



Goodyear

ORBITING SOLAR COLLECTOR—The artist's sketch shows how an umbrella-shaped solar collector will look once it is placed in orbit, inflated and rigidized. The collector, which gathers energy from the sun, is being built to scale by the Goodyear Aerospace Corporation, Akron, Ohio.

ASTRONOMY

New Star Clusters Found

Photographic plates taken in blue and yellow light have revealed 455 new star clusters in the Large Magellanic Cloud, a nearby island universe, or galaxy.

► AN ASTRONOMER has discovered 455 new star clusters in the nearby island universe, or galaxy, called the Large Magellanic Cloud, it was reported in Berkeley, Calif.

The clusters appear to be common, open types with giant stars, similar to many found in the Milky Way galaxy in which the sun, earth and other planets are located.

Dr. Paul W. Hodge of the University of Washington reported to the American Astronomical Society meeting that he found these new astronomical objects by studying photographic plates taken in blue and yellow light at observatories in South Africa and Australia. The survey of the Cloud was made for a new atlas to be issued by the Smithsonian Institution this spring.

He said they were in the part of the Large Magellanic Cloud that had been best observed and mapped earlier. Dr. Hodge told SCIENCE SERVICE that these clusters had probably been missed before because of interstellar dust that obscures different areas at different times, or because they are close to other non-cluster stars.

The new discovery brings the total of star clusters in the Large Magellanic Cloud from the earlier count of 1,146 to 1,601. However, Dr. Hodge believes that the total may be as high as 2,000 or 2,500. He said the fraction of stars found in clusters in the Large Magellanic Cloud is about one in 1,000. In

the Milky Way galaxy about 1,400 such clusters of stars are now known, but probably some 400 more are hidden by dust.

Star clusters are of particular interest because they help astronomers to solve the mystery of how stars are born. One theory is that all stars are formed in clusters that later disrupt and the stars disperse, Dr. Hodge said, but many more galaxies have to be studied, including the Milky Way, to verify this or any other theory.

Dr. Hodge is now teaching and doing research at the University of Washington, which is planning a new 100-inch reflecting telescope. His research on the Large Magellanic Cloud was conducted at the University of California at Berkeley, with John Saxton, and in cooperation with Dr. F. W. Wright at the Smithsonian.

• Science News Letter, 89:37 January 15, 1966

ASTRONOMY

Mariner 4 Data Yields Martian Temperatures

► THE TEMPERATURE at the Martian surface was about 80 degrees below zero Fahrenheit late in the afternoon in late winter at the place where the planetary probe Mariner 4 made its observations.

Mariner 4's observations provide substantial new information concerning the Martian atmosphere which consists mainly of

carbon dioxide. From this information, Dr. F. S. Johnson of the Earth and Planetary Sciences Laboratory, Southwest Center for Advanced Studies, Dallas, Texas, has calculated a profile of the temperatures in the Martian atmosphere.

At a height of about eight miles, the temperature drops to minus 207 degrees F., Dr. Johnson reported in Science 150:1445, 1965. From there to an altitude of about 60 miles the temperature drops at a rate of about one degree every six-tenths of a mile, decreasing to minus 306 at 60 miles.

Dr. Johnson also reported that Mars may have a weak magnetic field, not strong enough to have been detected by Mariner's instruments but sufficient to prevent the solar wind from blowing the outer Martian atmosphere into space. He based this suggestion on the absence of evidence of carbon monoxide, which would be present if the high atmosphere had been swept away by the solar wind.

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SPACE

Space Balloon Vehicles Seen Inflating In Orbit

► SPACE SCIENTISTS have designed balloons that will inflate into a cylindrical "space shelter" and a 52-foot-diameter solar mirror, called a solar collector.

The shelter, primarily intended as a space station, and the reflector, which would gather the sun's rays as a source of power, would both be inflated after they were placed in orbit.

A half-size model of the reflector is already being constructed from a multilayer "sandwich" material that hardens once it has been inflated.

Models of both the shelter and the umbrella-like reflector are being built by Goodyear Aerospace Corporation, Akron, Ohio, after which they will be exposed to the simulated environments of various space test chambers. The effects of space conditions on construction materials will be analyzed. The company also will determine how heat affects collectors during their deployment and use.

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ASTRONOMY

Mercury Rotation Rate Confirmed as 58.6 Days

► THE ROTATION RATE of the planet Mercury, smallest member of the sun's system, has been confirmed as 58.6 days.

Drs. Han-Shou Liu and John A. O'Keefe of the National Aeronautics and Space Administration's Goddard Space Flight Center, Greenbelt, Md., checked up mathematically on the rotation time of Mercury, closest planet to the sun.

They reported in Science 150:1717, 1965, that Mercury turns once about its own axis in exactly two-thirds of the time it takes to make one revolution around the sun. Their computations were made following radar observations reported last April that Mercury has a rotation period of about 59 days.

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