

waters are stocked. And Austria has deprived thousands and thousands of her acres of their natural growth and utilized them in the cultivation of these food-fishes. From records, I see that the Princes of Schwartzberg have had more than 20,000 acres occupied in the project. And from Southern Bohemia there was sent to the Vienna markets, in three years, 1,525,000 pounds of carp fish, the revenue of which reaches an amount equal to \$305,000. As experience has demonstrated that a growth of one ton per acre is obtainable, we find that to produce this worth of fish-food in one year would require the cultivation of but 680 acres; or the occupancy of 227 acres, in the propagation, would each year have remunerated to the extent of \$102,000, and in three successive crops, \$305,000. If we had the markets of Vienna to supply, what greater industry would the yeomanry of this country wish to place their attention to any labor on than the propagation of food-fishes, at the handsome return of \$400 per acre. Were there the markets, or had we the consumption at large for such an amount of food fish, what happy revenue would result? Corporations would be formed, charters granted and piscatorial franchises given. Our farmers lay down two-thirds of their acreage each year to wheat, they practice no diversity of crops, and have a return of something like 40 bushels to the acre, and with 200 acres the aggregate is 8,000 bushels—a big crop—which sold at one dollar a bushel, brings \$8,000,—the yield is \$40 to the acre. Two hundred acres utilized in carp culture would yield the first season 448,000 pounds of fish, which sold at the common price abroad, gives the culturist the enormous sum of \$89,000—just ten times what the wheat brought.

From the genus *Carpio* many species have sprung: the naked carp, *Cyprinus Nudus*, the mirror carp, *Cyprinus Specularis*, and others of less importance.

The present distribution of *Cyprinus Carpio* may be given as throughout the middle latitudes of the world. The variety *C. Carassius*, however, is found as far north as Siberia and Norway, while another specie, *C. Humilis*, is found in the country of the Sicilies.

It is true that in the rearing of carp the expense is trifling; the knowledge required small, and the labor slight; but the deduction should not be that by

merely casting some of these fish in a convenient slop hole a successful propagation will result.

Quite the contrary. Interest by the culturist himself manifested in the management of his property is the quality preventing the care bestowed upon them assuming the harsh appellation, labor. And it is not advisable for any person to undertake the rearing of carp who is devoid of that sense admitting of a complete appreciation of the enjoyment resulting therefrom. And it is not, at the present time, an enterprise of any immediate assurance of remuneration to the people who will engage in it as an industry.

Natural bodies of water, or those artificially constructed, can be used in carp raising. And while the difference between the two is not of any material consequence, the latter is to be preferred. The former being a work of nature, contains the proper plant-food and infusorial life, and maintains the rich condition of its bottom; but must be such a sheet of water, however, as can be easily controlled. For through a lack on this part the ponds become inundated and the work receives a doubly fatal blow, whereby the carp are permitted to escape, and other fish of a predacious nature allowed to enter and destroy the remainder of the precious fish.

But in a pond artificially constructed no predatory fish can have previously existed, and the necessary vegetation is soon supplied. A rank growth of reeds does not already exist, and the tussock islands, so well fitted for the abode of the amphibous enemies of the carp, are evil objects avoided. The water supply is easily kept in order and control, and the aquatic larva soon produces itself. In the construction of these ponds it is best to excavate the earth rather than embank it. And inasmuch as the growth of the fish considerably depends upon the nature of the soil, and character of the water, it is well to take advantage of any clayey or pulverulent portion of ground in the vicinity. And in digging out the earth and allowing the water to rise to a level with the banks, the object is to afford all the effect of light and heat the sun can throw upon the surface of the pond. On this depends the thorough development of the eggs.

The area and number of the ponds is a consideration the pisciculturist himself

has the power of determining. But it is better to have several small ponds than one large one. These should be fed, if practicable, by field ditches coming from adjoining farm lands or green fallows, and in no instance should the ponds have connection with any dashing brook or stream which other fish habit—as this is the only possible way in which the ponds can be preserved free of other fishes. At the bottom of each pond a main ditch should be dug with smaller ones connected therewith; the purposes of these will be discovered when occasion demands a draining of the ponds or when the fish are required to be caught, by their immediately taking harbor in these available refuges. Excavations by crawfish, a pest which invariably congregates in any living body of water, should be guarded against by having the embankment at the outflow properly compounded of some subject difficult of being bored. Muskrats might prove a source of destruction to the ponds in one night's time by burrowing into and out of the pond, hence their riddance is admonished. Cows, pigs, chickens, or any birds of prey, should always be kept away from the grounds.

The ponds containing the smaller carp should have shallow and even bottoms to receive good influence from the sun. No brush or trees should stand in such proximity as to cast shades into the ponds or shed their leaves therein.

The division of the fishes according to their age and size should suggest the arrangement of the ponds. Each pond should have communication with the other, and in the lower the older carp should be placed, and in the next the succeeding ratio, *ad infinitum*. Then as the proper periods of growth of the fishes arrive, each lot can be easily dropped to its proper quarters. The aptness of the ponds to become solidly frozen in the winter season requires some precautionary measures to be taken. A steady flow of water through the ponds should be maintained, and which can be by simply placing a bundle of straw at the entrance of the water into the pond and one at the exit thereof.

A general destruction of fish may occur in summer if the water becomes so low in hot weather that vegetable and animal matter begins to putrify and scum becomes prevalent. A heavy rain