Courtesy of Newark Museum

SILK—OLD AND NEW

The young lady on the right is dressed in a real silk dress of a generation ago while her companion on the left wears a dress of modern synthetic materials. They are photographed at the Newark Museum's Miracles of Chemistry exhibit with a chemist who is explaining the process of producing synthetic textile materials.

GENETICS

Chance Big Pears Have Double Chromosome Count

GIANT PEARS, borne as "sports" on big-leaved, big-flowered branches developing on otherwise normal trees, owe their greater size to a doubling of the number of chromosomes, the heredity-carrying structures within the nuclei of their cells. The occurrence of these freak fruits and their explanation were the subject of a report from the department of genetics, Carnegie Institution of Washington, Cold Spring Harbor, N. Y., presented before the meeting of the National Academy of Sciences by Drs. J. L. Cartledge, A. D. Shamel and A. F. Blakeslee.

Dr. Shamel first observed the giant fruits in California and wrote them up in a scientific journal. His associates saw the report, remembered that similar giantism in specimens of jimsonweed was associated with double chromosome count, and obtained specimens of the pear pollen. The pollen grains told the tale; they were double-sized, too, indicating that they contained the double chromosome number.

Science News Letter, April 28, 1934

GENETICS

X-Raying Male Cells Causes Increase in Male Offspring

Experiments With Fruit Fly Cells Also Adds to Knowledge of the Inheritance of Disease

X-RAYS cause more male children to be born—in the case of the little flies that are seen buzzing around bananas.

Dr. John W. Gowen of the Rockefeller Institute for Medical Research's laboratory at Princeton, N. J., reported to the American Philosophical Society an increase in the proportion of males to females as a result of X-ray treatment of the male reproductive cells of the fruit fly, *Drosophila.*

Whether the same results could be obtained with other species, such as man, was not reported. Dr. Gowen, however, was not conducting his observations in the interests of the militarists, nor even with a view to increasing the male population among fruit flies. He was investigating the problem of congenital disease.

Why are some children born defective? What part does constitution play in a person's resistance or susceptibility to disease? What factors are responsible for long life in one individual while another dies at a relatively early age? These are some of the problems on which Dr. Gowen's investigations with the fruit flies are shedding light.

"During development the body, due to its inheritance, may become a mosaic of cells, some normal, some abnormal, and the morbidity and mortality may increase directly with the proportion of defective cells in the mosaic," Dr. Gowen explained.

Four Ways

This is one of four general ways in which the genetic or inherited constitution of an organism may affect the development of a diseased condition. The other three are as follows:

An unbalance in the proportion of genes, or hereditary units, may cause death or greatly reduce the length of life.

Genes normal to a species may by a permanent change in character cause physiological and developmental processes so abnormal that death or lasting disability results.

The segregation of specific genes for susceptibility or resistance to diseases caused by bacteria or viruses may be responsible for immunity, disease or death within the population exposed to disease-causing bacteria.

Starting with these known facts, Dr. Gowen sought information on the total genetic constitution of a single organism. X-ray analysis seemed to him a method for such an investigation. Consequently he exposed *Drosophila* sperm cells to graded doses of X-ray and found four types of change.

Besides the increase in the proportion of males to females, he observed that a large number of the sperm cells die in a prescribed order; that many sex-linked fatal changes are produced; and that a few changes in the character of the genes occur which cause changes in body form.

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PALEONTOLOGY

Archancestral Crocodile Modeled for Museum

See Front Cover

KIPLING, in one of his happiest tales, long ago gave us an authentic and authoritative account of how the nose of the Elephant's Child got that way, from poking it too much into other animals' affairs—specifically into the affair that is the crocodile's snout. It has, however, remained for a Yankee scientist, Barnum Brown of the American Museum of Natural History, to dig up the bones of the Crocodile's Ancestor, and by a technique that combines the knowledge of the anatomist and the skill of the sculptor, to re-clothe them with the similitude of flesh and make this strange beast live again before our eyes.

This great-grandpa of all the 'gators lived some two hundred million years ago in a tropical swamp that has since cooled off and dried up and is now part of the Painted Desert of Arizona. Its fossilized bones, which were recovered