

BIOLOGY

New Idea of Cause of Sex Revealed by Fruit Fly Studies

A NEW IDEA of the cause of sex is advanced and substantiated by experiments reported to the National Academy of Sciences by Dr. Calvin B. Bridges, of the Carnegie Institution of Washington, who has been working in the biological laboratories of the California Institute of Technology with Dr. T. H. Morgan, the pioneer investigator of the chromosomes, the minute rod-like cell particles that are the bearers of heredity.

Heretofore it has been believed that sex is determined by what are known as the "X" and "Y" chromosomes. When there are two "X" chromosomes the individual grows to be a female, when a "Y" joins with an "X," the result is a male.

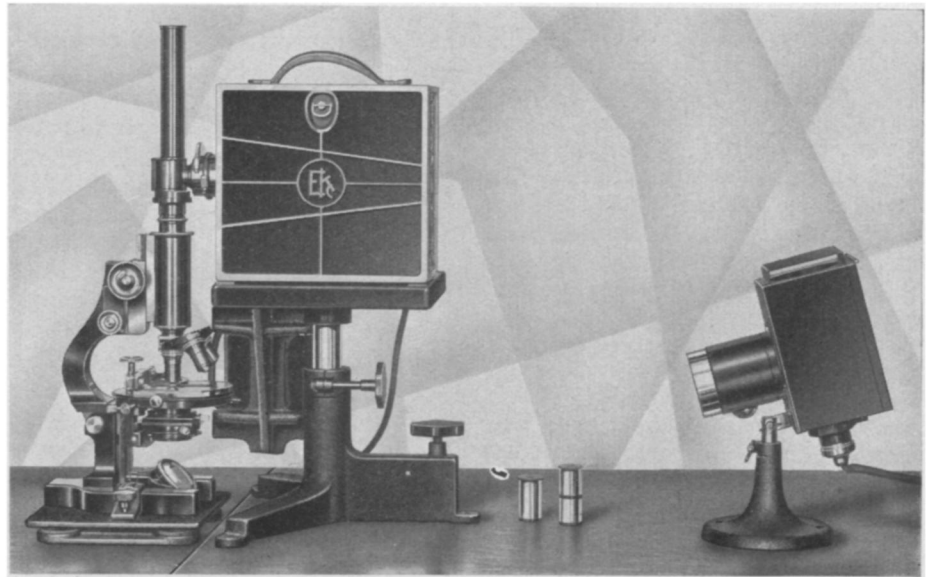
This is the case in many animals and insects, including man, in which 48 pairs of chromosomes are found in any rapidly developing cells of the living body.

Dr. Bridges now finds that sex does not reside in these two special chromosomes alone but in some cases is distributed in practically all the chromosomes. And he finds, as have other investigators who change roosters into hens, that sex is a matter of degree rather than an absolutely fixed state.

He finds that there are what may be termed superfemales, normal females, sex intermediates, normal males and supermales. This is determined by the ratio of the chromosomes present with the "X" rods carrying the female tendency and the ordinary and most plentiful chromosomes carrying the sections which bring masculinity. The sections of the chromosomes are called genes and for this reason the new theory is called the "genic balance."

The fruit fly, *drosophila*, which has furnished more information about heredity than any other kind of creature, was the subject of Dr. Bridges' experiments. He grew many thousands of these tiny banana flies in milk bottles and finally found the one fly that proved his theory. It was a short bristled creature that was peculiar because it contained only half the normal number of chromosomes and therefore only one "X" chromosome. According to his theory this haploid creature would be female; and this proved to be the case.

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