



GUARD AGAINST RADIATION DANGER—Laboratory workers are shown inserting a gun-shaped detector into a thick-walled concrete cell where the most dangerous of the radioactive materials are kept at Oak Ridge.

Taking part in national defense against radiation danger is not an entirely new thing to the University of Rochester. The Manhattan District borrowed its professor of radiology, Dr. Stafford Warren, now at the medical school of the University of California at Los Angeles, to head its health protection and medical activities. And in 1943 the Manhattan District set up a medical research unit across the road from the University of Rochester's School of Medicine and Dentistry. The unit subsequently became the first and, so far, the only project of its kind operated by the Atomic Energy Commission. Its present director is Dr. H. A. Blair.

Discovery of a potential medical weapon against radiation damage, from the atom bomb or from non-military sources, has just been announced by

two of this atomic energy project's staff. They are Drs. Paul E. Rekers and John B. Field. Their discovery is that rutin, obtained as a bright yellow powder from the green buckwheat plant among other sources, might save radiation victims by strengthening the walls of their blood vessels. This chemical, they reported, has protected dogs from the uncontrollable and fatal bleeding which is a primary factor in the deaths of humans and other mammals exposed to sublethal and midlethal doses of total body radiation.

But Dr. Rekers and associates are not stopping with this discovery. It came as part of a study of hemorrhage and the effects of radiation on the blood and blood-forming system. That study is continuing and promises further important new knowledge.

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NUCLEAR PHYSICS

Atomic Power in Industry

➤ ATOMIC energy will have many industrial applications, but it will certainly not be immediate, the American Society of Mechanical Engineers, meeting in New Orleans, was told by Dr. Lyle B. Borst, chairman of the Nuclear Reactor Project, Brookhaven National Laboratory, Upton, N. Y.

It will be 10 to 20 years before atomic energy can compete favorably with coal as a source of industrial power, he said. Many problems are to be solved first, but the development of atomic power is one of the most direct and foreseeable future industries. The earliest applications will probably be for mobile use, as for ships,

submarines and airplanes. Atomic powered automobiles are not deemed feasible.

The generation of power from the atom for peacetime use will be demonstrated at Brookhaven within the next two years, it is expected, he said. Since the nuclear reactor, of which he has charge of design, construction, and operation, is planned for research rather than for a power plant, the power generated will be a by-product. The nuclear pile will power a steam plant which will generate electricity to be used in driving cooling fans and other apparatus.

Among current problems is that of operating reactors at sufficiently high heat for the conventional engine. Dr. Borst declared that scientists have looked long and hard, but unsuccessfully, for a trick method of getting electrical energy directly from the chain reaction. We acknowledge generally, he said, that electrical power, for the foreseeable future, will be generated by means of the general heat engine.

Another problem is concerned with the economy of the fissionable material employed in getting atomic energy. In the utilization of uranium, only one atom in every 140 is the isotope U235 which undergoes thermal neutron fission, he stated. The other 139 are all U238 which absorbs neutrons to make plutonium.

Principal reactors throughout the country are based on the fission of U235. Thorium is not used at all. High-grade uranium is scarce. For a large-scale power industry, we must learn to use U238 as well as thorium. Then we will have enough raw material to generate power for centuries.

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ASTRONOMY-RADIO

Decline in Sudden Storms Seen in Next Few Years

➤ FEWER sudden storms in the ionosphere that for a few hours completely knock out all communications and also fewer violent storms that black out all paths for many hours may be expected during the next six or seven years. But the band of usable radio frequencies for world-wide communication will become ever narrower during this period and from this trouble may arise. These trends are foreseen because the peak of sunspot activity, associated with shortwave radio disturbances, was reached last summer.

As activity on the sun decreases, the ionosphere also becomes less densely ionized so that it will not reflect the higher radio frequencies back to the earth, the