

## THE MIRROR CARP, *CYPRINUS CARPIO*, OF THE ROCKET POLE POND

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In September 1981, the author aided by Ken and Patricia Rodley and Peter and Margaret Bryan, counted over 120 fish in the Rocket Pole pond. Although the method of counting was somewhat crude — it involved placing the five people around the pond, throwing in food, and then counting simultaneously the numbers of fish rising — it was apparent that this pond supported a very large fish population. Several fish were subsequently caught and identified as the Mirror carp, *Cyprinus carpio*.

The carp is one of Europe's most familiar fish. In Britain its main value is as a sports fish for anglers but in other parts of Europe it is extensively farmed for food. Carp were 'domesticated' in the Middle Ages and because of selective breeding several different forms of the species have arisen. Wild carp have fairly elongate bodies but the carp in Britain normally are very hump-backed. In the Common carp the scales are large and completely cover the body, but in the Mirror carp the scales occur only along the lateral line, at the top of the body and at the bases of the fins (Fig. 1). Another form, the Leather carp is almost totally devoid of scales. All forms of carp have four barbels, two on each side of the mouth, a large dorsal fin and a relatively small head. The colour is variable, usually the back is dark brown and the sides and underneath much lighter in colour.

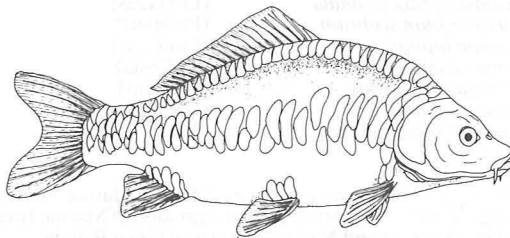


Fig. 1. The Mirror carp, *Cyprinus carpio*, showing the characteristic hump-back, long dorsal fin, barbels and position of scales.

The carp is a gregarious fish living mostly at the bottom of slow-flowing rivers, lakes and ponds. It prefers warmer waters (optimum temperature 15-25°C) and on warm sunny days it may be seen 'basking' in the upper water layers; the fish can withstand considerable deoxygenation.

Carp are usually found in waters where there is a considerable amount of rooted plant life, but this is not the situation in the Rocket Pole pond. A previous study (George & Stone, 1981) has shown that the pond has only a 5% cover of rooted plants and these are confined to the shallow sides of the pond. However the water is rich in nutrients and it often has a green 'soupy' appearance due to the occurrence of large algal blooms.

The Mirror carp is omnivorous feeding on bottom living animals and algae, but the young fish will often eat plankton. At all ages they eat insects, particularly chironomid larvae, and the crustacean, *Asellus*; in the summer adults will often feed in the open water taking algae and swimming invertebrates. During the winter feeding is restricted and may cease altogether at low temperatures (below 5°C).

The 1981 study of the Lundy ponds by George and Stone showed that the Rocket Pole pond in comparison with some of the other ponds is relatively poor in invertebrate life. Consequently it is difficult to see how the pond can support such a large population of Mirror carp. The invertebrates are continually being eaten by the fish and have no chance to build up large populations, and the large algal blooms act as a further deterrent to the invertebrate species. Some very large carp occur in the pond (one caught and returned weighed at least 3kg) and the population appears to be thriving. The fish are fed frequently throughout the summer by islanders and visitors alike and this no doubt is important in the maintenance of such a large and successful population. Cannibalism of young forms probably also occurs and I certainly would not like to be a small Mirror carp in Rocket Pole pond during the summer months!

The carp spawns when the water temperature reaches 18-20°C, usually May/June in Southern England. Eggs are deposited on plants in the shallows and they hatch in about 5 days, or less if water temperatures are high. Mirror carp grow quickly, often reaching lengths of 12cm at the end of their first year; 4 year old fish have an average length of 30-35cm and may weigh up to 2kg. They usually reach sexual maturity in their third or fourth year. Carp can live for 12-15 years and even longer in captivity where 40 years has been recorded.

The apparently thriving Mirror carp population in the Rocket Pole pond poses several interesting problems — how many are present? how are they finding sufficient food as the invertebrate life is sparse? what is their rate of growth? what are their spawning habits as there is very little rooted plant life in the pond? To answer these questions a detailed seasonal investigation of fish numbers and sizes together with measurement of parameters such as water temperature and invertebrate and algal abundance, is required.

#### ACKNOWLEDGEMENTS

I would like to thank Ken and Patricia Rodley and Peter and Margaret Bryan for their valuable counting prowess and Louise Melhuish for assistance with the catching of the fish.

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