ZOOLOGY

Satellites Track Animals

Penguins and geese carrying tiny radios will soon reveal the mystery of their migration paths by relaying their exact whereabouts by means of satellites, Barbara Tufty reports.

➤ NEW FACTS on ancient migration habits of birds and beasts may come from satellites in the sky.

A special instrument is being developed in Minneapolis, Minn., for satellites to receive signals transmitted from tiny radios strapped to the back of a deer, the chest of a goose, the wing of an albatross. The signals would be relayed from the satellites to ground stations to learn where the penguins of Antarctica go after their mating season, or where the Canadian geese fly on their annual voyage from the Arctic to Texas.

"We hope to have our transmitter riding 'piggy-back' on a research polar-orbiting rocket next year," stated Professor Dwain W. Warner of the Museum of Natural History at the University of Minnesota at Minneapolis. Government officials are now considering a proposal for space on a satellite for a 30-day pilot study.

Animal movements and habits have been surveyed closely for the last three or four years by means of small radio transmitters inserted on or in the animals. These transmitters, weighing less than an ounce with batteries included, can transmit a signal for weeks without noticeably disturbing the animal.

Ruffled grouse, cottontail rabbits, woodchucks, porcupines, skunks and other animals have been located and studied by scientists carrying portable receivers in the field. But these short individual studies end when the scientist goes home, or the bird flies over the horizon and disappears, Prof. Warner pointed out.

With the satellite instrument, it will now be possible to keep a round-the-clock vigil on animals, no matter where they wander on land, sea or air.

About six or more animals of a herd or flock could each carry a transmitter and power supply as they start on their migrations, Prof. Warner said. The individual groups could be identified by their own special radio frequency. Their signals would reach a satellite traveling 18,000 miles an hour (approximately 5 miles a second) at an altitude of 200 miles in an orbit over both North and South Poles about once every 103 minutes. Signals from the satellite could reach a ground station from 1,200 miles.

Twenty-four of these receiving stations could "cover" the earth, and an area 1,600 miles across could be scanned on each orbit. Thus the track of the great north-south migrations could be followed and correlated with information on physiological and environmental factors that influence an animal's behavior.

The bioelectric project is supported by the Louis and Maud Hill Family Foundation. In a test of the system, a balloon with a half-ounce transmitter that sent signals for 270 miles from an altitude of 25 miles was sent aloft.

Movements of a herd of white-tail deer are being closely scanned by radio in a forest conservation area north of the Twin Cities. Prototype transmitters weighing about one or two ounces have been designed and tested for large birds such as geese, swans, cranes, penguins and albatrosses.

With further research on instrumentation, Prof. Warner states that unlimited information could be obtained on such animal movement factors as speed, altitude, wing-beat and respiration rates.

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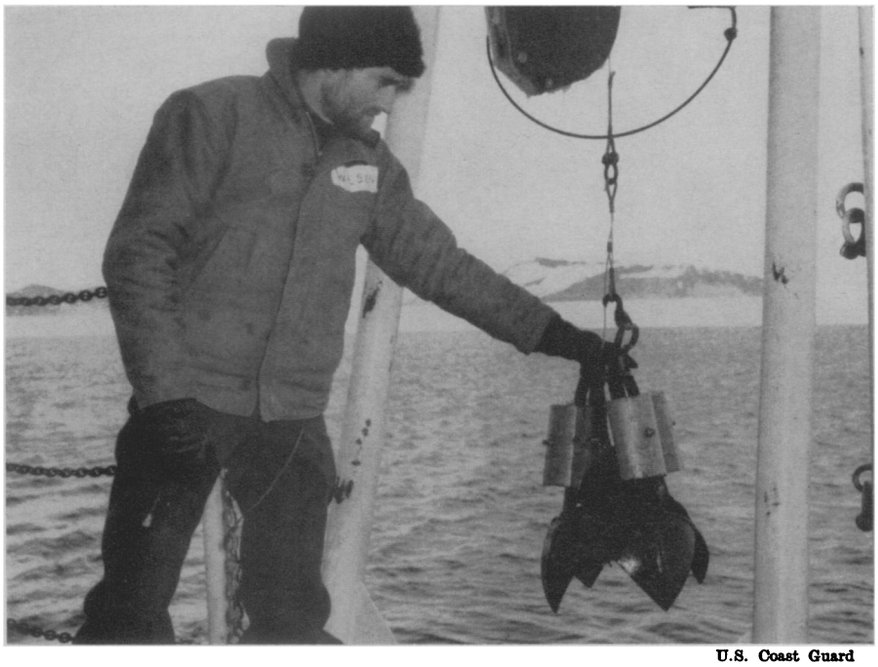

U.S. Coast Guard

OCEAN SAMPLER—Oceanographer Lloyd L. Wilson lowers an orange-peel bottom sampler into the Ross Sea from the deck of the U.S. Coast Guard icebreaker Eastwind to gather information about the bottom conditions in the operating areas of the Deep Freeze Task Force.

MEDICINE

Planned Animal Care Necessary for Research

➤ REPRESENTATIVES of 70 national organizations are planning ways to advance laboratory animal care and maintain a maximum rate of scientific progress, and continue the contributions of laboratory animals to the health and welfare of the public.

Dr. Hiram E. Essex, president of the National Society for Medical Research, emphasizes that the accuracy, efficiency, and productivity of research depend upon elaborate and costly care of animals used for study. Good care of experimental subjects limits the number of conditions that could produce misleading results.

Among the organizations represented in current planning are: The American Medical Association, American Hospital Association, American Veterinary Medical Association, American Public Health Association, and American Nurses Association.

The representatives of health and science organizations have expressed unanimous disapproval of legislation before Congress that, in the name of humanity, would erect serious obstructions to research aimed at the saving of life and preservation of health. Specific criticism was directed at the Clark-Neuberger bill to limit, license and police research in biology, medicine and agriculture.

The scientists and health workers call for constructive programs to develop better and better methods, programs to spread information on better methods, programs to train more specialists, in laboratory animal care, programs to build ever better laboratories for research in the preservation of life and health, and opposition to the destructive efforts of antivivisectionists.

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BIOLOGY

Trematode Parasites Cause Death in Oysters

➤ A HIGH PERCENTAGE of mud oyster deaths in New Zealand was caused by a digenetic trematode parasite, R. H. Millar of the Marine Station, Millport, Scotland, reported in Nature 197:616, 1963. The importance of the parasite in nature is unknown, but the danger of the trematodes, or flukes, should be recognized.

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