

MEDICINE

Cancer Conquest Search

Cancer, the nation's number two killer, is being attacked by a vast multi-pronged army of scientists in hospitals, clinics and research laboratories.

Cancer is a big, almost daily story, and will be until—and if—science conquers this number two human killer. SCIENCE SERVICE is represented on the coast-to-coast visit being made to leading cancer research laboratories conducted by the American Cancer Society by C. Marden Cotton. The following stories are from the first leg of his trip.

► **BREAST CANCER** in highly susceptible mice can be halved by giving the female a rest period between pregnancies.

Dr. Katherine P. Hummel of the Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Me., found that one strain of mice, bred very rapidly, had a 14% incidence of breast cancer, while the incidence dropped to seven percent with a rest period between pregnancies.

No similar results for breast cancer in humans have been reported, although Dr. Hummel indicated that studies are now in progress elsewhere to determine if there is a high incidence of such cancers in women who have had children rapidly.

The frequency of these cancers in mice is dependent upon hereditary susceptibility, hormone balance, the presence of a virus agent in the mother's milk and other factors, yet unknown.

If the virus-like factor is added to the slow-bred mice, the incidence of breast cancer is higher than normal, but still less than for fast-bred mice with the factor.

Dr. Hummel traced the higher incidence to the constant hormone stimulation in the fast-bred animals.

Another study at this laboratory has shown that ovaries taken from two-year-old mice, equivalent to 75 human years, can be transplanted to young females and in their new environment, they become active and offspring are produced. Dr. Leroy Stevens, who made this discovery, found that such transplanted old ovaries frequently developed tumors seven to nine months after the transplantation.

Sets Leukemia Record

► **LEUKEMIA**, A dread cancer of the blood which is always fatal, has been checked in a seven-year-old boy for 57 months at Children's Hospital, Boston.

Dr. Sidney Farber of the Harvard Medical School described the boy as healthy in every other respect. The length of time the blood cancer has been held in check is the longest ever reported.

Ordinarily, leukemia kills its victims in a matter of a few months. The boy has

been treated with chemicals that hinder the production of folic acids. Dr. Farber said the extraordinary period during which the disease has been checked is due to the fact that the boy's body has not yet developed a resistance to the anti-folic compounds.

Dr. Farber compared the treatment with the more familiar treatment of diabetes with insulin. He emphasized that the boy still has leukemia. This treatment is in no sense a cure and when the compounds are stopped, the effects of the disease are noticeable within a few days, as when diabetics fail to take insulin.

While he is under this treatment the boy does not stay at the hospital, but remains at home where his life resembles that of any other normal boy.

Radioactive Arsenic

► A **SHY** little girl, eight years old, has been saved from possible permanent brain injury or death due to a brain tumor by the combined skills of a surgeon and a physicist.

Holly Jane Hyde, daughter of Mr. and Mrs. R. Colin Hyde, Smithfield, R. I., was operated on a year ago. Dr. William H. Sweet, assistant professor of neurosurgery, Harvard Medical School, Boston, described her as cured.

The apparatus used to locate the tumor accurately was designed by Dr. Gordon Brownell, research associate in physics, Massachusetts Institute of Technology, in collaboration with Dr. Sweet.

A small amount of radioactive arsenic was injected into Holly's veins, and two hours later her head was placed between two counters that recorded the positrons emitted by the arsenic carried to the brain. A second scanning was given a day later.

Brain tumors take up anywhere from three to ten times as much arsenic as normal brain tissues. Areas of heavy radiation emission clearly mark the location and size of the tumor for the operating surgeon.

Scintillation counters are mounted on a carriage that sweeps backward and forward automatically beside the head, dropping about a third of an inch at each sweep. In this manner a complete map of the brain tumor is made. The tumors stand out on the radiation map like mountains on a flat landscape.

Holly's first symptoms were recurring attacks of blank staring or completely irrational behavior. Four months after the first attack, the tumor was located and removed. Other diagnostic methods tried gave no positive trace of the tumor.



CEREMONIAL MASK—One of the examples of African art and sculpture now on view in Yale University's new art gallery, this African ceremonial mask is from the Belgian Congo. The exhibition is a memorial to Prof. Ralph Linton, noted anthropologist who died last December, and is one of the many masks, as well as statues and figurines, included in the first public showing from his extensive collection.

Since her operation, Holly has had no attacks and has advanced rapidly in reading ability. The tumor was located in the left temporal area of the brain—between the eye and the ear.

Dr. Sweet said that the radiation method has been successful in about 80% of the nearly 300 cases on which it has been tried. An added advantage of the method is the complete lack of risk. Other detection methods frequently involve surgery and possible death.

Similar attempts with this manner of locating tumors in the brain have been tried elsewhere without success, Drs. Sweet and Brownell said. Those attempts did not use the radioactive arsenic.

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TECHNOLOGY

Colored X-Rays Provide "New Look" for Medicine

► **COLORED X-RAYS** are giving anatomy and roentgenography classes at the University of California at Los Angeles a "new look."

Dr. Louis J. Bonann, Los Angeles radiologist formerly with the Medical School, developed the color X-ray process. It involves Kodak Matrix film and results in a transparency that can be dyed directly after the film is developed.

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