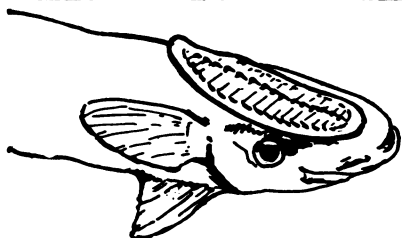


ICHTHYOLOGY  
**NATURE RAMBLINGS**



**Hitch-Hikers**

➤ BACK IN that almost forgotten age when there were no automobiles the reigning generation practised the sport of "hooking rides" on horse-drawn wagons. This was greatly frowned upon by their fathers, who themselves went to great lengths to get that cherished talisman, a railroad pass. Hitch-hikers are still with us, and if the free pass is a thing of yesteryear on the railroads of the nation, there are still those who ride empty box-cars or the rattling rods from place to place.

But this system of getting from here to there by letting some other fellow take you along was invented long ago, probably long before man appeared on the earth at all, by a fish. This is the remora, hitch-hiker of the oceans, known to seafaring men the world over as the "pilot-fish" or "shark-sucker."

A strange creature of tropic waters, the remora catches rides on sharks and other large fish, on turtles and sometimes even on boats, by attaching itself to them with a powerful sucking-disk apparatus which covers the whole top of its head.

The sucking mechanism is an odd de-

velopment of the remora's dorsal fin, which starts like the dorsal fins of most other fish but rapidly changes into a powerful series of suction cups. Shaped somewhat like the sole of a shoe, the adhesive organ is divided into many compartments. With it, the flat-topped fish attaches itself to the belly of a shark or the bony stomach plates of a sea turtle, and is there to stay. No amount of twisting or turning or scaping against the bottom will serve to dislodge the hitch-hiker. The remora is as firmly planted as a country committeeman with his feet on the opposite seat in the smoker, and he won't get off until he sees fit.

The shark or turtle may take its passenger in bad grace, but there is nothing to do but grin and bear it. Aside from stealing transportation, the remora is not a parasite. It does not feed upon its host, as does the dreaded sea lamprey. Instead, it rides along until the larger fish finds a meal. Then the pilot-fish lets go and joins wholeheartedly in the feast. When the food is gone, back goes the suction. These are the two main goals in the remora's limited ambitions: free rides and free lunches.

But even so lazy a creature is often put to work by man. Fishermen can be lazy too. For thousands of years primitive fishermen in the West Indies, in Malaya, China, Australia, Polynesia, have used the remora as a sort of self-propelled, self-directing fish hook. They tie a cord to the pilot-fish's tail, and release it where there may be turtles. Away goes the remora. If a turtle is available, the remora attaches itself, the fishermen haul in on their line, and in comes remora, turtle and all.

Science News Letter, February 3, 1951

**ENGINEERING**

**Induction Heating Used in Metal Coating**

➤ INDUCTION HEATING, replacing direct heating, is used in an improved process of applying metallic mirror surfaces to non-conducting materials in the method by which the metal is applied as a vapor in a vacuum.

How "uncontaminated surfaces of any metal may now be produced" was described by Robert G. Picard and J. E. Joy, RCA, Camden, N. J., to the American Institute of Electrical Engineers. Chemical silvering of glass, they explained, has made possible nearly all mirrors in use. Other metals may be plated on this silver coating, but the variety is severely limited.

One method of metallizing unplateable materials is to condense metal onto their surfaces from the vapor state. Since all metals may be evaporated, the range of mirror surfaces is great. Only a few metals, notably zinc and cadmium, do not form good mirrors by this process.

If bright surfaces are to be produced, the evaporation must take place in a high vacuum, in which is a filament of high melting point metal such as tungsten or

tantalum, these scientists explained. The metal coating is placed in this filament, and the filament heated by direct power.

The method has disadvantages that can be solved if the directly heated filament can be eliminated. This is now being done by placing the metal to be evaporated in a small crucible which in turn is placed within a metal coil, but not touching it. The coil is then heated by induction. It is a more efficient coating process, the scientists stated, and it results in a reduced loss of metal.

Science News Letter, February 3, 1951

In spite of America's 7,000 ice manufacturing plants, much *natural ice* is still cut for summer use on lakes and rivers of the northern states.

Staging hook, pulleys and ropes were recently attached to the top of a 150-foot factory stack, which needed repainting, with the help of a *helicopter* which hovered over the top.

When the famous *Brooklyn Bridge* was opened to traffic in 1883 some refused to use it believing it unsafe; today, the original steel cables, trusswork and suspenders carry 37,000 vehicles a day.

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