



TRANSPLANTED THYROID CANCER—Scientists at the National Cancer Institute have produced for the first time experimental cancers of the thyroid in animals. Protruding from the side of this mouse is a cancer which has grown from a tiny piece transplanted from the experimentally produced thyroid cancers.

MEDICINE

Chain Reaction Produces Abnormal Gland Activity

► BY SETTING up a chain reaction of abnormal gland activity, scientists at the National Cancer Institute have been able to produce for the first time experimental cancers of the thyroid gland in animals.

For this work the scientists, Drs. Harold P. Morris and Albert J. Dalton and Mrs. C. Dubnik Green, were awarded the 1951 Van Meter prize of the American Goiter Association.

Goiters are one result of thyroid gland disorder. Cancer of the thyroid, however, also occurs in humans. Being able to produce it in mice gives cancer fighters a new tool for further study of the disease, its causes and treatment. Once developed, the experimental thyroid cancers can be transplanted to normal mice.

The goiters were produced by giving the animals thiouracil, a drug which blocks the normal hormone production of the thyroid. In an effort to overcome this deficiency, the pituitary gland in the head steps up production of a thyroid-stimulating hormone. Under-production of other pituitary hormones may accompany this process.

Long time continuation of this unbalanced glandular condition, with prolonged stimulation of the thyroid, results in the cancers in the animals.

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METEOROLOGY

Sunlight Spoils Particles

Silver iodide particles exposed to sunlight would probably lose ice-forming ability. Light changes their shape in the laboratory.

► A BODY blow was dealt to the million dollar rain making industry in the West, based on seeding of clouds with silver iodide particles.

Experiments carried out at the U. S. Air Force Cambridge Research Laboratories, in Massachusetts, have shown that "exposure to sunlight for at least 20 minutes would probably have sufficient effect to decrease the ice-forming capacity of silver iodide released on a clear day. Furthermore, for longer exposures to sunlight the ice-forming capacity would eventually be completely destroyed assuming that no other modifications, physical or chemical, take place as the silver iodide nuclei are dispersed in the atmosphere."

The making of rain is now being attempted on a wide scale in the West by commercial operators of ground silver iodide generators. They usually charge large sums to water-hungry ranchers for their services. The assumption is that particles of silver iodide, once they reach moisture-containing clouds, act as what the meteorologists call sublimation nuclei. In other words, the water vapor in the air forms around them as ice, without going through the liquid stage. Whether silver iodide or particles of matter naturally in the sky are used, this process is believed to be necessary to produce rain.

Edward C. Y. Inn, of the Air Force laboratories, discovered that light changes the shape of silver iodide crystals. They were used, and presumed to be efficient, because they are shaped like ice crystals. If their shape is changed, they cannot form ice. The process of changing the shape by light is similar to the process of change taking place in a photographic film when light strikes it.

Mr. Inn, using a light source in the laboratory on silver iodide nuclei in cloud chambers, discovered that they lost their power to make ice, and therefore rain, once they were changed in shape by the light.

Studies of the time it would take for silver iodide particles generated on the ground to reach a point where they can begin to operate as rain propagators have not been completed but it is known that the time is long.

Mr. Inn, when interviewed by Science Service, declared that, on the basis of his findings, he would not hire a man with a silver iodide generator to make rain for him.

However, he found that when silver iodide crystals which have been changed by light are taken out of the light, a curious "reversal" process takes place. Some of the former ice-like crystals change back into unstable crystal-like formations. The question, he said, is whether this can take place in the atmosphere through some other physical or chemical modification.

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MEDICINE

Tuberculosis Still Rates As Big Killer

► TUBERCULOSIS STILL ranks high as a killing disease, though great strides toward its conquest have been made. It kills about 40,000 persons a year in the United States, more than all other infectious diseases combined. It leads all diseases as a cause of death in the age group from 15 to 35, the National Tuberculosis Association states.

The causative agent of tuberculosis is the tubercle bacillus, identified in 1882 by the German bacteriologist, Robert Koch. Contributing factors are crowded living conditions and poor nutrition.

Tuberculosis may attack practically any organ of the body, but most commonly attacks the lungs. Pulmonary tuberculosis is responsible for 92% of all tuberculosis deaths.

Tuberculosis can be cured. The earlier it is diagnosed, the easier it is to treat. Thus, as soon as a person is found to have tuberculosis he should be placed under treatment.

Basic in the treatment is rest, preferably under medical supervision in a tuberculosis hospital.

While there is no substitute for bedrest in tuberculosis treatment, supplementary measures may be used. In recent years, drug therapy has frequently been found to be of aid, although there is no known drug which is a specific cure for the disease. The most useful drug is streptomycin and this is generally conceded to be most effective when used in combination with para-aminosalicylic acid (PAS). Surgery, including collapse therapy, is used at times. The surgery may vary from temporary collapse measures, such as pneumothorax and pneumoperitoneum, to more radical procedures, such as removal of part of a lung or the whole lung.

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