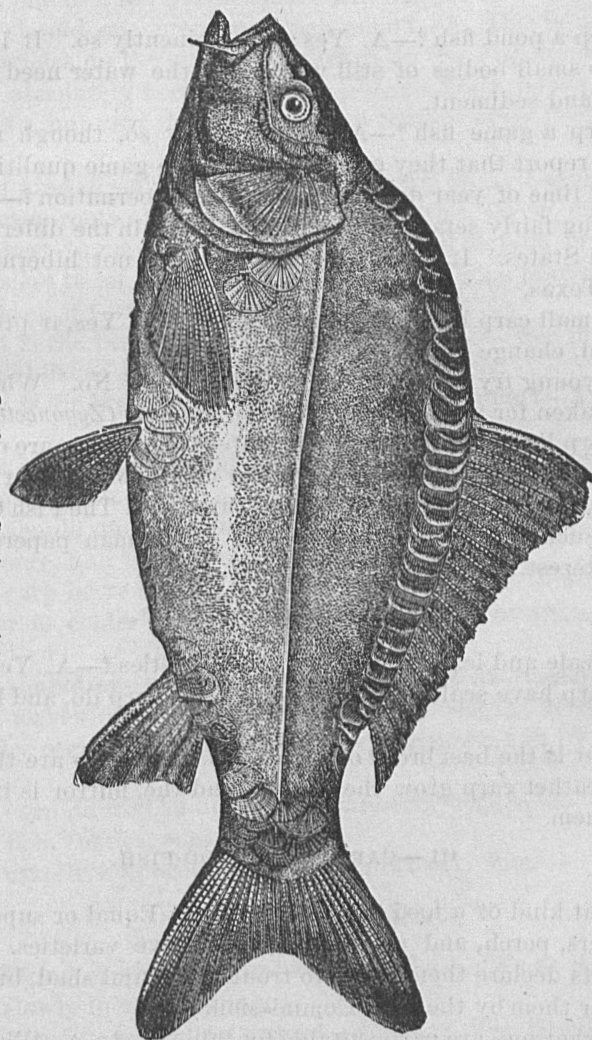


32.—ANSWERS TO 118 QUESTIONS RELATIVE TO GERMAN CARP.

By CHAS. W. SMILEY.

During the past fifteen months the correspondence of the United States Fish Commission has included a great number of letters of inquiry con-

Leather carp (*Oxyrinus carpio*.)



cerning the German carp. The 118 questions here considered have all been taken from letters received during that period, and most of the
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questions have been asked over and over again. As they cover considerable of the practical information required, it is hoped that the answers here given will be valuable. Fuller information upon many of the points may be obtained from published documents of the Commission. I am indebted to Col. M. McDonald for assistance in preparing some of the answers.

The questions and replies are classified under sixteen heads, so that one can easily find any information he is seeking.

I.—GENERAL INQUIRIES.

1. Is carp a pond fish?—A. Yes; pre-eminently so. It is especially adapted to small bodies of still water, and the water need not be free from mud and sediment.

2. Is carp a game fish?—A. Not properly so, though some correspondents report that they consider it to have game qualities.

3. What time of year do carp appear after hibernation?—A. As soon as the spring fairly sets in, which differs much in the different parts of the United States. It is probable the carp will not hibernate at all in Southern Texas.

4. Can small carp be wintered in a cellar?—A. Yes, if provided with proper food, change of water, &c.

5. Will young fry swim on top of water?—A. No. What is sometimes mistaken for young carp is the top minnow (*Zygonectes*).

6. Do carp live a long time out of water?—A. They are quite hardy, and can be kept alive out of water, if in moss, twenty-four hours.

7. What work is authority on carp culture?—A. The Fish Commission publishes such articles and translations of German papers as are of general interest.

II.—VARIETIES OF CARP.

8. Are scale and leather carp different varieties?—A. Yes.

9. Do carp have scales all over?—A. Scale carp do, and leather carp do not.

10. What is the best breed of carp?—A. Scale carp are the most prolific, the leather carp grow the fastest, and the mirror is intermediate between them.

III.—CARP AS A FOOD-FISH.

11. What kind of a food-fish is carp?—A. Equal or superior to catfish, suckers, perch, and all our common native varieties. Many correspondents declare them equal to trout, bass, and shad, but this is not claimed for them by the Fish Commission.

12. At what age are carp suitable for table use?—A. When small the bones are troublesome, but the flavor is the same. When they weigh 4 pounds or more the bones can be easily removed.

13. What season of the year are carp fit for the table?—A. From October to May. During and for several months after spawning the flesh is soft. No fish is in good condition to eat for some time after its spawning time.

14. Do carp have many bones?—A. What fish does not? The flesh flakes off, however, very nicely from large carp.

IV.—PONDS AND TANKS.

15. How large a pond is necessary for carp?—A. Larger the better, but a small one of a few yards square will answer for a few fish.

16. How should one prepare a carp pond?—A. This is answered at length in articles on the subject published by the Fish Commission.

17. Is it absolutely necessary to be able to drain ponds to the bottom?—A. No, but very desirable so as to remove other fish, enemies of carp, &c.

18. What kind of soil is best adapted for carp?—A. Loamy or muddy soil. The carp roots about in it for grubs, worms, larvæ, &c.

19. Is it best to make the border of the pond sloping or vertical?—A. It is easiest to let it slope, and there is usually no particular advantage in making it vertical.

20. What is the best way to construct a dam?—A. See plans and descriptions published by the Fish Commission.

21. What is the best material for constructing a dam?—A. Stone and earth.

22. What is the best plan of an escape way?—A. See plans of ponds by Fish Commission.

23. How should one prevent fish escaping from the pond?—A. Make the dam secure, and put wire cloth over the outlet.

24. Will carp leave a pond when it overflows?—A. Not if the superfluous water is colder than the bottom water, as is often the case in floods.

25. How should one prevent carp leaving pond at overflow?—A. Arrange wire sieves for the overflow to pass through. Avoid overflow if possible by regulating the amount of water flowing in by means of a waste weir.

26. Will carp do well in ditches of cranberry bogs?—A. Yes; if free from other fish, turtles, snakes, &c.

27. Will carp live in ornamental fish tank?—A. Yes.

V.—WATER FOR CARP.

28. What kind of water is adapted to carp?—A. Warm water. They grow very slowly in cold water.

29. Will carp live in shallow water?—A. Yes; even if so shallow that their backs sometimes protrude from the water, but there should be one deep spot for them to go to in winter.

30. Is shallow or deep water best for carp?—A. Shallow water is usually warmer, and hence better for carp. Better have both, if possible.

31. What temperature of water is best adapted to carp?—A. High temperatures. They can live in cold water, but do not grow much. They thrive in warm water.

32. Is slow-running water suitable for carp?—A. They are sluggish and care nothing about running water.

33. Will carp live if water is not running through pond?—A. Yes; all the better.

34. Will carp live in reservoirs of rain-water in Texas?—A. The rain-water might become too stagnant and injure them, but if kept sweet the carp could live. However, no more food should be put in than they can eat.

35. Will muddy water hurt carp?—A. No. It is their delight. They can usually get food from it.

36. Is well or spring water best adapted to carp?—A. It makes no difference. Neither is desirable.

37. Are streams suitable for trout good for carp?—A. No. Trout require clear, cold water; carp, warm water, and it need not be clear.

38. Are mineral waters bad for carp?—A. Cannot tell without knowing more about the mineral water. Brackish water is not injurious.

39. Will carp live in Rocky Mountain waters?—A. Probably live, but not grow much, because the water is too cold.

40. Will carp do well in limestone water?—A. Yes.

41. Is alkali water detrimental to carp?—A. Unknown.

VI.—PLANTS FOR CARP PONDS.

42. What plants are best for carp?—A. Crowfoots, cowslips, water-milfoil, bladderwort, hornwort, cress, water-rice, water-mace, water-oats, Indian rice, water-lilies—especially the last six.

43. Is grass in pond injurious to carp?—A. Not injurious.

44. Can water-cresses be too thick in a carp pond?—A. Yes. The pond must not be allowed to entirely grow up to vegetation.

VII.—THE CARE OF CARP.

45. Would carp succeed if placed in a common pond and left to take care of themselves?—A. About the same as when chickens and pigs are left to take care of themselves.

46. Can carp be placed in pond at any season of the year?—A. Yes; but do not transfer them suddenly from warm to cold or cold to warm water.

47. What is the best time of day to deposit carp?—A. When you can avoid a violent change in temperature.

48. Will horses going to water interfere with eggs?—A. No.

49. Will it harm carp to cut ice in pond where they are?—A. No. They will be so fast asleep in the mud they will not care.

VIII.—FOOD FOR CARP.

50. Do carp need feeding?—A. Yes, to grow fast. They can, however, pick for themselves just as chickens can.

51. What is best food for carp?—A. Cooked cereals and vegetables, such as corn, wheat, rye, potatoes, cabbage, turnip, lettuce, pumpkins, melons, &c.

52. How often should carp be fed?—A. As often as convenient, if food does not accumulate in their pond. You can habituate them to come to a place for food just the same as other animals. Better feed them morning and night, one or both.

53. Are boiled rice and corn bread suitable diet for carp?—A. Yes; excellent.

54. Is brewer's grain suitable feed for carp?—A. Yes.

55. Is it best to feed salad food to carp?—A. No harm.

56. Will kitchen scraps kill carp?—A. Not unless salt, pepper, and mineral substances are mixed in. Salt mackerel, salt meat, &c., should be excluded. Potatoes, corn, cabbage, lettuce, and other vegetables are suitable.

57. Are water-cresses essential for carp food?—A. Not essential, but desirable.

58. Will carp eat tadpoles?—A. No.

IX.—GROWTH OF CARP.

59. How large do carp grow?—A. Sometimes to 50 or 75 pounds.

60. How long does it take carp to grow?—A. It depends entirely on the temperature of the water and amount of food.

61. How much will a carp three years old weigh?—A. If in Pennsylvania, four or five pounds; if in Georgia, six to eight pounds. They can be forced to much greater weights by feeding.

62. What climate is best adapted to the carp?—A. Warm climate.

X.—SPAWNING OF CARP.

63. At what age and time of year do carp spawn?—A. Usually at the age of three years; often at two; sometimes at one in southern climates, when fed well. The month of spawning varies in different latitudes, but it usually occurs in May in the south and in June in the north. In cold water it may be protracted into July.

64. Will carp two years old spawn?—A. That depends on climate, food, &c.

65. At what age will the male carp vivify the eggs?—A. Probably younger than that at which the female deposits eggs.

66. How can one tell male from female?—A. It is impossible until about spawning time, unless you cut them open.

67. Which is the larger, male or female carp?—A. The female.

68. Do size of scales on carp indicate sex?—A. No.
69. Are carp prolific?—A. Yes; if properly cared for. A five-year-old carp ought to contain 500,000 eggs.
70. How many young will a pair of carp produce annually?—A. Very few, if left to themselves; a great number, if properly cared for—say 50,000.
71. What arrangements are to be made at spawning time?—A. Put the spawners by themselves till the eggs are deposited, and then protect the eggs from other animals. A good way is to put hemlock boughs in the pond to receive the eggs. These can be taken out covered with eggs and placed in water to hatch, where the eggs will not be eaten or destroyed. Keep the young out of the way of enemies.
72. Is it best to remove old fish from pond at spawning time?—A. It is a good idea. See answer to last question.
73. How long should young carp be kept in small pond before turning into larger pond with other fish?—A. Till large enough to defend themselves. Say till they weigh a pound each.
74. How distinguish carp spawn from frog or other spawn?—A. Carp spawn is deposited singly on branches, grasses, &c., and is about the size of number 8 shot. Frog spawn is deposited in a jelly-like mass.
75. Do young carp resemble tadpoles?—A. No.

XI.—ENEMIES OF CARP.

76. Will carp destroy their young?—A. Not if they can get any other food.
77. Will carp destroy other fish?—A. No. The carp does not injure any other fish, but is injured by many kinds.
78. Will dace hurt carp?—A. The minnows will eat the carp eggs.
79. Do frogs destroy the spawn of fish?—A. Yes; they eat both spawn and young fishes.
80. Will goldfish destroy carp and *vice versa*?—A. Yes. Besides they will mix—hybridize.
81. Will green frogs destroy carp?—A. Yes; they eat eggs and young carp.
82. Will minks destroy carp?—A. Yes; they will exterminate them.
83. Will mud cat injure carp?—A. They will eat the eggs and young carp.
84. Will mud-turtles eat carp?—A. Yes, to extermination.
85. Will roaches feed on the carp spawn?—A. Yes.
86. Do snakes eat carp?—A. Yes.
87. Will suckers injure carp?—A. Yes.
88. Will trout destroy carp?—A. Yes.
89. How can one guard carp from frogs, tadpoles, water rats, and turtles?—A. Kill the frogs, tadpoles, rats, and turtles.
90. How can I get tadpoles out of the pond?—A. Drain the pond.
91. How get rid of catfish in carp ponds?—A. Drain the pond.

92. What varieties of fish can carp associate with without detriment?—A. There is no kind of fish that will not eat carp eggs and the young carp when they get the chance. Keep carp by themselves.

93. What varieties of fish are detrimental to carp culture?—A. See previous question and answer.

94. Will mountain and lake trout, salmon and carp thrive in the same pond?—A. No. Trout and salmon require cold, running water, and would eat carp eggs and young. The carp require warm, still water, and to be by themselves.

95. Will gum and holly trees in pond injure carp?—A. No.

96. Will mulberry trees around a pond hurt the fish?—A. No.

97. Will vegetable matter covered by water decompose and hurt the carp?—A. Yes; if in great quantities.

XII.—DISEASES OF CARP.

98. What is the cause of fungus on carp?—A. The cause is not known, but it results from a weak condition of the carp and from getting hurt.

99. What is the cure of fungus on carp?—A. Prevention is possible as shown by answer to previous question. No cure is yet known.

100. What is the cause of moldy appearance of carp?—A. This is the fungus spoken of in the two previous questions.

XIII.—HOW CARP CAN BE CAUGHT.

101. How are carp caught?—A. Best by a dip-net. They can be enticed by food into shallow water and then taken by a dipper, rake, or even by the hands.

102. Can carp be caught with hook and line?—A. Not very readily. They are shy biters, but a number have reported taking them with hooks baited with meat.

103. What bait is best to catch carp?—A. Teach them to come to a shallow spot or to a plank a few inches under water by feeding them at such a place, and while they are eating they can be taken in the hands full as readily as chickens are. They are very tame and will eat out of the hand.

XIV.—THE DISTRIBUTION OF CARP.

104. How can carp be obtained?—A. By filling out blank application to United States Fish Commission and sending through a United States Senator or Representative to Prof. S. F. Baird.

105. Who can indorse carp applications?—A. Members of Congress and Senators of the United States.

106. What time of the year do you distribute carp?—A. From October to April.

107. How old are the carp distributed?—A. Three to nine months.

108. Are carp distributed according to population of each State, or

according to number of applications?—A. According to number of applications.

109. How many fish per acre are required to stock a pond?—A. That depends on the amount of food available. A small pond may be made to produce thousands of carp. A pond one acre can be made to sustain 500 one-pound carp.

XV.—THE TRANSPORTATION OF CARP.

110. During transportation of fish will moss in the water prevent their being bruised?—A. Water-moss may be used to advantage, as it helps keep the water pure.

111. Is it safe to ship carp by stage?—A. They have been sent safely in a quart pail by all sorts of conveyances. It is essential that water enough remain in the pail to cover the carp.

112. Can young carp be carried on horseback?—A. Yes; by keeping them covered with water.

XVI.—FINANCIAL INQUIRIES.

113. What will carp cost?—A. The United States Fish Commission distributes them free. The recipient pays only the cost of transportation from Washington, or from such centers of supply as it establishes.

114. What are young carp worth per thousand?—A. The Government does not sell any. Private parties sometimes sell them at \$5 per pair. A New Jersey carp-culturist advertises "selected minor carp at \$85 per hundred, and selected scale carp at \$80 per hundred; no orders filled for less than \$25."

115. Can I raise 100 pounds carp cheaper than 100 pounds chicken?—A. Yes; as cheaply again.

116. How many pounds of carp per annum will a pond one acre square produce?—A. Very few if neglected; very many if wisely cared for. Five hundred one-pound carp ought to weigh 1,500 pounds the second year, and 2,500 pounds the third year.

117. Are carp known among fish-dealers?—A. They are a very important item with dealers in Europe. They were introduced into the United States so recently that but very few get into the markets yet. A correspondent in Saline County, Missouri, recently wrote that "large numbers of young carp, a foot long, are being taken from the Missouri River and sold in the market."

118. What are carp worth per pound in the market?—A. Very few have yet reached the markets in the United States.

UNITED STATES FISH COMMISSION,

Washington, D. C., August 8, 1883.