

NUTRITION

Emigration and Food

Running rats lead to new view that emigration among mammals is the result of food scarcity or deprivation but is not a planned response.

► A NEW view of the relation between food scarcity and emigration comes from a study of the activity of rats deprived of food. The study was reported by Dr. George Wald and Dr. Blanche Jackson, of Harvard University, to the National Academy of Sciences and is reviewed, in *Nutrition Reviews* (February).

Emigration among mammals, the Harvard studies suggest, is the result of food scarcity or deprivation but it is not a planned response. Animals do not, as has been generally assumed, emigrate in order to find food. They emigrate because the lack of food forces them into increased activity. Ancient history suggests that man may share in this pattern of response to food scarcity.

The real purpose of the emigration, or its "essential biological function," as the Harvard scientists put it, "is not to rescue the emigrating animal, though this may occur, but to relieve nutritional pressure on the home population."

The individual emigrant wanders aimlessly and persistently. Usually his wanderings end in disaster. If he survives, it is because he has happened to wander in the direction of a food supply.

The study supporting this new view was made with rats kept in activity cages in which they had free access to a running wheel. Normally, they ran an average of slightly under half a mile to slightly over a mile daily, or something under 2,000 revolutions of the wheel.

When the rats were deprived of food

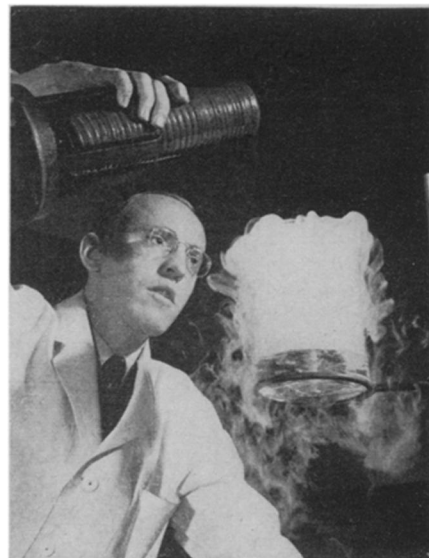
or of water, their activity greatly increased. The revolutions of the wheel went up to about 10,000 daily. The same increased activity occurred when the rats were deprived of thiamin (vitamin B₁) or of another B vitamin, riboflavin. Deprivation of vitamin A and of various minerals in the diet did not have this effect.

The rats deprived of thiamin for long enough to result in polyneuritis finally ran much less than normally. If they are then given thiamin and allowed to eat freely, they quiet down and do not run much, meanwhile eating enormously and gaining weight. If they are given thiamin without increased food, they run enormously, because they are hungry for bulk food.

"High running," the scientists state, "is not, therefore, a reliable sign of well-being and optimal performance. It may be a sign of want. When healthy, intact animals are most completely provided with their needs they run minimally. This relation may be used as a criterion of dietary adequacy."

Running, they report in this connection, was consistently higher in a large group of animals kept on a synthetic diet containing all the factors known to be required by rats than when on a complete diet consisting largely of natural foods. This suggests that the synthetic diet still lacked factors which rats require and which have not yet been identified.

Science News Letter, February 17, 1945



ARTIFICIAL CLOUDS—Created in a bottle from liquid air and warm water, they are used to test insulating materials for the electrical systems of new bombing planes at the Westinghouse Research Laboratories.

usually brilliant or eminent men and women.

The brains are kept in glass jars on the shelves of his laboratory. On nearby tables on occasion may be seen hundreds of glass slides containing .031-inch slices from human brains. In the process of analyzing or "running through" a brain, 2,000 slices are made from one human brain. Every tenth one is mounted on a slide so it can be scanned under the microscope.

Condition of the brain cells and the structure are correlated with facts about the person's physical and mental characteristics. The information is important to brain specialists in treating their patients.

Dr. Papez says brains should be removed as soon as possible after death to be of value to the scientist.

The present collection was started many years ago by Dr. Burt G. Wilder, first professor of animal biology at Cornell. Latest acquisition is that of Prof. Simon H. Gage, who died last Oct. 20 at the age of 93.

Dr. Wilder retired in 1910 and the collection was more or less at a standstill until Dr. Papez joined the faculty in 1920. Where Dr. Wilder was more concerned with the anatomy of the brain, Dr. Papez is more interested in the microscopic work giving neurological information, and consequently in brains which present problems.

Dr. Papez says there are 26 basic items

MEDICINE

Brains For Study

Those of abnormal persons are more interesting to science than normal ones, head of Cornell Brain Association says.

► IF YOU are abnormal, the chances are science will be more interested in your brain than if you are a perfectly normal human being.

Cornell University has a collection of nearly 1,000 human specimens, and Prof. James W. Papez, curator of the collec-

tion and secretary of the Cornell Brain Association, says they are interested only in those brains that contribute most to science. These are the brains which present problems such as faculties that have been lost and recovered, brain diseases, congenital cripples, or the brains of un-