

MEDICINE

Mongolism, Leukemia Link

Surveys show childhood leukemia is associated with a variety of rare diseases in the patient and among his siblings which may indicate chromosomal defect, Faye Marley reports.

► **THERE SEEMS** to be some sort of link between mongolism and leukemia.

Mongolism, a form of idiocy, was more common than usual, not only among the 519 leukemic children surveyed, but also among their brothers and sisters.

Eight cancers, five of which were leukemia, were found among the siblings of the leukemic children, a highly significant occurrence since only one case was expected on the basis of U. S. national rates.

Besides mongolism, called Down's syndrome, major congenital defects were about twice as numerous among leukemic children as among their matched controls. But the brothers and sisters showed no more congenital defects than their controls.

Controls for comparison were children without leukemia in the same neighborhoods, in families of the same size, age and order of birth as those with the blood cancer.

Twelve medical groups participated in the national cooperative leukemia survey, reported in the New England Journal of

Medicine, 268:393, 1963, by Dr. Robert W. Miller of the National Cancer Institute, Bethesda, Md.

Dr. Miller said that the survey results suggest that childhood leukemia is associated with a variety of rare diseases in the same child and among his brothers and sisters. Laboratory studies of white blood cell chromosomes could be valuable when the history of the leukemic child indicates their need. This means when the major congenital defects or cancer are found in the siblings; also when the child's mother has had an unusual number of abortions. All of these disorders may indicate chromosomal defect.

Chromosomal abnormalities could or could not affect the occurrence of leukemia. They do not necessarily mean that leukemia is a direct result but may signify a "predisposition" to the effects of an environmental agent that brings about the cancer. What the environmental agent may be is yet to be discovered.

• Science News Letter, 83:151 March 9, 1963

VIROLOGY

Test-Tube Grown Virus

► **CONTROL** of virus diseases—possibly cancer—is foreseen from the test-tube formation of infectious virus from healthy bean and tobacco plants.

Dr. George W. Cochran, professor of botany at Utah State University, Logan, announced his second important virus discovery in a year at a meeting on viruses, nucleic acids and cancer.

Last year Dr. Cochran and others made scientific history by their discovery that the ribonucleic acid (RNA) of tobacco mosaic virus could be formed in a test tube with extracts from infected plants. This same infectious material has now been formed more efficiently from extracts of healthy plants.

Building on his first discovery, Dr. Cochran removed the chloroplasts, tiny green bodies containing chlorophyll, and nuclei, central units that direct all the cells' activities, from healthy plants.

He purified them, placed them in test tubes and broke them open with ultrasonic energy. Then he added a very small amount of viral nucleic acid to serve as a pattern for the formation of new infectious viral units by a chemical reaction. It worked.

The current concept that viruses or their nucleic acid components may bring on some forms of cancer is sparking worldwide research. Dr. Cochran was one of the 60 participants in the 17th annual symposium on Fundamental Cancer Research sponsored

by the University of Texas M. D. Anderson Hospital and Tumor Institute. Africa, Canada, England, Germany, Israel, Italy, Russia and Scotland were represented along with the U. S. and about 1,000 research scientists attended the meeting.

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MEDICINE

Atomic Blast Survivors Getting Thyroid Cancer

► **SOME** of the Japanese school children who survived exposure to radiation from the 1945 Hiroshima and Nagasaki atomic blasts are now developing thyroid cancer.

Long-term investigations of the Atomic Bomb Casualty Commission in these ill-fated cities show that thyroid cancer is significantly more prevalent among patients who were heavily exposed to ionizing radiation at the time of the bombings.

A three-year survey in the Adult Health Study populations of the two cities is unique in that it has identified persons of all ages who were exposed to the bombings.

Future examinations over the next 10 to 20 years will be especially important, the investigators say. It is hoped that more of the 355 patients now found to have enlarged thyroid glands will consent to biopsies. Only 70 of them underwent surgical removal of tissues to determine diag-

nosis, with a resulting 21 thyroid cancers confirmed.

Drs. A. Hashizume, S. Neriishi and R. Niitani of Hiroshima and Nagasaki, with Dr. Edward L. Socolow, now at the Massachusetts General Hospital, Boston, reported the study in the New England Journal of Medicine, 268:406, 1963.

• Science News Letter, 83:151 March 9, 1963

MEDICINE

Lung Banks Possible For Humans in Future

► **SURGEONS** predict "lung banks" for the future. Success in storing lungs and transplanting them between unrelated dogs gives this encouragement. More research must be done, however, before human lung grafts can be considered.

In 14 operations on dogs, four transplants appeared to be successful from six to 56 days later. The research required a long period of trial and error.

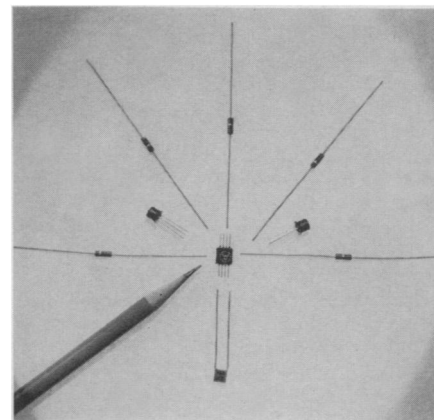
To overcome the natural immunity of the animals against "foreign" tissue, the investigators injected methotrexate, a drug commonly used against leukemia and other forms of cancer, following transplantation and three times a week afterward.

The removed lung to be transplanted was placed in a plastic bag, immersed in ice water and ventilated with air by a respirator three or four times a minute. Between 18 and 20 hours later, the lung replaced one just removed from another dog.

The researchers are now trying to develop a method of preserving lungs in a frozen state. If lungs can be frozen, and transplanted successfully, lung banks would be feasible.

The experiments were conducted at the Mary Imogene Bassett Hospital, Coopers-town, N. Y., an affiliate of Columbia University, by Drs. David A. Blumenstock, Herbert B. Hechtman and John A. Collins, and were reported by the American Cancer Society.

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Westinghouse

TINY AMPLIFIER—The tiny device in the center, developed by Westinghouse Electric Corporation, weighs seven-thousandths of an ounce and does the work of the five resistors, two transistors and one capacitor surrounding it.