



MODEL OF GALAXY—Built by Dr. Winston H. Bostick of Stevens Institute of Technology to illustrate his hypothesis of how the galaxies are formed, it shows an electric current pattern that will form a self-excited generator from the ionized matter (plasma) out of which a galaxy originates. The spiral in the center plane represents the "seen" portion of the galaxy. The "unseen" portions are the magnetic field lines above and below along which currents flow.

ASTROPHYSICS

Galaxies Are Generators

► THE HUGE star systems called galaxies are gigantic electric generators, Dr. Winston H. Bostick of Stevens Institute of Technology proposed at the American Physical Society meeting in New York.

It is "quite probable," he said, that nature discovered the electric generator "at least six billion years" before mankind invented it. In nature's dynamo, however, there are no copper wires or brushes. The only source of energy for spinning the generator is gravity, Dr. Bostick reported.

In laboratory studies, he has produced miniature "galaxies" by firing hunks of ionized matter at each other with speeds approaching those of stars in a galaxy. The resulting shapes and the distorted magnetic field are "strikingly" similar, he said, to those of galaxies observed in the heavens by astronomers.

Based on these studies, Dr. Bostick suggests that galaxies are produced by the gravitational contraction of ionized matter across a magnetic field. A three-dimensional model he has made of a galaxy shows not only the spiral arms but also the regions containing magnetic fields and electric currents but no stars.

The model, he reported, indicates how

electric currents can be driven by gravity to form a magnetic field of constantly increasing proportions.

Other scientists have proposed that the apparent expansion of the universe results from the repulsive forces between galaxies exerted by magnetic fields.

Dr. Bostick said the suggested electric current patterns in his model galaxy are so "basic" that similar patterns may also account for electric generator action in the earth and sun to produce their magnetic fields.

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MEDICINE

Lower Temperatures Better for Shock Victims

► STUDIES of animals in a state of shock show that low temperatures increase survival time and that human shock patients may need air conditioned rooms during very hot weather, Drs. Burt R. Erickson and Fred E. D'Amour, Biologic Research Laboratories, University of Denver, and Dr. Donn L. Smith, University of Colorado School of Medicine, Denver, report in the

Proceedings of the Society for Experimental Biology and Medicine (Jan.).

The researchers studied the effects of nine different environmental temperatures on the survival time of rats in surgical shock. Shock is the dangerous, often fatal condition in which there is a collapse of blood circulation after injury, many times due to loss of blood.

Temperatures between 50 and 104 degrees Fahrenheit were used and the rats survived longest at a "room" temperature of 68 degrees Fahrenheit. Lower or higher temperatures were increasingly harmful.

These results agree with the belief that overheating shock victims, as practiced in the past, is "deleterious," the scientists reported.

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MEDICINE

More Paretic Patients But Fewer First Admissions

► MORE patients are in mental hospitals suffering from general paresis than there were 30 years ago. And this total has increased in spite of the fact that first admissions for paresis have decreased by more than 75% and the rate of discharge has increased.

This inconsistent-looking conclusion is based on a study of hospital statistics in New York civil state hospitals. It is reported by Dr. Benjamin Malzberg of the New York State Department of Mental Hygiene to *Mental Hygiene*.

A larger percentage of general paretics remaining alive in the hospitals is responsible for the growth in the number of such patients in the hospitals, despite the downward trend in first admissions and the increase in rate of discharge, Dr. Malzberg concludes.

Paresis is a chronic, degenerative disease of the brain producing progressive loss of mental and physical power and resulting from previous syphilitic infection. Reduction in the number of new cases of paresis is attributed to effective treatment of syphilis with the new antibiotics before the brain becomes involved.

The decrease in first admissions, the increase in discharge rate and the increase in total number of paretics in the hospitals are all attributed by Dr. Malzberg to the great improvement in treatment methods in recent years.

Of the 2,923 patients admitted to hospitals with general paresis during a five-year period beginning in 1943-44, 31.2% of the men were discharged and 37.2% of the women.

This discharge rate of about a third compares with a pre-World War I rate of only 13.5% men and 20.5% women discharged within five years after admission.

At the same time that discharges were increasing, deaths were going down. The total number dying within five years was reduced from 62.5% to 38.9% for females, and from 78.3% to 47.2% for males.

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