, owing to the soot from the trains and factories, to grow Pines, Hemlocks, Spruces, and other evergreens satisfactorily in the park outside the Wissa-

hickon Valley and the Country Club districts, they can still be counted on for a number of years' growth if the site is a protected one to which the soot-laden winds cannot find access. Such is the glen below Ridgeland or the woods at the foot of George's Hill, where the Hemlocks set out three years ago are



Woodland walk near Chamounix. Very beautiful in its wild, picturesque character, but needing attention if this beauty is to be enjoyed by the next generation. Young saplings should be set out in every opening and an undergrowth established.

doing fairly well. They might well, therefore, be planted regularly in such positions to relieve the somberness of the winter forest landscapes.

Where sprout growth or coppice occurs, as at Beechwood,

the trees should gradually be thinned out, and the spaces so made filled with healthy seedling trees, as the sprout growths are both short-lived and uninteresting.

In a number of cases a considerable improvement could also be made by developing the second forest growth through



View in West Park, showing charming effect of native shrubs massed on the edges of the forest. They also help the trees by preserving the moisture.

the woodlands of smaller shade-enduring trees, such as Dogwood, Judas, and Silver Bell. The sprays of the flowers of these trees gleaming through the forest aisles at each season's opening is one of the glorious features of our native landscapes, and the value of this second cover to the forest trees

above is well recognized abroad. I recall seeing thousands of young Hornbeams so set out through the woods of the chief park in Brussels for this purpose.

Several new woodlands can also be founded to good advantage to compensate for the gradual shrinkage of the old ones, choosing preferably sites in which the screen of trees will block out unsightly objects.

I believe the work outlined above is of great and pressing importance, and absolutely essential if the forest property under the Commission's charge is to be preserved. The insects attacking the forests are identical with those we have been combating on the Avenue trees, and, judging by our work on these, I see no reason why we should not be entirely successful in controlling them in the woods as well. Fungus-diseases offer a more complicated problem, but no effort should be spared to stamp them out wherever they appear, by promptly pruning out the infested wood.

If the general policy outlined here is approved, the next step will be to draw detailed planting plans for the various locations, basing them on the data obtained in the forest census work.

Respectfully yours,

OGLESBY PAUL,

*Landscape Gardener.*



## FOREST SCHEDULES

NOTES.—B. H. D.=Diameter breast high.

Figures 54, 48, 42, etc., on upper line indicate diameter of trunk in inches.

S=Seedlings.

Figures in columns below indicate number of trees.

B. H. D.	54	48	42	36	33	30	27	24	21	18	15	12	9	6	3	S	TOTAL
Chestnut.....	1	1	13	11	14	8	15	24	23	15	20	19	14	5	4		187
White Oak.....	0	1	2	1	4	4	17	17	15	14	26	15	6	9	3	0	134
Red Maple.....	0	0	0	0	1	0	1	2	4	1	12	15	13	5	1	0	55
Black Oak.....	0	0	1	2	0	3	4	5	7	3	4	4	12	1	0	0	46
Bird Cherry.....	0	0	0	0	0	0	0	1	1	1	3	10	9	0	0	0	25
Black Cherry.....	0	0	0	0	0	0	0	1	0	1	1	0	3	1	0	0	7
Sour Gum.....	0	0	0	0	0	0	3	4	0	6	8	3	4	3	0	0	31
Cornus Florida.....	0	0	0	0	0	0	0	0	0	0	0	0	9	57	22	0	88
Beech.....	0	0	0	0	1	0	2	1	4	2	9	13	5	5	2	0	44
Tulip.....	0	0	0	0	0	9	2	3	1	2	5	3	1	1	0	0	19
Bitternut.....	0	0	0	0	0	1	2	2	0	1	6	2	2	0	5	0	20
Red Birch.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Ash.....	0	0	0	0	0	0	0	1	0	0	0	5	2	0	0	0	8
Blue Beech.....	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2

### AREA 1.—GEORGE'S HILL

Including only the rectangular area of the original woodlot; two-thirds of area steep slope with western aspect, the remainder level.

*Undergrowth.*—Largely confined to foot of slopes and along track, consists of *Viburnum lentago*, blackberry, *Sambucus racemosa*, Cat-Brier, Beech, and Cherry suckers.

*Humus.*—Very thin. Leaf mould occasionally buried in gravel from hillside erosion.

*General.*—Non-indigenous hemlock 6 to 8 feet high throughout woods. No consequential sign of reproduction.

B. H. D.	54	48	42	36	33	30	27	24	21	18	13	12	9	6	4	2	S	S <sup>2</sup>	TOTAL
Chestnut.....	4	0	0	0	0	0	0	3	18	9	19	19	8	1	0	0	0	F	81
Beech.....	0	0	0	0	0	1	2	4	4	2	3	4	5	16	13	7	0	F	61
Tulip.....	0	0	0	0	0	0	0	4	6	5	16	3	9	3	3	1	F	0	54
White Ash.....	0	0	0	0	0	1	0	0	0	0	7	12	9	8	4	1	N	0	44
Blue Beech.....	0	0	0	0	0	0	0	0	0	0	0	1	5	10	20	17	N	0	53
Black Oak.....	0	1	1	1	1	0	3	1	1	0	3	3	3	2	0	0	0	0	20
Red Oak.....	0	0	1	2	2	0	0	1	1	3	1	3	3	1	2	0	0	0	20
Smooth Hickory.....	0	0	0	0	0	1	0	2	2	1	4	0	3	3	0	1	0	0	17
Bitternut.....	0	0	0	0	0	0	0	0	0	1	1	3	0	1	1	0	0	0	7
White Oak.....	0	0	1	2	2	1	1	3	1	1	0	2	1	3	3	1	F	0	22
Cornus Florida.....	0	0	0	0	0	0	0	0	0	0	0	0	0	3	5	5	F	0	13
Red Maple.....	0	0	0	0	0	0	0	0	0	0	3	1	0	1	0	0	0	0	5
Sassafras.....	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	4
Catalpa.....	0	0	0	0	0	1	1	1	1	0	1	1	0	0	0	0	0	0	6
Ailanthus.....	0	0	0	0	0	0	0	1	0	0	0	0	0	0	11	5	N	0	17
Silver Maple.....	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	4
Honey locust.....	0	0	0	0	0	0	0	0	0	0	2	1	1	1	0	0	0	0	5
Buttonwood.....	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2

AREA 2.—LANSDOWNE VALLEY

Section A

*Acreage* approximately 7.5.

*Undergrowth*.—Sparse and mostly confined to numerous Ash and Blue Beech seedlings.

*General*.—Woods thin and trees of nearly equal height.

*Humus*.—Undisturbed; good leaf mould.

B. H. D.	54	48	42	36	33	30	27	24	21	18	15	12	9	6	4	2	S	S <sup>2</sup>	TOTAL
Tulip.....	1	0	0	0	0	0	1	0	2	4	11	6	9	3	2	1	0	0	41
White Ash.....	0	0	0	0	0	0	0	0	0	0	1	1	6	16	12	3	N	0	39
Ailanthus.....	0	0	0	0	0	0	0	0	0	0	0	0	8	36	22	10	N	0	76
Beech.....	0	0	0	0	3	2	0	2	0	0	0	0	2	6	3	9	0	0	27
Bitternut.....	0	0	0	0	0	0	0	0	0	0	0	0	2	7	7	2	F	0	18
Bird Cherry.....	0	0	0	0	0	0	0	0	0	1	0	1	5	8	0	5	N	0	20
Black Cherry.....	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	4
Chestnut.....	0	0	0	1	3	0	0	2	2	1	4	0	0	2	0	0	0	F	15
Blue Beech.....	0	0	0	0	0	0	0	0	0	0	0	0	2	3	5	1	F	0	11
Cornus Florida.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	8	0	0	12
White Oak.....	0	0	0	2	2	0	0	1	1	0	0	0	0	1	0	0	0	0	7
Black Oak.....	0	0	0	0	1	1	0	0	1	0	0	0	0	2	1	0	0	0	5
Sassafras.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2
Smooth Hickory.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Black Walnut.....	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Willow.....	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Silver Maple.....	0	0	0	0	0	0	0	1	0	0	0	0	1	2	0	0	0	0	3
Gum.....	0	0	0	0	0	1	0	0	0	0	0	1	0	4	0	0	5	0	5

AREA 2.—LANSDOWNE VALLEY

Section B

Area east of proposed bridge line. Approximate acreage, 4.13.

*Undergrowth.*—The opening cleared for highway bridge contains hundreds of Ailanthus seedlings and many Ash seedlings, also blackberry vines, elderberry bushes, roses, grapevines, and other injurious climbers.

Other conditions similar to A.

B. H. D.	54	48	42	36	33	30	27	24	21	18	15	12	9	6	4	2	S	S <sup>2</sup>	TOTAL
Chestnut.....	2	0	1	1	2	7	9	11	11	25	37	30	14	10	4	3	0	N	167
Tulip.....	2	1	1	0	1	0	2	2	6	9	18	25	23	12	7	7	2	0	118
Black Oak.....	0	0	0	0	2	2	7	3	8	7	9	13	7	9	4	0	3	0	74
Beech.....	0	0	0	0	0	0	0	1	4	2	4	7	8	9	6	5	0	N	46
Sassafras.....	0	0	0	0	0	1	1	0	1	0	2	5	8	11	5	9	39	0	102
Willow.....	0	0	0	0	0	1	1	1	0	3	10	16	4	1	0	0	0	0	37
Black Walnut.....	0	1	2	1	1	1	1	0	1	1	4	6	8	0	0	0	0	0	27
Red Oak.....	0	0	0	0	0	1	2	2	1	0	2	2	1	2	1	0	0	0	14
Bitternut.....	0	0	0	0	0	0	2	0	1	0	4	3	12	5	5	3	2	0	37
Red Maple.....	0	0	0	0	0	0	1	0	1	3	3	2	1	11	9	4	1	0	36
White Oak.....	0	1	0	1	0	0	0	0	0	1	2	0	1	11	6	1	0	0	24
White Ash.....	0	0	0	0	0	0	0	1	0	1	4	4	1	4	3	1	54	0	73
Black Cherry.....	0	0	0	0	0	0	0	0	0	4	4	3	3	5	0	2	0	0	18
Bird Cherry.....	0	0	0	0	0	0	0	0	0	1	0	0	1	3	11	5	1	0	22
Smooth Hickory.....	0	0	0	0	0	0	0	0	0	0	1	0	0	5	4	0	1	0	10
Catalpa.....	0	0	0	1	0	0	0	0	2	1	3	9	8	6	1	6	0	0	37
Buttonwood.....	0	0	0	0	0	0	0	0	2	2	4	3	3	0	0	0	0	0	13
Yellow-wood.....	0	0	0	0	0	0	0	0	0	0	0	0	2	2	6	16	0	0	26

### AREA 3.—BELMONT VALLEY

Beginning at bridle-path and including all trees south to the railroad.

*Acreage* approximately 11.7.

*Undergrowth*.—Thin and in clumps, consisting principally of Spice Bush, Cherry stool shoots, Beech suckers, Ash and Sassafras seedlings. This condition of undergrowth does not apply to area adjacent to railroad, which is much worn and burnt over.

*Humus*.—Fair amount of leaf mould in undisturbed condition.

*General*.—11.7 acres includes a brook (meadow very wet) along which only the Willows grew. It also includes a steep ledge.

B. H. D.	54	48	42	36	33	30	27	24	21	18	13	12	9	6	4	2	TOTAL
Chestnut.....	0	0	0	0	0	0	0	80	80	224	416	448	204	32	0	0	1484
Tulip.....	0	0	0	0	0	0	0	0	16	80	400	288	112	64	0	0	960
Black Oak.....	0	0	0	0	0	0	0	0	16	32	128	32	80	0	0	0	286
Bird Cherry.....	0	0	0	0	0	0	0	0	0	16	32	48	96	32	32	0	256
Red Oak.....	0	0	0	0	0	0	0	0	16	32	48	64	160	96	0	0	416
Beech.....	0	0	0	0	0	0	0	0	0	0	0	0	16	0	48	144	208
Cornus Florida.....	0	0	0	0	0	0	0	0	0	0	0	0	0	224	592	0	816
Red Maple.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	96	144
Bitternut.....	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	0	16
Black Cherry.....	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	16
Sassafras.....	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	96
Ash.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	80	96
Smooth Hickory.....	0	0	0	0	0	0	0	0	0	0	0	0	16	16	48	16	86
White Oak.....	0	0	0	0	4	0	0	0	0	0	0	8	0	0	0	0	12

#### AREA 4.—BEECHWOOD

*Acreage* approximately 23.5. Surveyor's area, 1.35 approximately. Total stand computed.

*Undergrowth*.—Spice bush and herbaceous plants only.

*Humus*.—Thick leaf mould, except where destroyed by fire.

*General*.—Chestnut stools, shoots averaging groups of three, stand very uniform and rather dense. Clumps of Sumac on borders of woods. Many trees were removed in the year 1907, since when many more have died.

B. H. D.	52	48	42	36	33	30	27	24	21	18	15	12	9	6	4	2	S	S <sup>2</sup>	TOTAL
Chestnut.....	0	0	2	3	3	6	3	3	5	5	5	6	3	2	1	0	3	N	50
Tulip.....	0	0	3	2	5	1	5	7	7	1	7	6	6	5	0	0	F	0	55
Beech.....	0	0	0	0	0	0	1	2	1	0	5	5	15	19	20	3	0	F	63
Red Maple.....	0	0	0	0	0	0	0	0	1	1	3	4	2	6	3	0	0	F	20
Cornus Florida.....	0	0	0	0	0	0	0	0	0	0	0	0	0	9	12	11	0	0	32
Norway Maple.....	0	0	0	0	0	0	0	0	0	1	1	8	1	2	0	1	0	0	14
Black Oak.....	0	0	0	1	0	3	1	0	2	0	0	0	0	0	0	0	1	0	8
White Oak.....	0	0	0	0	0	0	1	0	2	2	1	0	1	0	0	0	0	0	7
Red Oak.....	0	0	0	1	2	0	0	0	0	0	1	0	0	0	4	0	0	0	8
Sassafras.....	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	3	1	F	7
Smooth Hickory.....	0	0	0	0	0	0	0	0	0	0	0	0	1	1	4	0	0	0	6
White Ash.....	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	5	0	8
Sugar Maple.....	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	4
Hemlock.....	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
Virginia Pine.....	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
Poplar.....	0	0	0	0	0	0	0	0	0	1	0	2	4	3	1	0	0	0	11
Black Walnut.....	0	0	0	0	0	1	0	0	1	0	0	2	0	0	0	0	0	0	4
Gum.....	0	0	0	0	0	0	0	2	0	0	0	1	1	3	10	1	0	0	18

AREA 5.—NEAR SHEEP BARN

Section A

On north slope, including woods from spring east to  
bridle-path.

*Acreege* approximately 6.5.

*Undergrowth*.—Rather dense, consisting of Elder, Black-  
berry, Beech suckers, Spice bush, Chestnut and Red Maple  
stool shoots, Red Oak and Hickory seedlings, also stool  
shoots of Black Cherry.

*Humus*.—A rich deep leaf mould retained on steep slope  
through thickness of undergrowth.

*Other Trees:*

- 1 White Elm, 18 inches.
- 1 Yellow Locust, 9 inches.
- 4 Buttonwood, 36 inches, 12 inches, 8 inches, 8 inches.
- 1 Spruce, 6 inches.
- 2 Red Cherry, 9 inches, 18 inches.
- Several clumps of *Rhus typhinus*.

B. H. D.	54	48	42	36	33	30	27	24	21	18	15	12	9	6	4	2	S	S <sup>2</sup>	TOTAL
Red Maple.....	0	0	0	0	0	0	0	0	0	0	0	3	11	44	41	10	0	N	109
Chestnut.....	0	0	0	0	2	0	0	2	0	0	2	0	0	0	0	0	1	0	7
Cornus Florida.....	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	4	F	0	12
Tulip.....	0	0	0	0	0	0	0	2	0	0	3	0	1	0	0	0	1	0	7
Yellow Locust.....	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
White Ash.....	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Willow.....	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Buttonwood.....	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Catalpa.....	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
Wild Apple.....	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1

AREA 5.—NEAR SHEEP BARN

Section B

South slope.

*Undergrowth.*—Dense, with large clumps of Staghorn Sumac, elder Spice bush, and suckers of Yellow Locust averaging 2 inches in diameter.

*Soil.*—Rich and very swampy.

B. H. D.	54	48	42	36	33	30	27	24	21	18	15	12	9	6	4	2	S	TOTAL
Chestnut.....	2	1	2	4	3	7	8	5	4	6	10	15	9	11	4	2	N	113
Beech.....	0	1	0	0	0	0	0	1	0	3	5	5	3	1	3	10	2	34
Tulip.....	0	2	4	2	11	2	2	2	3	4	14	15	22	23	17	5	..	126
White Oak.....	0	1	1	2	0	2	3	1	1	1	6	1	0	4	1	4	..	28
Black Walnut.....	0	1	1	0	1	1	1	1	3	2	5	5	0	1	0	0	..	22
Cornus Florida.....	0	0	0	0	0	0	0	0	0	0	0	3	10	26	24	27	..	110
Bird Cherry.....	0	0	0	0	1	3	1	1	1	1	4	6	15	38	33	34	..	138
Sassafras.....	0	0	0	0	0	0	0	1	0	0	4	2	6	17	12	1	15	59
Gum.....	0	0	0	0	1	1	1	1	0	2	..	11	10	11	5	0	..	39
Red Oak.....	0	0	2	0	0	0	0	0	0	0	3	5	1	0	0	0	..	16
Stag. Sumac.....	0	0	0	0	0	0	0	0	0	0	0	0	0	5	43	65	..	113
Carya porcina.....	0	0	0	0	0	1	0	1	2	2	3	1	3	0	4	1	1	19
Black Oak.....	1	0	0	0	0	0	2	3	0	2	2	0	1	1	0	0	..	12
Red Maple.....	0	0	0	0	0	0	0	2	0	0	1	3	4	1	1	0	..	12
Prunus Serotina.....	0	0	0	0	0	0	0	0	0	0	0	0	1	9	5	1	..	16
Ailanthus.....	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	80	..	84
White Ash.....	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	3
Yellow Locust.....	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	..	1

#### AREA 6

Located north of Beechwood and extending to drive.

*Acreage* approximately 5.0.

Average slope of valley from west to east.

*Undergrowth*.—Dense with Spice bush, Elder, Sumac clumps, woodbine, and grapevine.

*Humus*.—Deep, undisturbed leaf mould.

*Additional Trees*:

2 *Celtis occidentalis*, 6 inches, 9 inches.

2 *Ailanthus*, 12 inches, 15 inches.

Also fine clumps, 2-inch *Ailanthus* containing 300 to 400.

One clump of 75 6-inch *Ailanthus*, all dead from frost cracking bark. They stood in a very wet place.



B. H. D.	54	48	42	36	33	30	27	24	21	18	15	12	9	6	4	2	S	S <sup>2</sup>	TOTAL
Tulip.....	0	1	1	1	0	0	6	8	7	3	25	31	43	39	17	10	15	5	232
Bird Cherry.....	0	0	0	0	0	1	1	1	3	3	7	15	16	118	146	18	0	N	329
Beech.....	0	0	0	0	1	0	1	3	4	6	12	23	21	17	6	11	0	0	105
Chestnut.....	1	0	0	2	3	3	3	3	3	3	1	4	8	3	3	1	2	0	43
Black Oak.....	0	0	0	2	1	6	5	4	4	5	3	1	1	1	0	0	0	0	33
White Oak.....	0	0	1	0	0	1	5	1	1	0	4	2	8	3	2	0	0	0	28
Red Maple.....	0	0	0	0	0	0	2	2	1	4	6	7	7	5	2	0	0	13	51
Sassafras.....	0	0	0	0	0	0	0	0	1	0	3	16	25	31	28	9	30	20	163
Sour Gum.....	0	0	0	1	2	0	0	0	1	4	4	5	8	4	6	3	0	0	38
Stag, Sumac.....	0	0	0	0	0	0	0	0	0	0	0	0	0	10	225	150	0	5	390
Black Cherry.....	0	0	0	0	0	0	0	0	0	0	0	0	0	6	12	3	0	10	31
Cornus Florida.....	0	0	0	0	0	0	0	0	0	0	0	0	3	32	52	29	0	5	121
Smooth Hickory..	0	0	0	0	0	0	0	0	0	1	1	1	1	2	0	0	0	0	6
Bitternut.....	0	0	0	0	0	0	0	1	2	0	1	0	0	3	3	3	0	5	20
Black Walnut.....	0	0	0	0	0	0	0	0	0	0	0	1	3	2	0	0	0	0	6
Red Oak.....	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	4
Blue Beech.....	0	0	0	0	0	0	0	0	0	0	0	0	0	5	9	4	10	0	28
Willows.....	0	0	0	0	0	0	0	0	0	0	0	7	1	0	0	0	0	0	8

#### AREA 7.—GREENLAND

Including trees between electric railroad track and speedway.

*Acreage* approximately 8.7.

*Undergrowth*.—Fairly thick, but in clumps, consisting of Sambucus, Spice bush, Blackberry, Sassafras seedlings, and others in openings with south exposure.

*Humus*.—Rich deep leaf mould undisturbed.

*Other Trees*:

Ailanthus, 1-12 inches; numerous seedlings.

Buttonwood, 1-15 inches.

White Ash, 1-4 inches.

Locust, 1-4 inches.

Willow clumps, 5.

Also injurious grapevine and woodbine.

B. H. D.	54	48	42	36	33	30	27	24	21	18	15	12	9	6	4	2	S	S <sup>2</sup>	TOTAL
Tulip.....	1	1	7	6	3	2	3	1	1	3	4	11	19	29	19	8	4	0	122
Chestnut.....	0	0	1	1	0	1	4	4	2	5	6	4	9	25	17	13	11	0	103
Black Oak.....	0	0	0	2	1	1	3	3	8	3	5	1	0	2	2	2	1	0	34
White Oak.....	0	0	0	1	0	1	1	1	3	1	2	3	0	1	3	1	3	0	21
Bitternut.....	0	0	0	0	0	0	1	1	1	1	2	1	6	4	4	9	9	0	39
Red Oak.....	0	0	0	2	0	0	4	4	2	2	2	2	1	0	0	0	1	0	18
Beech.....	0	0	0	0	0	1	0	1	1	1	4	3	4	2	0	0	0	0	17
Ash.....	0	0	0	0	0	0	0	0	0	1	1	5	6	13	16	14	22	0	78
Ailanthus.....	0	0	0	0	0	0	0	0	0	0	0	1	3	6	19	9	113	N	151
Black Walnut.....	0	0	0	0	0	0	0	1	2	2	2	1	0	0	0	1	0	0	9
Smooth Hickory.....	0	0	0	0	0	0	0	0	0	1	0	0	0	4	5	0	0	0	10
Bird Cherry.....	0	0	0	0	0	0	0	0	0	0	1	0	0	1	4	10	9	0	25
Black Cherry.....	0	0	0	0	0	0	0	0	0	1	0	0	2	7	10	2	0	0	22
Red Maple.....	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	2	0	0	6
Sour Gum.....	0	0	0	0	0	0	0	0	0	1	2	4	6	3	2	0	1	0	19
Sassafras.....	0	0	0	0	0	0	0	0	0	0	0	0	2	2	9	43	69	0	125
Yellow-wood.....	0	0	0	0	0	0	0	0	0	0	0	0	1	2	30	6	0	0	39
Crataegus.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1

#### AREA 8.—LILACS

Including all trees adjacent to the brook valley between the speedway and the railroad track.

*Acreage* approximately 7.0.

*Undergrowth*.—Spice bush with woodbine, honeysuckle, and grapevines; one clump of 20 1-inch Sassafras; also 20 4-inch Sumacs. Blackberry, Ailanthus seedlings, Sumac.

*Humus*.—Deep leaf mould.

*Other Trees*:

1 *Celtis occidentalis*, 2 inches.

*In General*.—A level swampy area had 50 6-inch Ailanthus. Killed by frost splitting bark.

B. H. D.	54	48	42	36	33	30	27	24	21	18	15	12	9	6	4	2	S	S <sup>2</sup>	TOTAL
Chestnut.....	0	34	36	0	11	23	34	46	34	69	161	104	138	34	46	23	F	F	905
Beech.....	0	0	0	0	0	11	11	12	69	46	138	138	92	12	0	12	0	N	539
Tulip.....	0	0	0	0	0	11	0	0	0	0	23	104	230	426	312	24	N	0	1130
White Oak....	0	0	0	0	0	23	23	35	57	23	126	115	46	12	0	0	0	0	460
Black Oak....	0	0	11	24	11	12	34	13	46	11	35	11	0	0	11	0	F	0	219
Red Oak.....	0	0	0	11	12	0	23	35	11	23	69	0	11	0	0	0	F	0	194
Dogwood.....	0	0	0	0	0	0	0	0	0	0	0	0	11	162	322	657	N	0	1151
Sassafras....	0	0	0	0	0	0	0	0	0	0	46	46	34	12	0	0	F	0	138
Bird Cherry..	0	0	0	0	0	0	0	0	0	0	11	24	34	46	46	12	0	F	173
Red Maple....	0	0	0	0	0	0	0	0	0	0	0	23	37	46	23	12	0	F	161
Black Cherry	0	0	0	0	0	0	0	0	0	0	0	0	0	23	11	0	0	0	34
Slippery Elm..	0	0	0	0	0	0	0	0	0	23	0	0	0	11	23	12	0	0	69
White Ash....	0	0	0	0	0	0	0	0	0	0	0	0	0	80	69	35	N	0	184
Ailanthus....	0	0	0	0	0	0	0	0	0	0	0	0	23	46	69	0	N	0	138
Black Walnut.	0	0	0	0	11	0	0	0	0	0	23	0	0	0	0	0	0	0	34
Blue Beech....	0	0	0	0	0	0	0	0	0	0	0	0	0	11	34	55	F	0	100
Sour Gum.....	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	11

#### AREA 9.—COUNTRY CLUB

*Acreege* approximately 21.

Result computed from strip surveys. Slopes uniform, averaging 5%.

*Undergrowth*.—Scarce, principally Spice bush, Dogwood, and a few bunches of seedlings.

*Humus*.—Normal and deep leaf mould.

*In General*.—Three White Pines, 21 inches, 18 inches, 15 inches in diameter and very tall, suggest the tree's adaptability to this location and possibility of creating a Pine Grove here.

B. H. D.	54	48	42	36	33	30	27	24	21	18	15	12	9	6	4	2	S	S <sup>2</sup>	TOTAL
Chestnut Oak.....	0	0	0	0	0	1	1	6	7	10	14	12	12	7	3	0	0	0	73
Chestnut.....	0	0	0	0	2	2	4	4	1	1	5	5	0	0	2	0	0	0	26
White Oak.....	0	0	0	0	1	1	0	2	5	3	7	5	6	0	0	0	0	0	30
Tulip.....	0	0	0	0	0	1	0	2	2	0	1	2	4	7	17	9	N	0	45
Red Oak.....	0	0	1	1	0	0	0	1	3	3	5	3	0	0	0	0	0	0	17
Red Maple.....	0	0	0	0	0	0	0	1	0	0	4	4	3	2	3	0	N	0	19
Black Oak.....	0	0	0	1	1	0	0	0	1	1	0	3	4	1	1	0	0	0	13
Beech.....	0	0	0	0	1	0	0	0	1	3	2	5	4	6	1	0	0	0	23
Smooth Hickory.....	0	0	0	0	0	0	0	0	0	1	0	3	2	0	1	0	0	0	7
Ailanthus.....	0	0	0	0	0	0	0	0	0	0	0	1	2	1	2	2	N	0	8
Cornus Florida.....	0	0	0	0	0	0	0	0	0	0	0	0	1	10	14	2	N	0	27
Black Walnut.....	0	0	0	0	0	0	0	0	1	1	2	1	0	0	0	0	0	0	5
White Ash.....	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
Bitternut.....	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	0	N	0	4
Black Cherry.....	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	5	N	0	7
Buttonwood.....	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	3
White Elm.....	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Bird Cherry.....	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2

#### AREA 10.—ROBERTS' HOLLOW

*Acreage* approximately 4.5, including from park boundary (on map) east.

*Undergrowth*.—Inconsequential, except on the open part of the north slope, where many seedlings of Red Cherry, Ailanthus, Tulip, and Chestnut have sprung up. There are also some large Sumac and Hamamelis on both slopes. Red Maple suckers are prominent.

*Humus* and forest floor in natural condition, with a thick bed of leaf mould still accumulating.

*General*.—Numerous dead Chestnut Oaks of varying size. Subsoil very rocky.

*Other Trees*:

Shagbark, 3-12 inches.

Red Ash, 2-9 inches.

B. H. D.	54	48	42	36	33	30	27	24	21	18	15	12	9	6	4	2	S	S <sup>2</sup>	TOTAL
Chestnut.....	0	0	0	3	3	3	15	17	24	23	69	32	9	0	13	15	N	F	226
Tulip.....	0	0	0	0	0	0	3	6	11	9	22	23	11	20	25	14	N	0	144
Ailanthus.....	0	0	0	0	0	0	0	0	0	0	3	5	6	9	14	12	N	0	59
Red Oak.....	0	0	0	0	0	3	3	2	0	6	5	0	0	0	0	2	F	0	21
Beech.....	0	0	0	0	0	0	0	0	0	0	0	6	24	12	0	2	F	0	44
Bitternut.....	0	0	0	0	0	0	0	0	3	0	0	0	3	3	3	3	F	0	15
White Ash.....	0	0	0	0	0	0	0	0	0	0	0	3	3	3	5	5	N	0	19
Red Maple.....	0	0	0	0	0	0	0	0	0	3	3	2	2	3	11	0	N	0	24
Black Cherry.....	0	0	0	0	0	0	0	0	0	0	0	5	0	5	0	6	F	0	16
Norway Maple.....	0	0	0	0	0	0	0	0	0	0	0	0	0	3	9	15	F	0	27
Black Oak.....	0	0	0	0	0	0	0	0	0	3	3	3	0	0	0	0	0	0	12
Black Walnut.....	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	6
Bird Cherry.....	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	4
Sassafras.....	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	F	0	2
Shippery Elm.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
Cornus Florida.....	0	0	0	0	0	0	0	0	0	0	0	0	0	36	51	26	N	0	113
White Oak.....	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	6

#### AREA 11

Including all the trees on the south side of the Schuylkill adjacent to City Avenue bridge.

*Acreage* approximately 7.

*Result* computed from strip surveys.

*Humus*.—Mostly normal.

*Subsoil*.—Yellow loam.

*Slopes* gentle.

*Undergrowth*.—Sparse, but containing Witch-hazel, Spice bush, and Sambucus.

*In General*.—Woods open and uniform in height.

Seedlings numerous in openings.

B. H. D.	54	48	42	36	33	30	27	24	21	18	15	12	9	6	4	2	S	S <sup>2</sup>	TOTAL
Red Oak.....	0	0	0	5	5	0	10	20	5	10	10	0	0	0	0	0	0	0	60
Tulip.....	0	0	5	0	0	15	25	0	5	0	5	0	0	0	0	0	0	0	55
Beech.....	0	0	0	0	0	0	5	0	0	5	5	5	10	5	10	10	0	F	55
Chestnut.....	0	0	0	0	0	0	5	5	5	0	5	0	0	5	10	15	0	F	50
Elm.....	0	0	0	0	0	0	0	0	0	0	0	10	10	35	10	15	F	0	80
White Oak.....	0	0	0	0	0	15	15	0	0	5	5	0	0	0	0	0	0	0	40
Black Oak.....	0	0	0	0	0	5	5	5	0	5	5	5	5	5	0	0	0	0	40
White Ash.....	0	0	0	0	0	0	0	0	0	5	0	5	0	5	15	0	N	0	30
Box Elder.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	5	N	0	35
Black Cherry.....	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	10	0	F	20
Red Maple.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	20	0	F	30
Sassafras.....	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	15	F	0	20
Ailanthus.....	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	20	F	0	25
Buttonwood.....	0	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	10
Hornbeam.....	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5
Cornus Florida.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5
Bitternut.....	0	0	0	0	0	0	0	0	5	0	0	0	0	5	0	5	0	0	15
Red Birch.....	0	0	0	0	0	0	0	0	1	0	0	0	1	3	0	0	0	0	5

#### AREA 12

Including all the trees on the north side of the Schuylkill adjacent to City Avenue.

*Acreage* approximately 7.

Result computed from strip surveys.

*Humus*.—Most scant.

*Subsoil*.—Very rocky.

*Undergrowth*.—Sparse, but containing Witch-hazel, Spice bush, Sambucus, Bladder nut.

*In General*.—Woods thin and open; slopes very steep. Red Birch and Willows very fine on river-bank.

B. H. D.	54	48	42	36	33	30	27	24	21	18	15	12	9	6	4	2	S	S <sup>2</sup>	TOTAL
Chestnut.....	6	6	11	16	8	6	7	12	9	5	0	4	8	13	13	12	0	0	128
Beech.....	0	0	1	0	2	1	4	6	10	17	31	45	45	18	19	22	N	N	221
Tulip.....	0	3	6	7	4	4	6	5	6	3	4	11	7	8	8	3	N	0	85
Black Oak.....	0	0	0	0	3	1	3	3	1	1	1	0	0	0	1	0	0	0	14
Red Oak.....	0	0	0	0	2	0	1	1	0	0	2	0	0	0	0	0	0	0	6
White Oak.....	0	0	1	0	0	1	3	5	6	4	9	6	1	0	0	1	1	0	38
Black Walnut.....	0	0	0	0	1	2	1	3	4	4	1	0	1	0	0	0	0	0	17
Catalpa.....	0	0	0	1	0	0	1	3	1	3	3	9	4	4	4	0	0	0	33
Sour Gum.....	0	0	0	0	0	1	2	3	3	3	3	8	1	0	3	0	0	0	24
Ash.....	0	0	0	0	0	0	0	1	0	0	2	1	2	7	7	0	0	0	20
Black Cherry.....	0	0	0	0	0	0	0	1	0	0	1	3	10	60	15	5	0	N	95
Red Maple.....	0	0	0	0	0	0	0	0	0	2	2	1	2	1	4	0	0	0	12
Bird Cherry.....	0	0	0	0	0	0	0	0	0	0	2	2	0	1	1	0	0	0	6
Blue Beech.....	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2
Cornus Florida.....	0	0	0	0	0	0	0	0	0	0	0	0	5	8	15	20	N	0	48
Red Birch.....	0	0	0	0	0	0	0	0	0	1	0	3	0	2	1	3	0	0	9
White Elm.....	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	0	0	4
Locust.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4

#### AREAS 14 AND 13.—ORMISTON VALLEY

*Acreage* approximately 15.

*Undergrowth*.—Thick on the steep slopes and consisting of Cherry suckers, Beech suckers, seedlings of Tulip, also Sumac and Spice bush. In open parts where slope is slight the traffic has destroyed all except the sizeable undergrowth, like two-inch *Cornus florida*.

*Humus*.—Varying, but mostly thin and poor.

*Subsoil*.—Very rocky.

*Other Trees*:

Smooth Hickory, 18 inches.

Water Hickory, 1-2 inches.

Buttonwood, 33 inches.

Willow, 3-9 inches, 1-36 inches.

*Celtis occidentalis*, 2-9 inches, 3-6 inches, 7-4 inches.

Box Elder, 1-6 inches, 4-4 inches, 10-2 inches, and seedlings.

Slippery Elm, 1-9 inches, 1-6 inches, 3-4 inches.

Cedar, 1-2 inches.

Hemlock, 20-4 inches, non-indigenous.

B. H. D.	54	48	42	36	33	30	27	24	21	18	15	12	9	6	4	2	S	S <sup>2</sup>	TOTAL
Tulip.....	0	0	7	0	14	7	0	14	21	56	56	84	63	140	126	21	F	0	609
Chestnut.....	0	0	7	0	0	7	14	21	35	21	28	49	63	70	63	0	F	0	378
Beech.....	0	0	0	0	0	0	14	21	0	7	35	70	21	21	14	7	F	0	210
Black Oak.....	0	0	0	7	7	14	14	7	0	7	7	0	7	0	14	0	0	0	84
White Oak.....	0	0	7	0	7	0	14	7	0	0	0	7	7	0	7	0	0	0	56
Chestnut Oak.....	0	0	0	0	0	0	0	3	0	6	6	12	0	6	27	0	0	0	60
Catalpa.....	0	0	0	0	0	0	0	0	0	15	10	20	0	0	0	N	0	0	55
White Ash.....	0	0	0	0	0	0	7	0	0	0	0	7	21	14	14	0	N	0	56
Sour Gum.....	0	0	0	0	0	0	0	0	0	0	7	14	21	0	0	0	F	0	42
Slippery Elm.....	0	0	0	0	0	0	0	0	0	0	3	0	6	0	6	0	0	0	15
Smooth Cherry.....	0	0	0	0	0	0	0	0	0	21	35	7	7	7	0	0	F	0	70
Red Maple.....	0	0	0	0	0	0	0	0	0	0	0	0	7	7	21	21	0	F	56
Black Walnut.....	0	0	0	0	0	0	4	0	0	0	4	0	4	0	0	0	0	0	12
Black Cherry.....	0	0	0	0	0	0	0	0	0	0	0	0	14	21	14	0	F	0	49
Cornus Florida.....	0	0	0	0	0	0	0	0	0	0	0	0	7	49	161	189	N	0	406
Blue Beech.....	0	0	0	0	0	0	0	0	0	0	0	0	0	7	56	56	F	0	63
Celtis Occidentalis.....	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7	14	0	0	28
Ailanthus.....	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	N	0	14

#### AREA 15.—ROCKLAND

Northeast of Columbia bridge.

*Acreage* approximately 11.

*Humus*.—Fairly good leaf mould.

*Undergrowth*.—Rather scarce, consisting of *Viburnum lentago*, *Cornus florida*, and Ash.

*In General*.—Some erosion on slopes near bridge and most slopes steep enough to need more soil binders.

*Other Trees*:

Red Oak, 1-4 inches, 1-15 inches.

Red Cherry, 10-2 inches.

Water hickory, 1-4 inches.

White Pine, 1-9 inches.

And one indigenous Mountain Laurel.



B. H. D.	54	48	42	36	33	30	27	24	21	18	15	12	9	6	4	2	S	S <sup>2</sup>	TOTAL
Chestnut.....	0	0	0	1	1	3	3	3	4	3	2	3	5	3	0	0	0	0	34
Black Oak.....	0	0	1	0	0	1	2	4	1	4	4	2	0	0	0	0	0	0	19
White Oak.....	0	0	0	0	1	2	4	4	2	1	1	3	1	0	0	0	0	0	22
Tulip.....	0	0	0	0	0	2	1	1	3	2	5	5	4	2	0	0	0	0	25
Ash.....	0	0	0	0	0	0	0	0	0	0	0	4	3	4	6	2	F	0	19
Blackberry.....	0	0	0	0	0	0	0	0	0	0	1	2	10	18	2	0	0	0	23
Beech.....	0	0	0	0	0	0	0	0	0	0	2	2	0	2	0	0	0	0	6
Bird Cherry.....	0	0	0	0	0	0	0	0	0	0	0	2	10	6	2	3	F	0	23
Sour Gum.....	0	0	0	0	0	1	1	0	0	0	0	3	0	0	0	0	0	0	5
Red Oak.....	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	3
Cornus Florida.....	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2
Celtis.....	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
White Oak.....	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Smooth Hickory.....	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Black Walnut.....	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Sassafras.....	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Ailanthus.....	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Yellow-wood.....	0	0	0	0	0	0	0	0	1	0	0	0	1	4	0	0	0	0	6

AREA 16.—MT. PLEASANT

*Acreage* approximately 7.

*Undergrowth*.—None.

*Ground Cover*.—Sod.

*Reproduction*.—None.

*In General*.—Very heavy pedestrian traffic has left a much worn area. Banks eroded. Trees very wide apart, hardly giving the impression of a grove.

B. H. D.	54	48	42	36	33	30	27	24	21	18	15	12	9	6	4	2	S	S <sup>2</sup>	TOTAL
White Oak.....	0	0	0	0	0	1	2	2	4	9	12	17	3	0	0	0	0	0	50
Chestnut.....	0	0	1	4	5	1	4	1	2	0	1	0	1	0	0	0	0	0	20
Tulip.....	0	0	0	0	1	0	4	4	3	0	1	1	0	0	0	0	0	0	14
Red Oak.....	0	0	0	1	0	0	0	2	2	2	2	1	1	0	0	0	0	0	11
Black Oak.....	0	0	1	1	0	0	2	2	0	1	0	0	0	0	0	0	0	0	7
Beech.....	0	0	0	0	0	0	1	0	0	3	2	2	6	1	0	0	0	0	15
Red Maple.....	0	0	0	0	0	0	0	0	1	0	2	10	7	0	0	0	0	0	20
Gum.....	0	0	0	0	0	0	0	0	0	1	5	5	6	1	0	0	0	0	18
Buttonwood.....	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2
White Ash.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
Smooth Hickory.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Virginia Pine.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
Chestnut Oak.....	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Dogwood.....	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1

AREA 17.—FOUNTAIN GREEN

*Acreage* approximately 3.0.

*Undergrowth*.—None.

*Humus*.—Thin.

*In General*.—A much worn level area.

B. H. D.	54	48	42	36	33	30	27	24	21	18	15	12	9	6	4	2	S	S <sup>2</sup>	TOTAL
Chestnut.....	0	1	2	3	1	1	2	5	14	10	36	67	74	59	15	3	0	0	293
White Oak.....	0	0	0	2	3	4	22	36	41	35	71	67	24	21	16	17	0	0	359
Black Oak.....	0	0	1	0	1	1	3	5	6	11	14	32	17	12	0	0	0	0	104
Tulip.....	0	0	0	0	1	1	0	1	1	0	6	23	30	26	8	0	0	0	77
Gum.....	0	0	0	0	0	0	0	0	0	1	3	3	0	9	9	0	0	0	25
Dogwood.....	0	0	0	0	0	0	0	0	0	0	0	0	0	7	33	21	0	0	61
Black Cherry.....	0	0	0	0	0	1	0	0	0	0	2	9	15	10	6	7	0	0	50
Beech.....	0	0	0	0	0	0	0	0	0	0	1	1	3	5	2	0	0	0	12
Red Oak.....	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0	3
Smooth Hickory.....	0	0	0	0	0	0	0	0	0	5	6	0	4	11	4	12	0	0	42
Catalpa.....	0	0	0	0	0	0	0	0	0	1	5	6	6	2	0	0	0	0	20
Black Walnut.....	0	0	0	0	0	0	0	0	0	3	3	2	0	0	0	0	0	0	8
Locust.....	0	0	0	0	0	0	0	0	0	1	0	0	1	3	3	8	0	0	16
Sassafras.....	0	0	0	0	0	0	0	0	0	0	1	8	5	3	0	0	0	0	17
Red Maple.....	0	0	0	0	0	0	0	0	0	1	0	0	1	3	4	1	1	0	10
Bird Cherry.....	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	5
Ash.....	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	3
Yellow-wood.....	0	0	0	0	0	0	0	0	0	0	0	2	2	4	3	0	0	0	11

#### AREAS 18 AND 19.

Area bounded by Reading and Pennsylvania Railroads and by East Park Reservoir.

*Acreege* included by outline of woods equals approximately 25.0.

*Undergrowth*.—Except for some poison-ivy, entirely lacking.

*Humus*.—Also thin and scarce.

*Subsoil*.—Micaceous loam.

*Other Trees*:

Buttonwood, 1-12 inches, 1-4 inches.

Cedar, 1-6 inches.

*In General*.—These woods are very open and also on fairly level ground; this, with its proximity to thickly settled districts, causes much wear, hence no underbrush and little humus.

B. H. D.	54	48	42	36	33	30	27	24	21	18	15	12	9	6	4	2	S	S <sup>2</sup>	TOTAL
Chestnut.....	0	0	18	24	18	6	12	18	18	18	24	42	18	24	0	0	0	0	240
Black Oak.....	0	0	0	0	0	6	6	6	6	18	12	12	12	12	12	0	0	0	90
Bird Cherry.....	0	0	0	0	0	0	6	0	12	6	12	6	30	24	18	30	0	0	144
Tulip.....	0	0	0	0	0	6	24	6	6	6	0	6	0	6	0	0	0	0	60
White Oak.....	0	0	0	0	0	6	6	6	0	0	18	0	0	0	0	0	0	0	36
Sassafras.....	0	0	0	0	0	0	0	0	0	0	0	6	6	24	42	12	F	0	90
Beech.....	0	0	0	0	0	0	0	0	0	0	0	24	6	6	0	6	0	0	42
Gum.....	0	0	0	0	0	0	0	0	0	0	0	36	36	6	6	0	0	0	84
Red Maple.....	0	0	0	0	0	0	0	0	0	0	0	0	6	6	6	18	0	F	36
Black Cherry.....	0	0	0	0	0	0	0	0	0	6	6	0	0	12	6	0	0	0	30
Black Walnut.....	0	0	0	0	0	0	0	0	0	6	0	6	6	0	0	0	0	0	18
Red Oak.....	0	0	0	0	0	0	0	0	0	0	0	0	12	6	0	0	0	0	18
Celtis.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	6
Cornus Florida.....	0	0	0	0	0	0	0	0	0	0	0	0	12	84	180	78	F	0	354
Slippery Elm.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	6

AREA 21.—NEAR WOODSIDE PARK

Computed from survey strips.

Acreage approximately 7.0.

Undergrowth.—None.

Slope very gentle.

Humus.—Thin and in many places washed away.

In General.—A much traversed area of rather open woods; a bunch of Sassafras and Red Maple in a swampy corner.

B. D. H.	54	48	42	36	33	30	27	24	21	18	15	12	9	6	4	2	S	S <sup>2</sup>	TOTAL
Tulip Poplar.....	0	1	0	0	0	0	0	0	0	0	7	8	6	2	0	0	0	0	24
Chestnut.....	0	0	0	1	1	0	0	3	3	1	2	0	0	2	2	0	0	N	15
White Oak.....	0	0	0	0	0	1	1	3	3	8	6	5	0	0	3	0	0	0	30
Beech.....	0	0	0	0	0	0	0	2	2	2	4	2	1	0	1	0	N	14	
Red Oak.....	0	0	0	0	0	0	0	1	0	2	1	0	1	0	1	0	0	6	
Catalpa.....	0	0	0	0	0	0	0	0	0	2	3	1	3	1	0	0	0	10	
Paulownia.....	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2	
Amer. Ash.....	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3	1	
Wild Cherry.....	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	N	1	
Sour Gum.....	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3	
Black Oak.....	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	1	
Populus deltoides.....	0	0	0	0	0	0	0	0	0	3	12	0	0	0	0	0	0	15	
Austrian Pine.....	0	0	0	0	0	0	0	0	0	0	0	0	6	1	0	0	0	7	
Hornbeam.....	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3	
Crack Willow.....	0	0	0	0	0	0	0	0	0	0	0	0	6	0	20	0	0	26	
White Willow.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Rhus typhina.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0	

AREA 22.

Woodland along Girard Avenue from Connecting Railroad west to spring.

*Acreage* approximately 4.0.

All trees counted. Does not include railroad embankment.

*Soil.*—Red gravel in upper half of bank and moist loam in lower. A north facing hillside steeply sloping, with two streams at base. The Tulip, Poplars, Rhus, Salix, Carpinus are on the lowest portions.

Forest cover poor; ground in grass with patches of Sambucus, Prunus, Rubus, and few white Oak seedlings at rare intervals. The Beeches and Chestnuts are dying.

20-1713  
105 W















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