BULLETIN OF THE UNITED STATES FISH COMMISSION. 159

76.--PLANTS FOR CARP PONDS.

By JOHN H. BRAKELEY.

The favorite in my ponds is the water-purslane, the *Ludwigia palustris* of the botanists, a plant which abounds there, but which I have not seen named in any published list of plants suitable for a carp pond. Of this the carp tear up vast quantities, which float about in large masses, throwing out roots and continuing its growth in the water.

For plants to furnish food for the carp, procure some roots of the common water-lily (Nymphæa odorata), and the more common yellow pondlily (Nuphar advena), and any other water-plants accessible, except pondweed (Potamogeton), and water-shield (Brasena peltata). These latter are liable to take possession of too large a portion of the pond, to the exclusion of more desirable plants. Procure, also, the seeds of the Tuscarora rice (Zizania aquatica), the common reed of our tide-water marshes, on which the reed-bird grows so fat.

The American lotus (*Nelumbium luteum*) is indigenous to our own State, and I have it growing luxuriantly in one of my ponds. "There is a strange grandeur and an exquisite beauty about this plant which excite the admiration of all romantic lovers of flowers; a sweet loveliness about them which creates a desire to possess and cultivate some of them. All water-lilies are lovely, but this one is gorgeous. The flowers are a light canary color, often five inches in diameter, and exquisitely fragrant. The seed receptacle, like the flowers, standing out of the water, is a flat, circular surface, and constitutes the base of an inverted cone, which is perforated with holes for the accommodation of the nuts. These are the water chinquepins."

A person who has seen this plant growing in its native waters in southern New Jersey thus refers to it: "I have visited the Kew Gardens near London and the great botanical grounds at Paris and Cologne, and assert without hesitation that if all the flowers in the three were put together, they would not equal; as a spectacle, the lily plantation in this pond." No stinted praise, certainly, of our beautiful Nelumbium. Yet. beautiful as it is, it does not compare in stately grandeur with its congener, the Egyptian lotus. Its delicate rosy tints, on a ground of pure white, changing daily, its graceful petals expanding more than 10 inches when fully blown, entitle it, I think, to the rank of queen of the Though a native of India, China, and Japan, being the floral kingdom. sacred bean of the Hindoos, and, in their estimation, possessed of certain wonderful mystic powers, it is perfectly hardy in our climate. Mr. E. D. Sturtevant, of Bordentown, informs me that he has grown it in the open air for the last six years with complete success, and that he has furnished it, with other choice lilies, to Prof. S. F. Baird for the carp ponds at Washington, where it does well. Though not planted in

160 BULLETIN OF THE UNITED STATES FISH COMMISSION.

my pond till late in June, it flowered beautifully all the latter part of the summer. To these add the Florida yellow water-lily (Numphaea flava) and our own lovely water nymph, intermixed with groups of the stately and graceful Tuscarora rice, and you have a water garden at comparatively small expense, such as no combination of the rarest and most costly land plants can rival. And if you wish to go to a little more trouble and expense, you can add other species of Nymphaa which are perfectly gorgeous, but which require protection during the winter. Even the queenly Victoria regia has been flowered by Mr. Sturdevant in the open air with the aid of a little artificial heat. And this, too, may be made to adorn the carp pond. Most of our native water-lilies are "born to blush unseen and waste their sweetness on the" unsightly marsh. Carp culture is destined to bring them into the prominence to which their beauty and delicate odor entitle them; and as the rhizomas, tubers, leaf stalks, and seeds abound in farinaceous matter, they both feed the carp and render attractive the country home.

I append a list of the plants which do well in my ponds, and which seem adapted to this latitude, and for the sake of accuracy and the scientific names:

White water-crowfoot—Ranunculus aquatilis. American lotus-Nelumbium luteum. Egyptian lotus-Nelumbium speciosum. White water-lily-Nympha odorata. Yellow water-lily-Nymphaa flara. Yellow pond-lily-Nuphar advena. Water-cress-Nasturtium officinale. Water-milfoil-Myriophyllum, several species. Water-purslane-Ludwigia palustris. Cardinal flower-Lobelia cardinalis. Water-chestnut-Trapa natans. Bladder-wort-Utriculuria gibba. Hornwort-Ceratophyllum demersum. Water-starwort-Callitriche heterophylla. Cat-tail flag-Typha latifolia. Bur-reed—Sparganium eurycarpum. Arrow-head-Sagittaria variabilis. Blue flag-Iris versicolor. Pickerel-weed-Pontederia cordata. Mud plantain-Heteranthera reniformis. Common rush—Juncus effusus. Rice cutgrass-Leersia oryzoides. Tuscarora rice-Zizania aquatica. Rattlesnake grass-Glyceria canadensis. Manua grass-Glyceria fluitans. Manna grass-Glyceria obtusa. BORDENTOWN, N. J., 1883.