

## PHYSICS

# Mesons Explode in Body

You and everything else on earth are constantly bombarded with cosmic ray particles. This produces an explosion in your body every minute.

► ONCE A MINUTE even as you read this a meson explodes inside your body and produces three pieces of sub-atomic "shrapnel," one mysterious bullet of which could penetrate literally millions of miles of lead.

Hot on the trail of what happens to cosmic ray particles when they disappear near the earth's surface after having come in from outer space, Dr. John A. Wheeler, Princeton physicist, pictured for the American Association for the Advancement of Science, meeting in Washington, what happens.

Only one of the three pieces of the splitting of the meson (that's the cosmic ray particle) has been actually discovered—the electron, the unit of electricity. Another piece is the neutrino, a neutral particle that is almost not there at all (it has what the physicists call zero rest mass). This is the one that has such neutrality, small size and great energy that it could drive through solid lead for 200,000,000,000 miles! Since 1932 when Prof. W. Pauli conceived

it, scientists have been confident that it actually exists because they need it to explain what happens in the atomic world. But they despair of finding it.

The third particle is a neutral meson, undetected, but probably 50 times the weight of an electron, contrasted with the original meson of 200 times the electron's mass. It, too, is very energetic.

Everything on earth, including you and your friends, is bombarded constantly by this radiation from the depths of the universe. It has been going on for ages, so far as we know. The idea of the way particles die and give birth to other particles is new.

A Brazilian, Dr. Jayme Tiomno, aided Dr. Wheeler in his research, while Dr. W. Y. Chang on leave from Peiping University discovered upon cosmic ray photographs the strange appearance of an electron that bobbed up some distance from where a meson was stopped dead in its track.

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**NEW ADMINISTRATIVE SECRETARY**—Dr. Howard A. Meyerhoff, geologist at Smith College, Northampton, Mass., succeeds Dr. F. R. Moulton, as secretary of the A. A. A. S.

## GENERAL SCIENCE

## Administrative Secretary Of A.A.A.S. Appointed

► DR. HOWARD A. MEYERHOFF, professor of geology at Smith College, Northampton, Mass., has been appointed administrative secretary of the American Association for the Advancement of Science, to succeed Dr. Forest Ray Moulton, noted astronomer, who has held the post for the past 12 years.

A native of New York City, Dr. Meyerhoff was educated in the public schools of that city and completed his college training at the University of Illinois. He received master's and doctor's degrees in geology at Columbia University. Although he has been on the teaching staff of Smith College 24 years, he has been professionally active in the Caribbean, where he has served as geologist on the Scientific Survey of Puerto Rico and the Virgin Islands, consultant to the Dominican Republic and adviser on many public and private projects. He has recently returned from an Andean expedition in Argentina, which he directed.

The new administrative secretary brings an assortment of non-professional experience to his job. He was director of civilian defense in the Connecticut Valley region of Massachusetts during the war, and he also served as mediator and chief hearings officer on the National War Labor Board from 1942 to 1945. For nine years he was chairman of the Board of Directors of the Propper-McCallum Hosiery Company, and has been chairman of the Arbitration Board

## GENETICS

# Biochemistry of Genes

► HOW CAN PEOPLE and plants and animals be so much alike yet so different from even their closest kin?

Biochemical explanations for the strange workings of heredity were offered before the meeting in Washington of the American Association for the Advancement of Science by a series of speakers: Prof. Tracy M. Sonneborn of Indiana University, Prof. David Bonner of Yale University, Prof. Curt Stern of the University of California and Prof. Laurence H. Snyder of the University of Oklahoma.

Discussion of heredity, whether in men, mice or microbes, always revolves around genes. Nobody has ever seen a gene, just as nobody has ever seen electricity; scientists are sure of their existence because of the things they catch them doing.

Genes are submicroscopic units of living stuff that roost on or in the chromosomes, which are small rod-shaped or round bits of specialized protoplasm that can be seen with a microscope within the nuclei of cells. They are considered to be chemically highly potent, able to cause and control the production of various substances in the rest of the cell's protoplasm, which is known as cytoplasm.

These actions of the genes on the cyto-

plasm may determine the development of such body chemicals as the coloring matter in hair, skin and eyes, the various blood-group factors, and the enzymes and hormones that operate in digestion, respiration and other body functions. Abnormal action on the part of the genes may produce such inherited chemical disturbances as diabetes and gout.

Individual differences apparently arise through differences in the response of cytoplasm to the chemical influences of the genes. It even seems likely that some of these cytoplasmic entities which the genes help to set up become quasi-independent, producing types of hereditary transmission that are carried on mainly or altogether in the cytoplasm.

Tiny animals like fruitflies, and latterly even one-celled forms like certain molds and protozoa, have been favorite experimental material for this kind of research because they are inexpensive to maintain, breed readily and rapidly, and do not present such complexities in interpreting results as are presented in the uncontrolled matings of human beings. Eventually the results of these laboratory researches are often capable of expression in human terms.

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