

cell. If this were the only means of variation, survival of the fittest could certainly never bring into existence a new major type of plant or animal. For this some other source would need to be found.

As we have noticed, small mutations occasionally appear. The reason for their occurrence is unknown. In the laboratory it has been possible to cause mutations by the use of radiation, and there is said to be a possibility that the effect of cosmic rays upon the germ cell may sometimes be important in causing mutations of particular genes.

NEO-DARWINISM

After it became generally accepted that the way an individual uses his various organs has no direct effect on the circumstances of the next generation, a new approach, called Neo-Darwinism, came to be widely accepted by evolutionists. According to this view a long series of small infrequent micro-mutations, preserved through natural selection, has produced all the great variety of types of plant and animal life.

There are great difficulties with the Neo-Darwinian view. One of these is the fact that mutations are comparatively rare. Most mutations are deleterious to the organism. Some are actually fatal. A number are neutral, having no effect upon its survival, and therefore tend to disappear as the individual is absorbed into the mass of the species. It is only at rare intervals that one occurs that is beneficial and that can be inherited. Some writers declare that less than one percent are beneficial. Julian Huxley goes so far as to say that not more than one in a thousand could be thus described. When we think of the great number of sizable gaps that exist between species, of larger ones between genera, of still larger ones between families, and of yet larger ones between orders, between phyla, etc., and when we realize in how few of these cases there