

DEMOGRAPHY

Need Population Control

The seriousness of the current population upsurge poses a problem for biological and social scientists, particularly in the underdeveloped nations of the world.

► THE DAY may come when individuals will no longer have the right to determine how many children they will bear, without regard to biological and cultural consequences, Dr. George W. Beadle, geneticist and 1958 Nobelist in medicine and physiology, suggested as a result of the development of knowledge about heredity and genetics and the growth of world population.

Dr. Beadle, chairman of the California Institute of Technology's biology division, speaking at a Resources for the Future forum, said that decisions must be made about man's genetic future because:

Genetic knowledge we have attained "can be applied to directing our own evolutionary futures," but we shall "fail miserably unless it is done with more wisdom than so far demonstrated."

"With present rates of population growth, something will have to happen before too many generations." Questions to be answered "will go far beyond science in their implications." (See p. 54.)

"Genetics will have a great deal to say about such things as the necessity of genetic

diversity in populations, the biological consequences of interpopulation mixing and the effect of mutation rates that will result if exposure to artificial radioactivity is significantly increased over its present levels."

Dr. Beadle predicted that biochemists may, before long, be able to duplicate in test tubes the conditions under which "living" molecules arose on earth a few thousand million years ago.

Citing the recent discoveries that deoxyribonucleic acid (DNA) is the primary genetic material, in viruses and probably in animals including man, Dr. Beadle told how this new knowledge of the stuff of the genes fills important gaps in our understanding of evolution.

Life can now be defined in objective terms, Dr. Beadle observed, as ability to replicate in the manner of DNA (duplication of molecules in the image of the original one) and to evolve through mutation (change of the genes) and natural selection.

Former vice president Henry A. Wallace, whose development of hybrid corn was

largely responsible for adding within a few years at the end of the thirties 20% or 500,000,000 bushels to the American corn crop without adding labor or acres, declared in discussion of Dr. Beadle's paper that:

"Complete chemical and biological understanding of DNA and the chromosomes will sooner or later shake our social, political and religious life even more profoundly than the atomic bomb."

Mr. Wallace suggested hereditary and health records will in the future be kept of all the people of the world, listing diseases, death causes, intellectual attainments, abnormalities, the blood types of each person by families. These would not be used by a genetic Hitler, but would allow choice of marriage partners to avoid hereditary disease.

Population Boom

Mr. Wallace observed that world population now increases at the rate of 48,000,000 a year and probably 30,000,000 come from areas where the income per capita is less than one-tenth that of the United States and where illiteracy is more than 50%. These millions in the future will become the most powerful political force in the world.

The population explosion in the long run threatens Russia more than the United States, Mr. Wallace believes. He is more concerned with the increasing lack of opportunity for these rapidly breeding people to demonstrate productivity in hope and joyous living than he is about possible inferior genetic quality.

The wonders of human growth were described by Dr. Beadle as follows:

"It is an unending source of wonderment that out of minute spheres of jelly-like protoplasm little larger than the point of a dull pin there should develop living beings like you and me—beings built of uncountable billions of molecules intricately organized and interrelated; capable of growth, adaptation, memory, rational thought and communication; able to create and appreciate art, music, literature, religion, science and technology; and, above all, designed to hand down to the next generation the biological and cultural inheritance that permits this near-miracle to be repeated again and again. All this from the tiny cell that is the fertilized egg of man.

Secret of Life

"If we could but expose the secrets that lie locked within this minute sphere, we would have achieved complete understanding of man, including the manner of his origin from subhuman ancestors and the nature of his destiny in an evolutionary future now unknown. Not in your time or mine, nor in the time of our sons and grandsons, will we succeed in doing this. But still the progress of modern science has been so great in this direction in recent years that it is now possible to redefine some of the most basic concepts of biology in terms enormously more meaningful than those used but a few years ago."

Science News Letter, January 24, 1959



MISSILE TARGET—A parachute served as target in the first test of the Nike Hercules' lethal capacity. The supersonic guided missile successfully intercepted and destroyed its target at an altitude of more than 20 miles. Bell Telephone Laboratories' scientists H. G. Och, R. W. Benfer and L. W. Morrison (left to right) examine holes in the 'chute.