

ZOOLOGY

New Modern Aquarium

Modern methods and psychological techniques will be used in the treatment and training of marine animals in the National Fisheries Center and Aquarium—By Barbara Tufty

See Front Cover

► TREAT AN ANIMAL, even man, with care and kindness, and he will respond with intelligence.

This basic psychology, applied to animals with astounding results, is scheduled for use in the future National Fisheries Center and Aquarium in Washington, D. C.

Dolphins will leap out of water as high as 15 feet; archer fish will shoot well-aimed drops of water to hit an insect four feet away; small, ferocious piranha fish, which attack other animals and sometimes man in droves, will stage group attacks just as they would "at home"—on a dummy animal, of course.

The piranha, shown on this week's cover, is a fresh water fish of South America, with powerful jaws lined with razor-sharp teeth. Considered the most savage of all fish of its size, the mature piranha is only a small chap of about 10½ to 15 inches.

Plans are underway for frequent displays of remarkable behavior with fish and animals at the National Aquarium, slated for completion in about three years. The performing animals will be trained by an animal psychologist, Dr. Keller Breland, who, with his wife, Dr. Marian Breland, runs an Animal Behavior Training Farm in Hot Springs, Ark.

Of the more than 7,000 animals trained by Dr. Breland since 1950, some have learned to perform almost human-like tasks. Hamsters have been taught to swing on a trapeze, rabbits to drop silver dollars into piggy banks, goats to climb ladders and box with people, and reindeer to run a printing press by turning a flywheel with their hooves and pressing a lever with their chins.

Dr. Breland's success lies in a combination of several psychological theories. Most important of these is the theory called "operant condition"—the idea that the behavior of an animal operates on its environment to get the animal what it needs, explained Dr. Breland.

Although very few zoos or animal show places or farms realize the importance of a natural environment to the behavior of its occupant, there is a growing trend to understand this theory and put it into action, he said.

It is also important that animals in captivity have something to do. They should have the chance to perform familiar tasks such as building homes, foraging, playing, and mating.

Another important factor in teaching animals is to give rewards at the right time and in the right way.

"We don't punish an animal if there is any conceivable way to avoid it," he explained, pointing out that an atmosphere of fear and punishment does not contribute to learning.

Dr. Breland is now a consultant at the Aquarium, which will be self-supporting and operated by the U.S. Department of the Interior's Bureau of Sport Fish and Wildlife.

The research and educational center will house modern, attractive tanks to show forms of water life from streams high in the mountains to the coral reefs in the oceans. More than 1,300 water animals from all over the world will be placed under the closest scientific scrutiny ever achieved in any one place. Research studies will be carried out in fish diseases, nutrition, genetics, antibiotics produced by marine animals useful to man, and experimental ecology.

• Science News Letter, 85:101 Feb. 15, 1964

PSYCHOLOGY

Test-Giving Methods May Determine Scores

► TESTS, NOT PEOPLE, are being tested.

In an effort to find out how important is the presentation of tests, a new study is underway to turn the table on tests—in other words, to test the tests.

Sometimes the testing situation or the structure of the examination itself determines the final score, rather than the person taking the test, explained Prof. Jason Millman, New York State College of Agriculture at Cornell University, Ithaca, N. Y.

A new study group, supported by the College Entrance Examination Board, will investigate reasons why one student may get a better grade on a test than another student with the same or maybe more knowledge. The study will not deal with individual anxieties or reactions which may affect the scores, Prof. Millman said.

One student may have had former experience in certain test procedures, he explained. This know-how may give him an advantage over the student who has not had any.

High school seniors and beginning freshmen in college are the primary students being studied in this test-wisness project which began Feb. 1.

• Science News Letter, 85:101 Feb. 15, 1964

PSYCHOLOGY

Pigeons Recognize Color Better Than Humans

► PIGEONS may lack civic virtue and cause humans all kinds of trouble in parks, but when it comes to color sensitivity, they are ahead of college students who take part in color experiments.

Dr. David R. Thomas of Kent State University, Kent, Ohio, who is working under a \$44,000 grant from the U.S. Public Health Service on the nature of color vision in humans and birds, uses a food reward to stimulate the birds. The difference in color may be so slight as to be unnoticed by people.

• Science News Letter, 85:101 Feb. 15, 1964



Kent University

COLOR VISION TEST—Dr. David R. Thomas, Kent State University psychologist, tests the color vision of a pigeon with the assistance of Dorothy Stone, a graduate assistant from Orchard Park, Mich.