



**TEST LAUNCH**—The small balloon is being inflated with 14,500 pounds of helium for the test launch of Stratoscope II flight system. As balloon inflation progresses, the black ring (center) is brought downward to allow the bubble to increase to full size. During ascension the helium expands through "doughnut" at bottom of small balloon (large ring just above the trailer) into the large balloon. At 80,000 feet both balloons are fully inflated. The test took place at Hope, Ark., July 2.

## PUBLIC SAFETY

## Disaster Toll Still High

► EARTHQUAKES, storms and other natural calamities still claim thousands of lives each year despite man's advanced technology and increasing number of warning systems.

The earthquake in Iran on Sept. 1 which claimed an estimated 20,000 lives and the great Peruvian landslide which caused nearly 4,000 deaths in January have underscored the real dangers of natural disasters already this year.

Although the Iranian death toll is staggering, nine times as many persons (180,000) lost their lives in a single Chinese earthquake in 1920.

The largest quake disaster on record claimed 830,000 Chinese in 1556.

Floods, hurricanes, typhoons, tropical storms, lightning, fire, avalanches and blizzards also account for many deaths.

In the United States the Weather Bureau warning systems and the national and local evacuation plans are annually saving many hundreds of lives which would have been lost 10 or 20 years ago in hurricanes, tornadoes, floods and severe storms. Hurricane Carla, which struck the South and Midwest last year, provided the first real example of effective mass evacuation in this country, the Red Cross points out.

Last year, the natural disaster death toll in the world was only some 1,300 persons. Statisticians feel this low record reflects the

## ASTRONOMY

## Closer Look At Planets

► MAN'S MOST SEARCHING look at the other planets in the solar system will be taken in early February, 1963, from a 36-inch telescope lofted by a balloon 80,000 feet above the earth's surface.

Although the Venus probe will pass within 9,000 miles of that planet in mid-December, photographs from it are not expected to have the fine detail as those from the high-flying telescope.

The moon and Mars are scheduled to be the first objects scanned by the 36-inch telescope from above 96% of the earth's dancing atmosphere, which limits the details that can be seen even with the 200-inch telescope. The experiments, known as Project Stratoscope II, are planned to show whether there are life-like chemicals on Mars.

This will be done by comparing photographs of the infrared light from Mars with that from the moon, known to be lifeless. Mars will make a "close" approach to earth on Feb. 4, when it will be 62 million miles away. Not until 1967 will the "red" planet come closer.

The telescope will be recovered and other flights made in the future. Besides the other planets, globular clusters, gaseous nebulae and the center of the Andromeda galaxy are scheduled for scrutiny.

Project Stratoscope II is supported by the National Science Foundation, the Office of Naval Research, and the National Aero-

nautics and Space Administration. NASA scientists will use Stratoscope to test techniques and equipment that could be used in the Orbiting Astronomical Observatory, a telescope mounted on a man-made satellite.

The photographs taken from 80,000 feet are expected to reveal new detail about and new insight into the structure of the solar system and the universe. Project Stratoscope is under the direction of Dr. Martin Schwarzschild of Princeton University, Princeton, N. J.

Drs. Harold Weaver and Carl Sagan of the University of California are directing the infrared experiments.

Launchings of the 6,300-pound instrument will take place from the Scientific Balloon Flight Station at Palestine, Texas, which is administered by the National Center for Atmospheric Research, Boulder, Colo.

The 36-inch telescope, which has the ability to distinguish two objects 30 inches apart at a distance of 1,000 miles, was built by Perkin-Elmer Corporation, Norwalk, Conn. Radio Corporation of America built two television cameras and some of the other electronic equipment for Project Stratoscope.

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## SEISMOLOGY

## "Singing Earth" Theory Claimed for Tiny Shocks

► THE EARTH is "singing" and "humming" for the extra-sensitive ears of scientists. At times it twangs like a strained spring.

This was the explanation advanced by leading earth-shock experts for the earth's tiny shakes and shocks (microseisms) felt constantly by delicate seismographs throughout the world.

Dr. L. Don Leet and Florence J. Leet of the Seismograph Station at Harvard University, Cambridge, Mass., said scientists have long listened to, but never understood, the microseisms recorded all over the earth.

The constant squeezing of the crust of the earth causes it to "hum" or "sing" like a highly strained piece of steel, they said. These "humblings" are the microseisms.

Geologic evidence proves that pressures squeeze the crust, reducing the surface of the earth. These pressures act continuously, making certain parts of the earth's surface react by writhing like a pattern of independent blocks.

Microseismic storms also cause increased activity, and the microseisms become abnormally large for hours or days.

These microseismic storms are probably caused by changes in atmospheric pressure or storms moving across separate blocks in the crust. More motion is seen in the crust, creating more and stronger microseisms, like twanging an already strained spring, the researchers theorized in the Geological Society of America Bulletin, 73:1021, 1962.

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