ASTRONOMY

Hundreds of New Variables Found by Woman Star-Gazer

Most of These Are So Faint That They Can Be Photographed Only With the Largest Telescopes

MORE than 200 previously unknown variable stars whose light usually fluctuates in intensity each day, something like celestial airway beacons, were reported to the meeting of the American Astronomical Association by Dr. Helen Sawyer Hogg of Dominion Observatory, Victoria, B. C., one of Canada's few women astronomers.

The new variable stars were discovered during a careful study of more than 500 photographs of star clusters recently secured in the first research program using direct photography with two of the world's largest telescopes, the Dominion Observatory instrument and the Dunlap Observatory telescope just put into use near Toronto.

Dr. Hogg secured the plates made at Dominion Observatory at the Newtonian focus of the instrument while perched in a cage-like basket suspended many feet above the great 72-inch mirror.

The globular star clusters, of which about one hundred are known, are being systematically searched to discover new variable stars, Dr. Hogg stated. More than 1,000 variable stars are already known. They are distributed very unevenly among the clusters. Nine clusters appear to be devoid of the variable star types. In others the number of variables may range from two or three to a cluster to several hundred.

Most of the variable stars are so faint that they can be photographed only with the largest telescopes having great light-gathering power.

"The light of the variable stars fluctuates in regular periods," Dr. Hogg explained, "and most of them are of the so-called cluster type cepheids whose period between two phases of maximum brilliancy is less than one day.

"Occasionally we may find a long-period star whose variations require up to thirty-three days. In globular clusters, the only objects in the heavens where we find together cepheid type variable stars of both short and long periods, we have a valuable key which aids us in checking the period-luminosity law; a valuable tool of the astronomer in his endeavors to see just how the universe works."

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ASTRONOMY

Sunspot Activity Increases; Giant Streamer is Observed

THE GREATEST outburst of sunspot activity since last summer is sweeping the sun, according to photographs obtained at the Naval Observatory.

Above the sun's equator, on what would be the northern hemisphere of the earth, a giant streamer extends from 47 to 82 degrees of longitude, or over one-sixth of the sun's diameter. The length of the streamer is approximately 144,000 miles.

Also in the northern latitude of the sun is a sunspot group moving, as is customary, from east to west.

In the southern latitudes of the sun's surface are five separate groups of sunspots, some of them containing as many as three spots.

The giant streamer was first observed at the start of the week of September 22, while the activity in the sun's southern latitudes started on Sept. 26.

Coupled with the increased sunspot activity has been a succession of moderately severe magnetic storms, according to reports from the U. S. Coast and Geodetic magnetic station at Cheltenham, Md.

"These storms," reports W. M. McFarland, "seems to be a recurrence of the magnetic activity of late August and late July. There is often an interval of about 27 days between these recurrences, and sometimes such a group of magnetic disturbances will continue to occur for several years with this 27 day interval between the appearances. The present group of disturbances seems to have appeared first about two months ago.

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PSYCHIATRY

Increase in Mental Ills Is Not Due to Depression

THE NUMBER of new cases of mental disease admitted to the hospitals in New York State has increased from 6,300 in 1912 to about 12,000 in 1934, a 27 per cent. increase in the rate per 100,000 of population.

The increase in mental disease is not due to the mental strain and stress of the depression, however, Dr. Carney Landis, of the New York Psychiatric Institute and Hospital, said in an address over the Columbia Broadcasting System.

Only one type of mental disease has increased materially in this period; a disease which affects only persons past middle age and is due to the hardening of the blood vessels in the brain. The rate for patients sent to mental hospitals on account of this disease has skyrocketed from less than 2 per 100,000 in 1912 to over 14 per 100,000 in 1934, a jump of almost 700 per cent. in 22 years.

Why are more people suffering from hardening of the arteries in the brain? We cannot blame that on the depression, Dr. Landis said. It is explained by the simple fact that the United States now has many more people old enough to be subject to this disease than were living in 1912. In 1912 about one fifth of the population was 45 years old or older. In 1934 practically one quarter of the population was in this age group.

We have more old people now because public health work and preventive medicine have added more than 10 years to the life span of the average American since 1900, Dr. Landis indicated.

"After all, a man must die of something, and if typhoid does not take him at 30, hardening of the arteries in the brain may at 60," he said.

"Depression, financial insecurity, unemployment, and general unrest have not led to any increase in hospitalized insanity," Dr. Landis concluded.

"This does not mean that there has not been plenty of mental stress and anguish, plenty of ragged nerves and unhappiness, but these psychological stresses and tensions have not led to an increased rate of hospitalized mental disease."

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