

the fermentative type of metabolism in the living cell. Cancer cells, in varying degrees, manifest the fermentative metabolism like bacteria. The drug also suppresses the oxidative metabolism.

The drugs have been applied to human prostatic cancers growing in test tubes. In this experiment, they interfered with the fermentative metabolism.

In another field, Dr. McDonald has found that the agent which causes bladder cancer in dye workers is in the urine when the same agent is tried in dogs.

When part of the dog's bladder was tied off and the cancer-causing agent, betanaphthylamine, was injected into the dogs, only the part of the bladder which received urine developed cancers. Parts of human urine are now being tested in dogs to find if the same is true in the human. The injections will not work in the rabbit, but in this animal the cancer-causing dye is bound to another chemical in the body and safely excreted.

Whole Body Radiation

► REGULAR TREATMENT of the whole body with X-rays or radioactive phosphorus is doubling the survival time of patients with chronic leukemia, a cancer of the blood involving unrestrained production of immature white corpuscles.

Dr. E. E. Osgood and his associates at the University of Oregon Medical School have designed a program of treatment for each individual leukemia victim which will keep the patient on a continuous level of general good health.

In presenting his method of regular, total body irradiation, Dr. Osgood compared it

with the continuous injections of insulin given diabetics.

The treatment calls for small doses of X-ray to the entire body, or injection into the blood stream of the radioactive phosphorus. The program starts with a treatment every week and, as the disease comes under control, the treatments are spaced out to one every four to 12 weeks, depending on the individual patient.

Conventional treatment involves larger doses of radiation at irregular intervals, following a cycle of remission and relapse in the disease.

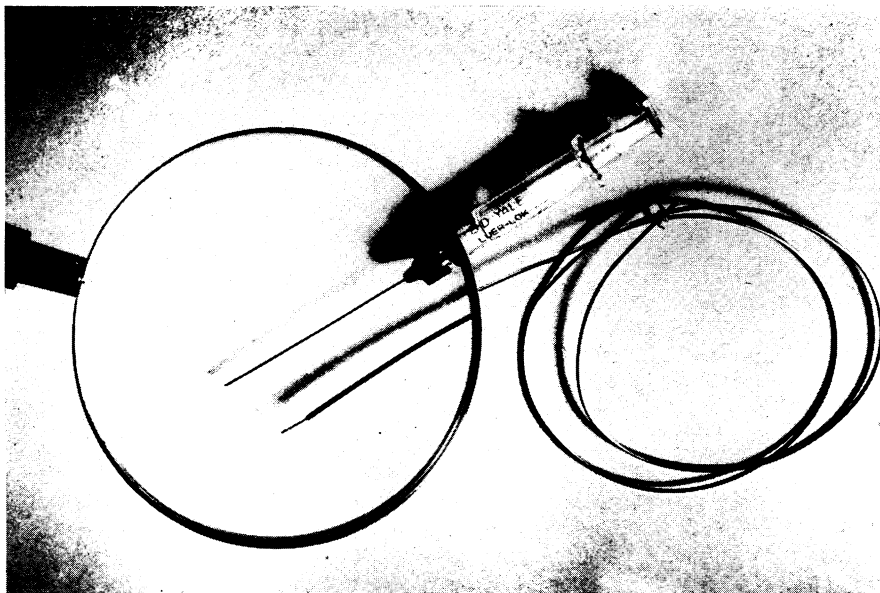
Since 1941, when the program started, 163 patients have been treated. Of these, 48 were still living at the end of 1953. The mean survival time of this group is about five years. Surveys of patients under conventional or no treatment indicate that the average survival for patients with chronic leukemia is between three and three and a half years.

Dr. Osgood emphasized that there are more than 70 different kinds of leukemia, with the survival expectancy of victims ranging from a few days to as much as 20 years.

The goal of the Oregon research group is a program of leukemia treatment that will enable the patient to spend most of his time in a normal fashion. In the long series of chronic patients, Dr. Osgood reported that the regular total body irradiation allows the patient to carry on his normal work and recreation about 85% of the time.

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A rapid method for determining fat content in *meat* has been tested; it takes 20 to 30 minutes as compared with 16 hours required by the standard method.



TINY THERMOCOUPLE—Comparison of a thermocouple, developed at Argonne National Laboratory, to standard hypodermic needle. The magnified portion shows the lead end into which a wire has been inserted through its entire length. Couples of any length are possible, but those produced at Argonne have been limited to 20 feet.

BACTERIOLOGY

Virus in Sweet Clover Also Grows in Insect

► A PLANT virus that causes tumors on sweet clover also grows in an insect, Drs. L. M. Black and M. K. Brakke and A. E. Vatter of the University of Illinois have discovered.

Electron microscope pictures showed that the virus in sweet clover tumors and the insect leafhopper were physically the same. Few plant viruses can grow in animals. The scientists have not yet determined if the viruses in the plant and insect are chemically identical. The leafhopper transports the virus from plant to plant with a two-week incubation period within the insect. Discovery of the virus was announced by the American Cancer Society which supported the research.

Science News Letter, April 10, 1954

TECHNOLOGY

New Airport Radar for Bad Weather Landings

► THE WATCHFUL eye of new radar sets will be going into 24-hour-a-day operation at more than 25 airports around the country, the Civil Aeronautics Administration and the Bendix Aviation Corporation have announced.

Using recent developments, the devices promise elimination of most landing delays due to fog and bad weather. With the new system, as soon as radio contact is made with a plane, a line is drawn on the radar screen from the scope's center to that plane. This assures the radar operator that he is talking to the same plane he is watching on his screen.

Another new development electronically reproduces a map of the area on the radar scope, showing local hazards such as tall buildings and power lines, in relation to airplanes in the vicinity.

Science News Letter, April 10, 1954

TECHNOLOGY

Develop Thermometer For Nuclear Reactor

► A WIRY thermometer that takes the temperature of fuel elements in operating atomic reactors has been developed at the Atomic Energy Commission's Argonne National Laboratory, Lemont, Ill., by Dr. W. Gerard Rausch.

Slightly thicker than a standard hypodermic needle, the thermometer actually is a thermocouple made with a copper-nickel-manganese alloy wire inserted in a special type of stainless steel tube. It generates tiny voltages in proportion to the heat it measures. These voltages are read on a sensitive voltmeter and are converted into temperature degrees. It has measured temperatures as high as 1,250 degrees Fahrenheit.

Science News Letter, April 10, 1954