PUBLIC HEALTH

Bad Eugenics Harmful

Man's present practices are called more injurious to the human race than irradiation. Doubling of mutation rate from radiation would not have effect for several generations.

➤ SOME OF man's poor eugenic practices threaten more danger to the survival of the human race than would come from a permanent doubling of the mutation rate through accidental poisoning of the air by irradiation, Dr. Herman M. Slatis of McGill University, Montreal, Can., wrote in *Science* (June 10).

No justification for rashness with A-bombs, H-bombs or other sources of radiation is to be taken from his report, Dr. Slatis warned.

"The basic fact to remember at all times is that any irradiation is bad, and therefore irradiation should be used only if it can be assumed that the good will outweigh the bad," Dr. Slatis said.

Society as a whole should be protected against a general increase in background irradiation, Dr. Slatis pointed out.

At the present time man is probably carrying a few harmful mutant genes. From studies of first-cousin marriages, Dr. Slatis estimated that the average person is carrying only eight abnormal recessive genes. These may include some that are not lethal to the offspring.

Mutation is probably transforming some more normal genes to abnormal ones at about the same rate that abnormal ones are being lost through selection, that is through failure of those carrying the abnormal ones to marry and pass them on to descendants.

Many mutations are lethal. If man-made irradiation increases the mutation rate, the result is sure to be harmful. However, Dr. Slatis reported, the radiation-induced mutation rate per roentgen of radiation seems to be bounded between a third and a one-hundredth of the spontaneous rate. The spontaneous rate, his studies showed, is not as high as some authorities have recently suggested.

If accidental poisoning of the air by radiation permanently doubled the mutation rate, it would be several generations before the accumulations of new mutations amounted to very much, Dr. Slatis said.

The average number of harmful mutations would increase and so would the frequency with which persons bearing the same mutants would marry and have defective offspring.

The effect, however, would be very small. A gene that had had a frequency of 0.00010 would eventually build up to a frequency of 0.00014.

"With such small changes," Dr. Slatis wrote, "it would seem unlikely that a doubling of the mutation rate could pose a serious problem to the life of the species, and it might go almost unnoticed.

"Some of our current dysgenic practices that are countenanced because of custom, inertia, humanitarian practices or foolishness are probably more serious to the species."

Dr. Slatis is now at the Argonne National Laboratory, Lemont, Ill.

Science News Letter, June 25, 1955

NATURAL RESOURCES

Century Supply of Oil

➤ ENOUGH LIQUID fuel to meet the needs of all nations for a century lies in an oil shale area of northwest Colorado somewhat smaller than Rhode Island.

How the government is seeking ways to tap this most fabulous known oil reserve was reported to the Fourth International Petroleum Congress in Rome by Boyd Guthrie, chief of the oil shale engineering branch of the U. S. Bureau of Mines.

The 1,000-square-mile area is the richest section of the Green River oil shale formation, which extends into Wyoming and Utah and ranges in thickness from 500 to 2,000 feet.

Oil shale is a rock from which oil can be separated by distillation.

Pilot plant retorts to remove the oil have been built and tested by the Bureau near Rifle, Colo., Mr. Guthrie said. The gas combustion method, using a continuous, single-vessel, countercurrent, gravity-flow retort, proved to have many advantages over other methods.

In the system, the vapors are condensed into a fine stable mist within the retort. The products are cooled before being withdrawn from the vessel. A great advantage of the method is that cooling water, scarce in that semi-arid area, is not needed.

Many problems remain to be solved, however, and just when an oil shale industry will develop in the United States depends upon the costs of petroleum fuels, availability of foreign oil supplies, and further technological developments with oil shale technique, he said.

Today, estimated costs for shale oil are only a little higher than average costs from petroleum. Before 1960, Mr. Guthrie predicted, costs will be equal.

Science News Letter, June 25, 1955

NATURAL RESOURCES

Canadians Fight Fires With Water Bombs

See Front Cover

➤ FIREFIGHTERS IN this vast country of forest lands, with approximately 15 fires a week, have hit upon a novel and effective method to quench small blazes from the air. They drop water bombs.

The bombs, made of laminated paper bags, are dropped from a tilting ramp of rollers in salvos of up to eight from water-based De Havilland Beavers and from helicopters, one of which is shown on the cover of this week's SCIENCE NEWS LETTER.

Canadian bush pilots showed their sharp aim in simulated maneuvers at Downsview Airport near Toronto, Canada.

The bags splash their contents of three and one-half Imperial gallons (about four U. S. gallons) of water in an area about 50 feet in radius. In many cases, fire fighting experts said, this is enough to halt a small blaze or keep it under control until men can reach the scene. No bomb sights are used.

The Canadian Department of Lands and Forests operates 42 aircraft, 38 of which are Beavers, light single-engined planes noted for their maneuverability and short take-off and landing runs.

The huge forest areas, called "bush country," are patrolled by these planes equipped with pontoons to operate from the lakes that pepper the forest regions.

Science News Letter, June 25, 1955