ASTRONOMY

Magellanic Clouds Farther

Radio waves show that both the Large and Small Clouds of Magellan take in more space and are in more turbulent motion than when measured by light.

➤ RADIO MESSAGES that tell of the internal and external activities of our nearest galactic neighbors, a hundred million billion miles away, were reported to the American Astronomical Society meeting in Boulder, Colo.

The volumes of the Clouds of Magellan are larger and their motions more turbulent when measured by radio waves than by ordinary light, Drs. Frank J. Kerr and J. V. Hindman of the Radiophysics Laboratory, Sydney, Australia, informed the astronomers in a paper read at the meeting by Bernard Y. Mills, also of the Laboratory.

The astronomers also learned that the Magellanic Clouds are farther away than previously thought. Dr. Harlow Shapley of Harvard College Observatory communicated the new value of 175,000 light years for their distance, an increase of 25,000 light years from that reported to the astronomers in December, 1952. (See SNL, Jan. 10, p. 19.) A light year is the distance traveled by light at 186,000 miles per second in a year, or nearly six million million miles.

Dr. Shapley's new distance figure is based on measurements of stars in globular clusters that are inside the Magellanic Clouds, visible only from the Southern Hemisphere.

The Australian scientists made their new radio wave studies of the distribution, abundance and motion of hydrogen gas in both the Large and Small Magellanic Clouds with techniques developed this past year at the Harvard, Leiden and Sydney Observatories. The new techniques are for the discovery and measurement of the peculiar radiations emitted by the neutral hydrogen atoms that are in the spaces between the stars. The wavelength of this radiation is about eight inches, but the exact wavelength depends on the motions of the clouds of hydrogen gas and is a measure of that motion.

If the gas is approaching, the wavelength is shorter; if it is receding, the wavelength is longer. Drs. Kerr and Hindman found various wavelength shifts in different parts of the Clouds. They conclude, therefore, that at least the Large Cloud is turbulent inside, as its irregular structure would suggest.

They also found that the Clouds are rotating around a common center of gravity, with the Large Cloud at this time receding, the Small Cloud approaching, at the relative rate of about 30 miles a second. The Clouds are traveling through space together, as they revolve around each other, at a speed of more than 300 miles a second.

In all this new and important work on the anatomy of the nearby galaxies, as revealed by the measures of neutral hydrogen gas, it is assumed that as the hydrogen gas goes, so goes the whole galaxy of hundreds of millions of stars.

Drs. Kerr and Hindman discovered that the hydrogen gas of the Clouds is spread out in space more widely than are the stars. The volumes of the Magellanic Clouds as indicated by the radio signals are probably twice the dimensions that are shown by optical means, that is, by the blue light signals, or photographs, of the component stars.

The optical work has been done by Harvard College Observatory astronomers, who have been the chief investigators of the Clouds for the last 50 years.

The Australian scientists estimate the interstellar hydrogen constitutes about 10% of the total material of the Small Cloud, and three percent of the Large Cloud.

Their work is still in its preliminary stages, but their researches are considered by astronomers to be among the most important contributions in recent years to our knowledge of the structure of the galaxies that lie outside our own.

The method of employing the radio technique to show the neutral hydrogen of interstellar space has been used by Dutch astronomers during the past year to map out the spiral structure of our own galaxy.

Science News Letter, September 5, 1953

MEDICINE

High Blood Pressure in Elderly Can Be Helped

➤ HIGH BLOOD pressure can be brought down in elderly people, even when their arteries have hardened and grown inelestic, Drs. R. Harris and J. J. Phelan of the Ann Lee Home, Albany, N. Y., declared at the meeting of the Gerontological Society in San Francisco.

For periods up to one year they treated 26 patients at the Home with varying doses of 1-hydrazinophthalazine (Apresoline). No serious side effects showed up. Of the 26, 18 showed definite drops in both systolic and diastolic blood pressures. Several also showed improvement in the patterns of their electrocardiographs, indicating lessened heart disturbance. Although the blood pressure was not improved in eight patients, most of these eight felt better while taking the drug.

In one group of the patients, the high blood pressure improved and after several months of the drug the improvement was held even when the drug was stopped or when an inactive medicine was substituted.

Another group improved while taking the Apresoline but the blood pressure rose when it was stopped.

Science News Letter, September 5, 1953

KIN TO ELEPHANT—The new hyrax at the National Zoological Park in Washington is believed to be a relative of the elephant. Both may have had a common ancestor, examination of fossils shows.