

at least not to the extent that I had supposed. I had daily occasion to observe how the young fry flourished, although undoubtedly many young fish were devoured by the birds. The following was the result of my observations: Last autumn, about the beginning of October, I had about 50,000 very fine young carp, 100 of them weighing about 2½ pounds; of *Cyprinus orfus* I had only about 1,000. The weight of the old carp, originally weighing 1 to 1½ pounds, had increased 100 to 150 per cent.; while the weight of the *Cyprinus orfus* had not increased quite as much; and all this in the face of the fact that 300 ducks, 100 geese, and 2 swans, not to mention a flock of wild ducks (which are particularly fond of young fish), had staid on this pond all summer. Frog-spawn, which carp-cultivators, as a general rule, carefully remove from their ponds at the most suitable time, *i. e.*, in spring, I shall certainly put in this pond, where also during the coming year carp, *Cyprinus orfus*, ducks, and geese are going to live together in peaceful harmony. Frog-spawn forms a good, nourishing food for ducks, and consequently it will increase the quantity of carp-food. I considered the above observations, which are principally based on the change of matter (*stoff-wechsel*), of such importance as to deem it my duty to communicate them to my fellow-workers in the cause of pisciculture.

ON THE RACES OR VARIETIES OF CARP, DENYING THE EXISTENCE OF BLUE CARP AND GOLD CARP.

By F. ZENTZ.

[Translation.]

LOWER FRANCONIAN DISTRICT FISHERY ASSOCIATION, WÜRZBURG.

WÜRZBURG, *February 13, 1882.*

HONORED SIR: To-day, at last, I find time to answer your inquiry relative to *blue carp* and *gold carp*, and to return the enclosure of your letter.

RÉSUMÉ: There is no such fish as the *blue carp*, whether viewed from the standpoint of the naturalist or from that of the pisciculturist, and we will do all in our power not to increase, without any special object, the nomenclature of the carp, which has, as it is, too many names and subdivisions.

As it was my object not to report anything that is not authentic, I have reached the above result by conferring with several of the most experienced carp-traders and carp-raisers, and I have likewise examined a large number of different carp, some of them in tanks, all of which will sufficiently excuse my delay in answering your letter.

There are *three* principal races or varieties—not special kinds—of carp:

(1) The SCALE-CARP, *Cyprinus carpio* (French; *Carpe commune*), the

prototype of our wild carp, which even at the present day is the most numerous representative of our river carp. From the Main and the Rhine came to North Germany. It is frequently cultivated artificially in ponds.

(2) The MIRROR-CARP, the *carp-king*, *Cyprinus rex cyprinorum*, *Cyprinus speculum*, *Cyprinus macrolepidotus*, the most highly improved breed of carp of Central Germany, raised at the present time (the breed being kept pure) by the foremost pisciculturists of Franconia, the Upper Palatinate, and Bohemia. In its perfection it appears as a compactly built fish, with a thick body and a tendency to grow large, whilst the head remains small; very voracious, growing rapidly, but, like other carp, according to the varying circumstances, ready for spawning in the third year.

(3) THE LEATHER-CARP, *Cyprinus nudus*, *Cyprinus alepidotus* (French; "*carpe à cuir*"), entirely naked, a separate, well-determined race, and not, as Heckel and Kner think, a mirror-carp, whose scales have either not been properly developed, or which have fallen off from old age. Many of our pisciculturists make a specialty of raising mirror-carp with very few scales, and we therefore frequently find mirror-carp with only one row of scales, generally on the back.

At the present time, leather-carp of a beautiful golden brown color are greatly in demand in Germany; they are never called "*gold-carp*," but invariably "*leather-carp*."

Pisciculturists who do not follow the fashion, still prefer the thoroughbred *carp-king*; and it must be granted that a genuine mirror-carp is a model fish. When in the water its back has a bluish color, more or less with a greenish or gray hue, more decidedly bluish than the scale-carp or the leather-carp. The last-mentioned fish, when in the water, has only a very faint bluish color; the scale-carp is less blue than the *carp-king*, but under no circumstances can the blue color be considered as a mark of difference of race.

With regard to the gold-carp, I have already expressed an opinion when speaking of the leather-carp. Two years ago we had a large number of dead "*carpes d'or*" in our market, which came from the neighborhood of Saarburg, and as to growth and flesh, especially as to fine flavor, were far inferior to our Franconian carp. No more orders were given for this kind of fish, as, in spite of the moderate price, our people did not care for it. It is therefore not advisable to deteriorate our magnificent Central German carp races by the "*carpe d'or*."

According to all the descriptions—for I cannot here speak from personal knowledge—the *Cyprinus kollari*, *Cyprinus striatus* (French; "*carpe d'kollar*"), is a still more inferior fish. It is sometimes called the "*gold-carp*," or the "*gold bastard carp*"; is principally raised in the neighborhood of Paris and Metz, and also in Belgium, and is probably a cross between the bastard carp and the carp.

I therefore see no reason why I should advocate the name "*gold-*

carp," or why I should recommend this fish. Still less would I be inclined to do this if we are to understand by that name the *gold bastard carp*, or *chub* (?) *Caracino dorso crassior*, which, as I read, is found in ponds and rivers in Upper Saxony.

There are still more races of deteriorated carp:

Cyprinus elatus (French; "*carpe bossue*"), principally found in Italy.

C. regina (French; "*carpe reine*").

C. hungaricus (French; "*carpe de Hongrie*").

C. acuminatus.

None of these will be of any interest to pisciculturists.

I therefore say most emphatically: "Let people cease to seek after colored carp!" They are on the wrong road, and we ought not to be led astray in this respect by the evidently not well-informed Americans.*

We are therefore not able to give a history of the colored carp, especially as the history of the European carp is still shrouded in darkness. We know that its original home is Asia Minor and Persia, and that it was known to the Greeks and Romans, but it is impossible to say when it was first introduced into South and Central Germany and into France, and whether it was the Romans who, when entering those countries as conquerors, introduced it.

There is documentary evidence that it was cultivated in France as a pond fish as early as 1258, and about the same time in Germany. It was introduced into England in 1514, and into Denmark in 1660.

Possibly I may be fortunate enough to give you some further information relative to the carp in some future letter; at any rate, I shall be on the lookout for further information.

My best thanks for the second batch of *Salmo fontinalis*, which are flourishing. I intend to express my thanks in a more formal manner at some future time.

Respectfully, yours,

F. ZENTZ.

THE PECULIARITIES OF BLUE CARP.

BY HERR ECKARDT.

[Translation.]

The *blue carp* is distinguished from the other varieties of carp by its more compact build, its size, its blueish glittering color, when *in* the water, and its darker color when *out of* the water, its quiet temperament, and its greater capacity for taking and assimilating food. It does not become fit to spawn till its fifth year, and at that time weighs 7 to 12 pounds. Its home is South Germany, especially the neighborhood of Würzburg and Altenburg. It has been raised from Bohemian carp. I

* Note in some other handwriting: The reverse is the case!! We (without evil intention) led the Americans astray!!!