

## GENETICS

# Radiation Survivors

➤ A WORLD-WIDE radiation disaster might eventually give rise to two populations, research on bacteria indicates. This is a long shot, however, presupposing that humans react as bacteria do.

Dr. Herbert M. Hirsch, working as a research scholar under the American Cancer Society at the University of Minnesota School of Medicine, Minneapolis, reported experiments that throw light on the alteration and selection of species. Starting with a culture of ordinary (wild-type) bacteria, the scientist added copper ions that produced a "disaster."

Most of the bacteria died, and most of the survivors reproduced very slowly if at all. But as time passed, a small number of survivors, called variants, began reproducing at a rapid rate. They were resistant to effects of poisonous copper and differed in many ways from ordinary bacteria.

Eventually a second population of survivors began to appear, resembling the original bacteria in every respect except that they had just enough resistance to copper to grow slowly in the presence of that poison.

Finally, the completely resistant variants

disappeared as rapidly as they had developed, and the culture was repopulated with ordinary bacteria, with just enough resistance to survive the copper concentrations.

"If humans react as bacteria do," the American Cancer Society said, "it is possible that a world-wide radiation disaster, producing hazards which would endure for generations, would give rise to two populations."

The first population would spring from a few survivors with unusual characteristics and an enormous resistance to radiation. This race would flourish awhile and disappear.

The second would arise from even fewer people, with ordinary characteristics and barely enough resistance to survive, but this race ultimately might prove "durable and dominant."

Dr. Hirsch further reported that cuprous copper, which has only a single charge, is not poisonous to bacteria but that cupric copper, with a double charge, is. Apparently the double charge makes the copper react readily with cell catalysts (enzymes) or other cell components.

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## PUBLIC HEALTH

# Treat Czech Alcoholics

➤ FIFTY PERCENT success has been reported in a treatment center for alcoholics in Czechoslovakia, where the estate of a wealthy brewer was confiscated for use as an anti-alcohol institution.

Studies in Poland and Russia showed treatment of alcoholics in these countries to be inferior to that in Czechoslovakia. Poland has the worst alcoholic problem of the three countries.

Dr. Morris E. Chafetz of Harvard Medical School, associate psychiatrist and director of the alcohol clinic, Massachusetts General Hospital, Boston, reports the studies in *The New England Journal of Medicine*, 265:68, 1961.

Conservative estimates, Dr. Chafetz states, place the number of alcoholic patients in Czechoslovakia (the only Iron Curtain country where he was able to obtain figures) at about 120,000, or roughly two percent of the total population (versus three percent of the total population, or 5,000,000 to 6,000,000 in the United States).

As in the United States, Czechs find the association between alcoholism and broken-marriage rate is very high. A patient recommended for treatment is asked to bring his spouse along for the first visit, and if the interview shows that marital difficulties contribute to the drinking, the marital partner also is taken into treatment.

In Poland, there are insufficient hospital facilities for dealing with alcoholism, which has become an overwhelming problem since the end of World War II. One factor is the

trend to urban living by rural persons who feel lost and lonely without friends and familiar sights.

In Russia, where Dr. Chafetz was welcomed to study alcoholism activities by Prof. D. D. Fedotov, director of the Psychiatric Institute and a member of the Academy of Medical Science, the investigator was told that Russia "has as much alcoholism" as any other country.

"The Soviet attitude toward the alcoholic patient," Dr. Chafetz observed, "tends to be moralistic and punitive, as in the U.S. The Soviets do not achieve the sophistication, interest and extent of Czechoslovakian efforts in alcoholism."

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## MEDICINE

## Rous Sarcoma Virus Can Affect Mammals

➤ ROUS SARCOMA virus, which under normal conditions affects only birds, can cause disease in mammals, a Russian scientist reports in the *Journal of the National Cancer Institute*, 26:1295, 1961.

Dr. L. A. Zilber of the Gamaleya Institute of Epidemiology and Microbiology, Moscow, says others had shown the disease-causing effects of Rous sarcoma virus (RSV) on chicks and other birds, but that "our experiments show that the virus can be pathogenic to mammals."

RSV has been shown to produce hemor-

rhagic disease in rats (an infectious effect without tumor). In the course of time the RSV induces tumors and a benign tumor process in rabbits.

Dr. Zilber explains that the hemorrhagic disease in rats and the tumors that appear afterward, as well as the fibrous tumors formed in rabbits by RSV "are new models whose study may prove fruitful" in making clear the nature and mechanism of the neoplastic, or tumor, process.

"For the first time," he states, "it is possible to follow in the same animal the infectious and neoplastic process caused by the same virus."

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## MEDICINE

## Better Test Found for Early Cancer Detection

➤ A BETTER TEST for detection of cancer in its very earliest stages, thus increasing the chances of cure, has been discovered.

Three Swiss scientists report on an improved test designed to spot the difference between benign and malignant diseases within the body. The test is based on measurements of an enzyme called gamma-lactic dehydrogenase, which is present in larger amounts when the condition is malignant.

The level of gamma-lactic dehydrogenase also is increased in cases of benign disease, but does not reach the proportions found in malignancy.

Although the number of samples they investigated is too small to justify a definite statement, the scientists point out "the importance of the demonstration of a quantitative and possibly qualitative difference between a normal and a malignant body fluid."

A report on the test by Drs. R. Richterich, K. Zuppinger and R. Rossi of the University of Berne's Medical-Chemical Institute and Children's Clinic appears in *Nature*, 191:299, 1961.

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## PSYCHOLOGY

## Visual Practice Helps Distinguishing by Touch

➤ LOOKING AT TWO objects and touching them in the daylight can help you learn to distinguish between them by touch alone in the dark. This is indicated by experiments with monkeys reported by Dr. G. Ettliger of the Institute of Neurology, London, in *Nature*, 191:308, 1961.

The monkeys learned to obtain a reward of food by grasping and pushing on a strip of foam rubber attached to the top of a food box. Another box had a similar strip attached to the top, but this strip was of wood. Pushing on the wood strip would open that box but was unrewarded because the box contained no food. Both strips, wood and foam rubber, were the same color, black, but differed in texture.

Practice in finding the food in the daylight was some help to the animals in learning to open the boxes in the dark, it was found.

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