MEDICINE

Longer-Lasting Penicillin

New mold remedy preparation will linger in the body at germ-fighting level for four days after a one-shot dose of penicillin.

➤ A ONE-SHOT dose of penicillin that lingers in the body at an effective germ-fighting level for four days was announced by a five-man research team at the venereal disease symposium held in Washington by the U. S. Public Health Service.

The painful, every three hours day and night injections that patients getting penicillin treatment have had to undergo will be a thing of the past when the new product is on the market, scientists believe.

Named so far only as product F, the new penicillin preparation was invented by Dr. F. H. Buckwalter, director of products development at Bristol Laboratories. Working with him in its development was Dr. H. L. Dickison, director of pharmaceutical research for Bristol. Dr. D. K. Kitchen, medical director of Bristol-Myers Company, reported at the meeting on tests conducted by himself and Drs. Evan Thomas, Richard H. Lyons, M. J. Romansky, and Charles R. Rein at Bellevue Hospital, Syracuse University Hospital and New York Post-Graduate Hospital.

The new, long-lasting penicillin preparation consists of procaine penicillin G in peanut oil with two percent aluminum monostearate in small particle size.

Ever since penicillin was first used to treat patients, scientists have sought a way to keep the precious mold chemical in the body longer. In the early days when the chemical was very scarce, doctors resorted to extracting it from the urine of patients getting the drug, so as to conserve every bit.

Mixing penicillin with peanut oil and beeswax was one of the first methods tried for holding it in the body longer. Combining penicillin with procaine is one of the most recent developments. The monostearate used in the newest penicillin preparation delays the excretion of penicillin. In addition, it is said to be a perfect suspending agent because it produces a thyxotropic gel. This means that the material is in a solid jelly form so long as it is standing undisturbed. But when the doctor is ready to inject it, he taps the tube or ampule, and the gel immediately turns into a liquid.

A sister preparation, made of the same chemicals with penicillin, is already on the market under the name of Flo-cillin. The only difference between this and the new F product is in the size of the penicillin particles in the gel. In Flo-cillin they are large, in line with findings of a year or so ago that large penicillin particles were absorbed more slowly and the effect lasted longer. In the gel preparation, however, the small particles turned out to be even more effective than the large ones.

While a single shot of product F stays in the blood in germ-fighting amounts for four days (96 hours), the same dose of Flo-cillin lasts only 48 hours while four other penicillin preparations dropped below germ-fighting levels in 24 to 30 hours.

Among patients given the same dose of penicillin in six different preparations, including product F, Flo-cillin stayed at germ-fighting levels for 48 hours in just over half the patients (52.2%). The next best was procaine penicillin G in peanut oil which lasted 48 hours in 40% of the patients. But the new product was at germ-fighting levels after 48 hours in 88.1% of the patients, and after 96 hours in 75%.

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ANTHROPOLOGY

Identifying GIs' Bones

➤ THE sad task of bringing back the remains of Americans who died in service overseas is being helped by physical anthropologists, the scientists whose job is the close study of the human body and the bones that are in it. Men of this discipline have been able to assist in identifying the bodies, or even the bare bones, of fallen soldiers whose "dog-tags" and personal papers had become lost in the turmoil of modern battle.

At the meeting of the American Association of Physical Anthropologists in Washington, Dr. H. L. Shapiro of the American Museum of Natural History, who was active in setting up the identification service of the Army, told of some of the problems the scientists faced.

In some instances it even went so far as to require the sorting out of non-

REMOTE-CONTROLLED MANIPULATOR—Mechanical "hands," principal part of this device, developed by General Electric scientist John Payne for use in radioactive areas, are able to perform delicate chemical experiments, operate machine tools, and do countless other tasks requiring great dexterity. The "hands" extend over a protective wall into a radioactive area, while the operator remains in an adjacent room.

human bones from among human ones. This occurred when the untrained soldiers who did the actual disinterring of hasty battlefield burials came upon the bones of dead farm animals. To the layman all bones look alike, but an anthropologist knows which are human.

In one case an anthropologist was able to prevent what would have amounted to actual grave-robbery. A number of bodies of American fliers, killed when their planes crashed during a flight over Vienna, were buried in a Viennese cemetery. Their graves were properly marked and recorded, but the digging squad who exhumed their remains proved too zealous, and brought up also the bones of earlier burials at a deeper level. When the anthropologist protested that some of the bones were female, the soldiers did not want to believe him. However, the production of scraps of women's clothing settled the matter.

Sometimes the scientists have been able to show that a lot of mixed bones represent two persons instead of one. Two skulls would indicate that to anyone, but the layman might not notice duplicate left collarbones or two shoulderblades or shinbones that don't match.

Dentists' records, said Dr. Shapiro, are often exceedingly helpful, sometimes leading to a positive identification.

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GENERAL SCIENCE

Divorces Declined Faster Than Marriages Last Year

➤ THERE were fewer marriages and fewer divorces last year compared with 1946, with divorces decreasing twice as rapidly as marriages, figures released by the National Office of Vital Statistics of the U. S. Public Health Service revealed.

Marriages dropped off one-eighth, while divorces fell more than one-fourth in 1947 contrasted with 1946. There were nearly 14 marriages per 1,000 population in the United States last year, with a little more than three divorces for each 1,000 persons.

Meanwhile, statisticians of the Metropolitan Life Insurance Company in New York have reported that wartime marriages led to a post-war boom in divorce rates.

More marriages were broken up by divorce in the five years, 1941-46, than ended in divorce in 14 years of married life before the war, it was calculated.

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MEDICINE

Cancer Secrets in Color

➤ COLOR photographs built from the absorption of invisible ultraviolet light are the latest hope of cancer fighters that they will have a speedier, surer way of telling the cancer cell's composition in contrast with the healthy cell.

Behind this important technical development, announced at the opening of the new Sloan-Kettering Institute for Cancer Research in New York, is the courage and determination of a Naval officer who kept fighting even when told he would eventually die of a kind of cancer, leukemia.

He is Capt. Robert Conrad, U.S.N., Ret. He was a leader in naval research during the war, and he is now assistant director of planning at Brookhaven National Atomic Laboratory.

When doctors at Memorial Hospital Center, of which Sloan-Kettering is the research branch, told Capt. Conrad he had leukemia, he said:

"I want to do something to help the fight against cancer before I die."

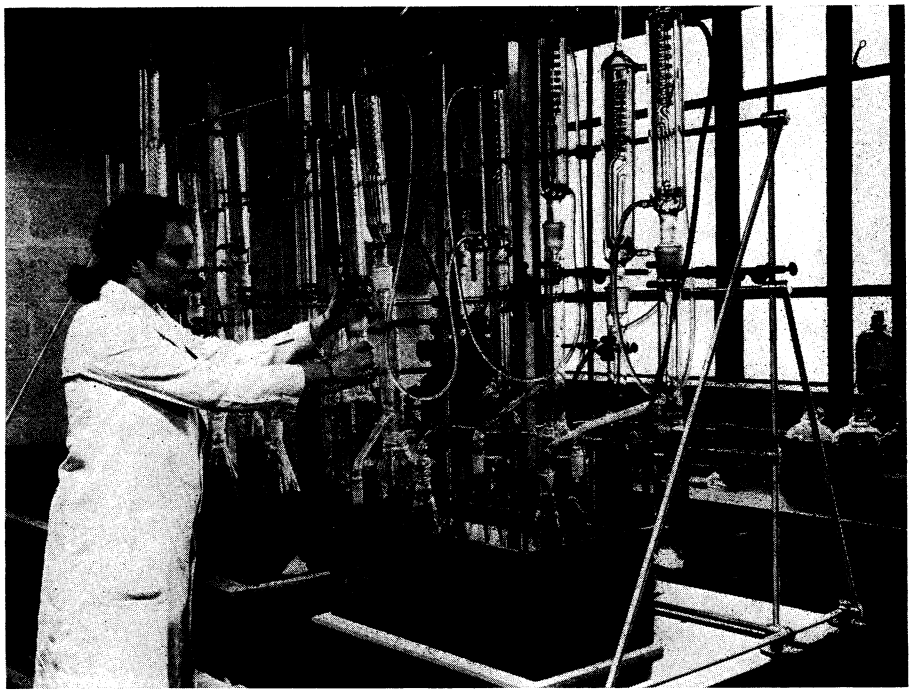
Dr. C. P. Rhoads, director of Memorial and Sloan-Kettering, suggested that Capt. Conrad use his wartime experience with Naval Research and industrial concerns. So Capt. Conrad went around the country, interesting industrial laboratories in cancer research.

The first concern to start work on the cancer war was the Polaroid Corporation. Under a contract with the Office of Naval Research and with Dr. Edwin H. Land, Polaroid's president, himself guiding the research, this firm has put its new techniques of color photography to work on the cancer problem.

Cancer cells, like all living cells, are transparent and colorless in ordinary light. The same cells, however, have characteristics corresponding to color when illuminated in ultraviolet light. Since ultraviolet light is itself invisible, special methods had to be used to record the ultraviolet color characteristics of living cells. To accomplish this, the color translation principle suggested by the Russian scientist, Brumberg, was followed.

Pictures of living cells were taken in three wave lengths of invisible ultraviolet light where the cells have their color. These were translated photographically into colors visible to the eye.

Science News Letter, April 24, 1948



EXTRACTION OF HORMONES—One of the processes in the complex study of steroid hormones, part of the cancer-fighting program at Sloan-Kettering Institute, is their continuous extraction from the urine of diseased and normal persons.