

## BIOLOGY

# Animals Old Hands At Angling

Fishing is not a human monopoly. Lower animals have been accomplished masters of Izaak Walton's art for millions of years. Rods, lures, nets, lines and trawls are used.

By CLARE M. COTTON

► FISHING IS not a human monopoly. Though it may shock the expensively equipped sport fishermen, lower animals have been accomplished anglers for millions of years.

During this evolutionary period, some of them have developed fascinating tricks for catching their fish, while others have added or modified parts to their bodies to make angling a little more "scientific." These tricks and anatomical variations anticipate the best human fishing techniques.

Ask a young boy what he fishes with and he will probably say worms, but there is one kind of worm that fishes for itself.

*Nemertean* worms live in the sea on both coasts of the United States and are what might be called living fishing lines. Species of *Nemertea* range in length from less than an inch to 90 feet.

At rest they contract into a lump that resembles beef liver. But let an unwary fish come by. The sucking mouth hooks the fish and the "line" begins to run out. The worm "plays" the fish until it is exhausted, then enjoys a meal at rest.

Reliable accounts of jaguars in South America report that this large cat has learned to use its tail as a lure. Thumping the water with the tail or gently waving it in the water arouses the curiosity of the fish and lures it to its doom. A quick jab of the paw, and the jaguar has a tasty meal.

All known species of wild cats that live within a reasonable distance of water have developed the arts of Izaak Walton.

One, the Indian fishing cat, has been named for its great ability to sweep fish ashore. Bengal tigers have also been known to live on fish when floods force them to stay in trees for an extended period of time.

## Domestic Cats Included

The ordinary house cat has not been left behind in this angling development. There are many authentic cases of cats finding their desire for a meal of fish has overcome their intense dislike of the water.

Getting closer to man in the evolutionary scale, monkeys have raised the art of "tickling" to a high point. Ancient Egyptian paintings have led some to propound the theory that baboons were once trained as tickling professionals, turning their catch over to humans of course.

Insects and spiders are commonly thought of as bait, either live or simulated for fly-casting, but some of these fish for themselves. Wolf spiders make a raft-net out of

their web and punt over sluggish water trapping small fish on the surface. The giant water bug in Mexico is said to "hound" down fish, and there are reports of other spiders using their webs as nets to catch fish.

Most fishing birds have long, sharp bills which act as harpoons and a long neck back of the bill serves in the place of rope. The heron is a good example of this.

It stands still for hours for an unwary fish to mistake its legs for reeds, then it spears the victim. Herons have been known to spear bigger fish than they can handle and choke or strangle to death.

Cormorants have been trained as professional fishermen for man by the Japanese. A ring around the bird's neck prevents its swallowing the catch and the cormorant takes the catch back to its master to receive a reward. Darters, similar to the cormorants, carry the harpoon method one step further.

The neck of this bird is constructed on the trigger principle so that in one sense the darter "shoots" its quarry. Instances have been reported in which a darter's bill has driven more than a half inch into a board.

The pelican combines harpoon, rope and landing net. Some of these birds can hold up to 40 pounds of fish in their throat pouches.

Perhaps the most famous of the fishing

animals, however, is Reynard, the fox. Stories of the fox using his tail as a piece of angling equipment can be found in almost every country through long periods of time. Nearly 2,000 years ago Claudius Aelianus, a Roman, described a fox fishing with his tail and the "Uncle Remus" story by Joel Chandler Harris on the subject is familiar to millions of Americans.

The difficulty is that while it is known that the fox loves fish, no observer whom scientists accredit has ever seen a fox fishing with his tail. Most in the past have tended to discount the numerous stories as examples of folklore.

## Believed Folklore Example

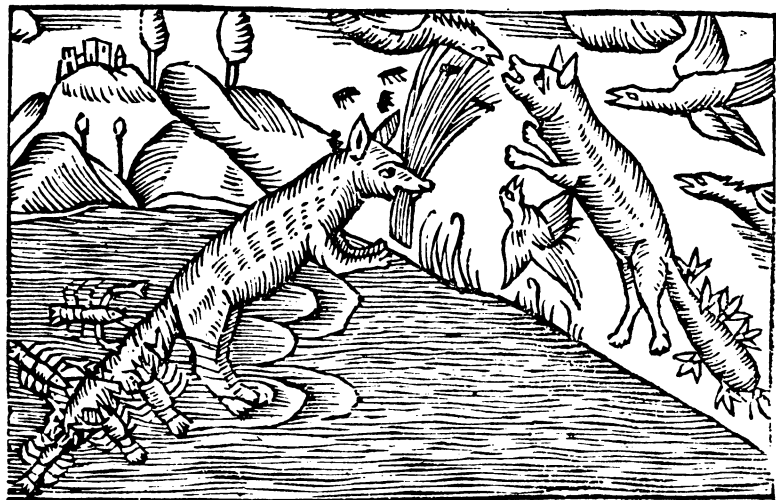
Dr. E. W. Gudger of the American Museum of Natural History, New York, has advised his colleagues to have a more open mind on this subject.

He points out that crayfish, the favorite item in the fox's seafood menu, might easily be caught in such an object as a fox tail.

Other mammals like bears, seals, otters, mink and martens are known to catch and eat fish, but their methods are usually more direct—either by scooping out with the paw or, in the case of the swimming mammals, using the tactics of fish themselves.

Any person with a photograph of a fox or any other animal fishing with his tail could settle this argument very quickly, but at the present time there are only drawings and these are not reliable.

Fish, of course, fish for a living. Most of them use the principle of the commercial fishing trawl—opening their mouths and



**FOXY FISH TALE**—A fox in Sweden comes ashore with a catch of crayfishes attached to his tail in this woodcut made in 1555 by Olaus Magnus. Most zoologists doubt that wily Reynard fishes with his tail, but some feel the question is still open for discussion.

sweeping through the water catching the small fish unfortunate enough to be in their path.

Some fish, more lazy than others, have developed tactics to make life easier for themselves. Angler fish simply rest on the bottom and do their fishing with a rod and bait.

The first dorsal fin ray in this fish is on the snout and is long and limber. At its tip a fleshy flap grows which is waved gently in the water as a bait to lure fish. Sooner or later some passing fish bites, the rod bends, the mouth opens, and the angler deposits another fish in its gullet to be eaten later at his leisure.

### Cuttlefish Used by Man

Cuttlefish have long sucker-tipped arms that may be stretched out to catch fish. In certain parts of the South Seas, such sucking fish are attached to lines by men and used to catch fish, providing another example of man's using an animal's highly developed angling technique for his own purposes.

Among the swimming mammals, the walrus has developed a method of plowing for its food. Though extremely strong, the walrus is very clumsy and awkward, and cannot fish very well while swimming. Most of its food is gotten by plowing up the sea bottom with its tusks, eating the vegetation, shellfish and mud-loving fish that are on the bottom.

The molars of a walrus are very heavy and can crush the largest oyster shell with ease. The tusks so useful as plows also serve as boat-hooks. When a walrus wants to get out on the ice, it simply hooks on with the tusks and scrambles up on the ice.

Fishing is definitely not a human monopoly and most of man's favorite devices for catching his dinner were developed by some lower animal during its evolution.

Science News Letter, March 6, 1954

*Cotton* is picked at the rate of one and a half acres an hour with a new tractor-drawn, low cost harvester using nylon brushes.

The strange actions of *sound waves* in shallow water can be compared to the breaking up of light into many colors when it is reflected from a thin film of oil.

### ELECTRONICS

# Electronic Blood Analyzer

Inexpensive instrument developed that may be used for quick examination of mass blood samples for possible atomic radiation damage.

### See Front Cover

➤ A MACHINE has been created at the National Bureau of Standards that may lead to a device that could be highly useful in identifying victims of atomic radiation in the event of an H-bomb attack.

H. M. Joseph of the Bureau's electronic instrumentation laboratory stated that future variations of his laboratory model might be made to examine blood specimens for symptoms of atomic radiation and report its findings quickly.

A fast analysis of mass blood samples presumably could help doctors find and treat persons who could respond to anti-radiation measures.

The device was previewed by the 40 teen-aged scientists in Washington for the five-day Science Talent Institute, sponsored by SCIENCE SERVICE and the Westinghouse Educational Foundation.

They are shown on the cover of this week's SCIENCE NEWS LETTER with Dr. Allen V. Astin, director of the National Bureau of Standards, at the start of their tour of the Bureau's facilities.

In its present form, the machine can "look" at a blurred photograph or a fuzzy X-ray film and produce a sharper image on a television-like picture tube.

The relatively inexpensive instrument consists of a lens system placed between a cathode-ray tube, similar to a television picture tube, and a photomultiplier tube. A picture transparency is slipped into the lens system. The cathode ray tube scans the transparency while the photomultiplier tube intently "watches," amplifies what it "sees" and feeds corrections back to the scanning tube.

Picture signals are tapped off the photomultiplier tube and are fed through a modifying amplifier to a repeater picture tube. Then a person can adjust the controls to

make the picture appear in sharper focus, or as a line drawing.

The machine also could be adapted to serve the criminologist, it is believed. Fingerprints, often distorted when the criminal applies pressure to safes or automobile doors, could be "straightened out" again when corrections are automatically fed into the device. The result should be a fingerprint that matches the proper one.

Army aerial photograph experts may be able to use another adaptation of the instrument as a camouflage spotter. Aerial photos are compared periodically to reveal changes in the area under scrutiny. This is a tedious, time-consuming process involving skilled specialists.

The pictures must be carefully examined since the photographs of a given sector may be taken from different angles. A future version of the machine could compensate for these different camera angles, showing up camouflage as glaring changes.

Since the machine can recognize shapes, it also seems possible that a modified version could lead a guided missile to the precise airplane or railroad switchyard which it was dispatched to destroy.


The idea for the instrument came from Dr. L. S. G. Kovaszny of Johns Hopkins University, who also acted as a consultant on the project. The work was performed as part of a basic instrumentation program of the National Bureau of Standards. It was sponsored by the Office of Naval Research, the Atomic Energy Commission and the Air Research and Development Command of the U. S. Air Force.

Science News Letter, March 6, 1954

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