

## GENERAL SCIENCE

# Loneliness Affects Brain

► **WHAT HAPPENS TO** the brain of a rat or man who is isolated for a certain period of time?

The brain chemistry of a living creature changes when he is subjected to the constant stress of loneliness, scientists working with isolated rats have found.

The chemical serotonin increased as much as 28%, and the isolated animals were somewhat more tense and aggressive, said Dr. John J. DeFeo and Anthony M. Guarino of the University of Rhode Island and Dr. J. A. Rosecrans of the University of Pittsburgh. The scientists reported on five years of research in stresses of isolation to the American Association for the Advancement of Science meeting in Montreal.

By isolating rats for a period of a month or more, the scientists observed cumulative changes in the body of chemistry that could cause profound changes in the mind. They found that certain enzymes in the rats' bodies counteracted the effect of the increased serotonin.

The data can be used for better understanding of mood behavior and temporary insanity in humans, and the mental condition of astronauts who will be subjected to periods of isolation in space.

Rats were used in the study because they naturally live in groups, the scientists stated.

The researchers observed that initial blood tests on the rats after isolation showed no serotonin, but showed 50% more corticosterone than that produced by rats not in isolation.

Enzymes in the isolated rats' bodies nat-

urally destroy the excess serotonin as it is produced. By administering a drug to inhibit one of these enzymes, the scientists found that serotonin had increased.

Analysis of the chemicals taken from isolated rats became so complex and time-consuming that a computer was used to study some 5,000 blood samples from the rats.

• Science News Letter, 87:38 January 16, 1965

## Milky Way Galaxy Age

► **THE MILKY WAY GALAXY**, a vast pinwheel of many billions of stars in which the sun with its earth and other planets are located, is some 20 billion years old.

This discovery means that the entire universe is about five billion years older than many had thought.

As scientists probe space to learn more about the cosmos, the time at which the sun's system and the Milky Way were born slips farther and farther into the past.

The new ancient age for the Milky Way was reported to a joint meeting of the American Astronomical Society and the American Association for the Advancement of Science meeting in Montreal. It is based on a survey of the amount of helium, the second most abundant element in the universe, detected in the space between the several billions stars in the Milky Way.

Drs. J. W. Truran, C. J. Hansen and A. G. W. Cameron of Yale University and the Goddard Institute for Space Studies of the National Aeronautics and Space Administration in New York made the survey.

Their examination showed that the observed amount of helium in the sun and certain other stars can be accounted for only if the Milky Way galaxy is about 20 billion years old.

Their conclusion is based on the fact that only stars of about the sun's mass are the most efficient at throwing helium into the space between stars—the matter from which new stars are born.

In trying to figure out how the Milky Way came into being, scientists usually assume that the galaxy was initially composed of pure hydrogen, the most abundant element in the universe. Dr. Cameron and his colleagues tested on an electronic computer how the amount of materials between the stars would vary depending on how stars were formed.

They also tested how the creation of elements in stellar interiors and the ejection of this matter into space would affect the amount and type of matter in interstellar regions. Their conclusion—the Milky Way is approximately 20 billion years old.

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## Space Studies Concern All

► **A PLEA** that large scale technological operations that affect the natural world shall not be undertaken secretly but with open consideration by scientists was presented to the American Association for the Advancement of Science in Montreal by a special committee after two years of study.

Past actions by government agencies especially criticized included:

Explosion of the high altitude megaton hydrogen bomb in 1962 which affected for an estimated 30 years the electrical characteristics of the earth's atmosphere.

The placing in 1963 of a belt about the earth of radio-reflecting metallic hair dipoles without enough warning to scientists concerned.

The Apollo program for putting man on the moon which is monopolizing an undue share of the nation's scientific manpower.

Too often, the report charges, science is regarded as a means of satisfying immediate social demands and such demands sometimes produce pressures that erode the integrity of science. Dr. Barry Commoner, of Washington University, St. Louis, headed the committee.

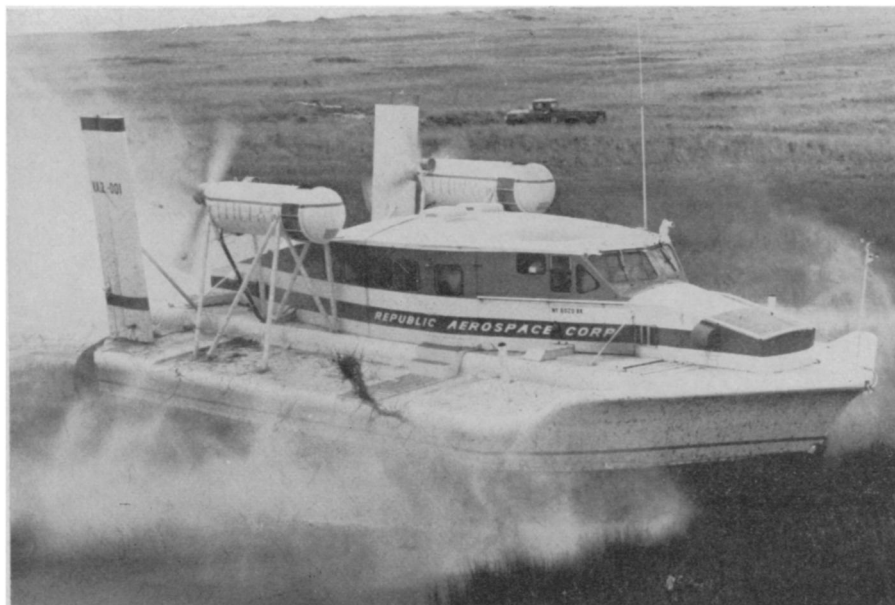
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## Long-Lasting Tranquilizer

► **A NEW FORM** of tranquilizer that will keep mental patients quiet and cooperative even though they receive only one injection every 10 to 20 days was announced to the American Association for the Advancement of Science in Montreal by a team from Squibb Institute for Medical Research, New Brunswick, N.J.

The medication is a new form of Prolixin, fluphenazine enanthate-in-oil. In addition to controlling symptoms for about two weeks from a single injection, the danger of patients hiding the pills they previously had to take daily or oftener is eliminated.

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**AIR-CUSHIONED RIDE**—This 24-passenger, 12-ton craft travels over any reasonably flat surface, including water and marshland, on a cushion of air created by the downdraft of two of its four gas turbine engines. Called a ground effect-machine (GEM), it was designed by Vickers, England, and is being marketed by Republic Aerospace, New York.