

## Do You Know?

Fertilizer in the garden should not be put in contact with seed.

The egg of a grasshopper is small; its shell contains a waxy material.

Rye, whole wheat, barley and corn, in that order, follow oats and rice in nutritional quality of their proteins.

The government has listed some 57 jobs which airplanes are doing in addition to their usual uses; these jobs range from aerial surveys to cattle round-ups.

The importance of soybean in America is evidenced by the fact that production was 20 times as great in 1947 as in 1930; the 1930 crop was 9,000,000 bushels, the 1947 crop was 181,000,000 bushels.

### GENETICS

## Gene Is Master Molecule

➤ EVOLUTION of plants, animals and man is controlled by master molecules, which can either build up greater complexity or by dropping out items in an organism's heredity reduce it to greater simplicity ending in parasitic helplessness. These master molecules are the genes, long known as the chemical units that control the hereditary process.

This master-molecule theory of evolution was laid before the meeting of the National Academy of Sciences in Washington by Prof. George W. Beadle of the California Institute of Technology.

A simple organism, by adding gene to gene through succeeding generations, can finally build up a complex of some 10,000 genes, Prof. Beadle stated. The interaction of the genes in so great a complex as this would be sufficient to account for the structural and behavior patterns of the most advanced of plants or animals.

On the other hand, by dropping gene

after gene through many generations, an organism can become so simple, even degenerate, that in the end it is a virus—a living or quasi-living chemical something that can hardly claim the name of organism. If a virus is not a gene that has lost all powers except that of living at some other being's expense, it at least has a close resemblance to a lone, lost gene.

Prof. Beadle was started on his new outlook on the evolutionary process through his researches on the genetics of the mold-fungus *Neurospora*, which have already attracted wide attention. He has succeeded in keeping alive strains of this fungus that have taken the first step towards that ultimate simplification that is just short of annihilation, by supplying them with certain protein-building molecules known as amino-acids, which they have lost the power of producing for themselves, through the dropping out of genes.

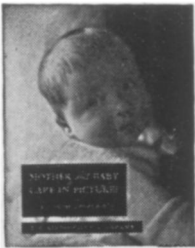
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### PHOTOGRAPHY

## New Fast X-Ray Movies

➤ SUPER-SPEED X-ray movies which take pictures faster than you can blink an eye were shown the American Physical Society meeting in Washington.

Dr. Charles H. Slack, director of research for the Westinghouse Lamp Division, said some of the possible uses of the new X-ray movies include:

Visible evidence of the fastest-moving organs within the body for study by doctors.

X-ray movies of persons walking and running to aid orthopedists, chiropractors and shoe manufacturers.

Pictures of the burning action of fuel in a rocket.

Solving the industrial mysteries of how metal is deposited from an arc welding rod and how molten metal flows into a casting mold.

The physicists were shown a 15-second movie of what happens when a violent chemical reaction takes place. The super-speed X-ray film revealed details of the complex reaction.

X-ray exposures of ten millionths of a second are teamed with a shutterless camera shooting movies at 100 frames a second in the new equipment. Movies at 150 frames a second have been made,

and Dr. Slack said that 2,000 frames per second may be possible.

With more powerful X-ray tubes, he predicted that car and airplane engines can be inspected from the outside while they are running. This could lead to smoother, safer engine performance.

Super-speed X-ray movies were developed at the Westinghouse Lamp Research Laboratories, Bloomfield, N. J., under contract with the Department of the Navy's Bureau of Ordnance.

*Science News Letter, May 8, 1948*

### Science Service Radio

➤ LISTEN in to a discussion on "Psychology—Yesterday and Tomorrow" on "Adventures in Science" over the Columbia Broadcasting System at 3:15 p.m. EDST Saturday, May 15. Dr. Walter Bingham, one of the country's leading psychologists, chairman of the Council Advisory to the Director of Personnel, U. S. Army General Staff, will be the guest of Watson Davis, director of Science Service. Dr. Bingham will tell about the many areas of human problems being aided by psychological methods today.

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