

ASTRONOMY

Universe Is Not Uniform

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► PECULIAR differences in basic physical operation among systems of billions of stars like the Milky Way system of which the earth is a part are emphasized by current research on stars that within a few days or weeks periodically lose and regain their brilliance.

Dr. Harlow Shapley, director of Harvard College Observatory, told those attending the meeting of the American Philosophical Society in Philadelphia of the studies he and Mrs. Virginia McKibben Nail have recently made of Cepheid variable stars in the Large and Small Clouds of Magellan. Forty-nine new graphs showing periodic changes in light as recorded on photographs were presented.

The Magellanic Clouds, looking like detached portions of the Milky Way, are too far south to be seen by observers in the United States. They form, however, our nearest neighbor galaxy.

"The importance of these and similar results lies in their indication of cosmic non-uniformity, either in the distribution of the original chemical elements out of which stars are formed, or in the hydrodynamical operations of a pulsing star depending on position in space or environment," Dr. Shapley stated.

The Large Cloud appears to follow our own galaxy's pattern in the distribution of period lengths of its Cepheids. There are periods of all values from about two days to 100 days, with most of them reaching maximum about every four days. In the Small Cloud, which is only about 190 million billion miles away from the Large Cloud (a small distance, astronomically speaking), and similarly irregular in form, the most frequent period length is less than two days. Most of the periods of Cepheids in the Small Cloud, in fact, have a period that is almost completely avoided by Cepheids in the Large Cloud.

Some additional results are now reported that again emphasize deviations from the conveniently assumed large-scale uniformity of the laws and operations of nature throughout the universe. In the Magellanic Clouds, Cepheids with periods of about eight days have single maxima; in the Milky Way system many Cepheids with the same period have two maxima close together. But in the Clouds those with periods from nine to eleven days mostly have double maxima, although in that interval the Milky Way Cepheids have single maxima.

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At the same time the milling industry and Wallace and Tiernan Company, which supplies most of the nitrogen trichloride for agenzized flour, immediately announced they would discontinue use of the chemical if it had any harmful effect on humans. Wallace and Tiernan Company, in addition, asked Prof. C. A. Elvehjem and associates at the University of Wisconsin, to make an independent investigation of the subject. Army scientists, under the direction of Capt. Maurice L. Silver, also investigated the problem. Finally, the Food and Drug Commissioner asked for opinions from the nation's outstanding food and nutrition authorities.

The answer, from all these sources, is that so far no damaging effect from the agenzized flour has been found in humans. Prof. Elvehjem's group fed it to humans in amounts and for periods of time which would unfailingly produce hysteria in dogs. No symptoms and no changes in brain waves were found. The brain wave studies were made because the disease in dogs takes the form of fits or convulsions such as, in humans, might show brain wave changes.

Meanwhile, with the idea that harm might come to humans eating agenzized flour over a lifetime, the milling and chemical industries are vigorously seeking a substitute for nitrogen trichloride.

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GENERAL SCIENCE

Honors Go to Two Men for Original Scientific Work

► FOR original contributions to the field of science a physicist and a geneticist were honored with gold medals at a dinner given by the National Academy of Sciences in Washington.

Dr. Karl Taylor Compton was awarded the Marcellus Hartley Medal "for his long and valuable career in the field of education and of university administration, and in recognition of his eminent service (as Chief of the Office of Field Service of the Office of Scientific Research and Development) in the wartime research effort of the Nation, and in the reinforcing of collaboration and understanding between civilian scientists and military men."

Presentation of the Daniel Giraud Elliot Medal for 1945 was made to Prof. Sewall Wright who has developed the modern mathematical theory of biological evolution.

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PUBLIC HEALTH

Disease Threat Averted

► THIS is a story of fast action, by government, industry and medical scientists, against a disease and hunger threat. Part of the story comes from Dr. P. B. Dunbar, U. S. Commissioner of Foods and Drugs, and part is told in medical reports and an editorial in the *Journal of the American Medical Association* (Nov. 22).

The disease threat was that humans might be poisoned by a chemical used to treat flour from certain kinds of wheat so as to make better bread. The hunger threat was that the wheat which needed this treatment might have to be removed from the market at a time when every grain of wheat is desperately needed.

It started last winter when a distinguished English nutritionist, Sir Edward Mellanby, reported that "running fits," or "canine hysteria," was produced in dogs by feeding them flour treated with nitrogen trichloride. This chemical has been widely used for the past 25 years to age flour so it will make better bread. The treated flour is called "agenzized."

No hint of any damage to humans from this flour has come in all the 25 years that it has been used. But immediately after hearing of the English findings, our Food and Drug Administration scientists started tests. They found the English scientist was correct.