

EUGENICS

Control Spreads Ills?

Possibility suggested that treatments for hereditary diseases, like insulin for diabetes, might increase the incidence in long run. Previously, sufferers' early death provided control.

► AS ONE disease after another is brought under control by the progress of medical science, there is a possibility that the controlled disease may spread until the entire population is sick with it.

This paradoxical situation is suggested as a definite possibility in the case of inherited diseases by Dr. Stanley M. Gartler of Columbia University's Institute for Study of Human Variation in New York. Just how serious the problem is depends upon the particular way by which the individual disease is inherited.

One such hereditary disease is diabetes. Before the invention of insulin, the early death of persons with diabetes provided an automatic control of the disease. Diabetics just did not live to grow up, marry and have children who in turn would develop diabetes. Now it is extremely rare for a person to die of diabetes.

There are four ways by which such a hereditary disease could be maintained in a population against the tendency for death to interrupt the chain (when there was no effective therapy).

One system is by mutation. If the mutation rate is such that one out of 400 germ cells carries the disease, then with control of the disease it would take 150 generations or 4,000 years for the disease to spread to serious proportions throughout the whole population. This is too long a time for most people to worry about.

The second system which might apply assumes "selection in favor of the heterozygote." This means that carriers of the disease are more likely than others to have children who survive. In this case, the disease would spread to serious proportions in only 75 generations or about 2,000 years. But the disease could never spread to affect the whole population.

The third system is "gametic selection." This means that the germ cell carrying the disease is more likely to result in offspring than other cells. In this case, the disease would spread faster and could be expected to reach serious proportions in 45 generations or around 1,250 years, Dr. Gartler says.

The final possibility is that parents carrying a hereditary tendency to the disease might, intentionally or not, have larger families (perhaps in the hope of being survived by some healthy children).

If this happens, it could spread the disease to serious proportions within 20 generations or less than 500 years.

Diabetes is, of course, not the only such hereditary disease. Another is the serious sickle cell anemia. It is possible, Dr. Gartler

suggests, that the greater frequency of this disease in Africa as compared with America may be due to a resistance of the disease-carrying cells to the malarial parasite. Control of mosquitoes in America may have taken away the malaria survival advantage of those with sickle cell anemia inheritance and thus tended to reduce incidence of the anemia.

Dr. Gartler's suggestion that medical control of a disease might result in its spread is contained in a report to *Eugenics Quarterly*. (March.)

Science News Letter, April 2, 1955

STATISTICS

Predict Over 63,000,000 Children in Ten Years

► THE UNITED States will have more than 63,000,000 children under age 18 by 1965, statisticians of the Metropolitan Life Insurance Company predict.

The prediction is based on projections by the U. S. Bureau of the Census.

The number of children under age 18 in the U. S. now number about 54,500,000. This is an increase of 13,000,000 in the 10 years since the end of World War II.

The increase for the 10-year period broke all previous records and was greater than the gain during the preceding 45 years.

Science News Letter, April 2, 1955

PHYSICS

Moon Is Not "Hot"

► THE MOON'S surface has so little radioactivity that exploration by humans there would not be dangerous, Dr. S. F. Singer, physics professor at the University of Maryland, told the Aero-Medical Association meeting in Washington.

The most plentiful material produced by cosmic ray bombardment of the lunar crust is tritium, the triple-weight hydrogen of H-bomb importance, but "its amount will be much too small to have any biological effects," he reported.

Dr. Singer also calculated the effects of cosmic rays at extremely high altitudes, particularly collisions of energetic particles from outer space on the nucleus, heart of the atom. Nuclear bombardment can radically and irrevocably change the character of the element. Iron can be transformed into chlorine. Once a nucleus is broken up, it does not repair itself.

Some of the energy of incoming primary

● RADIO

Saturday, April 9, 1955, 5:00-5:15 P.M. EST
"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Dr. Reuben G. Gustavson, president and executive director of Resources for the Future, Inc., Washington, will discuss "Energy and People."

ELECTRONICS

Projection TV May Solve Color Problems

► AN EXPERIMENTAL color TV receiver that projects the image on a cabinet screen has been developed that might cut the cost of color sets and eliminate the problem of color purity.

Three separate tubes are used in the device, each one to project a different hue. These projection tubes individually would cost one-fifteenth as much as a tricolor tube used in present commercial models. There would also be a saving in maintenance, since if one tube fails only that one must be replaced.

The projection receiver would be housed in a shallow cabinet, and test models have produced a 240-square-inch picture, W. F. Bailey and R. P. Burr of the Hazeltine Corporation, Little Neck, N. Y., told a meeting of the Institute of Radio Engineers in New York.

The designers have also solved the problem of making the colors coincide on the screen and, since each of the tubes shines a separate color image on the screen, the color purity problem "simply does not exist," they said.

They called for a renewed study of projected color TV in view of new developments which have increased the reliability and performance of such designs.

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cosmic ray particles is converted into matter. These created particles have further effects, but of an atomic rather than nuclear kind.

Atomic effects, which are reversible, are being investigated by many scientists, but the irreversible nuclear changes caused by primary cosmic ray particles were discussed for the first time by Dr. Singer.

Biologically, an exposure of one day above the atmosphere near the earth's poles is equivalent to an exposure of 100 days at 10,000 feet, Dr. Singer calculated. He concluded that the secondary, or atomic effects, would "be more serious than the nuclear effects."

The best shielding against either nuclear or atomic changes is material with high proportions of hydrogen. Water or kerosene and similar fuels are "18 times better on a weight basis than iron," Dr. Singer said.

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