

## ZOOLOGY

# Fox Corn-Eating Blackbird

"BYE, BYE, BLACKBIRD" should be the theme for a group of researchers at the U. S. Fish and Wildlife Service's wildlife refuge.

They are trying to figure out ways to control the nation's huge blackbird population. Each year the birds — mostly redwing blackbirds and common grackles — cause millions of dollars worth of damage to sweet corn and grain sorghum, Dr. James Lindzey told SCIENCE SERVICE.

Actually, the blackbird research is divided into several areas, said Dr. Lindzey, chief of the Patuxent Refuge's section on upland ecology. The scientists are studying ways to control the birds' numbers, to reduce the population where necessary and to protect crops without destroying the blackbirds.

One promising study, being carried on under contract at the Johns Hopkins University, Baltimore, Md., concerns the use of a chemical compound that could reduce the reproductivity of the blackbirds. Dr. David E. Davis, a biologist-ecologist at the University in charge of the project, has already found the compound is successful in brown rats. He is now working with starlings to determine their reaction to the chemical, Dr. Lindzey said.

Apparently the chemical has a physiological effect on testes development in the male so that sperm are not produced. There is, however, believed to be no change in the bird's hormones. So far, the drug seems to be harmless administered in doses tested.

Field tests with this promising control method will probably be made next spring in the Delaware Valley area, Dr. Lindzey said.

Other studies at the FWS refuge include the development of "scare" devices to protect crops without harming the bird pests. Research with compounds toxic only to one species or group of birds is also being investigated in the attempt to reduce blackbird populations.

The wildlife scientists are also hopeful that a light trap currently being tested will provide them with important information on the life history of the birds. With the trap, thousands of roosting blackbirds have been captured at one time, Dr. Lindzey said.

While it has been developed largely for banding and similar studies, the light trap might be used as another device for controlling the blackbirds found in a particular area.

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## ENGINEERING

# Radio Waves Duplicated

ONE METHOD by which the sun makes radio waves has been duplicated at a much lower temperature in a laboratory at California Institute of Technology.

Three scientists are testing if the mechanism can be used to determine how nuclear fusion processes take place. They are also investigating possibilities of using the method to generate microwaves and open up new bands of radio frequencies higher than previously obtainable.

By duplicating certain features of the sun's outer atmosphere, or corona, the scientists were able to amplify radio signals 100 to 1,000 times.

The research started three years ago when they developed vacuum tubes containing a plasma at a lower temperature but of the same density as the solar corona. A plasma is a gaseous mass of positively charged ions and negatively charged electrons in virtually equal numbers so it is electrically neutral as a whole.

Temperature of the corona, several million miles above the sun's surface, is estimated to be more than a million degrees Fahrenheit. One of the key mechanisms for producing solar radio signals was believed to be the amplification in the corona of radio noise signals generated by bursts of particles thrown out by the sun.

The Caltech scientists decided it was not necessary to try to duplicate the corona's high temperature to produce the amplification process.

They introduced mercury gas into the vacuum tube and put an electric current through it to make a plasma. Then they fired a continuous beam of electrons through the plasma in high frequency bunches. The plasma jiggles with jelly-like oscillations when the electron beam is shot through it.

In passing through the oscillating two inches of plasma, the high frequency waves were amplified up to 1,000 times. The research was done by three electrical engineers, Prof. Lester M. Field, Dr. Roy W. Gould and Gary D. Boyd, with support from the Office of Naval Research and the Army Signal Corps.

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## MEDICINE

## You Hypnotize Yourself, Doctor Tells Symposium

THE PERSON who volunteers to be hypnotized by a stage performer is actually hypnotized before his foot reaches the platform.

Such a person is hypnotized before he volunteers because of his expectant attitude, Dr. William S. Kroger of Chicago said at a panel discussion on hypnosis, at the American Medical Association meeting in Atlantic City, N. J.

The panel of experts on medical applications of hypnosis agreed that only certain

persons can be successfully hypnotized. Such a person is capable of quickly and easily becoming detached from, uninterested in, and unattracted to his surroundings.

Dr. Theodore Barber of the department of social relations at Harvard University said these persons are capable of limiting their attention with or without preliminary hypnotic induction.

These persons can go to sleep easily, quickly, and at any time of day or night. They can concentrate on their work or studies by "blocking out" trivial distractions. These people can even experience hypnotic analgesia without being subjected to hypnosis.

But if the easily hypnotized person no longer believes the hypnotist's suggestions, such as "You cannot feel the pain," he cannot be hypnotized.

Actually, the person himself is the one who does the hypnotizing, and doctors using hypnosis as an anesthetic should carefully explain this point to the patient, Dr. Barber said.

The most common misconception about hypnosis is that it puts the person to sleep, Dr. Kroger pointed out. Hypnotic induction can be learned as easily as the art of making an abdominal incision; the real problem is what to do with the "scalpel" after that, he said.

Much clinical experience is needed to gain proficiency at hypnosis, the doctor told his colleagues.

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**YALE BIRDS**—The Harpy Eagle (left) and the King Vulture (center) two rare birds from Costa Rica are among the several thousand birds in the Henry O. Havemeyer Collection which Mr. Havemeyer is giving to the Peabody Museum at Yale University. Admiring the rare specimens are Philip S. Humphrey (left), assistant curator of ornithology, and Prof. S. Dillon Ripley (right), director of the Yale Museum.