WATER GARDENS NATURAL AND ARTIFICIAL: BY GEORGE V. NASH

I have many gardens of all kinds; gardens for roses, for lilies, for peonies, and for other flowers; so why should we not have more water gardens where we can cultivate those delightful plants which find their home in and about water? Here is a phase of gardening all but neglected in this land of ours, and yet on all sides opportunities for its display abound. Ponds, brooks, and old swamps, ideal places for this sort of gardening, are neglected, allowed to remain unkempt and unsightly, when they might be made beauty spots in the landscape. More, too, the public health would be benefited by the transformation of these old swamps into water gardens, for they are the breeding places of mosquitoes and so aid in the dissemination of malaria. As water gardens they could be stocked with fish which would destroy the larvae of the mosquito.

Perhaps we are mostly deterred from the attempt by fear of the cost. Yet water gardens are of many kinds, and we can spend little or much on them, as we choose. A natural pond may be beautified, a brook adorned, an artificial pond produced, or if space or purse will not allow of this, we can still gratify our desire for a water garden with a small tank made of cement or the half of an old barrel or hogshead, and it is wonderful what charming effects these comparatively humble means will produce.

Let us take up first the natural pond. This will require less financial outlay in its development than other large water gardens, for here we have at hand a picture in the rough—all we need is to touch it here and there to produce a finished result. There is no expense of digging or dam-building involved, the only outlay will be for plants to spread over the water and shores, and perhaps this cost can be minimized if we conserve the supply at hand—allowing the trees and bushes already in place to suggest the treatment.

If a pond is not at our command, then we must make one. This can be accomplished by damming up a brook to form a pond, provided the topography of the land lends itself to the scheme. Or if not possible we can take an old swamp, full of tussocks and weeds, an unsightly object, and convert it into a beauty spot in the landscape. These old swamps are frequently fed by springs or small brooks, and the supply of water is usually sufficient to foster plant growth. But if neither swamp nor brook is to be had, we need not despair, for a beautiful water garden can be made on dry land with the aid of cement, there being no natural supply of water.

In the case of an old swamp some expense will be involved in the building of a dam across its lower end, this work depending entirely
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upon the conformity of the surroundings. These old swamps are full of tussocks which must be removed. And here science has pointed out an easy way. All plants must have access to the air. The first step is to drown these plants, by depriving them of air, and this may be done by raising the water level above them. As soon as the leaves appear above the surface, have a man cut them off with a scythe. A few repetitions of this will kill the plants and the old tussocks will rot down, making a fine soil for the aquatic plants. This plan is much cheaper than the old way of digging them out with pick and mattox. The permanent depth of the pond need not be over two feet. In ponds fed by brooks or springs it is impossible, in the north, to grow the tender aquatics.

In the selection of a site for a purely artificial pond, study the surroundings and place it in a natural position. Do not select the top of a hill, for this would at once destroy its naturalness. A hillside with a gentle slope makes a capital place, for it permits of the installation, on a lower level, of a heating plant, a necessary adjunct in the cultivation of tender aquatics. The cost of cement construction will depend entirely upon size and location. Any worker in concrete can furnish figures for this, or a home craftsman desiring the fun can do the work himself. The actual construction of the cement pond is not difficult. The lines of the rim should be artistic and fit in with the surroundings. A depth of eighteen inches or two feet is ample, if only the ordinary water lilies are to be grown. If it is desired to include the cultivation of the Victoria regia, then special preparation must be made in the shape of several pits six to eight feet square and a foot or eighteen inches deeper than the regular bottom of the pond. These pits should be provided with raised rims for the reception of a wooden frame and glass sash, to protect the plants during cool weather. In a pond of this kind tender aquatics may be successfully grown.

Whatever the form of pond, there are certain elements to be considered in the development of the water garden. In the first place, a good background is a great advantage, and if it is possible to locate it near a clump of trees a great deal has already been accomplished. The two essential elements which must enter into all water gardens are, the border itself, which may be called the frame of the picture; and the treatment of the water surface, the picture. The planting of the pond border should be given careful study, for upon the arrangement of this depends, in great measure, the beauty of vista and the charm of those glimpses of the garden secured as one walks along the shore. Openings must be left to allow of an
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approach to the edge of the water so that the beauty of the aquatic plants as well as the charming vistas may be enjoyed. The skyline of the border should be undulating, and to accomplish this trees should be placed at proper places to carry up the lines, while shrubs also of varying height should be used, thus relieving the flatness which is naturally a part of a water landscape.

WITH this general discussion of the arrangement of a water garden let the next consideration be the plants which can be employed in producing the effects desired. In the first place, consult the immediate neighborhood. Probably much of the needed supply can be found in the nearby swamps and meadows. Many shrubs and trees and a wealth of herbaceous plants are native to any locality. With a judicious admixture of introduced elements they will secure a maximum of effect.

For such few trees as should be planted, any inhabitant of a swamp or low place will do. I would suggest as examples the sweet gum, \textit{Liquidambar styraciflua}, with its autumn garb of deep crimson and yellow; the pepperidge or sour gum, \textit{Nyssa sylvatica}; the red maple, \textit{Acer rubrum}, aglow in the spring with its mantle of orange and red flowers, and later attractive in its abundance of red fruit, and the richness of its fall coloration being an added charm. The weeping willow, \textit{Salix Babylonica}, is very effective placed at one end of the pond. Let it stand by itself to get the best effect, and let it be a vista point.

Of shrubs which will fit into the planting of the border there are many. Almost any neighborhood will show them in abundance. The willows and alders should certainly form a part of the planting, for the “pussies” of the willow always claim our attention, coming when spring first awakens; and the alders with their yellow tassels swaying and tossing in every breeze add much beauty to the barren landscape. The elder, \textit{Sambucus Canadensis}, must not be forgotten. What more charming than a cluster of their boughs hanging gracefully over the water, at first white with bloom, later with great bunches of wine-colored fruit? The arrowwood, \textit{Viburnum dentatum}, has its place, and the sweet pepper-bush, \textit{Clethra alnifolia}, full of the perfume of spices, has a double attraction. The swamp honeysuckle, \textit{Azalea viscosa}, and the dainty Carolina rose, \textit{Rosa Carolina}, are both desirable. For winter effect moreover we have the Virginia winterberry or black alder, \textit{Ilex verticillata}, showing bright red fruit. Everyone knows the mountain-laurel, \textit{Kalmia latifolia}, with its profusion of flowers. Its usefulness here is quite evident. It is also an evergreen, so we also get the good of it in winter. Right here
AN ARTIFICIAL POND OF CEMENT. THE PLANT IN THE FOREGROUND IS THE JAPANESE LOTUS, *Nelumbium nuciferum.*
AN ARTIFICIAL POND OF CEMENT. THE ROYAL AMAZON WATER LILY, *Victoria regia*, IN THE FOREGROUND. A TROPICAL TOUCH IS ADDED TO THE BORDER BY THE BANANA, CASTOR-OIL PLANT, AND ELEPHANT’S EARS.

A SMALL LILY POND IN THE HERBACEOUS GROUNDS, NEW YORK BOTANICAL GARDEN. THE PLANT IN THE FOREGROUND IS MARLIAC’S YELLOW WATER LILY, *Chromatella*. 
A CORNER IN THE WATER GARDEN, NEW YORK BOTANICAL GARDEN. THE SHRUBS ARE ALDERS. THE WATER PLANT IN BACKGROUND IS THE YELLOW AMERICAN LOTUS, *Nelumbo lutea*.

A SMALL POND IN THE HERBACEOUS GROUNDS, NEW YORK BOTANICAL GARDEN. THE PICKEREL-WEEDE, *Pontederia cordata*, AS A DECORATIVE PLANT.

THE OLD SWAMP AFTER ITS TRANSFORMATION, FULL OF BEAUTY AND INTEREST. WAS IT NOT WORTH THE TROUBLE?
let me emphasize the desirability of putting evergreens in your border, and suggest that rhododendrons be among them. The button-bush, _Cephalanthus occidentalis_, the sweet bay, _Magnolia glauca_, and the American holly, _Ilex opaca_, can all be used. Many other shrubs are available, but this will serve to suggest what is needed.

When we come to the herbaceous plants, and it is upon them that we must rely for the great show of color in the border, there is a host from which to choose. Any neighborhood will supply a good selection. Visit the swamps and water courses in your own vicinity and see how many can be found. They are much easier to transplant than shrubs and trees, giving usually a much greater measure of success. The cattails, _Typha latifolia_, and _Typha angustifolia_, growing right in the water, are most useful. Their growth is in straight upright lines, and they are very effective when planted in the rear of water lilies. The arrow-heads, _Sagittaria_, with their halberd-shaped leaves and white flowers, are worthy a place, also the lizard’s-tail, _Saururus cernuus_, with its odd spikes of creamy flowers, nodding at the apex. The pickerel-weed, _Pontederia cordata_, is an excellent plant, showing masses of blue flowers in spikes.

PLANTS which will give height to the border may be found among the grasses. The Indian rice, _Zizania aquatica_, is among them, reaching eight to ten feet in height, and showing an ample panicle of nodding flowers. Another of about the same height is the common reed, _Phragmites communis_. Still another, of somewhat taller growth, is _Arundo donax_, with broad gray-green leaves. An air of lightness may be added to the border by planting groups of the Japanese reed-grass, _Miscanthus sinensis_. It comes into flower in the fall, its feathery tassels persisting a long time. The variety known as _gracillimus_ gives the best effect. Two of the common blue flags of the swamps, _Iris prismatica_, together with the Japanese iris, _Iris Kämpfieri_ or _laxigata_, occurring in a number of shades, will introduce much variety of color. The common marsh marigold, _Caltha palustris_, is one of the best early yellows. It snuggles close down at the edge of the pond and makes itself at home there, its beauty being reflected in the still waters. The much despised skunk cabbage, _Spathyema fœtida_, is an excellent plant for foliage effect, giving a tender green early in the spring. The American hellebore, _Veratrum viride_, is a stately plant, upright in habit, and very effective in mass, growing four to five feet tall.

Perhaps the most striking of all the native swamp plants is the rose mallow, _Hibiscus Moscheutos_, a tall, bushy plant, of vigorous habit, attractive in foliage, and sending forth during the month of
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August a succession of lovely pink blossoms five to eight inches across. A mass of these plants against a background of dark green is one of the most striking features of a water garden. Then there is the white swamp mallow, known as “crimson eye,” *Hibiscus ocubiroseus*, similar in habit to the rose mallow with pure white flowers and a deep crimson eye. The spiked loose-strife, *Lythrum salicaria*, its flowers a rich purple, and the brilliant cardinal flower, *Lobelia cardinalis*, a mass of flaming red, should occupy respectively a prominent place. They must however be widely separated since their colors glare at each other. And by the way, the harmony of color should be carefully studied in the planting scheme.

There are so many herbaceous plants which can be used that it would take pages to enumerate them all. The asters, the golden-rod, the swamp sunflowers, the tickseeds, and many others will furnish a wealth of material. Many can be secured in nearby swamps, and to those who really love flowers there is a certain zest in seeking thus for the desired material. The ferns and brakes must not be overlooked. What can take the place in the border of the royal fern, the ostrich fern, the cinnamon fern, and Clayton’s fern? Nothing can replace their stately dignity. Terrestrial orchids will also add a touch of color and form not to be had from any other flower. The yellow fringed-orchis, *Habenaria ciliaris*, the small purple fringed-orchis, *Habenaria psychodes*, the grass-pink, *Limodorum tuberosum*, and the showy lady’s slipper, *Cypripedium spectabile*, the latter a beautiful blending of white and pink, are all orchids well worth while seeking and transplanting about the water garden.

If a touch of the tropical is aimed at use the castor-oil plant, *Ricinus communis*, or the Abyssinian banana, *Musa Ensete*, bearing in mind that they are not hardy and must have protection over the winter.

We now come to that part of the water garden which is unique, and to which all that has gone before leads—the plants which live only in the water, ineffably charming and beautiful. Others that have been mentioned are possible to grow in an ordinary garden, but the water lilies occur only in the water garden. Remember the water lily of lakes and slow-moving streams, as it floats lightly on their surfaces responding to the touch of every wave and ripple. Can its delicious fragrance and purity be forgotten? It surpasses all other water lilies in its sweet perfume. While not as striking as some of its tropical cousins, there is associated with it a sentiment which will always make it our first choice. Another good white beauty is the tuberous water lily, *Nymphaea tuberosa*;
still another, of hybrid production, is known as *Nymphaea alba candidissima*. The latter is a vigorous grower and must be watched that it does not take general possession of things. In great contrast to these large flowers is the pygmy lily, *Nymphaea tetragona*, the smallest of its kind, with flowers barely two inches across. It should be grown in the shallower parts of the pond. The only native pink water lily of northeastern America is a variety of the common pond lily and is called the Cape Cod lily, *Nymphaea odorata rosea*.

We must turn to M. Latour-Marliac, the wizard in the production of hardy water lilies for some of our most striking flowers. Among his productions we can choose flowers from the clearest flesh color to the deepest red, a clear yellow, or a combination of red and yellow. The variety called chromatella, a fine yellow, is a wonderful lily, full of vigor, free of bloom. Another yellow, a dwarf form, is called helvolal., an appealing little plant. The fault with the native pink lily is its weak habit and small flowers. One of these is called carnea, a flesh pink, while the other bears the name of rosea, a much deeper pink, and the better variety. Perhaps the most striking and unusual forms he has produced are those in which he merged the red flowers with the yellow. One, known as William Falconer, has the red parent predominating, and the result is a flower of deep claret color. James Bryden is another of the deep reds. Forms in which the yellow and red are equally merged are represented in *Seignoretii*, aurora, and gloriosa, revelations among water lilies. In them the center of the flower is a deep red, the ends of the petals yellow. They are unfortunately not of strong habit, so it is necessary to grow them in the shallower, warmer parts of the pond. They will need replacing from time to time.

There are two other hardy plants, sometimes called water lilies; the lotuses. One is known as the Japanese lotus, the other as the American lotus. The Japanese plant is much to be preferred, with its magnificent flowers of rich pink. It is one of the most striking features of the water garden.

All of the plants to which reference has been made are hardy, and they will live on from year to year, requiring little care. There are, however, other water lilies, well worthy of cultivation, which demand much more care. These are of tropical origin and so require to live in water of a much higher temperature, which can only be effected in an artificial pond, free from running water. The pond must be placed in a sheltered position so that the sun superheats the water during the day, or means must be provided for heating the water artificially. If practicable, this latter method
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is much to be preferred as it gives absolute command over the water temperature. It is especially desirable early in the summer or early fall, or during any continued cool spell of weather. A few pipes and a hot-water boiler such as is used in greenhouses will be sufficient equipment. There can be cultivated the blue-lily-of-the-Nile, *Nymphaea caerulea*, the Cape-of-Good-Hope lily, *Nymphaea capensis*, another blue, and the Zanzibar lily, *Nymphaea Zanzibarensis*, of the deepest blue or purple. Two of the finest of these blue tender lilies are of hybrid production; they are known as pulcherrima and William Stone. A beautiful pink is called Mrs. C. W. Ward.

All of these lilies are day bloomers. There is another class which blooms at night. They are also tender, requiring special care. The Egyptian white lotus is one of them. Among the reds and pinks of this class we have *Sturtevantii*, *Omarana*, *Devoniensis* and George Huster.

Other non-hardy aquatics which will add variety to the planting are the water hyacinth, *Piaropus crassipes*; the water snowflake, *Limnanthemum indicum*; the water poppy, *Hydrocleys nymphoides*; the parrot’s feather, *Myriophyllum preserpinacoides*.

But if you have gone as far in the cultivation of water lilies as to have an artificial pond with heating equipment, you will never be satisfied until you have added to your collection the royal water lily. For its cultivation it is wise to provide the deeper pits in your artificial pond to which reference was made in an earlier part of this article. The seeds for the royal water lily should be started in a greenhouse tank early in February, or young plants may be secured from dealers. There are two forms of this lily, *Victoria regia* and *Victoria cruziana*; the latter, commonly known as *Victoria tricreri*, is to be preferred, as it is of much easier cultivation, requiring a lower temperature. Think of plants with giant leaves, well shown in some of the accompanying illustrations, five to six feet across, with upturned margins of four to six inches or more high and flowers sometimes a foot across.

To those who are not in a position to enter into water gardening on a large scale, let me suggest that smaller gardens, delightful in every way, are within their reach. A dam may be thrown across a small brook, thus making a little pond. It and the brook margins will give excellent opportunity for securing pretty effects. One of the accompanying illustrations shows a pond of this kind. If a brook is not available, a tank can be made of cement at small expense, and in it some of the choicest water lilies can be grown. I would place among the hardy forms which can be sati-
factorily grown in limited quarters the following: Helvola, tetragonan, Seignoreti, aurora, glauca, William Falconer, odorata rosea, and odorata. Of especial value under such circumstances are the following tender lilies: Mrs. C. W. Ward (pink); and the following blues: pulcherrima, cœrulea and capensis. They, of course, must all be planted in small tubs or other receptacles. By skilful planting the artificial rim of the tank can be hidden. Irises, ferns, and other herbaceous plants should be used for this purpose.

Another form of small water garden can be made from a half hogshead, sunken into the ground, if so desired, and treated in the same way as the cement tank. Several of them may be put into a small area. Half barrels can be used for still smaller gardens. In addition to the lilies enumerated above, I would suggest as possibilities for such miniature water gardens, the following: Water poppy, water snowflake, sagittarias.

A number of the accompanying illustrations were made from photographs of a water garden, the result of the transformation of an old swamp. The two depicting the swamp before and after treatment are especially convincing. What has been done once, can be done again. So, in closing, let me emphasize not only the beauty of water gardens but as well their usefulness. Old swamps, the breeding places of mosquitoes, and hence the birthplace of malaria, may be transformed from these pest holes into objects of beauty—may be converted from tangles of brush and briar, and scattered pools of stagnant water, into little ponds or lakes, around the margins of which may be grown some of the most beautiful of flowers, and their waters bedecked with the fairest members of the aquatic plant world.