

BIOCHEMISTRY

Radioactive Cortisone

Both cortisone and hydrocortisone have been labeled with carbon-14 for the first time. They will be used to study mechanism of their action against arthritis and cancer.

► RADIOACTIVELY LABELED cortisone, the anti-arthritis drug, is now being used to explore just how this medicine does its work.

Labeled with radiocarbon-14 for the first time, both cortisone, or compound E, and hydrocortisone, or compound F, have been produced by a cooperative procedure participated in by federal government, private research organizations and commercial pharmaceutical companies.

A new and important investigative tool, these special drugs will not be used primarily in treatment but in a detailed study of the mechanism of their action in arthritis, cancer and other metabolic diseases. Investigators can receive supplies by applying to the National Institutes of Health, Bethesda, Md.

Using a procedure for synthesis described by Drs. T. F. Gallagher, Theodore H. Kritchevsky and David L. Garmaise of the Sloan-Kettering Institute for Cancer Research, New York, Charles E. Frosst and Company, Montreal, Canada, with the help of the Upjohn Company of Kalamazoo, Mich., prepared the radioactive cortisone.

Dr. Gallagher previously had prepared radioactive cortisone marked with tritium and had reported on its administration to man. The work of Dr. Gallagher was supported in part by the Damon Runyon Memorial Fund. Technical difficulties in the use of the tritium-labeled cortisone made the synthesis of the carbon-labeled product most desirable.

The Upjohn Company carried out two essential reactions, a mold fermentation and a chemical step in the elaborate cortisone synthesis. The Worcester Foundation for Experimental Biology, Shrewsbury, Mass., utilizing radioactive progesterone prepared by the Frosst Company, biosynthesized the hydrocortisone by dissolving radioactive progesterone in blood and passing it through functioning adrenal glands of beef, after these had been removed from the animal. The U. S. Atomic Energy Commission provided the radioactive carbon with which the two hormones were made radioactive.

Both radioactive substances are labeled at position 4 with the carbon-14.

The preparation of these hormones was guided by a committee composed of Drs. Gallagher, Gregory Pincus of the Worcester Foundation for Experimental Biology, and Max Tishler of Merck and Co. The program was administered by the National Institutes of Health's endocrinology study section, of which Dr. Charles B. Huggins

is chairman, and Dr. Sam R. Hall is executive secretary.

Essential technical knowledge and chemical intermediates were provided by members of the committee and others, notably Drs. Arthur Odell, formerly of Frosst, Carl Djerassi of Wayne University, H. G. Kolloff, R. H. Levin and D. H. Peterson of Upjohn, Harold Levy of Worcester Foundation, and George Rosenkranz of Syntex, S. A. Mexico.

Funds made available by the National Institute of Arthritis and Metabolic Diseases, U. S. Public Health Service, make possible free distribution of the radioactive material for research purposes. Transfer and use of these materials are subject to current Atomic Energy Commission regulations.

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AERONAUTICS

Frost Brushed Away

► WHILE THE nation swelters in mounting summer heat, scientists in the Air Force's giant climatic hangar at Eglin Field, Fla., must brush frost from the window panels of helicopters.

The 'copters, along with the nation's newest jet fighters, bombers and other military equipment, are being tested under weather conditions running the gamut from Sahara desert sandstorms to Arctic blizzards. Temperatures inside the hangar range from a blistering 160 degrees Fahrenheit to a frigid minus 65.

The tests are being run because machines "act up" under the onslaught of severe weather. Rubber hoses and tires shatter like glass at very low temperatures. Oil freezes into a mass that must be broken with an ice pick. Bulky B-17 bombers shrink two-tenths of a foot in length between a pleasant 75 degrees and a nippy 65 degrees below zero.

Air Force weather makers conjure up 100-mile-an-hour gales inside the hangar, throwing in a dash of sleet, snow, rain or sand for good measure. While this is going on, a complex electronic recording system swiftly gathers data from the plane, gun or jeep under test. From future studies of the data, scientists hope they can figure out why maintenance triples in severe Arctic weather.

Although the climatic laboratories are elaborate, they are economical. Frequently more can be learned about an airplane in

• RADIO

Saturday, July 25, 1953, 3:15-3:30 p.m. EDT
"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Prof. William W. Havens Jr., associate professor of physics and director of Columbia University's Pupin Cyclotron Laboratory, will discuss "The Heart of Matter."

ASTRONOMY

Sight Periodic Comet On Its Return Voyage

► THE PERIODIC comet, Reinmuth (2), has been spotted about where astronomers predicted it would be on its return voyage through the sky.

Of the 19th magnitude, the comet is very much too faint to be seen except through a large telescope. It is in the constellation of Libra, the balance, low in the southern sky. It was found by astronomers at the McDonald Observatory, Mount Locke, Tex., and news of its discovery has been flashed to astronomers by Harvard College Observatory. The comet's path was predicted from observations made of its motion in 1947-48.

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the big hangar than in actual flight tests. Furthermore, tests can be conducted on several items at once.

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DEFROSTING HELICOPTER--Two U. S. Air Force technicians clean snow off the window panels of a helicopter after cold tests.