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Other photographs serve fairly well to illustrate certain effects that it is desirable to secure in certain kinds of landscape planting—intricacy, contrasts of light and shade, and variety in sky line. But some of your photographs also show on the land side of shore plantations especially effects that one would look for in the garden or in the lawn garden, rather than in a landscape. It must be borne in mind in examining these photographs, and especially in examining the planting on the ground that it was all designed with reference to special conditions which have now passed away, and that to provide for these special conditions it was necessary to use much material that is quite unfit to produce such permanent effects as are called for by the new uses to which the grounds are to be put. The plantations are full of such plants as willows and poplars that will if they are allowed to grow as they now stand form thickets so high that all vistas across the lagoon will be closed in, and so dense that much valuable material of permanent value would be destroyed which will now be saved and developed by a general process of thinning. Much of the Eulalia japonica which is such a conspicuous object in some of the photographs will also be removed. It was a rapid growing available plant that was used freely to help produce the evanescent effect called for by the World's Fair spectacle; where it is kept subordinate by other plants it may be allowed to stay. The same is true of other plants that, like this, belong more properly in a garden rather than a landscape scene. WARREN H. MANNING.

MEMORANDUM AS TO WHAT IS TO BE AIMED AT IN THE PLANTING OF THE LAGOON DISTRICT OF THE CHICAGO EXPOSITION, AS PROPOSED MARCH, 1891.

As far as it is possible, between the present time and May, 1893, the lagoon must be made to look like a natural bayou, secluded, shallow and placid, but not suggestive of stagnancy or any form of foulness or unhealthfulness. Its low, sterile, sandy shores must be given a rich, affluent, picturesque aspect, in striking contrast alike with that of the present ground, the shores of the great lake, the margins of the basin in the great court and the canals yet to be formed, and with the bare and prosaic shores of the ponds heretofore made in Jackson and Washington Parks. The desired result in this respect is to be accomplished largely by thick, luxuriant growths of herbaceous, aquatic vegetation along the shore, rooted partly above and partly below the surface of the water.

The best of the few poor trees now growing on the island are to be retained, and, if possible, forced by an enrichment of the soil into finer foliage. Between them and the water plants bushes and young trees are to be introduced so as to make the island from the east appear a broad, continuous, close bank of verdure. Nearly everywhere else, except where formal terraces are to be formed near the shore, three main objects are to be had in view in the shore planting:

First, to make an agreeable low foreground over which the great buildings of the exposition will rise, gaining in grandeur of effect upon the imagination because appearing at a greater distance, and more lofty than they would but for such a foreground.

Second, to establish a considerable extent of broad and apparently natural scenery, in contemplation of which a degree of quieting influence will be had, counteractive to the effect of the artificial grandeur and the crowds, pomp, splendor and bustle of the rest of the exposition.

Third, without losing a general unity and continuity of character in the shores, to secure whatever time, with all possible exercise of skill for the purpose, will allow, of mysterious poetic effect, through the mingling intricately together of many forms of foliage, the alternation and complicated crossing of salient leaves and stalks of varying green tints in high lights with other leaves and stalks behind and under them, and therefore less defined and more shaded, yet partly illumined by light reflected from the water. So far as consistent with this last purpose of obscure and subdued poetic beauty through the intricate conjunction of various forms of vegetation and complex dispositions of light and shade, it is intended that the shores should have a somewhat gay and festive aspect through a profusion of foliage. But it is not desired that there should anywhere appear to be a display of flowers demanding attention as such. Rather the flowers to be used for the purpose should have the effect of flecks and glimmers of bright color imperfectly breaking through the general greenery. Anything approaching a gorgeous, garish or gaudy display of flowers is to be avoided. It will be easier to accomplish what is thus to be aimed at, even if flowers are used profusely, because, to the great body of visitors the lagoon plantations will only be seen from a distance and from nearly a horizontal point of view on the shore opposite that on which they stand. Boats will be prevented from closely approaching the plantations.

While the greater number of plants to be used will be such as are indigenous to the river banks and swamps of Northern Illinois, and, therefore, hardy, in order to increase intricacy and richness of general effect many are to be scattered among them that a botanist, looking closely, would know would not have grown in the locality naturally. The work is thus to be in some degree of the character of a theatrical scene, to occupy the exposition stage for a single summer. But it is not intended that the slightly exotic form of verdure to be thus used shall call, any more than the flowers, for individual notice. Rather, seen as they will generally be, at some distance, they will merge indistinguishably with other forms of verdure, and not suggest a question as to what they are, or how they have come to be where they are. The line at which the water meets the shore is intended hardly ever to be seen, being screened by aquatic plants growing above and below it.

There are several serious difficulties to be overcome in realizing this design thus set forth and they must be met by original expedients. The chief of these difficulties is that of the uncertainty of the normal elevation which the water will have during the period of the exposition, and the certainty that whatever this normal elevation shall be, it will fluctuate irregularly from day to day, so that what is dry ground at one time will be flooded at another. The only means of dealing with this difficulty thus far proposed to be used is that of providing plants very liberally which will stand a good chance to flourish, although their roots are sometimes high above water, and sometimes submerged. Trials of numerous plants must be made in the summer of 1891 with reference to this purpose, and large reserves of a class of plants of small cost, sure to succeed, must be prepared for re-planting any ground where better

THE WORLD'S FAIR WOODED ISLAND, SEPTEMBER, 1895.

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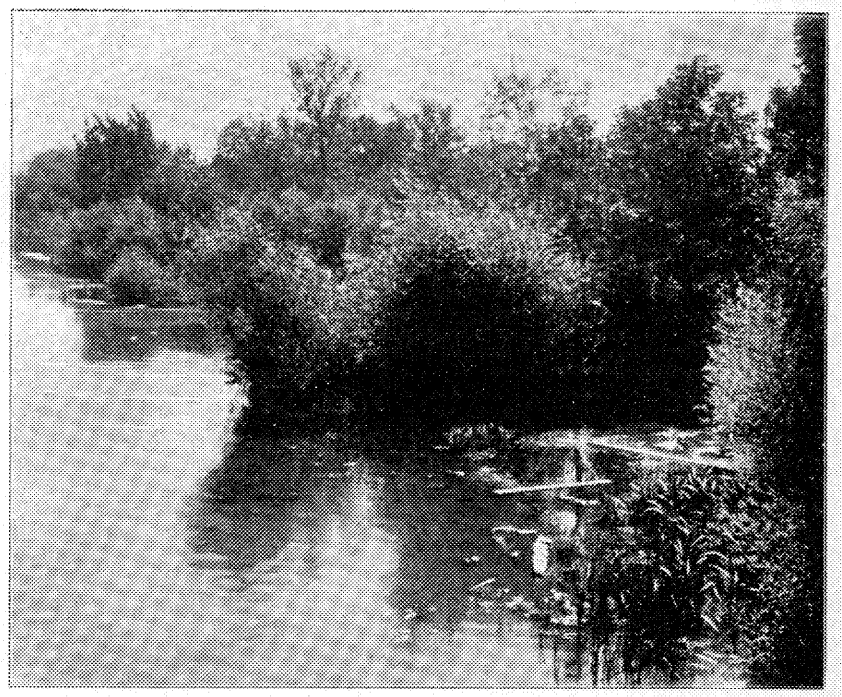

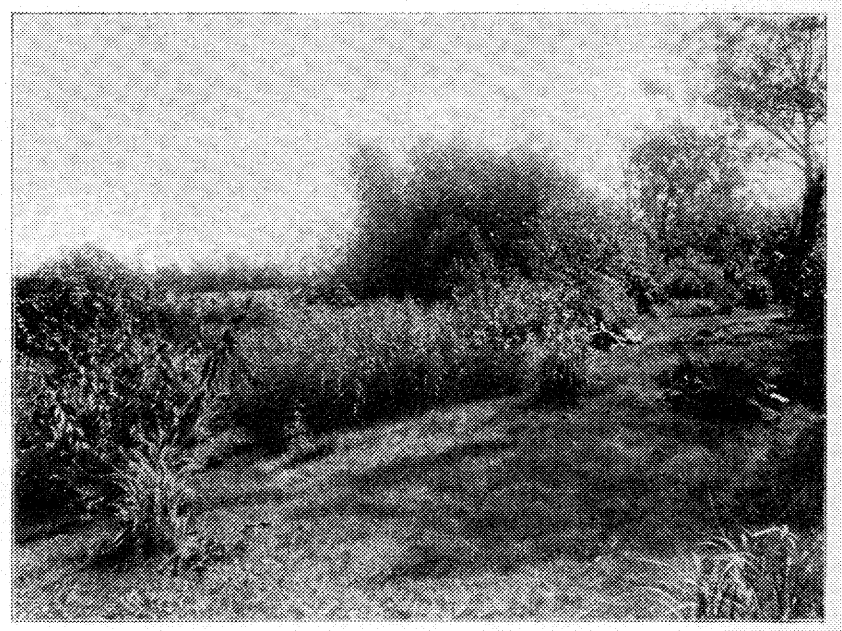

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Another difficulty is that of guarding against the danger that plants that will have been established on the shore in the summer of 1892, will be lifted or bruised destructively by the ice of the following winter. This can be provided against, in some degree, by cutting the plants closely and by laying loose litter over and about them late in the fall, by cutting the shore ice free from the central body of ice in the lagoon and by stakes or otherwise preventing it from floating off until it gradually melts in place.

Another difficulty is that as there will be several miles in length of the shore planting to be done, and as the planting season will be short, and the men employed working at disadvantage in the ice cold water, a satisfactory direction and oversight of the large number of unskilled laborers required can only be had through an extensive and elaborate system of management, carefully organized in advance, with a view to this difficulty. At best, the work of planting must be expected to be done in a comparatively rude way which it will be difficult to get gardening foremen to efficiently direct. Plants, therefore, that require delicate treatment, or that do not take root readily in wet, sandy ground, can be little depended on. The plants must be set thickly and there will be little or no opportunity to cultivate them after they are set.

Another restriction on the class of plants to be extensively used is that, owing to the packing of ice along the shore in the southern part of Lake Michigan, the water often remains at a wintry temperature until after the time set in the spring for the opening of the exposition, nor does it become as warm during the entire summer as the water in many streams, ponds and swamps in the same latitude. Hence, many water plants natural to such localities are likely to grow but slowly, if at all in the lagoon. It is hoped that this difficulty may be, in some degree, provided against by making many shallow bays and pools along the shores, especially of the west side of the island. But the main planting must everywhere be done with thoroughly hardy and tough aquatic plants, common further north.

Letters on the preliminary planting plan of the lagoon are intended to indicate a little more fully and definitely the character of planting desired in different localities, by reference to corresponding letters in the schedule below. But while the plants named are to predominate it is not intended to closely restrict the planting to them at any point. Certain plants, such as bulrushes, sedges and ferns, are intended to be placed wherever they are likely to flourish among others, in order to give increased density, intricacy and naturalness of effect, and to slightly screen, without hiding flowers otherwise likely to be too obtrusive. The various so-called pond lilies are also to be scattered somewhat freely along the edges of all waterside plantations, and on the lower parts of slopes.

Except against the terraces, as to be later explained, and at a few other points where they would rise too high for the streets desired, cat-tails (typha) are to predominate in the planting, large patches of them being formed; these are to be broken and diversified chiefly with flags (acorus) and bulrushes (juncus) and irises, and among them there should be numerous little patches and recesses, if necessary, on slightly raised ground, where blooming plants can be seen, such as the smaller irises, Lobelia cardinalis, Ranunculus repens and Viola cucullata. Patches, also, of ferns suitable to the situation. Farther from the water, and to be seen through openings of the typhas and acorus, taller flowering plants may be seen, such as Baccharis halimifolia and Nicotiana affinis.

For young trees to be planted with a view to fill out vacancies in the edge of the woods on the island, it is important to use such as are most sure to be in rapid growth, with abundant and vigorous leafage, in ground well above water in 1893. It has been ascertained that for this purpose trees of the following sorts can be obtained in western nurseries, in fair condition, from 10 to 15 feet high; white maple, Catalpa speciosa, box elder (negundo), Russian mulberry, American linden. To these, certain poplars and willows of natural growth can probably be added. For crowding under and facing the stems of these, good plants are to be had of the European alder, larch, American mountain ash. For the lower parts of the mass, cornels and most of the common nursery shrubs can be had, 3 to 4 feet high, and various willows can be grown. Aralia spinosa may be used freely; also, pawlonia cut short to force large leaves near the ground and water. Cat-tails, flags, etc, can be scattered at intervals in the water outside of these and occasionally still further out, water-lilies, etc.

Looking at the map, it will be seen that for long distances the shore of the lagoon is intended to be near, and with a general trend parallel to, the straight walls sustaining terraces at the base of several of the exposition buildings. The strip of ground between these retaining walls and the water is to be commonly from 25 to 50 feet broad, and to have a sloping face towards the water.

Nearly all of the lagoon margin of this character is expected to be submerged for a few hours at uncertain intervals, but ordinarily the upper part will be dry and the lower part, or waterside, water-soaked. Plants upon the upper part will be nearer to the greater body of visitors, and will be more closely observed than any others on the lagoon shores. They will be looked down upon from the terrace, the roots of the nearest being 7 to 9 feet; of the furthest 9 to 15 feet, below the eye. Seen from boats, or from the opposite shore, the plants should appear a low thicket, or bank, of verdure, more or less broken, irregular and tufty in its profile, the upper part of the wall and the parapet or balustrade of the terrace being generally seen rising a little above it. To this end low plants can be grown on this strip that, during the summer of 1893, will come to have a height of more than 3 or 4 feet.

More flowers can be shown with advantage on the upper part of the strip than anywhere else on the lagoon shore, precaution being taken, where they would otherwise be too showy, to slightly veil them from the opposite shore by a few bulrushes, eulalia, or other thin plants, to grow on the waterside of them. With a little care in this respect, irises, especially versicolor, prismatica and Germanica, set from 2 to 15 feet from the wall will be exactly suitable to the situation. Care must be taken to avoid anything like a continuous bed of such flowering plants, or any monotony of arrangement, by constantly grouping them with funkias, ferns and other plants. Large bodies of low and spreading plants of Clethra alnifolia and Cephalanthus occidentalis will be desirable all along the strip, these being valued because of the fragrance of their bloom. Besides these, there are to be set profusely, adjoining the wall, on what

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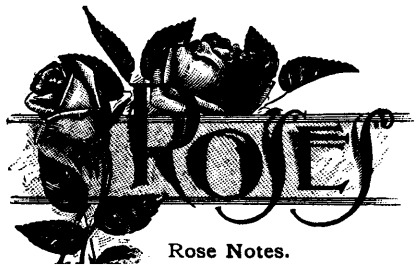
will be the driest part of the strip, other plants from which pleasing scents will rise to visitors on the terrace. Viola cucullata, Hemerocallis flava, Lonicera brachypoda, Rosa rubiginosa, lucida, Carolina and multiflora will, for example, serve the purpose.

To make sure that a dense growth of foliage will be everywhere interposed at some point between the wall and the water, straggling thickets may be formed of young plants of varied willows, so shortened in, or pinned down, that they will seldom rise more than two or three feet from the ground. Among and around these should be flags, acorus, calamus and bulrushes (juncus) various sedges (carex) and other waterside grass and reed-like plants. Small channels may be made to let the water flow into these wherever desirable, such channels being easily made inconspicuous.

The same class of plants, together with sagittarias and a variety of broad-leaved water plants such as saxifraga, callas, symplocarpus, nuphars and nymphæas should be planted above and below the water's side.



Rose Notes.

The time has now arrived when we must to a certain extent make our plans for another season, especially in reference to propagating, and if we have been careful to keep a correct record of all flowers cut and sold, and can at once ascertain the relative profitableness of every variety grown, the work of deciding just what, and how many of each variety to grow will be made very much easier and the conclusions arrived at will in all probability prove much more satisfactory. It is surprising, however, how few people comparatively keep any record; they imagine the advantage if there is any does not pay for the trouble, so go on in the dark year after year, growing pretty much the same thing. This is one of the many trifling things, the doing of which determines and marks the progressive and successful man. The different varieties of roses generally have their own favorite soil or location, and it rarely happens that a soil, however good is suitable for all, so it is our business to find out just what we can grow the best and will pay us the best; and make of that our specialty, taking always into account of course our market, and ability to dispose of the product in increased quantities. If it is not customary to grow young plants for sale simply raise enough stock for own use. I am satisfied that this is by far the best and most satisfactory method. A plant and cut flower business seldom if ever go together without making trouble; one or the other must suffer. If the plant business booms, the plants which furnish the cuttings almost invariably suffer by losing too much wood and foliage, and a few years of this kind of work results in deteriorated stock, and stagnation. Far better I say to do either one or the other, and do it well.

Supposing we intend to grow only enough stock for our own use we should first determine what we will grow, and then put in about twice as many cuttings as plants required, to allow for losses and weaklings; we should always have enough, so that we are not compelled to pot or plant any cutting or plant showing weakness, disease or lack of vigor. In taking cuttings the greatest care is necessary, I feel sure that a great deal of the disease and other troubles are directly traceable to poor unhealthy cuttings. If the foliage is large and vigorous and of good color, it will usually be in healthy condition, but anything of a pale sickly hue can not reasonably be expected to produce a sound health plant. The finest of roses both plants and bloom have been the result of blind wood cuttings, but I must confess I have a fondness for flowering wood for that purpose, it roots nicely as a rule, is stronger, more liable to produce flowering shoots, and is more satisfactory generally. My plan has been to go through the houses once a week and take a cutting wherever sufficient stem was left after cutting the flower, taking care of course to leave enough eyes to break from for another growth. This is rather tedious work, but I think the results warrant the extra time spent.

As to the best exposure for a cutting bench, the best kind of house, etc., opinion differ, and I have noticed that given all the care necessary, and a decent house, rose cuttings will root almost anywhere; my ideal house, however where the best results can be secured with a minimum amount of care, is a lean-to facing the north or west, six feet wide, with a good walk on the side next the partition wall, and one bench on the other side, the pipes boxed in, enabling us to control the temperature of the sand as well as that of the house. In a house of this kind all that is required after the cuttings are put in the sand is one or two good waterings and a sprinkle morning and evening, whereas in a sunny house they must be sprinkled several times a day or else shaded whenever the sun shines. However if we have had usual good success by following some other plan we shall do well to continue the same, success is what we are all seeking after. To prevent fungus attacking the cuttings the bottom and sides of the bench should be thoroughly whitewashed before the sand is taken in, and we must be certain that our sand is clean, fresh and free from any deleterious properties, good sharp not too fine bank sand is perhaps more reliable than river sand. At the risk of being considered mossy I recommend always the old method of putting in rose cuttings, one at a time with a stick is quick enough; the sticking in process where a trowel is used is liable to bruise the bark, and is not very much quicker anyway. The first watering should be a thorough sloaking, which will settle the sand and make the cuttings firm. Some propagators have told me they never sprinkled rose cuttings at all, but I have always had the best success when I have used the rose freely and maintained a very moist atmosphere. A good temperature for the propagating house is 56° at night, allowing a few degrees more during the day with a sand temperature of 65° to 70°. If for any reason they should lose some of their foliage it should be removed from the sand at once or it will cause trouble.

I have been experimenting this season with roses grafted on the Manetti stock, and so far am more than satisfied with the results, it was intimated by some who thought they knew, that as soon as winter set in the stock would want to rest, but they have not shown this tendency. The root action is great, and corresponds with the splendid growth. A house of 2,500 Bridesmaid grafted in March and planted out June 1 from 3-inch pots has produced up to January 1, 75,000 flowers, an average of 30 per plant and all of more than average quality with extra long stems. I hope to say something later about grafted versus own root roses. ROBT. SIMPSON.

Carnation Notes.

"Carnations growing very thriftily, no disease, but showing a tendency to be weak in stem and to burst the calyx. Is it owing to long cloudy weather?" asks "E." This is an inquiry which I will make the theme of my notes this week.

The cloudy weather for the past five or six weeks has been very unfavorable to carnations, diminishing quantity and quality. Weak stems and bursting calyces are to a great extent the results of cloudy weather, and are often increased by the inclination to push on quantity by a little higher temperature. This practice is entirely at the expense of quality, and the result is generally to cause a change from bad to worse. The weak stems and calyx are not alone the only detriment, the whole plant will be affected in the same way, becoming soft and tender and more susceptible to disease. The first sunburst, instead of being beneficial, will cause the plant to flag and blooms to shrivel and burn. At such times the temperature should run very little over 60° in day time. With moderate heat and ventilators open a buoyant dry air can be maintained, and the softening of stem and foliage to a great extent arrested. A close sultry air for a length of time may prove very disastrous.

A low temperature or a sudden fall below the normal may cause bursting calyces. For instance, on a cold sunny day, when the temperature under glass may run up to 75° and over and by sundown may suddenly fall below 50° and 45°, though by neglect to put heat on in time to allow the temperature a gradual fall to the normal night temperature. Or very severe cold stormy nights, when the heating capacity may not be sufficient, may have the same effect. Such checks will retard the pushing out of the petals from the calyx, and may cause a weak calyx to burst. An unfavorable change in temperature is sooner felt in the development of the blooms than in any other part of the plant, for the plant may keep on in its growth, while the blooms will be stopped in a temperature below 50°, or will only develop very slowly, and bursting calyces may appear very plentiful. These are disturbances caused by improper temperature, lack of light and sunshine.

Now there are other causes producing the same effect. Wrong modes of cultivation, deficiency of nourishment and a scarcity of those constituents in the soil necessary to build up a strong stem and calyx. Much has been said and written on the modes of cultivation, wrong and right. Experience is the best teacher. Deficiency in nourishment, an impoverished condition can easily be detected, and by giving proper food is very easily repaired. But what is proper food in this case, and what are the parts lacking, but so needful? This is a question not so easily answered. My knowledge of soils and manures is not so complete as to make me venture into explanatory details. I can only say that wood ashes gave me the best results. The most important parts, and that vegetable ashes contain in largest quantities, is potash