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Questions

AGRICULTURE—What is bagasse? p. 313.

MEDICINE—What family of flowers has been found to contain a tumor-damaging substance? p. 312.

METEOROLOGY—How long is the half-life of naturally formed carbon-14? p. 308.

PHYSICS—What are the two main requirements of methods of design to control thermonuclear reactions? p. 307.

ROCKETS AND MISSILES—Why does the Jupiter-C nose cone carry black and white stripe markings? p. 314.

Photographs: Cover, Radiation Laboratory, University of California, Berkeley; p. 307, U. S. Atomic Energy Commission; p. 309, University of California; p. 311, Allegheny Ludlum Steel Corporation; p. 314, left, U. S. Army, right; U. S. Navy; p. 320, Eastman Chemical Products, Inc.

ANIMAL HUSBANDRY

Blood Tests Used To Identify Dairy Cattle

► BLOOD TYPING dairy cattle may soon be as effective in identifying cows as fingerprints are in identifying humans.

Scientists at state experiment stations, the U. S. Department of Agriculture and in several foreign laboratories are cooperating in a study to learn how blood type is related to genealogy and how to test for blood type.

Some 50 antigenic factors—far more than humans have—are the basis for blood types in cattle. Combinations of these factors make up blood types so there are literally millions of possible types. Scientists have found some factors occur more often in one breed than in others.

Except for identical twins, or fraternal twins whose blood intermixed in the embryo stage, blood typing a cow or a bull will provide permanent identification. USDA scientists believe that if blood types are found to be related to other characteristics of cattle, advances in cattle breeds may result.

Science News Letter, May 17, 1958

BIOLOGY

Dying Changes Rate Body Uses Fuels

► APPARENTLY the body burns fuels at almost the normal rate even in the throes of cancer, starvation or paralyzing polio.

Only as death begins to set in is there a radical change. Then the burning of "fuels," sugars, fatty acids and amino acids, takes a big drop from the normal.

These puzzling observations have been reported by a group of scientists at the University of California, Dr. Benjamin Siegel of the San Francisco Medical Center and Drs. Ann Hughes and B. M. Tolbert of the Donner Laboratory in Berkeley.

During their experiments the scientists fed mice "fuels" tagged with radioactive carbon. A special device allowed the scientists to collect the carbon dioxide breathed out by the animals. The amount of radioactive carbon in the expired air indicated the rate of "fuel" burning.

The scientists found a small but insignificant drop from normal in "fuel" burning up until the animals became moribund, when there was a big decrease in the ability of the body to break down the compounds.

The findings were surprising, since the scientists expected that a normal, frisky animal would use up fuels at a much faster rate than a paralyzed animal or one that is starving or afflicted with serious cancer.

The scientists do not know the reason for the essentially similar "fuel" burning patterns, but feel the findings are a fruitful starting point for further studies.

Science News Letter, May 17, 1958

Do You Know?

Virgin red cypress logs, sunk in mud and water for 60 years and now recovered in a sort of "mining" operation, make lumber that brings premium prices for the manufacture of liquid-storing tanks.

Lung cancer is reported to be only 10% as frequent and heart attacks 60% as frequent in a group of non-smoking males as compared to the general male population.

The part of the cell that is involved in an animal's defense against transplanted human cancer has been pinpointed for the first time.

The first practical balloon was invented by two French brothers, Joseph and Etienne Montgolfier, paper bag manufacturers.

A newly developed fat emulsion now permits high calorie intravenous feeding in the critical period following surgery.

Nuclear fuel pellets, each one approximately the size of the filter tip on a cigarette, are being made from uranium powder.

The world's largest solar furnace will soon begin taking shape near Cloudcroft, N. Mex.