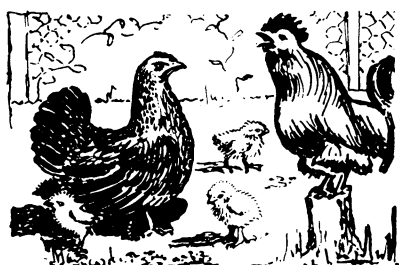


BIOLOGY

NATURE RAMBLINGS

by Frank Thone



The Simplicity of Sex

► SEX is a really simple phenomenon in its biological basis. Bi-parental reproduction in plants and animals is essentially the utilization of two pieces of protoplasm, detached from different individuals, which are mixed together to start the new individual. There is a terrific amount of fuss and emotion, and whole libraries full of sociology and moral theology and poetry and drama, about the subject of Sex, but at the ultimate biological bottom of the business it is just that simple thing: two separate bits of protoplasm mixed together to form a new individual.

Just why this bi-parental mode of reproduction should have come into operation in the living world, and especially why it should have come to be the exclusive method among the higher animals, is still pretty much of a riddle to science. Numbers of answers have been proposed, and while some of them are fairly satisfactory none of them can be fairly called conclusive. "The way of a man with a maid" is still just about as much a mystery to us as it was to Solomon.

It has been alleged that greater vigor in the offspring results from the sexual than from the asexual mode of reproduction. This, however, seems difficult to prove. Certainly there is no lack of vigor in the bacteria, which so far as we know always reproduce asexually, by simple division. Many other kinds of lower organisms go along for many generations without any kind of bi-parental reproduction.

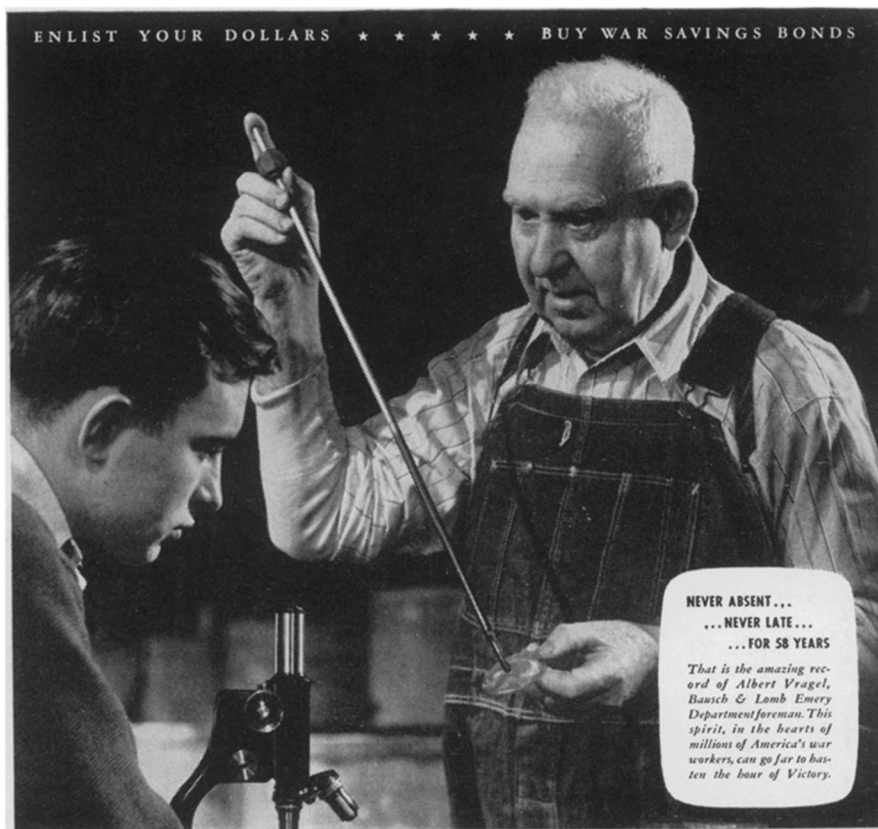
Origin from two parents instead of one does, however, result in more rapid variation in lines of descent. When you divide a single piece of protoplasm into

two or more pieces and make a new organism out of each piece, it is exceedingly seldom that the offspring will be different in any way from the parent. We take advantage of this lack of variability in asexual reproduction when we propagate plants by cuttings, grafts, bulbs, etc. Cuttings from an American Beauty rose always produce American Beauties, grafts from a Jonathan apple always bear Jonathans.

But when you start with two batches of differing parental material, the mix-

ture will contain a mosaic or blending of the different hereditary traits possessed by the parents. You need only look at any human family, or any litter of puppies or kittens, to see that. And although individual differences are less marked among the lower organisms with which we are immediately concerned here, they do exist, and their mixing in bi-parental reproduction probably has had a good deal to do with the long process of evolutionary change.

Science News Letter, October 9, 1943



Knowing how . . . and Showing how



Building optical instruments is a job for skills built on experience. Bausch & Lomb has the skills, and the experience. Albert Vragel, emery expert, is one of 39 men and women who, with 50 years or more at Bausch & Lomb, have helped America through three wars. They are part of the organization known as the Early Settlers—the Bausch & Lomb 25-year-service club—with 518 members. Such experience is irreplaceable today. It indicates why Bausch & Lomb was ready, when war clouds gathered over Europe, to supply the United Nations with the optical

instruments of war. It provides the "know-how," too, to meet ever-increasing production demands, by training thousands of new workers . . . for our own plant and plants of other manufacturers, to whom we have made available Bausch & Lomb specifications, methods and experience for certain military optical instruments.

BAUSCH & LOMB
OPTICAL CO. ROCHESTER, N. Y.
ESTABLISHED 1853

AN AMERICAN SCIENTIFIC INSTITUTION PRODUCING OPTICAL GLASS AND INSTRUMENTS FOR MILITARY USE, EDUCATION, RESEARCH, INDUSTRY AND EYESIGHT CORRECTION