

GENETICS

Mutation Accelerated

The mutation rate for certain genetic factors in corn has been increased. Artificial mutation is thought to be different from natural mutation and is now being avoided.

► THE EVOLUTIONARY changes blasted into living things by X-rays and A-bomb radiations are not the same as those caused by the changes in germ plasm—mutations the scientists call them—that occur naturally.

But there is hope that these extremely slow and rare changes in the hereditary stock of all living things that occur in nature can be speeded up by the same process of selective breeding that has produced superior plants and animals for our modern agriculture.

An outstanding new development reported at the golden jubilee meeting of the Genetics Society of America, celebrating the first 50 years of genetics, was the acceleration of natural mutation reported by Dr. L. J. Stadler of the University of Missouri.

Working with a special kind of corn, the heredity of which has been studied for years, Dr. Stadler has been able by cross-breeding to obtain about a hundred times the normal mutations of a few of its thousands of genes, or carriers of heredity.

So complex are these extremely minute portions of cells, which carry on life from generation to generation, that biologists

must work with very special sorts in order to discover the laws of inheritance that are generally applicable.

Changes in these genes are believed to be the mechanism of evolution itself. A quarter century ago it was discovered that X-rays and even ultraviolet light, acting like submicroscopic machine gun bullets, could damage genes and produce changes in heredity that could be carried on into later generations. Hailed at first as a means of producing the equivalent of natural evolution, geneticists are now fearful that artificial mutations use another mechanism and they are turning again to natural mutations for their studies.

Dr. Stadler's success in increasing the mutation rate for genes controlling color of corn seed and plants gives new hope to this line of research, which is still tedious and time-consuming. He has shown that a tendency to change is inheritable, as it were.

The new findings do not lessen the danger of radiations to human, other animal and plant populations, for severe doses of X and other radiations are still dangerous to future generations, possibly producing monstrosities for the future.

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mycin, a new member of the modern family of wonder drugs.

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INVENTION

No Flame or Electric Arc In Cold Pressure Welding

► WELDING such metals as aluminum and copper without the use of hot flames or electric arcs is possible with a cold pressure process on which the government issued a patent recently. It can be used with many non-ferrous metals.

Patent 2,522,408 was issued to Anthony Bagnold Sowter, Wembley, England, for this process. Rights have been assigned to General Electric Company, Limited, London.

As described by the inventor, the process involves bringing the metals to be welded into contact with each other. Then by the application of pressure, the metals are caused to flow away from the welding point and into interleaved relation with the grains of the metals being welded.

Before welding, oxide films and other impurities on the metals are removed. In aluminum welding a pressure of from 12 to 18 tons per square inch is used. With copper, two to four times this pressure is required.

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MILDEW CONTROL—The canvas bucket and webbing at the left have been protected against mold decay by one of the Cunilates developed for the Air Force. Victor N. Kalberg, who developed solubilizing technique, compares them with similar items which almost completely disintegrated after 28-day soil burial test. The Cunilates are available in permanent and non-toxic solutions and emulsion.

BIOLOGY

Fungus Rot GI Headache

► FUNGUS rot, the work of tiny microorganisms which attack even plastics is becoming a major headache to U. S. armed forces.

In a two-day symposium at the American Institute of Biological Sciences meeting at Ohio State University, scientists described the type of decay reported to have brought failure in Korea of communications equipment stored since World War II on tropical Pacific islands.

Electrical power drives for gun mounts, electronic hook-up wire and similar equipment can deteriorate fast from fungus attack, even in parts of the world where high humidity is not a serious problem, Dr. Walter N. Ezekiel of the Navy's Bureau of Ordnance said.

Certain types of fungus and bacteria, said Dr. James V. Harvey of the Philadelphia Quartermaster Depot's biological laboratories, will destroy flexibility in plastic films used to insulate such equipment.

Such attack is complicated. Fungus

grows in mold. Bacteria come along, and because of antibiotic activity, attack the fungus. Then the bacteria in turn attack the plasticizing agent in the insulation.

At Rensselaer Polytechnic Institute, researchers working under armed forces contract found that insulation began to break down under fungus rot within 12 hours of exposure to high humidity and temperatures, Dr. Mary P. Gauvey reported. The attack can come from the inside out, she said. Insulation resistance began to drop before outside mold became visible.

The fungi are extremely hard to stop. Various anti-fungus chemicals have been incorporated into the plastics, Dr. Harvey said, but without much effect. A coating that is poisonous will not stay poisonous, a team of scientists from Battelle Memorial Institute in Columbus reported.

From Notre Dame scientists came one possibility. Fungus was reported by Drs. J. A. Jump and K. S. Gopalkrishnan to be killed by an antibiotic cousin of strepto-