

## ASTRONOMY

# Split Aurora Display

► AN UNUSUAL display of the magnificent Northern Lights split in two parts has been observed.

Drs. G. Sprague and C. W. Gartlein of the IGY Auroral Data Center, Cornell University, Ithaca, N. Y., told SCIENCE SERVICE that an aurora consisting of white and blue lights with long rays hung overhead for more than two hours on the night between July 4 and 5.

The celestial fireworks were divided into two parts, one hanging overhead, the other standing in the northern sky. They were separated by a band of eight to ten times the apparent width of a full moon. The IGY Center had forecast auroras on June 29 and July 4, but no aurora has been reported so far to have occurred on June 29.

The dancing patterns of auroras include flames, which the human eye can observe better than a camera. Visual observation also is the only way to record the color of the individual forms in an aurora.

Blue and green colors can be seen in auroras, even when the light looks white.

## ASTRONOMY

# Gains From Radar Probe

► SCIENTISTS now know how to design a radar observatory for keeping track of the planets Venus, Mars, Mercury and Jupiter.

This knowledge resulted from experiments bouncing a radar beam off Venus almost daily for two months at the Goldstone tracking and communications station of the Jet Propulsion Laboratory, California Institute of Technology, Pasadena.

Such radar observatories would supply much more exact information about the position of the planets than is now available. This is of great importance for space vehicles landing on the planets. Radar observatories might also lead to discovery of minor planets and natural satellites not now known.

Another very important result of receiving echoes from Venus is a more accurate value for the astronomical unit, the distance from earth to the sun, 92,960,800 miles, plus or minus about 1,000 miles. The astronomical unit is very important to all space research since distances to planets are measured by it.

Analyses of the radar signals reflected from Venus indicate the planet rotates very slowly. It takes perhaps as long for one rotation (its length of day) as 225 earth days, which is also one year on Venus, or as long as it takes that planet to travel around the sun.

Radar data indicate that Venus is a better reflector than the moon and has a similar surface roughness, W. K. Victor and R. Stevens, both of Jet Propulsion Laboratory, which is operated by the National Aeronautics and Space Administration, report in Science, 134:46, 1961.

High school students interested in science, amateur astronomers and some members of the Weather Bureau, who are part of the Data Center's observing team, are able to see the blue and green in white light by looking at the aurora through filters supplied by the Center.

Observations so far indicate that the flame-like forms in auroras are blue, pulsations are green, arcs and rayed arcs are generally green, and rays are sometimes blue.

The Data Center reports it particularly needs more information on the blue forms and a general description of the blue light in auroras.

Anyone seeing an aurora who is interested in helping scientists solve some of the questions about the relationships of the auroras to the sun should write the Aurora Data Center, Cornell University, Ithaca, N. Y., to become an observer. The Center will send free an instruction book, colored filters for viewing the auroras, report forms and postpaid envelopes.

• Science News Letter, 80:50 July 22, 1961

## OCEANOGRAPHY

## Strong Flow Found In Ocean Near Equator

► A STRONG CURRENT in the Atlantic Ocean depths has been discovered near the equator.

With velocities up to three feet a second, the current flows eastward along the equator in the opposite direction to the weaker surface currents. No exact dimensions of the extent and flow of the current were made.

Scientists on the Woods Hole Oceanographic Institution ship, R. V. Chain, measured the current during a three-month cruise along the equator. Preliminary measurements indicate the current flows eastward at depths ranging from 150 feet to at least 300 feet.

The countercurrent has a similar counterpart in the Pacific Ocean, known as the Cromwell current. Discovered in 1954, the Cromwell current is a 3,500-mile-long ribbon of water.

A net thrown overboard during the R. V. Chain's cruise provided a vivid example of the current's presence, Dr. Arthur D. Voorhis, Woods Hole Oceanographic Insti-

tution scientist, reports in Nature, 191:157, 1961.

When the net settled to the 150-foot depth, the eastward current caught the net like a billowing sail, jerking the attached wire towards the east.

• Science News Letter, 80:50 July 22, 1961

## OCEANOGRAPHY

## Pacific Ocean Depth Averages 18,000 Feet

► THE PACIFIC OCEAN averages 18,000 feet in depth between South America and Tasmania, an Australian island south of Melbourne.

A study of the travel times of the seismic sea waves created by earthquakes, known as tsunamis, showed the 18,000-foot depth. Dr. R. Green of the geology department, University of Tasmania, Hobart, found that the wave generated by the destructive Chilean earthquake of May 22, 1960, took 12 hours to reach Hobart but 14 hours to reach Auckland, N. Z.

Although seismic sea waves are often very destructive in Japan and Hawaii, Dr. Green concluded that it is "very unlikely" a tidal wave will inundate Australian towns. Tsunami waves are slowed down and quickly reduced in size when they enter an area of continental shelf studded with islands, Dr. Green reports in the Australian Journal of Physics, 14:120, 1961.

• Science News Letter, 80:50 July 22, 1961

## GEOPHYSICS

## Era of Global Scientific Cooperation Ushered In

► A NEW ERA of international cooperation among scientists throughout the world is now being ushered in.

Receiving the greatest push from the International Geophysical Year, scientists are now in the midst of international plans for charting the least known ocean, observing the sun's activity during quiet times and probing into inner space—the earth.

More than 20 nations are scheduled to participate in the exploration of the Indian Ocean that has just begun and will last until 1965.

Ships will be criss-crossing the ocean many times in a massive assault that scientists hope will eventually yield the secrets of harvesting the ocean's food to feed the mushrooming population skirting the huge body of water.

Scientists from many countries are involved in discussions about the Upper Mantle Project, which is designed to unlock the secrets of the earth. A unique scientific calendar listing when certain natural events occur and what days to observe them also encourages the world-wide cooperation of scientists.

But the one big gap awesomely evident in international cooperation is in the conquest of outer space. In the race for claiming the many firsts between two countries with contrasting ideologies, the idea of international cooperation has been shoved into the background.

• Science News Letter, 80:50 July 22, 1961