astronomy notes

RADIO

Fifth pulsar discovered by U.S. astronomers

The first pulsar to be discovered by U.S. astronomers and the fifth known has been detected using the 300-foot radio telescope at Green Bank, W. Va.

Visiting astronomers Drs. G. R. Huguenin and J. H. Taylor of Harvard College Observatory report they recorded the first pulses from the new source on June 15 at several frequencies near 110 megahertz.

The pulsar is similar to the four announced earlier this year by the group at Cambridge, England, (SN: 3/16 p. 255). It is located at 15 hours, six minutes (plus or minus two) in right ascension and at a positive 55.5 degrees (plus or minus one) in declination.

The pulsar's period is 0.7397 seconds to within a 10-thousandth of a second and its pulse width is 20 milliseconds. The Harvard astronomers suggest it be called HP 1506, in analogy to the Cambridge pulsars, which are known as CP followed by the first four digits of their right ascension.

SOLAR

Plans for eclipse observations

Although the next total solar eclipse to cross the United States is more than a year and a half away, amateur astronomers are deep in their plans for observing it.

The American Association of Variable Star Observers, for instance, has selected Perry, Fla., as its headquarters for the March 7, 1970, total eclipse. This city of about 10,000 population lies almost on the central line of totality where it crosses Florida's Gulf Coast. The probability of clear skies there is considered good.

The Astronomical League also has elaborate eclipse plans. Fort Stewart, Ga., has been provisionally selected as the principal headquarters site. Other centers will be set up in Mexico; Clyattville, Ga., near Norfolk, Va., and on Nantuckett Island, Mass.

The league plans to establish at least 25 stations along the path of totality for participants in the eclipse projects. These include comet searching, it is reported in the July SKY AND TELESCOPE.

VISUAL

Two new objects brighten sky

A new comet and a new supernova brightened the sky during July.

Comet 1968-C was first spotted on July 6 by Minoru Honda of Kurashiki Observatory on July 6 as an eighth magnitude object. On July 13 the Skalnaté Pleso Observatory in Czechoslovakia independently detected the same comet, which is diffuse and without a nucleus.

Comet Honda on discovery was at right ascension five hours, eight minutes and 36.05 seconds; its declination 40 degrees, 41 minutes, 56.8 seconds.

The supernova is magnitude 11, bright enough to be seen through a six-inch telescope. It is in the galaxy M-83, a classic spiral, and was discovered by J. C. Bennett of Radcliffe Observatory in Pretoria, South Africa.

Spectra have been obtained by Dr. A. D. Thackeray, reports the Smithsonian Astrophysical Observatory.

SPECTRA

Meteors without sodium

The most pervasive characteristic of meteor spectra are the D-lines of sodium. However, meteor spectra containing iron radiation but without sodium lines have been detected on occasion. These have been attributed to iron-nickel meteoroids.

Dr. Richard E. McCrosky of the Smithsonian Astrophysical Observatory has investigated the light curve of one of these objects, Meteor 36221, in an attempt to find an ablation model for a non-fragmenting iron body consistent with its spectra.

Although he could draw no conclusion about the source, he indicates that the sodium-free meteoroids are derived from a different source from iron-nickel meteorites.

MATHEMATICAL

Hubble constant redetermined

The relationship between the shift toward the red in the spectrum of light from an object and its apparent magnitude, an indicator of its distance, is not well known, although next year will mark the 40th anniversary of the Hubble constant.

Previous work has shown that the Hubble constant lies somewhere between 125 and 50 kilometers per second for each million parsecs, one parsec being 3.26 light years or about 19 million million miles. Many astronomers assume 100 as the value.

Now Dr. Allan Sandage of Mt. Wilson and Palomar Observatories has redetermined the Hubble constant on the basis that the brightest globular clusters in M-87, a giant galaxy in Virgo, and in M-31, the nearby spiral Andromeda Nebula, have the same absolute magnitude.

This assumption, Dr. Sandage reports in the June ASTROPHYSICAL JOURNAL, provides an upper limit to his determination of the Hubble constant. He finds the value is 75 kilometers per second per megaparsec, but could be as small as 50.

PHYSICAL

Properties of meteors

A typical meteor is a small, porous and easily fragmented body that has been traveling around the sun in a comet-like orbit. This conclusion, supporting earlier findings, comes from three Smithsonian Astrophysical Observatory astronomers who have studied thoroughly the physical properties of 413 meteors.

These 413 were selected from more than 12,000 photographed by the Harvard Observatory in New Mexico in the early 1950's. All 413 were photographed by at least two cameras, so their heights, radiant points and original orbits could be calculated. Information about brightness, wake and other properties are also reported in SMITHSONIAN CONTRIBUTIONS TO ASTROPHYSICS (Vol. 10, No. 1).

Although the overwhelming majority of the photographic meteors come from comets, one was found to originate as an asteroid, as revealed by a long trail through the atmosphere and little tendency toward fragmentation. Drs. Luigi G. Jacchia, Franco Verniani and R. E. Briggs conducted the study.