

ACOUSTICS

Birds Undaunted by Sound

► **BLASTS OF** high-frequency sound above the limits of human hearing have not turned out to be a promising weapon against bird pests.

This is shown in experiments reported by scientists at the National Research Council and the Canadian Wild Life Service in Ottawa, Canada.

The belief that birds could be repelled by ultrasonics has persisted for a number of years despite the lack of supporting scientific evidence, the scientists explain in a report appearing in the *Journal of The Acoustical Society of America*.

Wild ducks are proving a serious pest in Canada because of their depredations on western grain fields. It was hoped sound inaudible to humans could be used as a weapon to drive them away without annoying any persons in the vicinity.

Experiments were conducted to learn the effect of sound of various frequencies, using Peking ducks since they are derived from the wild mallard duck by selective breeding.

The Peking ducks do respond to sound, it was found, but unfortunately they do not seem to notice the ultrasonic frequencies but respond to the same sounds that annoy humans, too.

They do not respond to 20 kilocycle sounds at intensities up to 130 decibels. They respond slightly at 17 kilocycles which is about the limit of human hearing. They show increasing sensitivity as the frequency is reduced to 4 kilocycles (approximately the upper notes of a piccolo). At 500 cycles

per second, the birds respond to a sound only as loud as ordinary speech one foot away.

The birds respond to the sound irritation with a characteristic vigorous body movement that starts with a shake of the head and ends with a twitch of the tail.

Even ducks kept hungry for three days will not feed in the blast of a siren emitting a 10-kilocycle shriek at an intensity of 135 decibels.

Trial of lower frequencies revealed the Peking ducks seem to be most sensitive to low-frequency sounds. When their feeding and drinking troughs were placed beneath a horn loudspeaker and the hungry ducks were put into the pen and encouraged to feed, they ran away as soon as the sound was switched on and did not return even when it was turned off.

In experiments in the field, blasts of an air raid siren mounted on a truck drove the ducks away all right, but they were back 100% strong after a few hours—unless of course the area was filled with fresh birds each day.

The use of high-intensity sound against the ducks is just not an economical proposition, the scientists conclude.

Scientists taking part in the study are Drs. G. J. Thiessen and E. A. G. Shaw of the Canadian National Research Council and Drs. R. D. Harris, J. B. Gollop and H. R. Webster of the Canadian Wild Life Service.

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FINGERLINGS—These young trout, or fingerlings, are transferred in bulk from hatcheries to game streams. The California Department of Fish and Game uses motor-driven conveyors and 1,490-gallon tank trucks. A trace of silicone is added to the tank water to reduce foam accumulation.

GENETICS

Heredity Plays Role In Heart Diseases

► **HEREDITY** plays an important role in susceptibility to coronary artery disease and high blood pressure as well as certain other diseases of the heart. The influence of heredity varies, however, in different people.

The role heredity plays in diseases of the heart is extremely difficult to study because of the influence of environment on these diseases, Dr. Victor A. McKusick of the Johns Hopkins Hospital reports in *Eugenics Quarterly* (March).

Atherosclerosis, hardening of the arteries leading to coronary attacks, is closely connected with hypertension, high blood pressure, which in turn is related to stress, sometimes caused by environmental factors.

Finding the people who are "genetic susceptibles" is the most promising attack on many of our major illnesses, Dr. McKusick suggests.

Family history is of utmost importance in diagnosing coronary artery disease, for example, in a young man with a chest pain or in working out a diet for a heart patient. Young coronary patients studied have shown certain peculiarities which may have an inherited basis.

Such guideposts for our chances for heart disease are inexact, but they are still one of our best leads for prevention at the present time. Knowing the family heredity makes it easier to pinpoint the person susceptible to heart disease and work out better preventive methods, Dr. McKusick concludes.

Science News Letter, May 3, 1958

MEDICINE

Record Fetal Heartbeat

► **AN ELECTROCARDIOGRAPHIC** machine is being tested to detect infant distress during labor. The 160,000 annual infant deaths associated with birth and the numbers afflicted with cerebral palsy and mental retardation may be reduced as a result.

The machine, originally designed to record the fetal heartbeat, has already proven more efficient in diagnosis of fetal life early in pregnancy than traditional methods, Dr. Edward H. G. Hon of the Yale School of Medicine reported to scientists at the American College of Obstetricians and Gynecologists meeting in Los Angeles.

The development of the highly sensitive electronic machine is part of a research project at Yale aimed at finding a reliable means to determine if the course of labor is detrimental to the unborn child. The necessity of immediate intervention to prevent fetal damage or death is also important for the doctor to be able to evaluate.

Although more research is needed before the new machine can be used in every delivery room, clinical tests indicate encouraging results, Dr. Hon said.

The machine can detect fetal heartbeat in

very early periods of pregnancy. The usual auscultation by stethoscope is generally not successful until after 18 to 20 weeks of pregnancy. Doctors were able to detect fetal life with 100% accuracy in 23 mothers during this early period. In later pregnancy, a 92% accuracy figure was obtained in 127 patients where the usual detection of fetal heartbeat by stethoscope failed.

Electrodes attached to the abdominal wall of the mother pick up both maternal and fetal heartbeats and carry the signal to the machine. Another portion of the machine records the heartbeat of the mother only. An electronic unit subtracts the mother's heartbeat from the combination heartbeat, leaving only the fetal beat.

Working with Dr. Hon at Yale are Dr. O. W. Hess, Dr. Frank Chung, Margaret Ranek, Jean Peterson, Jacqueline Corbett, Mildred Boynton and technician, George Park.

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The pava bean, a favorite of Italians, Greeks, and other Mediterranean peoples, is the only food known to cause *hemolytic anemia*.