

BIOLOGY—GENERAL SCIENCE

Geneticist Named President Of American Association

Dr. A. F. Blakeslee, Carnegie Institution Scientist, Made Possible New Plants Through Use of Colchicine

LARGER and better fruits and vegetables will soon be on the dinner tables of America as the result of the experimental evolution research that has been done by the new president of the American Association for the Advancement of Science, Dr. A. F. Blakeslee. For years he has studied the chromosomes, the tiny particles within the cells that carry heredity, and as a by-product of this intensive exploration he developed a means of producing new plants that promises large economic results.

Working at the famous Department of Genetics of the Carnegie Institution of Washington located at Cold Spring Harbor, Long Island, New York, a research center that he now directs, Dr. Blakeslee has used within the last two years a chemical called colchicine, obtained from the autumn flowering crocus, to create in the laboratory new species of plants that nature has never known.

His original experiments were done on the jimson weed, but the methods developed are now being used on tobacco, pears, peaches, lettuce, berries, and flowers. Several new kinds of flowers are expected to be available to gardeners and

florists this year as a result of the application by other scientists of methods worked out by Dr. Blakeslee.

The chemical treatment with colchicine causes a doubling of the chromosomes of a plant. This makes it possible for a desirable plant to be crossed with another and produce fertile offspring. The improved plant produced breeds true, that is, perpetuates its own kind faithfully, a trait necessary for commercial growing in garden, field and hot-house. Heretofore when an extraordinary plant was created in nature or experimentally it was only infrequently possible to so capture the desirable qualities in the germ plasm as to perpetuate the desirable novelty.

Dr. Blakeslee has recently found that colchicine, applied to leaves, stems and seeds as a water solution or salve, can also eliminate chromosomes as well as double them. This allows a juggling of the hereditary characteristics of plants in such a way that to a large extent plants can be designed, like a new kind of skyscraper, and then built to order.

Science News Letter, January 6, 1940



GRAFTED

The U. S. Department of Agriculture station at Beltsville, Md., is one of many centers where research is being pushed on the effects of colchicine first explored by Dr. Blakeslee. Here a colchicine-altered peach twig has been cut off, grafted onto a peach root, and is being set out to grow eventually into a full-sized peach tree of a new variety.

MATHEMATICS

Mathematicians Think of Everything As Rubber

TOPOLOGY, which you won't find defined in the ordinary dictionary, was on the tip of mathematical tongues at the Columbus science meetings. This new geometry is as popular with the mathematicians as exploration of the atom is with physicists.

To those who are used to Euclidean geometry such as taught in school, this relatively new branch of mathematics, bulking large in the science meetings, will seem strange.

As explained on behalf of the American Mathematical Society by Prof. G. Baley Price of the University of Kansas, you must think of all sorts of objects in the Land of Topology as made of rubber. It is not necessary to keep the distance between each two points unchanged when two figures are compared. It is expected that the two figures will be stretched and distorted in any manner so long as they are not torn or glued together in new places. Any two

• Must Carry On the Torch

Dr. A. F. Blakeslee, Carnegie Institution geneticist, newly elected president of the American Association for the Advancement of Science, prepared at the request of Science Service this inaugural statement to his fellow scientists and to the public.

"American science needs no message from one who has been elected president of the American Association for the Advancement of Science. In this country as in other lands, science has developed along with the development of freedom of thought in many lines of human interest.

"Science is advanced by an army of many soldiers, who cannot work entirely alone. Consciously or unconsciously each is influenced by the most recent investigations of his contemporaries, such as are reported at meetings of the American Association for the Advancement of Science, and each, in his incursions into the unknown, is guided by the discoveries of the past.

"The duty of science, now as always, is to blaze trails through the forest of ignorance, to make the unknown known. Society can aid in this campaign against ignorance by seeing to it that freedom of thought and its expression is maintained, since only with such freedom can truth most successfully be sought.

"Science knows no bounds of nationality or creed. In these days, when freedom of thought is threatened in many places, American science has an especial duty to carry on the torch which has been passed down to us from other hands and other ages and to offer what aid we may to our science brothers in other lands where conditions for work are less friendly."

figures which can be made to coincide by such stretchings and distortions are said to have the same topological properties.

In Euclidean geometry there are right angled triangles and equilateral triangles, but in topology all triangles are the same. If the two triangles be thought of as cut from a sheet of rubber, they can be stretched until they coincide. The surface of a sphere is topologically different from the surface of a doughnut, because

no deformation without tearing will change a sphere into the surface of a doughnut. The fact that a figure is made up of several disconnected pieces is a topological property; such a figure is distinct from one consisting of a single piece, for it is not permitted to glue the parts together when they are compared. Although distinct in Euclidean geometry, a sphere and an egg-shaped surface are the same in topology.

Science News Letter, January 6, 1940

MEDICINE

High Blood Pressure Reduced By Kidney Extract Cocktail

Extract From Whole Healthy Organ Believed to Supply Substance Missing From Kidney of Hypertension Patients

COCKTAILS made of the extract of healthy kidneys will bring back from the point of death, patients suffering from high blood pressure, it was reported to the American Association for the Advancement of Science by Dr. Arthur Grollman, of the Johns Hopkins University School of Medicine and Drs. Tinsley R. Harrison and John R. Williams, Jr., of Vanderbilt University School of Medicine. The extract may be to patients with high blood pressure what liver is to the anemic.

Physicians at the meeting welcomed this promise of a new life-saver for thousands of sufferers from high blood pressure, killer of more men and women, than any other disease. Even cancer, tuberculosis and syphilis are not so destructive of human life as is this condition known to physicians as hypertension.

Tried first on rats, the kidney extract brought the blood pressure of those with hypertension down to normal. On normal rats, however, there was no lowering of blood pressure, and no toxic or other objectionable effects were observed even when the dose was set at four times that taken by the rats with hypertension.

In rats in which the kidney had been cut off to produce experimental hypertension, the extract has another effect. These animals, for whom the high blood pressure was evidently a necessary condition for life, fell into a state of apathy, vomiting, and staggering and died.

The extract is not yet ready for use as a medicine, Dr. Grollman warned the physicians, until further research and testing has been conducted. About twelve

human cases ranging in age from 36 to 60 have already received the treatment and have been brought out of a state of coma bordering on death when the blood pressure was brought down to normal.

If you are suffering from high blood

pressure, don't bother to make yourself kidney stew. Eating kidneys won't lower your blood pressure, Dr. Grollman explained, because unlike rats, humans haven't a ravenous enough appetite to eat the quantity of whole kidneys necessary for the medicinal effect. And, besides, humans like their food after cooking, which would destroy the medicinal value. The extract is not difficult to take by mouth; in alcohol it is said to be quite palatable.

Apparently very similar in action to the extract used by Dr. Grollman and his associates is another substance reported for the same purpose by Dr. Irvine H. Page, of the Lilly Laboratory for Clinical Research of Indianapolis City Hospital.

Renin, a substance contained in the kidney, Dr. Page told the meeting, reacts with a substance in the blood to produce a third substance christened angiotonin. When either renin or angiotonin is injected into the blood stream, an inhibitor is liberated, and such an inhibitor also has its origin in the kidney. These inhibitors (or inhibitor) serve to counteract renin and prevent or cure hypertension.

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INSECTS AT MEETING

Colonies of 2,000 bedbugs and 3,500 croton bugs, or German roaches attended the science meetings in Columbus. They were an insect exhibit by Ohio State University demonstrating how insecticides are tested. As the roaches breed, babies fall through to a tray below and are scooped up in celluloid dishes like the one held here by Dr. H. A. Waters, Columbus entomologist. These young insects are used for the insecticide tests.