GENETICS

Nobel Prize Rewards Study Of "Atom" of Heredity

Former President of National Academy and A. A. A. S. Developed Theory of Gene By Mathematics and Experiment

DR. THOMAS HUNT MORGAN, of California Institute of Technology, has been honored with the Nobel Prize in medicine for his epochmaking discovery of the mechanism of heredity and his formulation of the theory of the gene. Dr. Morgan is the eighth American to be given a Nobel Prize for achievements in science. Three of these eight awards were for contributions to medicine.

The gene is to the student of heredity what the atom is to the physicist. No one has ever seen a gene just as no one has ever looked upon an atom, although attempts have been made to demonstrate to human senses these tiny carriers of heredity by microscopic and photographic means.

Dr. Morgan developed his theory in the same way that Einstein evolved the famous physical theory of relativity—through mathematics and the use of numerical data. But he obtained his numerical data from an enormous number of experiments.

The minute single sperm and egg cells, from the mating of which the new individual results, have within them smaller units known as chromosomes. The number of chromosomes is greater in some kinds of plants and animals than in others; for man it is 48. The chromosomes are so tiny that all the chromosomes in the original cells of all the inhabitants of the earth could be contained in a teacup.

This chromosome, or biological "molecule," is now believed to be made up of a row of genes which are conceived of as being like beads on a string, held together by some chemical attraction, perhaps—normally in the same order for the same species of creature. The genes control the development of the individual, and they are distinguished by their effect on certain characteristics such as eye color, hair texture, skin color, and so on.

Dr. Morgan based his theory on the observed fact that certain genes, when inherited together from one parent, are associated also in the offspring. The frequency of these associations varies. Some groups come out together much oftener than others. These variations in "linkage frequencies" were accounted for by Dr. Morgan by a change of partners between parts of the paired chromosomes, the more distant pairs changing more often, and the closer ones clinging longer.

These variations enabled Dr. Morgan actually to make maps showing the order or location of genes in the chromosomes.

Dr. Morgan's historic experiments were performed with the ordinary tiny fruit fly, familiar to housewives and fruit dealers through its fondness for hovering about bananas. It is particularly useful to the geneticist because it produces new generations so quickly.

The Nobel Prize is the climax of a series of notable awards and recognitions that have come to Dr. Morgan during a long active life. His fellow-scientists in America gave him their greatest honor in 1927 by electing him to the presidency of the National Academy of Sciences. He was also made president of the American Association for the Advancement of Science in 1930.

Science News Letter, October 28, 1933

DR. THOMAS HUNT MORGAN

Whose researches on heredity, including the development of the theory of the gene, were rewarded by his selection for this year's Nobel Prize in Medicine.

MEDICINE

New Cyanide Antidote Promises Great Usefulness

HOPE FOR SAVING the life of a person who has taken as much as 32 grains of poisonous potassium cyanide or a pound of bitter almonds is seen in a new remedy made up of the two chemicals, amyl or sodium nitrite and sodium thiosulphate.

Experiments with the new remedy were reported by Dr. K. K. Chen, Charles L. Rose and Dr. G. H. A. Clowes of the Lilly Research Laboratories to the American Public Health Association.

"Cyanide poisoning may arise from suicides, homicides, ship fumigation, photography, electroplating, gilding, and accidents caused by taking cyanide preparations, bitter almonds, arrow grass, or certain mushrooms," members of the association were reminded. "Since 1909 there have been from 79 to 243 deaths annually in the registration area of the continental United States. On the average, the mortality rate is 0.1 per 100,000 population.

"Although different antidotes have been proposed against cyanide, the treatment of its poisoning still remains unsatisfactorily solved. The reason for this is twofold. First, cyanide poisoning is rapidly fatal. Secondly, the therapeutic measures are usually limited in their usefulness."

The Indianapolis investigators found recently that amyl nitrite is twice as efficient an antidote for cyanide poisoning as methylene blue, the dye which has lately been heralded as saving lives of cyanide victims. The nitrite-thiosulphate combination is even better, being at least five or six times as effective as methylene blue, Dr. Chen and colleagues reported. Their results were obtained with dogs, and they point out that the ultimate proof of the value of the remedy will come from clinical trials on victims of cyanide poisoning.

Their results were said to be, in general, in agreement with those reported by E. Hug, and A. Buzzo and R. E. Caratalá of Argentina.

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