

## PSYCHOLOGY

**Chickens Not So Dumb, Psychologists Discover**

► WHITE LEGHORN chickens can solve problems at the age of two weeks that require an age of two years or so for rhesus monkeys to unravel.

Pennsylvania State University researchers reported at the meeting of the American Association for the Advancement of Science in Philadelphia that very young chicks are probably smarter than any other animal of the same age group.

In spite of the absence of a well-developed cerebral cortex, the chickens soon learned to peck at the right place in apparatus designed to release food. This showed their capacity to form "object-discrimination learning sets" and took them out of the realm of simple locomotion and basic adjustments. In fact, the new-hatched chick is "quite precocious in terms of motor abilities," the researchers said.

Conducting the tests were Drs. Martin W. Schein and John M. Warren, with Marlene Alpert and Charles H. Beck, graduate students at the University.

• Science News Letter, 83:29 January 12, 1963

## EDUCATION

**Teach Deaf Children By Mechanical Means**

► SCIENTISTS are now teaching deaf children to write using teaching machines. The new, improved method takes less than half the time of previous methods.

Jack W. Birch and E. Ross Stuckless, educators at the University of Pittsburgh, have programmed written language for two groups of deaf children. They are young deaf children with extremely limited language and deaf adolescents whose language, despite expert instruction, is inadequate for "fully intelligible communication."

The difficulty of deafness for the development of speech is easily recognized, although for the deaf learning written language is no easier.

Young deaf children are being taught to write through pictorial cues, the educators told the American Association for the Advancement of Science in Philadelphia. A program of 500 phrases, including vocabulary and other difficult parts of grammar, with a self-instructional device was designed. Illustrations were drawn to serve as stimuli for the language to be developed.

Support of six residential and day schools for the deaf was enlisted for the experiment. Thirteen classes were selected and divided into two groups. The teacher taught the control group precisely the same material as was taught the experimental group using only the teaching machine.

The deaf children who had received programmed instruction alone learned the equivalent of that learned by the teacher-taught group in considerably less than one-half the time.

In order to gain adequate information on the language of the deaf adolescent, students in eight school programs for the deaf

were requested to write compositions on any subject they chose. These compositions were then analyzed in terms of grammatical errors most common. Ten errors were found to occur most frequently and account for about 80 per cent of the total errors made.

Ten programmed workbooks were then developed to improve the adolescent grammar and writing. These programs are being experimentally applied among 150 deaf adolescents in schools for the deaf in Cleveland, Philadelphia and Pittsburgh. The research is sponsored by two grants from the U.S. Office of Education.

• Science News Letter, 83:29 January 12, 1963

## ZOOLOGY

**Sand Crab Uses Antenna To Explore, Harvest Food**

► THE ANTENNA of the sand crab is used not only to perceive the environment, but also to harvest its food supply.

This has been determined by Dr. Richard A. Boolootian, University of California, Los Angeles, zoologist, who has used high speed and time lapse photography to study the habits of the sand-burrowing creature.

He has found that as the small crab burrows into the sand just ahead of the surging tide, it leaves its antennae sticking out of the sand. As the sea pours over the sand, the antennae strain plankton, microscopic organisms that constitute its food supply, from the water.

Later the sand crab passes the antennae over its mouth and combs the plankton from them. The hair-like flagella of the antennae are so arranged that they form an excellent strainer.

Antennae are employed principally by most creatures as sensory organs. Their use as food gathering devices has been little known.

• Science News Letter, 83:29 January 12, 1963

## ZOOLOGY

**Rodent Nutria Becoming Pest in Southern U. S.**

► A FUZZY fur pelt, four legs and a shoddy cage can add up to potential trouble for farmers in the South.

The nutria, a large South American rodent, is destroying many agricultural crops and eating the native vegetation supporting waterfowl. In the late 1930s a fur breeder brought six pairs of nutria to Avery Island, Louisiana, in an attempt to develop a fur ranch. Within two years some of the animals had managed to escape and establish themselves in the Louisiana marshes.

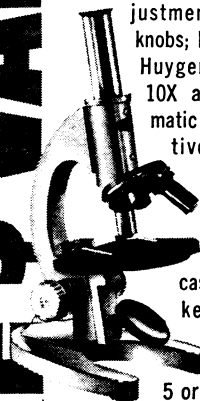
In 1940 a hurricane washed the remaining 150 nutria off the island. Survivors reaching the mainland added to the existing population, giving the nutria a firm foothold in Louisiana. Over the years these animals have multiplied and spread. Today their population in Louisiana is estimated to be well over one million. A similar situation is developing in Florida, where the wild population is estimated to be 300 to 500.

• Science News Letter, 83:29 January 12, 1963

**MORE \$ VALUE**

**STUDENT DESIGN!  
TOP PERFORMANCE!**

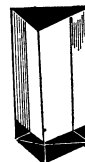
Stage movement focusing! Elgeet-Olympus Model SS offers stage, not body tube focusing movement; coarse and fine adjustment with large knobs; hard-coated 10X Huygenian eyepiece. 10X and 40X achromatic parfocal objectives. N.A. 0.65 built-in stage condenser. Fitted hard-wood carrying case with lock and key. Model SS-2 with mirror, \$69.95; lot of 5 or more—\$62.95.



EL-101A  
**Elgeet OPTICAL CO., INC.**

SCIENTIFIC INSTRUMENT DIV.  
303 Child St. Rochester 11, N.Y.  
Please send me illustrated literature on your microscopes.

Name \_\_\_\_\_  
Institution \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

**PRISMS, BIG SIZE**

Brilliant crystal white optical crown glass. Non-Striated and Perfect. Dozens of wonderful things to do and make. Capture sunlight rainbows. Secret pictures with cameras. See around corners. See upside-down, etc. 4" x 1 1/4", 45-90 deg. Aluminized back. Unmounted. U. S. Gov. cost \$20.00.

NOW ONLY **\$3.00** Plus 25¢ Postage  
2 for \$5.00 plus 50¢ Postage

**HARRY ROSS** Scientific & Lab Apparatus  
61-L Reade St., N.Y. 7, N.Y.

**FREE CATALOG**

Tells all about these wonderful HANDY, HANDSOME CARTS which ladies as well as men like so much. SO MANY WAYS BETTER than a WHEELBARROW. SO MUCH EASIER

TO USE. SO MANY MORE USES! Ideal gifts for anyone with a nice town or country home. Several models. Even "Build-It-Yourself" kits! Please write for FREE catalog. Vermont-Ware, Box 7702, Hinesburg, Vermont

**EXPLORE THE SKIES!**

**COLOR MAP OF THE NORTHERN HEAVENS:** 30" x 34 1/2", shows stars to magnitude 5.1. \$1.00  
**COLOR CHARTS OF THE MOON:** 2 maps of 1st- and last-quarter, 23" x 33". \$2.00  
**SPLENDORS OF THE SKY:** 36-page picture booklet designed for the classroom. 50¢

Write for free folder N.

**SKY AND TELESCOPE** Dept. SNP  
Cambridge 38, Mass.