

ICHTHYOLOGY

Reroute Salmon by Smell

► FISH, PARTICULARLY salmon, may some day be enticed to return to a designated area by the use of underwater perfume.

A method of directing fish to swim where one wants them to by using artificial odors was patented recently by Dr. Arthur D. Hasler and Warren J. Wisby of the department of fisheries at the University of Wisconsin, Madison, Wis. The decoying operation employs the theory that animals and fish whose migratory habits depend on their sense of smell, can be reared to return to a specific area impregnated with a false scent.

"One method of diverting salmon from their home spawning grounds," the inventors reported, "would be to utilize artificial odors emitted by particular chemicals toward which the salmon are particularly sensitive. A group of salmon fry could be conditioned to such an artificial odor during hatchery rearing. The fish would remember the artificial odor, so that these conditioned fish, several years later, could be

reoriented from their natural undesirable spawning grounds by decoying them to another location downstream by introducing the training odor into the desired stream location at the time of the return migration."

The problem of diverting salmon during migration has grown more acute with the increase in water pollution, power dams and the diversion of water for irrigation. Each takes a heavy toll annually of the fish before they can return to their spawning beds.

Scientists have experimented with several methods of enticing the fish to migrate in a specific direction. Experiments with both light and sound have been tried.

In addition to helping the salmon return home safely after swimming around in salt water, Dr. Hasler and Mr. Wisby claimed that decoying fish may prove valuable in getting fish away from a given area where they are interfering with sonar contact between a ship and an underwater target.

The scientists, who received patent No. 2,699,751, and who assigned their rights to the United States of America as represented by the Secretary of the Navy, reported that two exceptionally good chemical training odorants were found to be morpholine and dicyclopentadiene.

Science News Letter, February 5, 1955

PHYSIOLOGY

Sun to Eyes as Jet Engine Is to Ears

► THE LIGHT of the full brilliance of the sun is to the eye as the sound of a jet plane with afterburner is to the ear.

Upon a scale of comparative ratings for varying intensities of sight and sound devised by Prof. S. S. Stevens of Harvard's Psycho-Acoustic Laboratory, they are tops in decibels.

The rumble of a subway is just about as intense as the brightness a person experiences looking straight at a fluorescent lamp. Or at the full moon when it is high in the sky. Both are rated between 95 and 105 decibels.

At 120 decibels, both for sight and sound, there is discomfort. The threshold of normal sight and sound is near the zero point of the decibel scale.

Everything is not decibels, however, since Prof. Stevens found that to persons with normal hearing and vision a low-pitched whisper may seem louder than a high-pitched voice at 50 decibels above threshold. Visually, a red light may appear to grow brighter at a faster rate than does a green light when the intensity is raised above the threshold.

Exposure to the noisy confusion of the subway station and to a strong glare of light may seem to improve hearing and vision in people with some kinds of de-

fects. Some say they can hear better in the subway than when carrying on conversation in a quiet room. Prof. Stevens explained that this does not mean that the threshold for hearing is improved, but rather that voices are raised to overcome the masking effect of the subway noise.

Exposure to loud noises, Prof. Stevens found, may temporarily raise the threshold of hearing by as much as 60 decibels and for a time block off responses to normal conversations. Likewise, extremely strong light temporarily increased the threshold of sight, actually "blinding" a person to lights of lower intensities.

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PHYSICS

Atom Smasher Ups Energy Hundred Times

► A HUNDRED fold increase in the beam intensity of a high-energy atom smasher and simpler construction and operation is in prospect for a new 20- to 30-billion-electron-volt machine planned by eight mid-western universities.

Prof. Donald W. Kerst of the University of Illinois, inventor of the betatron type of atom smasher, headed the design group that found that pulsed magnets requiring complex control and power equipment can be eliminated, saving much cost. New designs for magnets that can control simultaneously low and high energy particles were worked out with the aid of electronic computations.

The Universities of Illinois, Iowa, Michigan, Minnesota, Wisconsin, Purdue, and Indiana, and Iowa State College hope to build the multi-billion-electron-volt machine with Federal funds. It would deliver five to six times the energy of any now operating. It would be equaled only by a machine planned for Brookhaven National Laboratory on Long Island, N. Y., and one being planned by European nations jointly at Geneva.

The magnet field would be 600 feet in diameter. Cost would be about \$25,000,000 and construction time, five to seven years.

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