

DRAWN BY HARRY FENN.

ENTRANCE TO ARNOLD ARBORETUM.

ENGRAVED BY CHARLES STATE



A TREE MUSEUM.

WE hear so much about the Jardin des Plantes, the Botanic Gardens at Kew, and other well-known collections of plants in Europe, and so little about the Arnold Arboretum, that it would perhaps be safe to say that there are not a hundred people in the country who are aware that Harvard University owns the finest tree museum in the world. Boston itself, though the Arboretum is a part of its park system, has hardly waked up to the fact of its importance, and wonders vaguely, like other people, what the name implies, and why this scientific treasure is unique. What is there about this place, where you see just such things along the parkways as you find beside the roads, and just such trees as you find in the woods outside, to make it peculiar and interesting?

It is thus that this extraordinary outdoor museum strikes the careless observer, unaware that he might find here two thousand varieties of woody plants, and walk for two miles and a half up and down the lines of labeled shrubs without finding two alike.

The differences between trees of the same species are hardly apparent to the ordinary man. He may recognize a blue spruce when he sees it, but it would puzzle him to know in what a white spruce differs from a black, or a Carolina hemlock from the New England variety. The subtle distinctions in oaks and maples, the innumerable subdivisions of birches, the fine lines that separate families of familiar trees, are all unseen by him. Hardly can he discern a hemlock in a pine forest, or a black birch in a group of beeches. How should he know the worth of an institution whose business it is to tell him about these things? He has never heard of dendrology, he has the vaguest



DRAWN BY HENRY SANDHAM.

ARNOLD ARBORETUM FROM THE HILL.

ENGRAVED BY G. P. BARTLE.

views about forestry as being somehow connected with the water-supply, and his greatest wonder is that anybody should want to know about trees except as furnishers of lumber, or as ornaments of a place or road, comfortable to sit under on a hot day.

That there should be a hundred and sixty acres given over by a college to the cultivation of plants of woody fiber, trees, shrubs, and vines in all their infinite variety, fills him with astonishment and some dismay. This is not exactly a park, he says, nor yet a garden, in spite of its flowers and fruits. What, then, is an

arboretum? and what purpose does it serve? and how does it differ from foreign botanic collections?

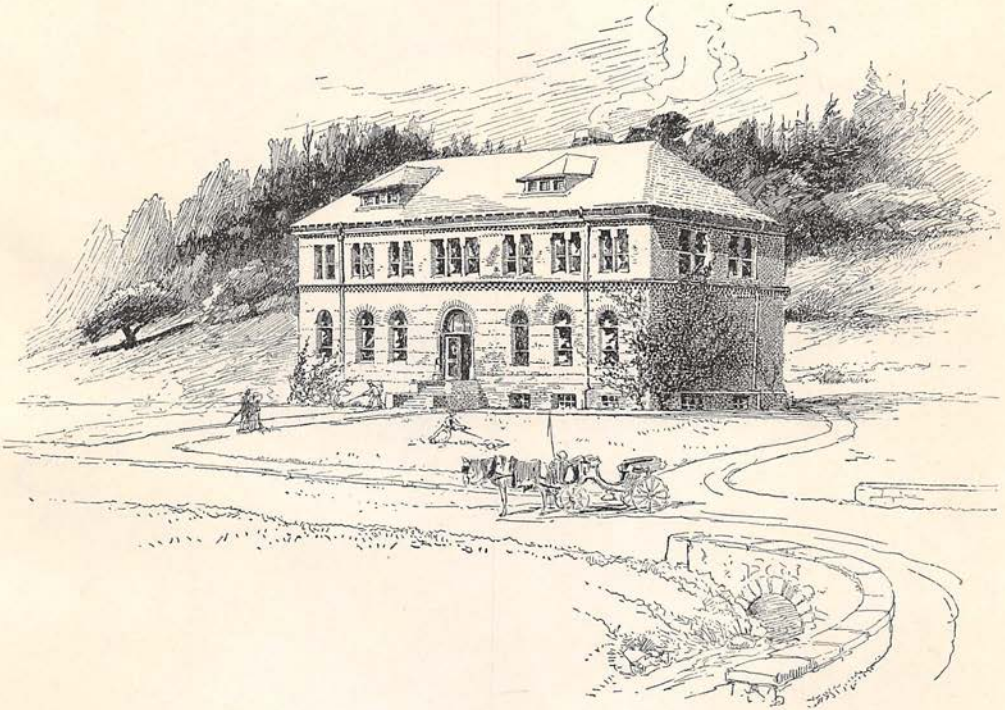
To answer the last question first, Kew, which is the first botanic garden in the world, derives its great fame from its herbaceous plants, of which it has an enormous variety, and these also are the specialty of other gardens of this character. Kew has an arboretum as an attachment to these, but the space is too limited; the trees, planted at different times, interfere with one another, and the poor soil, added to the injuries inflicted by the smoke of London,

render this part of the collection imperfect. Lack of space in other great gardens, as well as in private arboreta, has always proved an obstacle to success. The best of the latter in Europe (that of M. Lavallé in France) occupied only seven acres, wholly insufficient after a while to give his numerous specimens a fair chance to grow, and since his death, I am told, everything there is going to ruin.

The young trees in the Arboretum are raised from seed planted in its own nurseries, and in

habits and adaptability. It includes nurseries, where all sorts of foreign plants can be tried, and their usefulness proved, and a museum where they can be studied in their various stages of growth.

The Arnold Arboretum, for example, shows trees as they grow naturally in woods, and as specimens planted one hundred feet apart in enormous holes filled with rich soil. It gives you the different varieties grouped together according to the regular botanical system of De



DRAWN BY HARRY FENN.

THE MUSEUM.

consequence of their careful cultivation and selection, they are singularly symmetrical, healthy, and promising. In planting specimen trees, several are set in a large hole twenty-five feet square, filled with good soil, and the most thrifty of these is the only one permanently retained. A tree, which is a being that demands a century, perhaps, to pass through all its phases of existence, in order to be studied from end to end, must be grown in a place where its safety is insured, and where it can remain for hundreds of years with its conditions materially unchanged. Such a home can be furnished for it only in an arboretum connected with some permanent institution.

For an arboretum is primarily a place to study trees and shrubs, a place to which makers of parks and gardens can resort to learn their

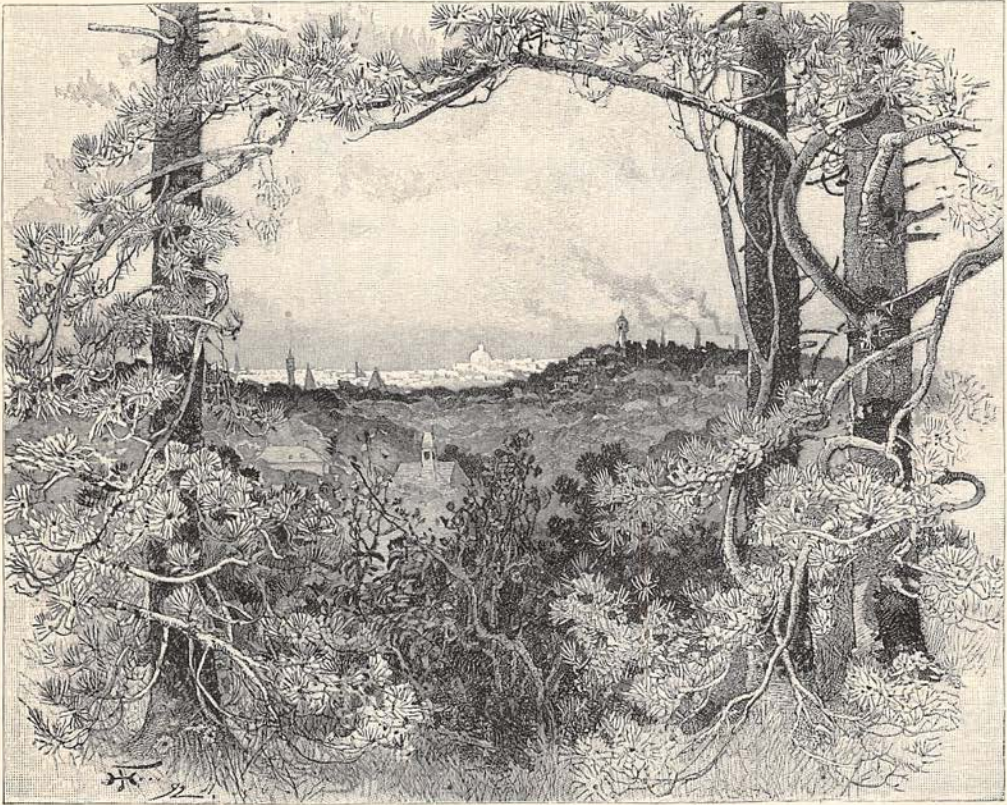
Candolle—magnolias first, because that tree has the most perfect flower; conifers last, because in them the flower is most imperfect. Here can be seen a forest of chestnuts of every kind, with a few great specimens, apart from the rest, that in time will be a wonder. So you may wander on past groves of walnuts, clumps of beeches, knots of catalpas, all in their proper order, and each group containing its specimen trees, until the whole great round is completed.

It is the same with the shrubs, which are conspicuously labeled, in a place set apart for them, where the soil is rich and they develop like weeds, alike beautiful in flower and fruit. Ordinary garden varieties of fruit-trees are not cultivated here, but only the original simple forms from which they come—the wild pear, the wild

apple, the wild plum, in whatever corner of the temperate zone they may have originated, Europe, or Asia, or our native land. Lovely roses bloom here in glowing variety of color, but they are all single. Sweetbriars and other climbing roses mount to the tops of great poles prepared for them, and fling abroad their garlands, mating their sweetness with that of honeysuckles in myriad varieties, and with that of a thousand other blooms too numerous to chronicle. Up and down the rows upon rows one

Japan, conifers from Colorado and the Rocky Mountains, English oaks, and French poplars, are to be found; but most of all are cherished the natives of America, for a home collection is the best of all.

Not a new thing in the world is the importation of foreign plants for use and adornment. Long ago the Greeks and Romans brought back from their conquests those products of other lands that struck them as beautiful or useful. Thus the olive, dwarfed and tortured



DRAWN BY HARRY FENN.

A GLIMPSE OF BOSTON FROM THE HILL.

ENGRAVED BY H. E. SYLVESTER.

may journey, till one pauses for very weariness, leaving half unseen. It is so with the trees. One might take a day for the conifers, and then hardly be able to see them all. Each has its interest for the student, either for its home in some far land, of whose traditions it breathes, or for some singularity of growth that marks it from its fellows. Here all the cramping mistakes of the Old World have been avoided, and "ample room and verge enough" have been left for the bravest oak to spread its giant arms abroad, and for the most majestic beech to furnish shade.

All lands of the temperate zone pay tribute to this forest. Whatever will grow in New England here finds a home. Hardy bamboos from

by the mistral, is made to furnish wealth to France and Italy far from its Syrian home; while the orange has obtained a foothold, as in our own Florida, in regions far remote from its native China.

It seems strange enough to think that most of the common garden-plants of England, and many of its trees, were carried there by the Romans, that Cæsar found the holly and the Scotch pine the only evergreens in Britain, and that the English elm itself, so identified with

This royal throne of kings, this sceptred isle, was one of his importations. All through the history of the "tight little island" we see how

her maritime population kept bringing home plants for her food or pleasure. Her most gallant knight came back from the golden west



ENGRAVED BY R. G. TIETZE.

JAMES ARNOLD.

with a potato in his pocket; her lords and councilors, her bishops and fine ladies, all imported and planted. The arboretum at Kew was owing to that grim princess of Wales who was always bidding her son George III. to "be a king!" And there was a famous duchess of Beaufort who knew more about trees than almost any one of her generation. It was the same in France, where the people have a genius for gardening, carrying into this pursuit the same fine taste and perception that make them successful in all arts.

Since a large proportion of the trees and shrubs that are the glory of foreign gardens at the present day have been imported from this treasure-house, America, small wonder that here is to be found the best collection of them in the world; and though the wild New England shore is only a foster-mother to the nurslings of the warmer South, the number of European and Asiatic ligneous plants that will endure its changing climate is still large enough to justify the location of an arboretum under the parent wing of our oldest institution of learning, where the tree-dwellers of the temperate zone may meet, and the interesting products of Japan find a congenial home.

But it is time to tell of the beginning of the Arnold Arboretum, and of the men whose generosity and public spirit helped to make it what it is, and of the results it has accomplished in a scientific way.

ABOUT the year 1870, Mr. James Arnold of New Bedford, a native of Providence, R. I., an excellent merchant of Quaker origin, a man of marked individuality of character, and of large wealth, who had always taken so great an interest in plants that his garden was one of the most beautiful and famous in his part of the country, left a bequest of \$100,000 to three trustees, to be employed, as seemed good to them, for the improvement of agriculture or horticulture. His friend and trustee, Mr. George B. Emerson, whose classical report on the trees and shrubs of Massachusetts is well known, recommended that this money should be devoted to founding an arboretum, to be called by Arnold's name, and to be used in connection with the Bussey Agricultural Institute as a means of practical instruction in that science. Accordingly it was agreed that if the Harvard corporation would set aside a hundred and twenty-five acres for the purpose, the sum should be allowed to accumulate until it amounted to \$150,000, and then be used for the purpose above named.

Harvard University owned at that time a tract of land of some 300 acres in Jamaica Plain, left to it by Benjamin Bussey, to found a school of agriculture. This land was partly peat-bog and meadow, and partly scantily wooded upland, where were a few fine trees, a stretch of pasture, and a noble grove of hemlocks crowning a hill. One hundred and twenty-five acres of this land the university consented to set apart for this purpose, and by an agreement between the municipality of Boston and the



ENGRAVED BY R. G. TIETZE.

GEORGE B. EMERSON.

corporation of Harvard University, the city has undertaken to build and care for the roads of the Arboretum, and to police it, in exchange for

the privilege of including it in its park system, so that the public may have free access to the grounds. Owing to the reluctance of both city and university to hamper themselves by pledges, it took five years to bring about this agreement, which is to endure for nine hundred and ninety-nine years. Now that it is satisfactorily accomplished, the arrangement seems to find favor with all parties, and as the Arboretum gains in beauty its popularity increases, and

The labors of the director of a great scientific institution of this kind are unremitting, and his knowledge must be exhaustive. He must travel far and wide to familiarize himself with the habitat and conditions of growth of almost unknown trees and plants; he must gather together every woody thing which has a name, and often receive the same plant from different sources with varying appellations; he must keep up an extensive correspondence with nursery-



DRAWN BY HARRY FENN.

HOUSE OF THE DIRECTOR.

ENGRAVED BY H. DAVIDSON.

it becomes more and more a favorite resort. In completing the bargain, the city added forty acres to the appropriation, which is to be cultivated in accordance with the general design.

Having acquired this property, the next step was to put it into hands competent to make this arboretum an object of national importance. Everything had to be done. The tract of country was not graded or laid out; there were no roads, no grounds. To all scientific intents and purposes it was virgin soil, and to take this wild bit of land, and to organize it into a valuable and perpetual museum, was a task that required patience, resolution, and business capacity, as well as scientific acquirement.

men all over the world, often suffering from their stupidity and want of accuracy and faithfulness; he must meet travelers, visit parks and botanic gardens, be ready to make new acquaintances, and must make enormous collections of the flowers and fruits and branches of trees and shrubs, in addition to his living specimens, which give him perpetual anxiety. He must read and possess innumerable books, must spend a fortune in acquiring difficult and hidden knowledge, and must construct never-ending catalogues, constantly undergoing changes and emendations as research enlarges, and new plants are discovered. His living herbarium must be tended with the most cautious zeal. Where the tree or shrub cannot be obtained,

he must be often at great expense to obtain minute and accurate representations of it by photograph or drawing. He must keep everlasting records of the times of flowering and fruitage; he must have soft fruits preserved in alcohol, and hard ones in cases that will resist insects and mice. He must record not only the scientific classification of plants, but also the various common names under which they grow in different countries, with the date of their reception, the place from which they came, and the name of the giver; and all this while constantly dealing with the practical problems of a great tree-farm, worked by an army of laborers, with the complicated business necessary when carrying on negotiations between an incorporated institution and the ever-varying administration of an indifferent city government, and this in addition to managing the limited funds of an inadequate endowment.

A position like this can be filled only by a man of public spirit, administrative ability, and large wealth. Such a man Harvard University was fortunate enough to find in the head of its Botanic Garden, and to him is entirely owing the success of the Arboretum, the high place it takes as a factor in education, and the decisive results of scientific importance that have been achieved by it.

Professor Charles Sprague Sargent is the son of a Boston banker, and his first experience in gardening was gained in managing his father's handsome estate in Brookline, where he showed



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CHARLES SPRAGUE SARGENT.

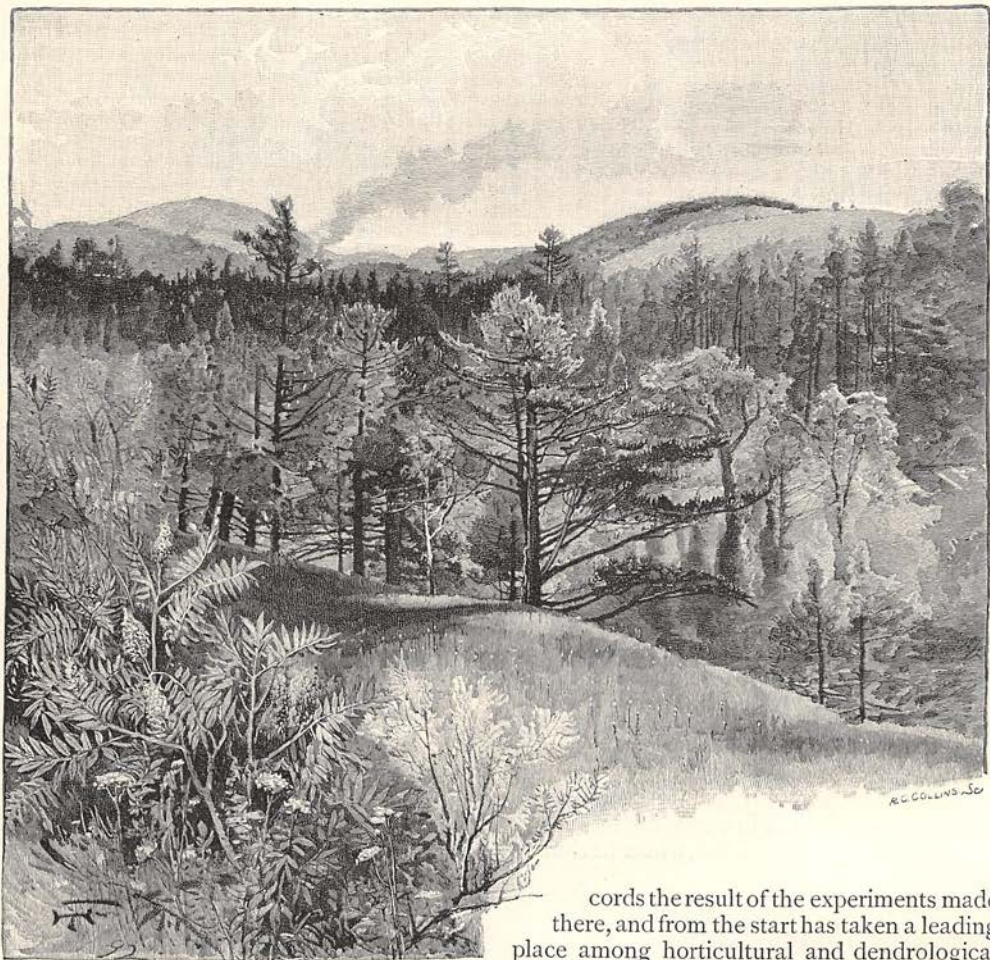
so much skill and taste in landscape-gardening, as well as knowledge of botany, that he was invited to become the head of the Botanical Garden at Cambridge. There, being full of ideas, he at first dismayed Dr. Asa Gray by the decisive changes he undertook to make; but the elder botanist was soon convinced that everything the younger one did was for the advantage of the place, since from the first he showed unusual breadth of view and ability. His thoroughness and success in this department suggested him as the most desirable, indeed as the only competent, man to manage the Arboretum. He was therefore made Arnold Professor of Arboriculture in Harvard University. Since then his fame as a dendrologist has increased, until he is even better known and quoted as an authority in the Old World than in America. Owing to his high reputation, and the knowledge acquired by him in his direction of the Arboretum, in 1880 the United States Government put him at the head of the Forestry Division of the Tenth Census, the result of which was his remarkable report of its proceedings, published by the Government in one of its quarto volumes. This contains a most comprehensive account of the condition of the timber of the country twelve years ago. It tells of our forests, of their bibliographical history, economic worth and uses; describes the different woods of our native land, and their commercial value; gives an account of the lumber industry, the detail of forest fires, and a host of other things that influence the commerce of the country, and is accompanied by colored maps showing forest growth and density in different States.

This report is remarkable for the skill with



DRAWN BY HARRY FENN.

OAK RESCUED FROM DEATH.



DRAWN BY HARRY FENN

THE BLUE HILLS FROM THE OUTLOOK.

which Professor Sargent selected his associates, and for the enormous amount of work and journeying on his part that it represents. The synonymy alone (which he himself wrote) shows an extraordinary familiarity with all previously written works on dendrology, and the whole report may be considered a work of national importance.

But the professor's labors did not end here. During the forestry investigation he had collected a large amount of material, which, reinforced by his constant study and experiments at the Arboretum, resulted in the monumental work in twelve volumes (four of which, most beautifully illustrated by Mr. C. E. Faxon, have already appeared), "The Silva of North America," one of the most important contributions ever made to dendrological literature.

Another outcome of the Arboretum is the well-known weekly paper, "Garden and Forest," founded by Professor Sargent, which re-

cords the result of the experiments made there, and from the start has taken a leading place among horticultural and dendrological journals here and abroad.

The Arboretum and its director have acted and reacted upon each other, until it might be said that while the man has made the place, the place has had its hand in making the man, so that the history of one involves the biography of the other.

When Professor Sargent took charge of the new-born Arboretum, his first care was to map out the plan of the future tree-garden in company with the eminent landscape-architect Mr. Frederick Law Olmsted. Thus from the beginning nothing was left to chance; the scientific order of arrangement was provided for, and in some cases the position of already existing trees was adapted to the design agreed upon. Aided by a most excellent superintendent, Mr. Jackson Dawson, who has unusual skill in raising plants, and great enthusiasm for the work, the director has accomplished a great deal in the last seventeen years, not only for the scientific value of the spot, but also for its beauty; and high tribute is due to him, for he has spared neither himself nor his wealth in rendering

these services to his country, asking of it neither recognition nor recompense in return.

It was no slight task to develop this straggling and neglected property into a seemly and beautiful garden, with only a few thousand dollars a year to spend upon it, and with no very general interest in the work to cheer on the undertaking. The labor of renovating trees, of grading a rough tract of country, of planting and redeeming a barren waste, makes small show at first, and excites much criticism; for the exigencies of the collection require the destruction of trees as well as their planting, and the unknowing often find fault with measures the intention of which they fail to recognize.

In spite of discouragements, with unwear-

Through the liberality of Mr. H. H. Hunnewell, one of the most generous patrons of horticulture in this country, a brick museum has been erected at the Arboretum, which contains the photographs, the herbarium, and the scientific books collected by Professor Sargent at great cost, through a long series of years, and given by him to the institution—a princely gift, invaluable to students, who can here learn in connection with the living museum all that there is to be known about trees, which nowhere can be taught more completely. In addition to the objects of reference just mentioned, there will be specimens of different woods corresponding to those in the famous collection made by Professor Sargent and presented by Mr. Morris



DRAWN BY HARRY FENN.

APPROACH TO THE ARBORETUM.

ing and self-denying industry and enthusiasm, Professor Sargent has labored unremittingly for an enterprise the full scope of which neither he nor his children's children may hope to see; for so broad and deep have the foundations of this fine garden been laid, that a thousand years of possession have been provided for, and coming years alone can show the full scope of the great scheme which has been so wisely conceived.

K. Jesup to the American Museum of Natural History in New York, with illustrations of their growth, bloom, and fruitage.

Already there are numerous students at the Arboretum, and in the flowering season classes are conducted about the grounds by teachers, to familiarize them with the habits and appearance of the various trees and shrubs. In addition to its scientific uses, which are of course the most important, as a part of the park sys-



DRAWN BY HARRY FENN.

THE BROOK, HEMLOCK MOUNT.

ENGRAVED BY G. P. BARTLE.

tem of Boston the Arboretum has its charm as a pleasure-ground. Its broad graveled drive-ways and footpaths, edged with low flowering shrubs, so well simulate nature that one is constantly reminded of picturesque country roads with their tangle of verdure. Here native shrubs bloom and run riot, each in its season, making the border as gay as a garden with sheets of flowers and masses of crimson and purple berries. The viburnum and the elder spread their shining white blossoms; the wild roses drop their pink petals undisturbed; the yellow of broom and the deep tones of the wild geranium are to be seen in their season; while the goldenrod and aster glorify the autumn with gold and purple. Over the rocks clamber creepers of all sorts, some clinging, others twining their way up by the crevices to which they hang, or by the branches of neighboring shrubs. Often a dead tree, instead of being removed, is left to form a support for a wild grape-vine, which drapes it with its graceful garlands into a thing of beauty.

Here we realize to the full the wealth of our

native resources. No garden favorites are fairer or more fruitful than these denizens of our own woodland ways and country roadsides. Luxuriance and fragrance are alike their inheritance; splendor of color and grace of growth are theirs, as well as hardiness to endure the changes of our capricious climate, so trying to foreign shrubs and vines. Here the wild rhododendrons and azaleas flourish, and the sculpturesque laurel opens its exquisite cups; nor can any garden of exotics show more lovely and fragrant blossoms for its adorning than hundreds of the native children of our barren soil.

Leaving the woods and plunging into the by-paths, one finds one's self, perhaps, in the great grove of stately hemlocks, the ancient glory of the place, where the trees have reached their loftiest height on the north side of a rocky hill; or, again, in the low, well-watered meadow, may wonder at the spread of some fine red maple or some stately elm. Oaks and hickories that twenty years ago were falling to decay have responded to the apparently cruel, but really kind, pruning to which they have been subjected. To

restore life and vigor to their failing foliage, their dying branches were closely cropped, their tops cut back severely, till the poor old trees were a pitiable sight; but their wounds being well protected from the air and rain by coal-tar, and their roots cultivated and enriched, they bravely responded to the heroic treatment, and after a time sent forth new and vigorous shoots, so that now it is hard to believe that they have been rescued from disease and decrepitude.

Where the trees were too closely massed together, the superfluous ones have been cut away to let in the air and light, which not only helps the great ones, but also permits the growth of numberless seedlings, which spring up with surprising rapidity, and in eight or ten years make good-sized trees. Among these the undergrowth is permitted to flourish, which still

cypresses,—through which the wind softly whispers, and under which the foot falls silently upon the red-brown carpet of fallen needles.

One of the winding driveways leads to the summit of a hill from which there is a commanding prospect of the whole surrounding region. At its foot lie the groves and meadows of the Arboretum, with its clustering shrubs, while neighboring grounds serve to extend its seeming domain, and to keep out the town, so that there, in the very precincts of a great city, is nourished a rural region full of sweet country restfulness and peace. In the middle distance roll smooth hills, dotted with pleasant homes nestling among trees, with green fields stretching away, and here and there a spire rising amid encircling elms that almost hide the village at their feet. Far away in the distance are the



DRAWN BY HARRY FENN.

HEMLOCK MOUNT.

ENGRAVED BY J. W. EVANS.

further encourages the sprouting of seeds and nuts, the germs of a new and more robust forest, to flourish when the parent trees are laid low. In one part of the grounds is a fair stretch of meadow, on the border of which grow such trees as love a moist, deep soil; and on the uplands wave the chestnuts and birches, which are ever at home upon a hillside.

Here, too, are lofty pines that must have heard in their youth the guns and drums of the Revolution, with group after group of conifers,—larches, spruces, firs and junipers, cedars and

lovely Blue Hills of Milton, bounding the horizon on one side, and on the other are beheld in the distance the roofs and towers of Boston, with its central glittering dome reflecting the sunlight.

Other features are the Hemlock Hill, unrivaled in any European park; the meadow with its border of fine trees; the slopes with their evergreen canopy; the roadways winding among the flowering shrubs; the dales with their clustering trees; and above all, the woods, where in sylvan solitudes you can for-



DRAWN BY HARRY FENN.

BEECH MEADOW AND BROOK.

ENGRAVED BY C. SCHWARZBURGER.

get the nearness of the city, and enjoy the sight of nature undisturbed. Through their cool depths wind quiet footpaths, where your solitary way may be crossed by a gray rabbit wondering at you as an intruder; for in this domain the timid creatures are at home, and with the squirrels and the birds claim birthright and possession. Brooks murmur at your feet, and thread the woodland ways beside you, tumbling from rock to rock, and singing their pleasant music in your ears, in tune with the whisper of pines and the chatter of poplar leaves.

How sweet to the dweller in the city to escape from all the turmoil of the street, and here to lead for an hour the life of the woodlander! To him who strolls or sits, an acre of forest is as good as a mile; the curving path climbing a hill, or skirting its base, can in small compass give him changing points of view. Here the garden shows its superiority to the wilderness, in which the monotony, repeated on a never-ending scale, becomes overwhelming. Nature untouched by man lacks

something of the human charm. Where his deft touch is felt rather than seen, there arise in the heart a deeper pleasure, a more subtle delight, the concealed art alone yielding the perfection of woodland scenery.

Foreign parks may have their sophisticated grace, but in the Arboretum we find the familiar charm of the roadsides of our childhood, of the woods in which we sought for flowers, or whipped the chestnuts for their prickly fruitage. It is the dear New England that we love, at times with its asperities, its sternness, and its wintry gloom, but also with its wealth of spring blossom, its summer cheer, its autumn harvest of nuts and fruits, and its splendid glow of color. And as our stately elms are nearer to our hearts than any palm or magnolia of more sun-baked regions, so this woodland park, with its tangled roadsides, its coppices of oak and maple and beech, its hills dark with evergreens, or shining with the white stems of birches amid their light and quivering foliage, seems to catch and hold the New England of our early love forever.

M. C. Robbins.