MEDICINE

Radiation Injury Study

Finding swift methods of detecting atom bomb blast injury, best methods of treating it, and what after-effects to expect to be undertaken at Bikini.

➤ A NEW kind of blast injury, radiation blast of the atom bomb, will be studied, with the hope of learning how to reduce its danger to personnel, during the Crossroads Operation of Joint Task Force One.

Finding swift methods of detecting radiation injury, the best methods of treating it, and what late after-effects to expect are other parts of the mission of the Naval Medical Research Section of Joint Task Force One, Capt. R. H. Draeger, who heads this section, and Capt. Shields Warren, who will assist him reported as they made their plans at the Naval Medical Research Institute in Bethesda, Md.

The atom bomb, unlike any other weapon of warfare, can produce four blast effects, any one of which can kill. These are air blast, water blast, solid blast and radiation blast. The first three can be produced by ordinary high explosives, depending upon whether the explosion is in air, in water or in contact with a solid structure such as a ship.

Radiation blast, however, is produced only by the atom bomb. These blast radiations carry thermal and electromagnetic energy, producing burns or radiation sickness. An A-bomb victim who escaped the other blast effects might walk around apparently unharmed and without pain for 48 hours, and then suddenly collapse and die.

To prevent this happening in case of atomic attack, Capt. Draeger, Capt. Warren and their associates hope to learn during the Crossroads Operation what is the best way of telling quickly just how much radiation a man has absorbed in his body. Individuals working in laboratories where there may be radiation or radioactive hazards employ various devices for recording radioactivity. From these devices it is possible to tell whether or not the individual workers are in danger of getting too much radiation. One of the answers being sought in the tests will be to see whether more sensitive or more exact devices may be needed to indicate quickly enough the need for special medical treatment of atom bomb victims. Special blood tests may prove the best method of swiftly diagnosing radiation injury from atom bombs. A team of technicians has been, for weeks, getting special training in such blood testing at the Naval Medical Research Institute.

Penicillin, liver extract, iron compounds, chemicals derived from the blood's hemoglobin, and one of the new vitamins, folic acid, will all be tested as remedies for victims of the radiation injury of atom bombs. The blood and blood-forming organs are known to be damaged by radiation, which is the reason for testing as remedies such aids to blood formation as iron, liver, folic acid and hemoglobin derivatives. Penicillin, Capt. Warren believes, might prove lifesaving by holding disease germs at bay while the victim was suffering from too few white blood cells and until enough new ones were formed to give him some natural resistance to infection.

Whether the radiation injury from atom bombs will cause sterility in the victims or cause defects in such children as they might have will also be studied. While it will take many years before such genetic effects could be determined from following atom bomb survivors in Japan, laboratory animals and insects, such as drosophila, can provide the answers much faster.

The holds of the U.S.S. Burleson, which will be the laboratory ship for the Naval Medical Research Section of Joint Task Force One, are being converted into pens and suitable living quarters for fruit flies, goats, pigs, rats and a few specially bred mice.

The mice, provided by the National Cancer Institute, are from strains known to be highly susceptible to cancer, as well as from a resistant strain. They are being taken along so that scientists can learn what effects atom bomb radiation may have on cancer susceptibility or even on cancer itself. The goats were chosen for their unusual blood, which contains more and smaller red cells than other species, including humans, and thus will provide more material for studying the effects of radiation on the blood. The pigs were chosen because their skin is so much like human skin in its response to radiation.

An expert statistician, Capt. F. R, Lang of the Navy, will be among the 21 officers attached to the Naval Medical Research Section on the Crossroads Operation. Of the 21 officers, five are from the Army. The Chemical Warfare Service of the U. S. Army and the Biological Warfare Division are represented. In addition, there will be three civilian scientists. Among the 68 enlisted men will be 40 picked because they came from farms and have had experience with animals. Veterinarians are of course included in the force.

Seeds and soils will also be studied in collaboration with the Department of Agriculture, to learn how atom bomb radiation affects a region so far as its future crop production and habitability are concerned.

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ORDNANCE

Faster, More Powerful Rocket Motor Revealed

➤ WORLD'S NEWEST and most powerful rocket motor was unveiled at Patuxent River Air Station, by the Navy with a promise of greater distances and speeds than ever before reached by jet-propelled weapons.

The new motor would send the Navy's now-famous "Tiny Tim" rocket speeding through space at three times the speed previously possible for the missile.

Developed by Aerojet Engineering Corp., Pasadena, Calif., the new motor has been romantically dubbed "Moby Dick."

The thrust developed by the motor is greater than 30 tons, or one-third more than the "push" behind the Germans' V-2 rockets. It would shoot a "Tiny Tim" rocket at more than 2,700 feet per second contrasted with present speed of 900 feet per second, Navy rocket experts predicted.

Although "Moby Dick" is still in the experimental stage, new fields of distances and speeds for rocket weapons are expected from the latest advance.

Less powerful than "Moby Dick," but regarded as an important military advance is another rocket engine that was demonstrated by the Navy Bureau of Aeronautics. The compact, liquid-fuelled engine, known as CML, 2N, delivers a thrust of 350 pounds and fires for over two minutes. It was developed for the Navy's high-speed Gorgon pilotless aircraft.

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All *lawns* need spring care because turf grasses are cool-weather growers.