

MEDICINE

Better than Morphine

Metopon, derived from opium, relieves pain of dying cancer patients. Is habit-forming, but addiction builds up less rapidly. Methadon even better.

► A DRUG better than morphine for stopping the intense pain of dying cancer patients is now available. Called metopon, it is derived from opium, like morphine. It is habit-forming like all opium drugs, but addiction to it builds up more slowly.

This latest step in man's conquest of pain was reported by Dr. Nathan B. Eddy, of the U. S. National Institute of Health, Bethesda, Md., speaking before the analgesics conference of the New York Academy of Sciences.

"Metopon has no equal for oral (mouth) administration for chronic pain," said Dr. Eddy, "if its use is started before tolerance and dependence on other narcotics have developed."

The patient being treated with metopon does not get as much feeling of well-being (euphoria) as injections of morphine would give him. Tolerance to the drug, making larger and larger doses necessary, develops more slowly than with morphine.

Metopon is made from opium by a "distressingly complicated process," Dr. Lyndon F. Small, National Institute of Health chemist, told the conference.

For over a decade chemists have attempted to produce a drug as effective as morphine in stopping pain without morphine's ability to make addicts of its users. Metopon does not quite succeed in this respect. No active morphine derivative has yet been made which is free of addiction liability.

Given by mouth metopon has given fair or better relief of pain in the last stages of cancer in 74 out of every 100 patients, Dr. Eddy reported. In those patients who had not previously been given morphine or related substances, metopon gave fair or better pain relief in 91 out of every 100 patients.

Metopon, being an opiate, comes under the control of the Federal narcotic drug laws. In order to make doubly sure that it would not be misused and create new drug addicts, it has been released only for use to relieve chronic pain in cancer patients. This was possible be-

cause the patent for the drug was assigned to and is now owned by the United States government. The distribution procedure provided also for doctors prescribing it to supply Dr. Eddy with information on results of its use.

Methadon Superior

Best drug so far, for the relief of pain in dying cancer patients is the synthetic drug, methadon, known also as amidone and dolophin.

Its superiority among a group of four new pain-killing drugs tested at Me-

morial Hospital was reported by Dr. J. S. LaDue at the same conference.

The other three drugs tested were two known only as NU 896 and NU 1196 and metopon.

Methadon is superior in some respects to the opiates, which include morphine itself, Dr. LaDue reported. One of its advantages is that it does not produce euphoria, or a feeling of well-being, except in very large doses. Small doses of opiates uniformly produce euphoria.

For nervous, apprehensive patients, however, the lack of euphoria is a disadvantage.

Methadon, which is definitely a narcotic drug, is just about ready for release, Dr. LaDue said.

A dozen or more new pain-killing drugs are still waiting to be tested. The Memorial group expects to try these as soon as possible in the hope of finding the ideal pain-killer for cancer patients.

Science News Letter May 22, 1948

AERONAUTICS

Afterburner Adds Speed

► A RAM-JET-LIKE device called an afterburner, which is attached on the exhaust of a jet-engined airplane to give special spurt when needed, will be installed on Navy Pirate fighting planes, it was revealed by Solar Aircraft Company. Under present plans many of the Navy's Chance Vought XF6U-1 Pirate fighters will be equipped with this auxiliary jet unit.

The afterburner being installed is a cylindrical device eight feet long which is attached on the exhaust nozzle of

the Westinghouse turbo-jet engine which powers this plane. Fuel is injected into the cylinder into the gases from the turbo-jet engines, which contain a surplus of oxygen. Combustion immediately takes place, and the gases formed under pressure add extra thrust which increases proportionately with the speed of the aircraft.

The ram-jet has been called the flying stovepipe because of its simple shape. It operates somewhat similarly to the turbo-jet but has no turbines or moving



AFTERBURNER—This cylindrical device on the rear will be installed on Navy Pirate fighting planes.

parts. When traveling through the atmosphere, it operates only after acquiring enough speed from some other source to pick up sufficient air under pressure to produce combustion with fuel fed into its tapering cylinder. In the afterburner the oxygen for combustion is provided in the exhaust from the turbo-jet itself.

Science News Letter, May 22, 1948

METALLURGY

German Magnetic Alloy Now Made in America

➤ A FORMER German magnetic alloy, particularly suitable for use in rectifiers to change alternating electric current into direct current, has now been produced for the first time in the United States at the Naval Ordnance Laboratory, White Oak, Md., the Department of the Navy revealed.

This valuable alloy, known as Permenorm 5000-Z, is a result of a fusion of nickel and iron under an intricate heat-treatment process. It was first made in Germany in 1943, where it was applied in the electrochemical industry in the construction of huge rectifiers.

Unfinished samples of the new alloy were brought to this country after the close of the war by American scientists, and distributed to American governmental and industrial laboratories to be duplicated for domestic uses. Although details of the process were available, no laboratory until now was successful in producing the type of alloy which had the required magnetic properties.

Permenorm 5000-Z has important applications in the fabrication of magnetic amplifiers to give additional strength to feeble electrical pulses. Employed for this purpose, it may replace many of the complicated, delicate and troublesome electronic tube amplifiers now used in guided missiles, equipment to control gun firing, and underwater ordnance.

Credit for the reproduction of the alloy and its new applications goes to Dr. Gustaf W. Elmen and Edward A. Gaugler, physicists at the Naval Ordnance Laboratory. Dr. Elmen, well-known as the inventor of other magnetic alloys, served as consultant, while Mr. Gaugler was actively in charge of the project. At a scientific meeting to discuss magnetic materials, to be held at the Naval laboratory in the near future, the Permenorm development will be described at length.

Science News Letter, May 22, 1948

MEDICINE

Hope for Amputees

New suction socket makes walking more comfortable and easy for those who have lost legs. New arms make it possible to shave self or drive truck.

See Front Cover

➤ SUCTION SOCKET that makes an artificial leg feel like part of the amputee's own body. A hook so controllable that it can pick up a marshmallow or a hamburger. A natural looking dress hand, with thumb motion, that will cost a fourth or a sixth the price of present motionless dress hands.

These are among the new artificial arms, legs and hands and hooks demonstrated at the National Academy of Sciences. They were developed by governmental, industrial and university laboratories in a program sponsored by the Army, Navy, Air Forces and Veterans Administration and coordinated by a National Research Council Committee.

Certificates of appreciation were presented in Washington by Secretary of the Army Kenneth C. Royall to 15 of 27 amputees who have tested the devices and made valuable suggestions for improvements. The other 12 are receiving their certificates at ceremonies in other parts of the country.

At least 200 of the suction sockets have already been successfully fitted. The second phase of the experimental program, now being started, will supply about 450 more. The socket holds the leg on by suction, created by the intake and outgo of air as the amputee walks. It replaces the heavy belt around the hips now used to hold on artificial legs. Besides feeling comfortable, the suction socket actually builds up the leg, or stump, in contrast to the pale, anemic condition that may develop with present leg attachments.

The young veterans shown on the cover of this week's SCIENCE NEWS LETTER are demonstrating that with the new leg it is possible to put the weight of the body on the artificial leg when going downstairs. This has been impossible with the older types, as has also putting the foot flat on the step. Suction socket with combination valve and knee flexion and ankle rotation with some lateral motion make this possible.

"The hook of the future" is the en-

thusiastic description given by Pfc. Leo J. Qualiutto, Cleveland, to the one that picks up a marshmallow. Mr. Qualiutto has been testing hooks, hands and arms since October, 1946. Officially it is known as the Army Voluntary Hook. Its advantage is that the user can control the closing and pressure of the hook, using whatever degree of grip he wishes.

The dress hand with movable thumb

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