

## PHYSICS

# Cosmic Ray Theory

**New proposal is that they are due to protons, not electrons, plunging into the earth's atmosphere from space, and that each proton is split into mesotrons.**

➤ COSMIC rays are due to protons which plunge into the earth's atmosphere from outer space, and the proton splits into ten mesotrons. This is the latest theory which Dr. W. F. G. Swann, physicist of the Bartol Research Foundation of the Franklin Institute, proposes (*Physical Review*).

Dr. Swann has long contended, in company with many other distinguished physicists, that the incoming particles responsible for the rays are protons. Others have contended that they were high-speed electrons. He now adds a further detail to the theory, that the proton splits into ten mesotrons. This theory, he believes, is the only one that satisfactorily accounts for the variation of cosmic ray intensity with the latitude and altitude.

The proton is the positively charged particle found in the central sun or nucleus of an atom. It has about the weight of the hydrogen atom, the nucleus of which is composed of a single proton, around which revolves a single negatively charged electron. The electron has only 1/1800 the weight of a proton.

The mesotron is the elusive and exceedingly shortlived middleweight particle, with a weight about 1/10 that of the proton. Its life span is only one to two millionths of a second. Consequently many are found high up in the atmosphere, but much fewer lower down. Not many live to reach the earth's surface. During its brief flight, the meso-

tron parts with most of its energy and degenerates to an electron.

*Science News Letter, May 8, 1943*

## NUTRITION

## Chemical Now Protects Bread Against Mold Growth

➤ SEVERAL billion loaves of bread for soldiers and civilians will be protected this year against mold by a chemical product called "Mycoban."

Specially prepared salts added to the dough stymies mold and "rope" growth during hot, humid weather.

Use of the chemical cannot be detected by a change in the taste, texture or appearance of the bread.

This product, manufactured by chemical means, also occurs naturally in foods such as vinegar and milk-derived products like Swiss cheese. Only two or three ounces need be added to the dough of a hundred loaves of bread to delay the development of mold for several days.

The new product may also be used advantageously in making cakes and pies. In the case of butter, the inhibitor is incorporated into the parchment wrapping and a quantity may be kept on hand to protect the surface of the butter where the mold usually appears.

*Science News Letter, May 8, 1943*

## PUBLIC HEALTH

## Women Fatigue Easily During First Work Days

➤ WOMEN industrial workers tire out easily when first placed on machines unless they are old factory hands, declared Dr. B. I. Beverly, director of health and personnel of the Republic Drill and Tool Company of Chicago, speaking at the meeting of the American Society of Mechanical Engineers in Davenport, Iowa.

Dead tired and discouraged, they are likely to quit their jobs. Keep them at the machines only four hours a day at first and give supplementary training the other four hours, is the antidote Dr. Beverly recommends.

For eliminating fatigue such things as

foot rests and comfortable chairs are necessary, he stated. "We are working on these problems and have a long way to go before we will be satisfied that physical fatigue has been reduced to a minimum."

Mental fatigue is also a factor in production. Music during part of the day has been found helpful. "Women industrial workers require relief from the monotony of their work," he said. "To that end, we have provided recreation centers."

"Another important difference between men and women is their attitude toward their work. To men, their work is an end in itself. It is their life occupation . . . With women, however, their job is a means to an end. They do not expect to work in industry all their lives. Their ambition in life is to have a home . . . Very few of them, therefore, wish to learn another job."

*Science News Letter, May 8, 1943*

## MEDICINE

## Parents Less Liable To Death from Cancer

➤ PARENTS are less liable to death from cancer than other people. Harold Dorn states (*Human Biology*) that for both males and females, those who marry and have children are less likely to die from cancer than those who remain single, but those who marry and have no children have the highest death rate from cancer.

While the difference in the death rate for men was not so marked, the mortality indices for married, widowed or divorced, and single women for England and Wales were 100, 117, and 105.

Statistics compiled from records in England, Wales and Australia show that childbearing decreases the likelihood of development of breast cancer, but increases the chances of cancer of the genital organs for woman.

*Science News Letter, May 8, 1943*

A loaf of *bread*, frozen when fresh, tastes equally good after 3 weeks in the refrigerator.

The *muskrat*, widely advertised recently for food, is not a rat; it is more closely related to the beaver.

By a new process *liver* may now be reduced to a fine brown powder which will keep indefinitely without refrigeration and occupies about a fifth of its original space.

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