

GENETICS

Genes Defy Tradition

GENES, tiny bits of heredity that make up the chromosomes, can be changed.

They do not always maintain their identity through thick and thin as scientists had once thought. The genes that do not act according to the rules have been found for the first time in corn plants.

Scientists had believed one of genetics' oldest laws was that genes retain their original properties even when combined with unlike partner genes or alleles. The gene that determines blue eyes in a human, for example, may not show up in the children of a blue-eyed woman if the father has brown eyes—which are dominant over blue. (It usually takes two genes to determine a characteristic.) However, the blue-eye gene is unaffected by its association with the brown-eye gene. When present in succeeding generations it will produce a blue-eyed person whenever there is no brown-eye gene present.

Now, a U.S. Department of Agriculture geneticist reports, a gene has been found that apparently is converted by its partner gene to "look like" the partner. This modified gene in turn can convert other alleles or genes, Dr. E. H. Coe Jr. said.

The "converter" gene and the partner

gene it affects control red color in the husks, stems and other parts of corn plants. With the normal gene, intense-red color is found. The converter gene determines weak-red color.

In his work, carried out at the Missouri Agricultural Experiment Station at Columbia, Mo., Dr. Coe crossed intense-red and weak-red corn plants. Only weak-red plants appeared in successive generations. The "old" genetic laws could not explain these results, Dr. Coe said.

Further experiments were made to learn if the cytoplasm was influencing color. The possibility that some irregularity in chromosome transmission might be affecting the intense-red color gene was also tested. Neither of these possible explanations was found to occur.

All tests have shown the gene for intense-red is permanently converted to weak-red. Earlier work by Prof. R. A. Brink of the University of Wisconsin has shown a similar permanent gene change with the gene for purple color in corn kernels.

Dr. Coe's research was supported by the National Science Foundation's genetic-biology program as well as by the USDA.

Science News Letter, July 11, 1959

PHYSICS

Atom Smasher Begun

THE ARGONNE NATIONAL Laboratory has started building at Lemont, Ill., a large atom smasher designed to learn more about the nature of nuclei.

Because the giant accelerator is being built using mostly known and tested methods, it is expected to do its assigned job without difficulty. It will speed proton "bullets" to energies of 12.5 billion electron volts before smashing them into target atoms.

However, many scientists have charged that the Argonne accelerator will be obsolete before it is finished, probably in 1962. By that time, the machines of 25 to 30 billion electron volts (Bev) now being built by Brookhaven National Laboratory on Long Island and at CERN, near Geneva, Switzerland, will be in operation. The Russians have reported plans for an accelerator designed to speed protons to 50 Bev.

The decision to build the Argonne accelerator was made several years ago at the very highest level within the Atomic Energy Commission, which supports the Argonne research center. At the time, the Russians were building their 10 Bev machine, a "souped-up" version of the University of California's Bevatron. Some scientists believe the main reason for deciding to build the 12.5 Bev Argonne proton synchrotron was to outdo the Russians.

Back of the go-ahead signal for constructing the Argonne machine was a long history of disagreement between two scientific groups, the scientists at Argonne and those

of MURA, the Midwestern Universities Research Association, organized by 15 Midwestern universities to promote research on high energy accelerators.

The MURA scientists are working on an improved model of a radically new kind of atom smasher, capable of producing effective energies of hundreds of billions of electron volts, far in excess of any other machines now planned. Scientists in this group are reported to be making slow progress now due to a lack of financial and moral support from the AEC.

The idea behind this super atom smasher is to hurl two atomic beams at each other, instead of a single beam crashing into a stationary target as in present machines. One suggested name for such a machine is "synchroclash."

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ASTRONOMY

Large Telescope Planned for Satellite

THE KITT PEAK National Observatory near Tucson, Ariz., will study the possibilities of putting a large telescope in an earth satellite.

Design work that could be used by engineers making such an instrument will be done under a grant of \$160,000 from the National Science Foundation.

Astronomers would like to put telescopes

above the earth's atmosphere to avoid distortion and absorption of light and radio waves from stellar objects. Being above the earth's atmosphere should allow telescopes on satellites to relay earthward observations of planets, stars and far-distant galaxies with unprecedented clarity. Such observations are expected to show details not seen from the earth's surface, even with the 200-inch telescope atop Mt. Palomar, Calif.

Preliminary engineering considerations indicate that the telescope might have a 50-inch aperture and a lifetime of five to ten years. The planning will be in cooperation with the National Aeronautics and Space Administration.

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