

ASTRONOMY

Aura of Escaping Stars Surrounds Our Galaxy

New Dimensions of Milky Way Stellar System Given as 80,000 Light Years by Prof. Shapley; Limits Not Sharp

A GIGANTIC aura of escaping, super-speedy stars has been discovered enveloping our own universe of stars, the Milky Way, through the researches of Dr. Harlow Shapley, director of the Harvard Observatory, and his colleagues. This increases the dimensions of our nebula or galaxy to the vast extent of an approximate sphere nearly half a quintillion miles in diameter. That is a chunk of space so large that it takes light some 80,000 years to cross it. Dr. Shapley announced the discovery at McDonald Observatory dedication.

The great aggregation of stars in which our sun is located is seen as the Milky Way in the night sky. Great telescopes, such as the new one going into service on a Texas mountain top, show thousands upon thousands more stars than the eye can see. Most of the stars are located in a relatively thin disc 6,000 light years thick and some ten times as much in diameter. Ninety-nine out of a hundred stars of our galaxy are in this most densely star-populated part of the galaxy.

What is newly discovered is that stars unquestionably belonging to the Milky Way are found far beyond its old limits. These are faint and of high velocity, speeding some 120 miles per second. Dr. Shapley believes that they are the lighter stars that have in effect been thrown out from the main body by gravitational effects. Mathematical physical theory agrees with the actual astronomical finding that this envelope or shell forming this greater galaxy should be a sphere in shape and not a disc like the main mass of the Milky Way.

When inquiring telescopes and photographic plates are pointed at other nebulae or galaxies, such as that in Andromeda, similar star-halo envelopes or shells are found. In some cases the shells of galaxies overlap with those of other, nearby galaxies. The limits of the shell are very indefinite, just as it is difficult to say just where the earth's atmosphere definitely ends.

The two most recently discovered near neighbors in space to our Milky Way,

unusual star aggregations in the constellations of Sculptor and Fornax, have had their distances from us determined by use of famous Cepheid variable stars, whose waxing and waning of light measure the universe for astronomers. They are about 300,000 light years away. Dr. Shapley explained that they are part of our super-galaxy, which roughly includes the volume of space within a million light years of us.

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MEDICINE—PHYSICS

Reddened Faces Mark Step in Medical History

THE world's history is not all being made around European council tables and it is not all being recorded in

state department and foreign office files. Colored pictures of patients with square, reddened areas on their faces, shown at the recent meeting of the American College of Physicians, are records of medical history in the making which may have more far-reaching importance for humanity than the almost daily re-drawings of the map of Europe.

These colored pictures of patients with a square patch of reddened skin are pictures of the first patients treated with science's latest weapon against cancer—neutron rays produced by the atom-smashing cyclotron of the University of California. The pictures were shown to physicians by Prof. E. O. Lawrence, inventor of the cyclotron and director of the radiation laboratory at the University of California where a small group of patients with advanced cancers are now being treated.

It is too early to say whether the treatments are proving cures for cancer, but Prof. Lawrence and the physicians associated with him are hopeful. One reason they are hopeful is connected with those square, reddened patches of skin on the patients' faces. The patches are square merely because the opening from the cyclotron through which come the neutron rays is square. The redness, medically termed erythema, is the skin



NOT GULLIVER IN LILLIPUT

Only a skilled craftsman putting the finishing touches on the model of a farm barnyard (date circa 1900) which is part of a farm electrification exhibit at the New York World's Fair.