

Earth and Environment Notes

OCEANOGRAPHY

Tsunami Center Established

In order to improve international cooperation in making tsunami warnings, an International Tsunami Information Center has been set up in Honolulu by the Environmental Science Services Administration.

Capt. David M. Whipp, the U.S. Coast and Geodetic Survey's Pacific field director, is now also serving as director of the International Center.

The Center is to improve dissemination of tsunami warnings and to promote the exchange of scientific and technical personnel among participating nations.

It was established to fulfill 1965 U.S. commitments to the Intergovernmental Oceanographic Commission of the United Nations Economic and Social Council.

MARINE BIOLOGY

Scientists Listen in on Gray Whale

Conclusive evidence that gray whales produce other sounds than those of motion and feeding has been reported by an oceanographer at the Navy Electronics Laboratory in San Diego.

William C. Cummings of the laboratory's Listening Division says the whales make low-frequency moaning sounds ranging from 50 to 200 cycles a second and lasting for about 1.5 seconds.

The sounds were recorded as the whales swam south along the coast off San Diego. Two hydrophones, 1,000 feet apart were used to record the moans.

The significance of the sounds is unknown, the scientist says, but may be communication with other whales or a crude system of echo-location.

Cummings also observed that the whales continued their migration south at night and in any weather.

METEOROLOGY

Water Pollution Takes to the Air

Tiny bubbles in the sea have led to a greater understanding of precipitation, water pollution and, perhaps soon, radioactive fallout and cloud seeding.

This summary of some of the results of studies of the sea-air interface was presented to the American Meteorological Society's Conference on Physical Processes in the Lower Atmosphere by John Winchester of the University of Michigan, Ann Arbor.

In a keynote paper, he noted that some of the most important particles for nucleating precipitation are sent into the air by the bursting of bubbles that rise through the sea.

OCEANOGRAPHY

Manganese Nodules Vary

Wide variations in the chemical composition of manganese nodules from the Indian Ocean that may be significant to future ocean-bottom miners have been reported by two British researchers.

D. S. Cronan and J. S. Tooms of the Applied Geochemistry Research Group of Imperial College of Science and Technology, London, report on their analysis of the nodules in Volume 14 of Deep Sea Research.

It is possible, they note, "... that local large variations in the concentration of 'ore' elements may occur within a large zone of relatively little variation." Such variations were found in manganese, nickel, cobalt and copper contents of their samples from the Carlsberg Ridge in the northwest Indian Ocean.

Ecology Notes

ENTOMOLOGY

To Sterilize a Weevil

Some 7,000 chemical compounds will be tested to see if any of them can render male boll weevils sterile.

The Southern Research Institute, Birmingham, Ala., under a \$150,000 contract with the Agriculture Department, will spend three and a half years in the search.

If successful, the project would provide a means of destruction of the boll weevil, one of the most destructive cotton pests. Sterile males would be grown and released to mate with wild females, whose eggs would never hatch.

This sterile-male technique, applied to the screwworm fly, eliminated that expensive pest in the United States. (SN, 3/11, p. 238)

Boll weevils cannot be sterilized by radiation, as the flies were, because radiation destroys the weevil's sexual drive.

ENTOMOLOGY

Millions of Wasps to be Unleashed

Millions of tiny Peruvian wasps are being raised by

the University of California for release against the cotton bollworm and the pink bollworm.

The insects, about 1/30th of an inch long, achieve 90 percent control of bollworms in Peru and Colombia, without use of insecticides. They lay their eggs in the worm's eggs, which their larvae eat.

ENTOMOLOGY

New Mite Attacks California

A newly discovered spider mite threatens California's tomato and potato crops; a natural enemy is being sought to fight the pest.

Found so far in San Bernardino, Riverside and Orange Counties, the 1/32-of-an-inch pest carries the name *Tetranychus marianac*.

So far, the mite has not been found in commercial potato or tomato fields, but its presence nearby poses a "direct threat to both crops, with serious economic consequences," says Dr. Earl R. Oatman of the University of California. California tomatoes in 1965 were worth \$164 million; potatoes, \$127 million.

Dr. Oatman will travel to Central America and Mexico, source of the mite, in search of a natural enemy that could be used as a control.