MEDICINE

Light on Leukemia Cause

New research suggests that blood disease may be due to a damming up of white cells rather than just their overproduction.

➤ RESEARCH which greatly broadens science's concept of leukemia and suggests new approaches to better understanding and treatment has been reported at the University of California School of Medicine. The work also suggests a way in which some cancers may grow.

For 125 years physicians have accepted, with some modifications, the idea of a German pathologist, Rudolph Virchow, that leukemia is caused by an overproduction of white blood cells.

The California research suggests a concept which appears to be of equal importance. The new idea is that leukemia may be caused in part by derangement of the normal mechanism for removal of white cells from the blood, thus damming up the white cells in the blood.

In either case one would expect an oversupply of white cells in the blood, which is characteristic of most types of leukemia.

The evidence does not eliminate the overproduction theory as a factor in leukemia. It places the new concept as an additional factor, possibly as important as overproduction as a cause of leukemia.

The scientists first demonstrated the removal mechanism in leukemia, a mechanism which has been poorly understood. White blood cells have a cycle similar to that of other body cells: cells are generated, have a characteristic life span, then are removed or "die."

The scientists located the removal mechanism for white blood cells in the lungs. They performed the experiments first in animals and then in man. They injected enormous quantities of white cells from leukemic individuals into non-leukemic persons, as many as 240 billion in periods ranging up to 90 seconds.

Blood samples at the right side of the heart reflected the elevated white cell count. But after the cells had passed through the lungs and to the left side of the heart, it was found that the surplus had been eliminated in from 60 to 90 minutes.

In addition to its implications in leukemia, the demonstration of such a mechanism is an important fundamental addition to fundamental physiological knowledge.

The work warrants speculation that similar mechanisms operate in other diseases of the cancer family, in which leukemia has been placed. Since all tissues of the body are involved in the cycle of regeneration and removal of cells, perhaps the breakdown of the removal mechanism may be responsible in part for the growth of some tumors.

The research was reported by Dr. Howard R. Bierman, Dr. Jonathan T. Lanman, and Dr. Ralph Byron. (BLOOD, December). It was done in the Laboratory of Experimental Oncology, a branch of the National Institute of Health, located at the University.

Science News Letter, February 3, 1951

PHOTOGRAPHY

Traveling Camera Keeps Pace with Horses

➤ CLOSE-UP motion pictures of race horses speeding around the track can be made with a camera and camera carrier that travels along the inside edge of the track, keeping pace with the animals. The carrier travels suspended from an overhead track just far enough away from the racers to get good focus.

This camera system is the invention of Max O. Miller, Los Angeles. Patent received is 2,538,910. Rights are assigned to Motoview, Inc., Carson City, Nev.

The official name for the invention is a "television and photography system for race tracks." The speed of the traveling camera is regulated to keep abreast of the racers by remote control by an operator who uses a television view finder mounted in the carriage. This enables him to see the same field of view as that being photographed.

Science News Letter, February 3, 1951

ENGINEERING

Gas Turbine Engine Powers Minesweepers

➤ A FORWARD step in the adoption of gas turbine engines to marine uses was revealed in the announcement that lightweight Boeing engines of this type will be used by the U. S. Navy to supply electric power to minesweepers.

The engine to be used is an improved version of the lightweight gas turbine engine developed by Boeing Airplane Company which has been in use for nine months on an experimental basis in a highway truck. This same engine has also been tested by Boeing in a 24-foot Navy personnel boat. A production contract has now been received by Boeing from the U. S. Navy.

The engine to be used in the minesweepers is a 175-horsepower turbine with several significant changes from the version used in the truck. These include a modification of the reduction gear assembly, enlarged bearings and shaft, a lighter mounting frame, new accessory drive unit, and new circular exhaust outlets permitting the turbine to be installed in a smaller space than formerly required.

Science News Letter, February 3, 1951

TESTING GAS TURBINE—This 24-foot Navy personnel boat is pictured making a test run of the Boeing gas turbine engine which the Navy plans to use to power minesweepers.