MEDICINE

Radioactive Gold Helps

➤ INJECTIONS of radioactive gold, flown to Iowa City, Ia., from the atomic pile at Oak Ridge, Tenn., have quickly and materially reduced the size of prostate gland tumors in 20 men, Dr. Rubin Flocks of the State University of Iowa college of medicine reported at a sectional meeting of the American Urological Association in Toledo, Ohio.

In some cases the radioactive gold may even have destroyed the cancers, Dr. Flocks said, though he stressed that it is too early to be sure whether the results of treatment will be permanent.

Removal of the cancer by surgery was not practical in the 20 patients treated because it had spread outside the gland to tissue in the immediate area. But because the cancer had not spread to distant parts of the body, there was hope that local irradiation would be effective.

X-rays and radium, used for treatment of cancers for many years, produce harmful effects such as bowel and bladder irritation when used in prostate cancer cases. These complications were not nearly so marked when the radioactive gold was used. Only one of the 20 patients suffered irritation of any consequence, Dr. Flocks reported. The radioactive gold was injected directly into the gland after it had been made accessible by surgery.

One of the drugs used to carry the gold during the treatment breaks down the substances between the cells, permitting better distribution throughout the diseased area. The other constricts blood vessels so the cancer-destroying particles are not lost from the locality of the tumor.

Collaborating with Dr. Flocks in the study are Drs. H. Dabney Kerr, H. B. Elkins, and David Culp of the University's medical school.

Science News Letter, October 13, 1951

TECHNOLOGY

Protect Cloth From Dirt

➤ A NEW atomic instrument which eliminates static in weaving has been developed by Dr. P. S. H. Henry, of the Shirley Institute, Manchester, England.

Called RASE, this radioactive static eliminator consists of metal rods or strips containing the element thallium which has been exposed in an atomic reactor or "pile" until it becomes radioactive.

When removed from its protective shield RASE sends out fast-moving beta particles or electrons which collide with and ionize molecules of air. When ionized air comes in contact with statically charged cloth it removes the charge from the cloth.

The removal of static charges from cloth surfaces is especially important in rayon and nylon cloth weaving, as both these synthetic yarns are poor conductors of electricity and readily pick up and hold electrostatic charges when rubbing against the rollers and other parts of the machines on which they are woven.

If this charge is not removed when the cloth is stored for the night, it attracts dust particles from the air, which then cause dirty streaks on the cloth. This electrically bound dirt is almost impossible to remove by washing and results in the loss of many yards of material.

During the day dust attraction is of no consequence, as the cloth is exposed to the air for only a few seconds before it is wound onto a tight roll, but during the night the outer layers of the bolts have ample opportunity to pick up the dust. Consequently RASE is brought into use as soon as the operations stop for the day, the first 15 minutes after shut-down being considered the most critical for discharging, as it takes that long for the cloth to pick up a noticeable amount of dust.

Winter is much worse for static electricity because the heating of the building results in a lower relative humidity, which favors the development and retention of static charges.

Science News Letter, October 13, 1951

INVENTION

Ionized Air Device Measures Plane's Speed

➤ THE SPEED of an airplane is measured directly with an instrument based on a new principle, using ionized air reference regions on the wing of the plane. The instrument also indicates the nature of the airflow over the airfoil and the approach or pressure of a stalling condition.

The instrument includes an electric pulse generator for intermittently ionizing, or electrically charging, the air in the airstream to form segments of ionized air in the stream. An electric timer connected with the generator operates in the intervals between the pulses. The timer works in cooperation with sensing elements located downstream which detects the ionized segments.

Inventor is Paul J. Campbell, East Hartford, Conn. His award was patent 2,569,974. Rights are assigned to United Aircraft Corporation, also of East Hartford.

Science News Letter, October 13, 1951

On This Week's Cover

➤ A HOUSE FLY being given a measured dose of DDT is shown on the cover of this week's SCIENCE NEWS LETTER. The effectiveness of DDT and other insecticides is being tested on a year-round basis by Illinois Natural History Survey entomologists. They are investigating the resistance of flies to DDT and possibly to other insecticides. One way to test effect of insecticides is to deal out a measured amount to a pest.

PHYSICS

Atomic Heart Is Even More Complex Than Was Thought

➤ EVEN THE heart of the atom is more complicated than scientists have imagined. Battering the atomic nucleus with some of the world's most powerful concentrations of radiation beams from the Columbia University Nevis cyclotron at Irvington-on-Hudson, N. Y., scientists are gathering facts that will result in better atomic theories.

One atomic particle, known as the negative pi meson, has a lifetime of only 300 millionths of a second, experiments of the past year with meson beams have shown. Mesons are fundamental particles exchanged between the neutrons and the protons within the atomic nucleus. In nature the cosmic rays produce mesons, while only three or four cyclotrons so far completed are powerful enough to produce them artificially.

All theories of how matter is held together are very complicated. Prof. James Rainwater, director of the Nevis cyclotron, predicts that a simple relationship will be discovered in the future.

Science News Letter, October 13, 1951

GENETICS

Find Rabbits Inherit Efficiency as Mamas

➤ WHETHER MRS. Bunny Rabbit will be an efficient mother is partly determin d by inheritance, Dr. Paul Swain and Robert Curran of the Jackson Laboratory in Bar Harbor, Me., have discovered.

Rabbits, these scientists find, are not as much alike in respect to reproduction and motherhood as peas in a pod. They vary in six respects: fertility, fecundity, milk production, maternal instincts, growth rate of young and number of newborn surviving.

The scientists have studied over several years five races of rabbits inbred for 15 to 22 generations. A pituitary deficiency will result in mediocre fertility, they reported to the Genetics Society.

Some rabbit mothers build poorer nests than others, some are deficient in their interest in protecting their young, some have poor milk supply and others have delayed lactation which may contribute to high juvenile mortality.

Science News Letter, October 13, 1951