

## 17.—CARP CULTURE IN GERMANY.\*

By XAVER VON STABROWSKI.

The carp is the easiest fish to cultivate, and it is the best adapted to most of the waters of our country. It flourishes in both stagnant and running water, if it is warm and contains sufficient food. Its power of reproduction is very great, as many as 500,000 eggs having been counted in a carp weighing 3 kilograms [about 6½ pounds]; and it grows so rapidly that in its third year it is fit for the table. Its scales, with their golden glitter and black shading, give it a pretty appearance. For these reasons it is the favorite fish of our nation, and it is more sought after and fetches a higher price in the market than the pike. The carp is exceedingly voracious and not at all particular as to its food. In fact, it eats anything from meat to manure. It has therefore been said that, in some respects, it is among the fish what the hog is among the mammals.

The carp is a gregarious fish, and is generally found in large schools. This shows that it is not a predaceous fish. It is sportive and sly. No other fish engages in such constant gambols as the carp. It is a prudent fish. When a drag-net is used the carp places itself perpendicularly in front of it, with its head in the mud, so that the lower rope of the net upsets it, giving it a horizontal position, the net meanwhile gliding over its body. On the other hand, if the carp cannot perform this maneuver, it boldly leaps over the upper rope of the net.

If good and early results are to be obtained, one should proceed in the following manner: Instead of draining the spawning pond in October, this should be done in July. The young fry, measuring 3 to 4 centimeters [about 1¼ inches] in length, are placed in the raising pond, which should be prepared for the reception of the young carp in the following way: During the preceding autumn the pond should be drained and exposed to the air as well as to the frost, so as to banish the noxious gases, which prove fatal to the fish, as well as all hurtful worms, insects, small fish, and frogs. During the following spring the pond is plowed and oats and clover are sowed in it, which are harvested when still green, about the middle of June. After three weeks the clover has again grown high enough and is full of many different insects and worms, which are the most suitable food for the little fish.

When (in July) the young carp are to be placed in this pond, only a small portion of it should be set under water; each week the quantity of water should be increased, thus setting a constantly larger area of the pond under water, and constantly furnishing new food for the fish.

\* "Der Karpfen (*Cyprinus carpio*)." From the *Deutsche Fischerei-Zeitung*, Vol. VIII, No. 49, Stettin, December 8, 1885. Translated from the German by HERMAN JACOBSON.

This is continued till October, at which time the carp do not take any more food. Now, the pond is drained, and the fish are taken out. A raising pond worked in this way will in autumn reward us for our care and trouble by carp weighing half a pound each. The carp are then taken to the so-called winter pond, and in spring distributed among the stock ponds, which have been prepared and treated in the same manner as the raising ponds. For providing further food for the carp, a dead sheep, cow, &c., which has been skinned, may be thrown into the pond, leaving it whole, so that when the pond is drained, the entire skeleton can easily be removed.

I urgently recommend the feeding of the carp, because this will amply pay. If we feed the fish, we can place double the number in the same water, and they will increase rapidly in weight. I am in the habit of putting the vegetable food destined for the carp on a very simple apparatus, forming a sort of table, which has a raised edge on three sides, and a ledge in the middle. The food placed on this apparatus will accumulate along the middle and lower ledge, which of course must be under water, and from which the fish take their food as from a crib. The food may consist of potatoes, peas, husks, carrots, pumpkins, and even refuse from the kitchen may be used. There is also another cheap food for carp. Oat straw is chopped very fine, then put into a hole in the ground, measuring 2 to 3 square meters, and 30 centimeters [about 1 foot] deep, whose walls are lined with brick; blood is poured over the straw; and enormous numbers of maggots will form, which are taken up with a shovel and thrown into the pond. This should not be done, however, until the maggots are of a dark color, and are therefore fully grown. The hole should be covered with a board.

Carp taken from this stock pond during October of the first year will weigh from  $1\frac{1}{2}$  to 2 kilograms [about 3 pounds].

Although the carp when brought to our markets are still too dear, it is not difficult to sell them favorably. The fish-dealers know how to take advantage of our situation at the time when the pond is drained. To prevent this a special pond is needed, to which the fish may be removed from the stock pond. This pond may be considered as a store-house for fish, from which the necessary quantity of fish is taken to suit the demands of the fish-dealers. In this pond are also kept the fish-boxes, always containing a few hundredweights of fish for the retail trade and for home consumption. This "store pond" need not be very large, but it should be at least  $2\frac{1}{2}$  meters deep [about 8 feet], and be fed by a strong current of constantly running water. During winter the carp in this pond need not be fed, because all fish of the *Cyprinus* kind, like the carp, tench, crucians, &c., do not take any food in winter. The fish-box greatly facilitates the retailing of fish, which I would highly recommend, as a much higher price can thus be obtained than what the fish-dealers pay.

In transporting fish they should be packed in damp moss which has

not been taken from the woods, but from humid meadows, because the moss from the woods contains too many insects. I also lay under the gills of the fish a thin slice of apple or potato, so as to keep the gill-covers moist and prevent them from becoming pasted together, which would cause the fish to choke. When the weather is very hot I kill the fish and lay them in large ox-bladders between pieces of ice. These bladders I tie securely and pack them in a box filled with damp moss. These boxes I send by mail.

The carp is subject to a species of eruption, caused by the sting of an insect. When suffering from this disease the carp does not look well and does not fetch a good price. For a long time I searched in vain for the cause of this disease, and only three years ago I succeeded in finding it. This disease is caused by the circumstance that after a sudden thaw or violent rain-storm the water feeding the pond becomes very muddy, and this muddy water is the real cause of the eruption. Our ancestors, who engaged in carp culture more than we do, knew this very well; and in all the ancient carp ponds I found at the place of influx a side ditch for the purpose of drawing the turbid water from the pond and carrying it outside of the dikes into the outflow canal.

We have the following kinds of carp: 1. The *common carp* with yellow scales, and the so-called *silver carp* with whitish scales. Both these kinds should be cultivated in muddy, stagnant waters (or sky ponds). 2. The *mirror carp*, for ponds with a rich supply of water. 3. The *Silesian leather carp*, for ponds which are fed not only by river or lake water, but also by spring water. 4. The *Chinese gold carp* (goldfish), which should be placed in the smallest basins of the pits which have been formed near our brick-works. We should not despise any sheet of water, for it is the duty of every intelligent man to utilize every inch of ground. Even these small fish, which so far have only been considered as ornaments, will be of some use.

In conclusion, I have to state that fish-culture is exceedingly remunerative; and that even the most intelligent farmer cannot compete with us. We shall beat him by our results at every step, if we only take care to work unitedly.

#### 18.—METHODS OF PREPARING FISH-BLADDERS FOR MARKET.\*

In a former article† directions were given for preparing fish-bladders intended for isinglass or fish-glue. The bladders are also used as an article of food, especially in Spain, Italy, the West Indies, and China, either salted alone or salted and dried. The last-mentioned method of curing it is the same as that employed in preparing klip-fish, either

\* "*Tilvirkning af Sundmaver.*" From the *Norsk Fiskeritidende*, Vol. V, No. 1, Bergen, January, 1886. Translated from the Danish by HERMAN JACOBSON.

† See F. C. Bulletin, 1885, p. 295.