

crust, were found also in the next lower layer.

Carbon dioxide was found to occur in about the same concentration in the atmosphere over Antarctica as it does in the free atmosphere of the Northern Hemisphere.

The course of one floating ice island station in the Arctic Basin carried observers over what appeared to be a previously unknown underwater mountain chain.

Pronounced changes in the amount of oxygen dissolved in the southern Atlantic Ocean were found to have occurred during the past 30 years, suggesting the deep bottom water rich in food for fish is not being formed as fast now as it was in the past.

Plans were made for an intensive study of the Indian Ocean during 1962-63 by more than 20 ships representing at least as many countries.

The day's length has been increasing about half a thousandth of a second a year since September, 1955, it was found, evidence of irregular variation in the earth's rotation rate.

Lightning flashes produce "whistlers," low frequency audible radio waves, the first successful direct observations showed; other whistlers, too low to be audible, were detected particularly during geomagnetic storms.

A method of long-distance communication using the trail of ionized air left by meteors or satellites was investigated.

Auroras were spotted for the first time in the Southern Hemisphere by use of radar echoes.

Information from the core of a hurricane indicates that, under some circumstances, the release of energy in a moving hurricane is throttled by the intrusion of cooler environmental currents that ventilate the mid-tropospheric layers of the vortex.

Constant-level balloons carrying radio transmitters were placed in hurricanes' eyes as part of a program to test the development of an automatic hurricane-tracking system.

Seismographs for the first time recorded surface waves from nuclear test blasts, although the explosions were 7,000 miles away, and important seismic wave travel time data from nuclear explosions were released.

Earthquake surface waves were used to meas-

ure sedimentary thickness in the vicinity of seismograph stations.

Measurement of crustal thickness over the entire U. S. was made by noting dispersion in phase velocity of earthquake Rayleigh waves.

Six million tons of water are lost each second by the North Atlantic, it was found, and exactly this amount is fed into the North Atlantic from below the equator.

Predictions for rain during the past winter for Los Angeles and the San Francisco area carried a probability statement on an experimental basis.

The earth's atmosphere was estimated to hold more than 28,600,000 tons of suspended dust of cosmic origin below the 60-mile level, about four times as much as previously thought.

Crude petroleum is a colloidal solution with particles measuring only about 150 billionths of an inch, it was demonstrated.

The earth's atmosphere at 240 miles up is 40 times as dense as was previously estimated by one atmosphere model, changes in the orbit of Sputnik I suggested.

A survey of cirrus clouds over Australia indicated meteoric dust sifting down through the atmosphere may be a cause of rain.

Sediment is building up the floor of the Pacific at the rate of about 18 hundredths of an inch every 1,000 years, it was found.

An "explosive" warming of the high atmosphere was discovered through study of weather information radioed earthward from high-flying balloons.

The world's lowest atmospheric temperature, 135.4 degrees below zero Fahrenheit, was recorded 13 miles high above the South Pole on July 16 by U. S. scientists, and the lowest temperature on the ground, -124.1, was recorded on Aug. 9 by the Russians at Sovietskaya, the Antarctic.

Water was reported found 4,400 feet deep under the Ross Ice Shelf.

Observation was made of a man-made auroral display caused by a hydrogen bomb exploded high in the air.

High-speed electronic computers confirmed an 80-year-old theory that the circular wobble

of the earth's poles, called "free nutation," causes small ocean tides.

A swift-flowing river as large in volume as 1,000 Mississippi was found hidden in the depths of the South Pacific Ocean flowing eastward along the equator for at least 3,500 miles.

Europe and America were close to the equator within the last million years, it was concluded from studies of the earth's axis of rotation in ancient times as shown by fossil magnetic rocks and fossil sand dunes.

An automatic weather station was developed to be dropped by parachute in remote or inaccessible areas to transmit weather information by radio for 24 days without attention over a range of 1,000 miles.

Temperature readings taken in 1731 and 1732 at Germantown, Pa., earliest known instrumental ones for North America, were found.

The argon-39 content of a meteorite was measured for the first time.

A mineral that has puzzled scientists since a small quantity was first found 11 years ago in New Hampshire was identified and named strunzite.

Tests showed that sea ice often has more than twice the tensile strength of fresh water ice.

The rotten-egg odor of hydrogen sulfide gas was found to be a reliable clue to uranium deposits.

Colorado oil shale can be converted directly to heating and fuel gas by hydrogasification, laboratory experiments showed.

Weatherision, a method using television to speed distribution of weather information to users, was put in operation.

One of the world's richest fossil fields was explored in Argentina; among other finds it yielded the purple-encrusted bones of reptiles older than the dinosaurs.

The 42-foot-long skeleton of the 100-million-year-old Kronosaurus was reconstructed, the only complete skeleton of what was once the largest flesh-eating reptile in the sea.

Fossil skulls of a dog-like creature, *Daphoenus*, showed that some 35,000,000 years ago dogs and cats were less widely separated than today.

Study of the skeletons of small dog-size reptiles indicated that they may be a transition stage between mammals and reptiles.

MEDICAL SCIENCES

Staphylococcus Infections Increase, Cause Deaths

Outbreaks of staphylococcal infections in hospitals caused large numbers of deaths, especially among babies, and new strains of these bacteria were found that are highly resistant to many antibiotics.

Abandonment of mass chest X-ray programs for tuberculosis screening in low risk population groups was recommended by the U. S. Public Health Service, and substitution of the skin test in compulsory programs in schools.

1958 would have been a peak year for paralytic polio had it not been for the Salk vaccine.

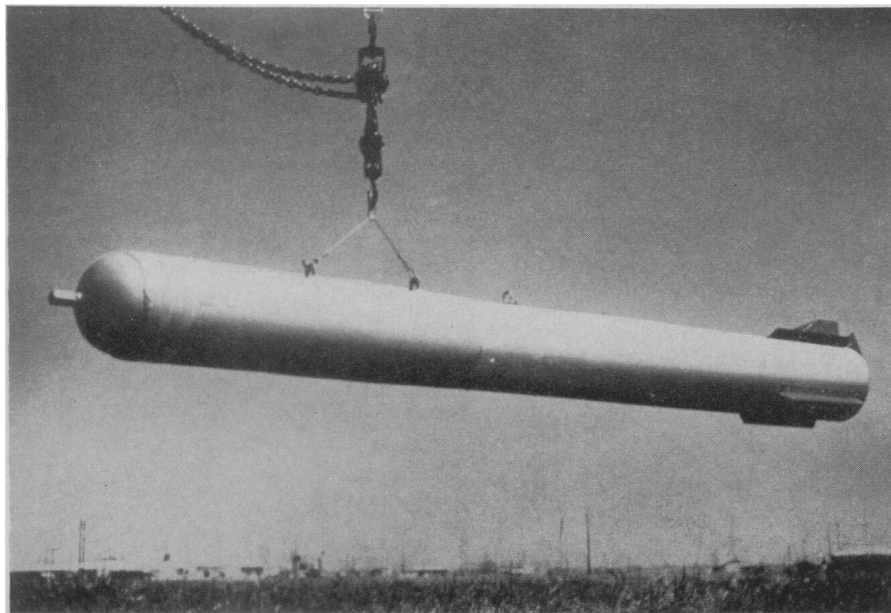
The nation had no major influenza outbreaks this year. Epidemics were mild and localized.

A new method of "progressive care" has been adopted by a few hospitals, which provides that patients are moved from intensive care, to intermediate care, to self-service care as their condition improves.

New antibiotics:

Mycobacillin, reported from India as effective against many types of fungus infections.

Kanamycin, very active against clinical strains of staphylococcus resistant to the commonly used antibiotics and promising to be an anti-tuberculosis drug.



BEACON PACKAGE—The 400-pound hurricane beacon package is being loaded into the bomb bay of the B-50 aircraft of the Weather Bureau's National Hurricane Research Project. The first time it was launched into the eye of a hurricane was on Sept. 24, in Hurricane Helene, testing the development of an automatic hurricane-tracking system.