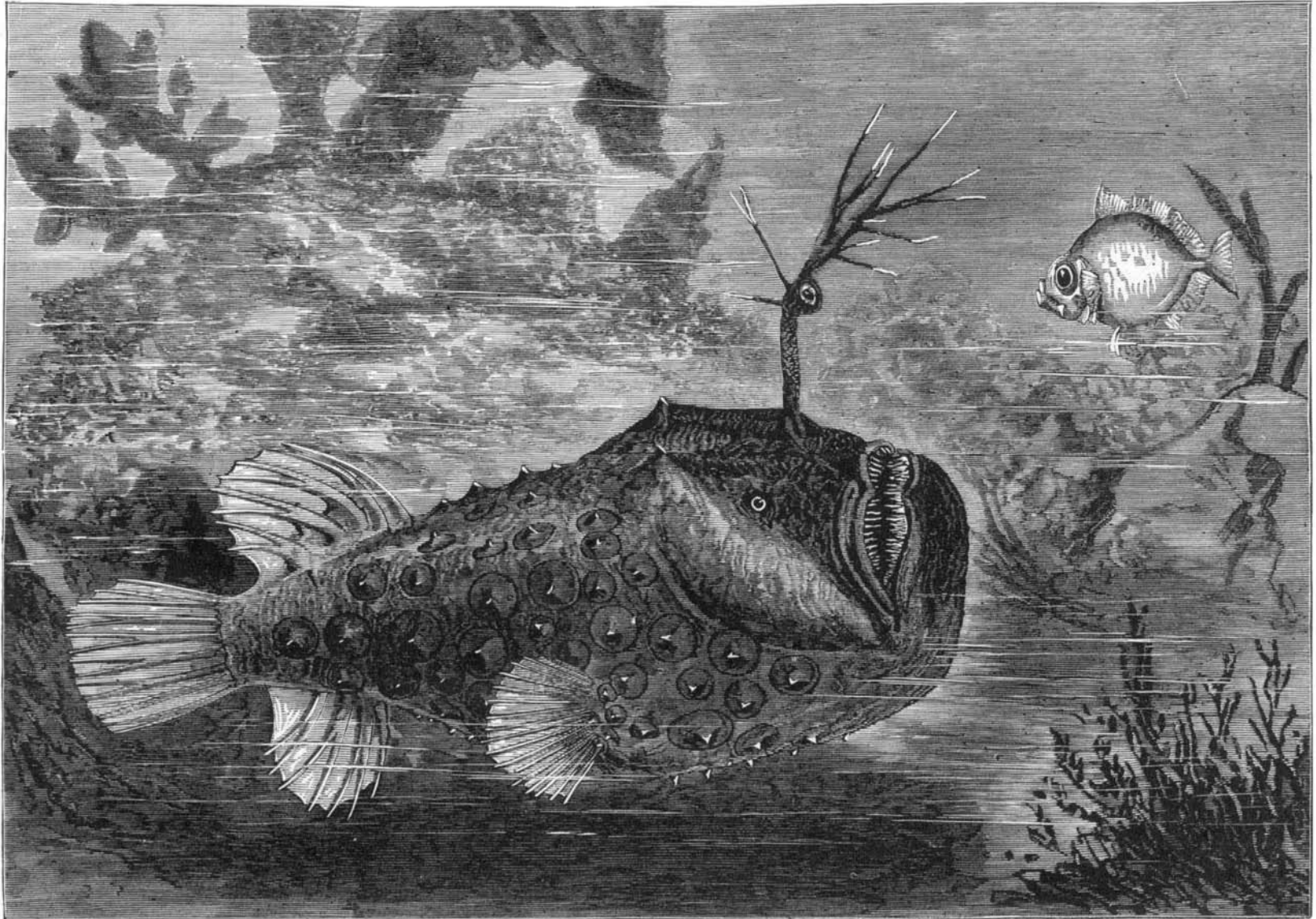


A FISH THAT FISHES.

Dame Nature never indulged in a more curious freak than when she produced a fish which gains its livelihood by fishing for his fellow fishes. The fact is all the more wonderful since no other animal save man adopts the bait as a mode of capture for finny prey. The otter and seal pursue fish and take them in fair chase, the sea hawk seizes them bodily and lifts them aloft quivering in its talons, and neither brute nor bird uses a lure of any description to attract the victim within reach. The chironectiform, however, whose

commission has been conducted, and the future operations of that body. He states, in order to show the extent of operations, that the number of eggs of the California salmon alone, collected during the season of 1875 at the United States establishment on the Upper Sacramento River, amounted to about 11,000,000, making a bulk of 80 bushels, and weighing, with their packing, nearly 10 tons. The work of propagation has been successfully carried on in the Potomac river, in which, from 6,000,000 to 10,000,000 lbs. of shad and herring are now taken during the spring months alone.

ground be too hard for such a manœuvre, it will shoot boldly from the bottom, leap over the upper edge of the net, and so escape into the water beyond. The fish has also the peculiarity of living to a great age, and it is said that carp exist in French ponds over a century old. It is tenacious of life, even when food fails and when removed from the water; and if carefully packed in wet moss so as to allow a free circulation of air, it will survive for weeks. Professor Baird anticipates no difficulty in domesticating this valuable fish in American waters, since it can be multiplied at very little ex-



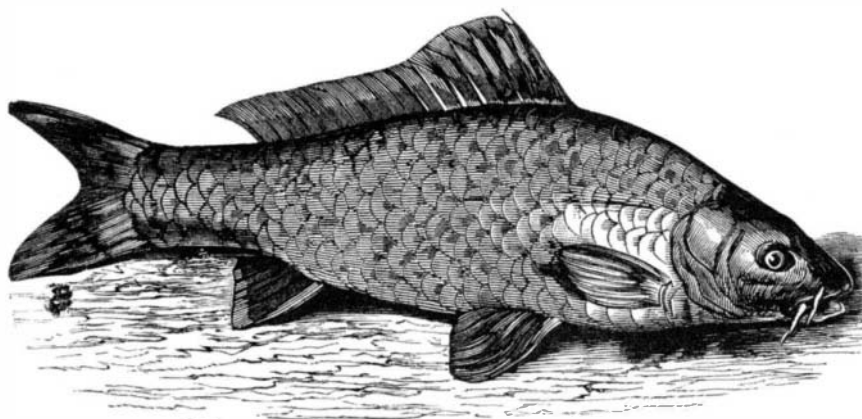
THE CHIRONECTIFORM OR ANGLING FISH.

somewhat ungainly aspect is represented in our engraving, taken from the *Australian Sketcher*, sets a trap with which Nature has provided him, in the shape of an extraordinary apparatus located on the top of his head. The appendage is a flattened, bony member, covered with granulated skin, and working on a universal motion joint, and having a thick muscular base. At the free end of the bony shaft is a semi-spherical gland, resembling much in form the seed vessel of the gum tree (eucalyptus), covered in its front aspect with a brilliant nacreous integument, and having an aperture connected with its interior. From this gland rise several soft branched appendages with white shining vermiform filaments at the tip of each branch. The chironectiform is found in the vicinity of New Zealand. A neighboring European genus—the lophius, or angler—which also has an attracting apparatus, but much less complicated, is stated to crouch close to the ground, and, by the action of its fins, to stir up the sand or mud. Hidden in the obscurity thus produced, it elevates its appendages, moving them in various directions by way of attraction or as a bait. The small fishes which may approach, either to examine or seize them, immediately become the prey of the fish. We must grant that the habits of the present fish may be somewhat similar, but that superior attractive power is given it by having the nacreous lining to the gland at the base of the filaments, which shines under water like a mirror. The fish is delineated in a dark nook at the bottom of the sea, enticing a wary victim to closer acquaintance with its formidable armature of teeth. The possible victim represented is the *platystethus abbreviatus* (a new species) of Hector, whose type was dredged by H. B. M. S. Challenger off Cape Farewell, N. Z., from the great depth of 400 fathoms; numbers of the same species, however, are cast on the beaches of the west coast after heavy gales. Attention is drawn to the spinous armature of the body of our angler, which must prevent all but very hungry monsters dining off it in its turn. The specimen is represented one half the natural length.

There is no reason, says Professor Baird, why any stream in the United States, having direct communication with the Gulf of Mexico or either ocean, may not be made to abound to an equal degree with these and other fishes.

A portion of this year's appropriation is to be devoted to the introduction of the European carp, a species eminently calculated for the warmer waters of the country, especially the mill ponds and sluggish rivers and ditches of the south. This fish, an engraving of which is given herewith, often reaches a weight of six or seven and sometimes as high as eight pounds. Its length varies from six inches to two and a half feet. The upper portion of the body is a golden olive brown, and the abdomen is a whitish yellow. Its flesh is excellent eating; and as game, the fish is but little inferior to the trout. It inhabits the fresh water lakes and streams of central and southern Europe, whence it has been spread by

pense even in restricted ponds. The work of the Fish Commission includes not merely the stocking of streams with new fish, but the replacing in water courses fish which once existed there but now have become extinct. At one time all the rivers on the Atlantic coast abounded in shad, and furnished an enormous aggregate of food, not only sufficient for several months' supply to the inhabitants, but allowing a surplus for shipment, either fresh or salted. Now, however, this condition has become a matter of tradition in regard to nearly every stream south of the Potomac, and nothing but the method of artificial propagation will restore the stock. When we bear in mind that the eggs of a single pair of shad, artificially treated, can be made to produce more young fish than those of two hundred pairs of natural spawners, the importance of the measures to be adopted by the Commission will be readily appreciated. During the years 1874 and 1875, Professor Baird states, the distribution of eggs and spawn was as follows: Shad 18,689,550; Penobscot salmon, 2,294,565; California salmon, 5,153,740; total 26,137,855. To this is to be added the hatching and distribution, during the spring and winter of 1875-76, of California salmon, Penobscot salmon, land-locked salmon, and lake white fish, not yet completed, but amounting to at least 14,000,000 fish thus making a total of 40,000,000 supplied by the United States Fish Commission in three years. This, at the assumed ratio of 1 to 200, would represent the proceeds of 8,000,000,000 eggs laid in the natural way and subject to all the especial perils of natural spawning.



THE CARP.

man over the northern portion. It prefers quiet waters with soft and muddy bottoms, and spawns in May or June according to locality. The food consists of larvæ of aquatic insects, worms, and soft plants, though the fish will eat almost any vegetable food in artificial ponds.

The carp is probably the most cunning of all fishes, although it can be easily tamed. It seems to learn the danger of hooks and baits, after a few of its fellows have been captured. Even the net, which is so effective with most fish, is often useless against the ready wiles of the carp, which will sometimes bury itself in the mud as the ground line approaches, so as to allow the net to pass over it: or if the

Improved Photo-Cameo Pictures.
The picture is to be printed in oval or obtuse angular shape, with toned margin, and then to be gelatinized. After that we paste sand paper on a piece of thick cardboard, a little larger than the picture to be operated upon, rough side out, and cut the oval or obtuse angle exactly by the copying mask out of the center, place its sand paper side on the picture, and run through a roller press. The sand paper will give the toned margin a dim appearance, while the surface of the picture will remain shining. If we wish to get a finer dim margin, we have only to put on the sand paper a second time in another position, and press again. Instead of sand paper, paper lace, or woven stuffs may also be used, but the former, in most cases, produces the best effect.

THE WORK OF THE UNITED STATES FISH COMMISSION.

Professor Spencer F. Baird, United States Commissioner of Fish and Fisheries, in a letter to Congress in behalf of a small appropriation for fish propagation, gives some interesting facts regarding the scale on which the work of his