

PUBLIC SAFETY

Drug Halts Lethal Rays

A drug that holds the promise of preventing radiation death or poisoning in the event of a nuclear war or accident is now under development.

➤ A DRUG that holds great promise for saving many persons who would otherwise die from lethal doses of radiation following a nuclear attack or accident is under development.

Still in the laboratory stages, studies of the drug have been dramatically speeded up by two important findings made by Dr. Friedrich P. Ellinger, chief radiation biologist of the Naval Medical Research Institute, Bethesda, Md. The preparation consists of cell-free saline extracts of mouse spleens.

Up to now, scientists have been able to save mice and other laboratory animals exposed to killing amounts of radiation with the red bone marrow or spleen extract of living cells from mice and other animals.

Now, for the first time, Dr. Ellinger has:

1. Shown that living cells or even fragments of living cells are not necessary for mouse spleen extract to perform its life-saving work as was heretofore thought.

2. Shown that the spleen extract from mice can save guinea pigs from radiation death. This offers hope that the same will hold true for man.

When added together, Dr. Ellinger told SCIENCE SERVICE, these two factors mean there is now "justified hope" that a chemical to prevent radiation death is within reach.

"This is the one hope we cherish and we are now working in this direction," he said.

"As I see it," Dr. Ellinger noted, "the

drug will be used after an exposure to a lethal radiation dose and will save a good percentage of those who would otherwise die."

The Naval researcher pointed that after 15 years of study on radiation poisoning and means either to prevent it or cure it, it is still impossible to say exactly when the life-saving substance will be developed for general use.

"While research has brought to light a variety of agents which protect animals against the lethal effect of radiation if given prior to exposure to the rays," he said, "there are very few means at present available which do save animals after they have been exposed.

"This new agent has proved already to be helpful in post-irradiation treatment and will, in all probability, be useful in medicine in the same manner."

In the studies, Dr. Ellinger prepared cell-free saline extracts from mouse spleens. Guinea pigs were subjected to killing doses of 550 and 600 roentgens of radiation. Then they were injected with the drug shortly after.

At the end of 20 days, a statistically larger number of animals receiving the extract were alive than those that had received only a saline solution, without the extract.

Dr. Ellinger's findings also pave the way to the development of a man-made dupli-

cation of nature's life-saving radiation antidote. When the humoral substance has been isolated from the mouse spleen, it is only a matter of time before it will be identified chemically. This will then mean the strong possibility that it can be made synthetically in the laboratory.

An analogous situation existed some 40 years ago when doctors were forced to give extract of thyroid from cows to persons suffering from thyroid gland troubles. The use of animals as a drug source was a major problem. Its solution was found when thyroxin was duplicated in the laboratory and subsequently made available to the public in limitless supplies by pharmaceutical houses.

Dr. Ellinger's "justified hope" that the radiation death preventive agent is possible is his personal opinion and is not officially that of the Department of the Navy. Dr. Ellinger thinks this is one instance where Defense Department funds have made possible developments which promise to save millions of lives in the event of a nuclear war or accident.

Some of Dr. Ellinger's findings are reported in *Science* (Dec. 6).

Science News Letter, December 14, 1957

● RADIO

Saturday, Dec. 21, 1957 1:45-2:00 p.m. EST

"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Mr. Davis will review the year's major science events.

CHEMISTRY

Solar Furnaces Ready Now

➤ SUN-POWERED furnaces are available now on a mass production basis. The solar furnaces, mounted on surplus military searchlights, make it possible for more colleges and laboratories to conduct high-temperature research on strategic materials.

A mass production model of a solar furnace similar to several built recently by research institutions for their own use was displayed to nearly 40,000 chemists and chemical industry representatives attending the 26th Exposition of Chemical Industries in New York. Gerard J. Wendelken, vice president and general manager of the American Searchlight Corporation, which produces the furnace, told SCIENCE SERVICE the equipment can be afforded by low-budget colleges and research institutions because of a design based on surplus searchlights.

Mr. Wendelken said the mass-produced solar furnace sells for \$8,500. "The searchlights, which now have very little use in this age of high-speed aircraft, originally

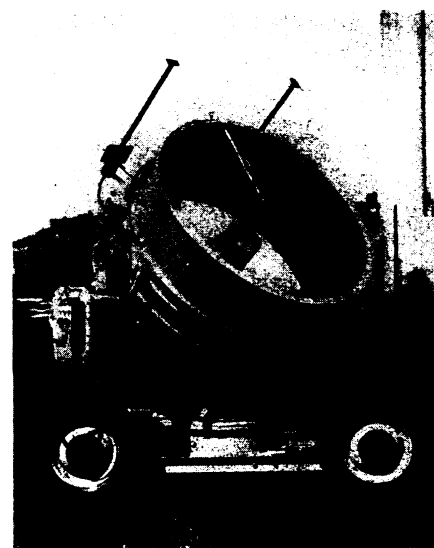
cost the government around \$25,000 each." A similar furnace built from new materials would cost a buyer \$40,000 to \$50,000.

Solar furnaces use one or more mirrors to bring the sun's rays to a high-temperature focus. The mass-produced model reaches temperatures up to 8,000 degrees Fahrenheit.

Sun-powered furnaces are used in many types of high-temperature research because of their low-cost operation and high temperatures. They are used in research on ultra-pure metals and other jet and rocket materials particularly because they do not contaminate the materials under study.

When strategic materials are melted in even the hardest and most heat-resistant crucibles or other containers, small amounts of the container enter the molten material as impurities. The same materials can be suspended at the focal point of a solar furnace and melted in one spot without touching a hot container wall.

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SOLAR FURNACE — Surplus military searchlights made possible the development of this sun-powered furnace now available on a mass production basis. The American Searchlight Corporation, New York, which produces the furnace, reports temperatures as high as 8000 degrees Fahrenheit have been reached with the furnace.