



42,000,000,000,000,000 MILES AWAY—The giant spiral nebula, M-81, whose distance on the new scale has just been found to be doubled, is shown here as photographed with the 200-inch Hale telescope on Mt. Palomar.

ASTRONOMY

Double Distance to M-81

► THE STAR system, or spiral nebula, M-81 in the constellation of Ursa Major, the great bear, is about twice as far away from the earth as astronomers recently had thought.

Dr. Allan R. Sandage of Mount Wilson and Palomar Observatories reported this new distance in a paper delivered at the American Astronomical Society meeting in Nashville, Tenn.

Three different "yardsticks," he said, were used to find the distance to this great aggregation of stars, which resembles our own Milky Way galaxy. The M-81 nebula, he reported, is about 7,000,000 light years from us, one light year being the distance light travels in one year, or 6,000,000,000,000 miles.

The three types of stars used as "yardsticks" to find distances to star systems beyond the Milky Way are Cepheid variables, irregular variables and novae, or exploding stars. Dr. Sandage's correction for the distance to M-81 is in addition to the recent doubling of distances to all extra-galactic objects.

His finding, Dr. Sandage said, does not mean that the distances to other far-away objects in the universe must be increased correspondingly. Messier 81 may be an exceptional case, and extensive research in other nebulae is needed before any general

effect on the cosmic distance scale can be established.

The M-81 result does establish, however, Dr. Sandage said, that corrections for errors in apparent magnitudes may be necessary for other nebulae, possibly varying from nebula to nebula.

The new value could be determined because more accurate standards of apparent magnitudes have been determined photographically by Dr. William A. Baum, also of the observatories.

Science News Letter, January 9, 1954

ASTRONOMY

Spot New Nova in Magellanic Cloud

► A NEW nova has been spotted in the Small Magellanic Cloud, our nearest neighbor galaxy visible only from the Southern Hemisphere. Dr. Henry J. Smith of Harvard College Observatory's Boyden Station, Bloemfontein, South Africa, reported the discovery to the American Astronomical Society meeting in Nashville, Tenn.

The nova, too faint to be seen by the naked eye, blazed forth suddenly, then faded until it was less than 600 times as bright as when first found.

Science News Letter, January 9, 1954

RADIO ASTRONOMY

Two New Radio "Stars" Discovered in Our Galaxy

See Front Cover

► DISCOVERY OF two new radio "stars" in our galaxy was reported to the American Association for the Advancement of Science meeting in Boston by Fred T. Haddock of the Naval Research Laboratory, Washington, D. C.

The measurements, the first successful at the very short wavelength of nine centimeters, were made at the laboratory with the 600-inch radio telescope, a huge metal "saucer" shown on the cover of this week's SCIENCE NEWS LETTER. Nine centimeters is about four inches, compared to wavelengths of about 1,000 feet for frequencies in the middle of the standard broadcast band.

One of the new radio sources, described by Mr. Haddock as a "nebula," is in the Great Nebula of Orion, a familiar winter constellation now visible in the southeastern sky. There are three stars in a row that form the belt of Orion, the warrior, and the Great Nebula's place is marked by the middle star of the three. The Great Nebula in Orion is the biggest and brightest of the nebulae in the heavens.

The other nebula discovered by Mr. Haddock and his co-workers, including Cornell H. Mayer and Russell M. Sloanaker Jr., is the "Swan" nebula, not to be confused with the constellation, Cygnus, the swan.

All of the objects so far spotted at the nine centimeter, or 3200 megacycle, range have been identified with visible objects, but the only two new sources so far discovered at this short wavelength, and not previously discovered at other wavelengths, are the Orion and Swan nebulae.

Science News Letter, January 9, 1954

ASTRONOMY

Find New "Brand" Of Meteor Shower

► A NEW "brand" of meteor shower has been discovered from photographic observations of the Delta Aquarids, Drs. Fred L. Whipple and L. G. Jacchia and Miss Frances W. Wright of Harvard College Observatory revealed at the American Astronomical meeting in Nashville, Tenn.

These meteors, which are observed each year from mid-July to mid-August, move in a highly elongated, or cigar-shaped, orbit around the sun, the Harvard astronomers reported. Such a path is quite unlike the orbits of other meteor swarms.

At their nearest point to the sun, the Delta Aquarids are only 5,500,000 miles from the sun's surface, and its intense heat raises their temperature to nearly 1,100 degrees absolute, or 1,500 degrees Fahrenheit. When they are farthest from the sun, the meteors are near the orbit of Jupiter.

Science News Letter, January 9, 1954