

ASTRONOMY

Harvard Astronomers Locate Largest Metagalactic Cloud

Vast Galaxy of Galaxies Could Hold 50,000 Milky Ways; Is 50 Million Light Years Long, 20 Million in Diameter

WHAT is probably the most extensive "metagalactic cloud" ever discovered, so tremendous that it may easily encompass 50,000 galaxies comparable with our own Milky Way, has been located and photographically studied by Harvard astronomers.

Shaped roughly like a narrow stream, it is estimated to be about 50,000,000 light years in length and 20,000,000 light years across. It is more than 100,000,000 light years distant from the earth, however, and despite its great size, its members are visible only through the most powerful telescopes. It is situated near the south pole of the heavens.

According to Dr. Harlow Shapley, director of the Harvard Observatory, who announced the find, the cloud is of particular interest to astronomers not only because of its tremendous size but because it is expected to be of much importance in studying the complex space-time-matter relationship in our "immediate" neighborhood, astronomically speaking—that is, out to about 100,000,000 light years. It emphasizes the lack of uniformity in the space distribution of galaxies.

Astronomers have for some years been

aware of the existence of so-called supergalaxies—clusters big enough to contain several hundred Milky Way systems. Until this most recent find, however, there has been no evidence of galaxies much larger than these—certainly not for any as large as the one just found.

The new cloud was discovered on photographic plates taken at Harvard's southern station during a more or less routine survey of all galaxies brighter than the 18th magnitude. At first it was classified as merely a "major irregularity" in the distribution of faint galaxies in the southern skies.

The photographic plates, actually show only about 15,000 galaxies, all of them between the magnitudes of 16.5 and 18.5, but judging from other supergalaxies Harvard astronomers have assumed that many members are too faint to show on the plates and have placed the probable complete census at more than 50,000 galaxies.

Astronomically speaking the cloud extends over a region about 40 degrees in length and 15 degrees in width, from near the sky's south pole toward the south galactic pole in Sculptor.

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These fluctuations have been one of the greatest sources of interest in the planet since it was discovered in 1898. Astronomers have been unusually attracted by its capricious brightness, sometimes constant for months on end and then without warning changing as much as an entire magnitude within the short space of two hours.

Eros is also of interest because it is one of the earth's nearest neighbors. It is a cold mass of rock, hardly 22 miles long by seven miles thick. It travels around the sun in 643 days, passing out beyond Mars on its outer trip yet occasionally coming as close as 14,000,000 miles to earth.

It is now moving toward earth and will be at its closest next January. According to Mr. Watson's predictions, it will show small changes of brightness this summer and fall. They will become larger in January and reach a maximum Feb. 2, 1938. They will then decrease very speedily, and by the end of March the light will become practically constant for a lengthy period.

Harvard Observatory will make a series of photometric observations testing these predictions and with them Mr. Watson's theory during the next year.

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MEDICINE

Wars Won With Quinine Instead of Artillery

MEDICAL men can point with pride to their achievements in the field of military medicine. If in the future men are determined to kill each other in wars they can be sure they will meet their death in or because of battle. They will not be killed or kept out of the fray by the diseases which used to take more lives of fighting men than guns or swords.

How preventive medicine has triumphed in this field appears in a report of Sir Aldo Castellani, newly-created Count of Kisymaio, who was Inspector General of the Italian Army and Navy medical services during the Italo-Ethiopian War.

More than 20,000 men in the Italian Army should have died of disease, according to experience of previous colonial wars in tropical countries in which white troops were chiefly employed, Sir Aldo points out. The actual number of deaths from disease was 599, and this included deaths from motor accidents and drowning.

Malaria, expected to be the chief

ASTRONOMY

Eros Shaped Like Huge Brick Tumbling End Over End in Sky

THE ERRATIC fluctuations in brightness of the tiny planet Eros which have puzzled astronomers for four decades and made the body one of the most mysterious in the heavens, have been explained by Fletcher Watson, young research fellow of the Harvard Observatory.

The solution, he says, lies in the fact that instead of having the usual round form that characterizes the earth and other planets, Eros is shaped like a huge brick.

Revolving end over end, showing first a small end and then a large side, Mr. Watson believes, the planet appears to have rapid changes in brilliance. At other times, he says, the body whirls about with a large flat side toward the earth and this accounts for its occasional periods of constant brightness.

Add to this Mr. Watson's discovery that Eros is revolving "backwards" and it is even more understandable why its erratic fluctuations in light have baffled astronomers.

scourge of the white troops, was kept at a minimum, with the number of deaths "infinitely lower than expected," by quinine. Each soldier was given 3 tablets a day and took them, example of the officers being the chief coercive measure.

Dysentery, the "blood flux" which generals used to fear more than the enemy, did not take a single life and affected only 453 men, whereas at least 80,000 to 100,000 might have been expected. The preventive measures against

this disease were three-fold: 1. Every effort was made to give the officers and men pure drinking water; 2. The men were encouraged to wash or disinfect their hands with lysol, especially before meals, and cooks and others working in the kitchen were required to use this disinfectant; 3. The "grandmotherly precaution" of wearing a flannel abdominal belt was enforced on every soldier, to prevent abdominal chilling which might predispose to dysentery.

Science News Letter, June 12, 1937

PUBLIC HEALTH

Rabies Found to Occur At Any Season of Year

THE CRY of "Mad Dog!" will soon be heard over the land. Not that dogs go mad, or suffer from rabies, any oftener during the dog days of midsummer than at any other season. But from April to September dog bites are more frequent because at this season more dogs are running loose.

Rabies gets its other name of hydrophobia from the fact that at the height of the disease swallowing is so difficult the afflicted person or dog will refuse even water. The choking, huskiness and shortness of breath are due to spasms of the muscles of swallowing and breathing. In the later stages, the spasms and convulsions may affect the whole body. Death occurs from paralysis of the breathing muscles.

This truly horrible disease is caused by a virus, one of those ultramicroscopic substances which latest scientific discoveries show may be chemicals rather than living organisms. When a rabid dog or other animal bites, he passes the virus to his victim through the saliva.

MEDICINE

Attack on Cancer Under Way; Now Trying to Make Vaccine

Proteins Combined With Coal Tar Derivatives Tried In Efforts to Produce Antibodies in Animals

EFFORTS to fight cancer by vaccination are under way at the Banting Institute, Toronto, Drs. W. R. Franks and H. J. Creech of the Institute reported at the meeting of the Royal Society of Canada.

The work is still in the experimental stage. Protection of humans has not been tried and will not be until results of animal tests now under way show whether or not the material made in the Banting laboratories is a cancer vaccine.

"We have no evidence that we have succeeded in producing a vaccine to protect against cancer," Dr. Franks stated in reply to inquiry by Science Service.

Used on Guinea Pigs

Various proteins, the class of chemicals to which egg white belongs, have been combined with cancer-producing chemicals such as certain anthracene or coal tar derivatives, Drs. Franks and Creech reported at the meeting. This material was injected into rabbits, guinea pigs and rats. After the injections, the blood of these animals contained substances called antibodies which united with cancer-producing chemicals and it is hoped will check their power to cause cancer.

"We do not yet know," Dr. Franks told Science Service, "whether the union between the antibody produced in animals and the cancer-producing chemicals checks the power of the latter to cause cancer."

The next step, now under way, is to determine this by injecting the material

into animals and then observing whether they are protected against development of cancer experimentally produced by various known methods.

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LIVING ON A HAT

The sprightly cluster of silver-green leaves with which this young lady's hat is trimmed is a real living plant. It is one of the numerous kinds of air plants (bromeliads, to botanists) that grow on the limbs of trees along the Gulf Coast and in peninsular Florida. They are first cousins to Spanish moss and second cousins to pineapples. All they need is a little water occasionally in the tiny cup-like cavities at the leaf-bases, mineral nutrients that come in stray dust, and plenty of free air. And they'd just as lief ride on a pretty girl's hat as roost on a tree—perhaps rather, who knows?