

ASTRONOMY

Increase Telescopes' Power

An image converter, a device that will make a 20-inch telescope to which it is attached the equivalent in light-gathering power of the 200-inch, is being developed.

► A LIGHT-INTENSIFYING DEVICE that will allow man to look three times farther into space with the world's largest telescope, the 200-inch on Mt. Palomar, is now in the preliminary stages of development at Westinghouse Research Laboratories, Pittsburgh.

The biggest reflector will become the equivalent of a mirror 2,000 inches in diameter. This is made possible by an image multiplier that in six simple stages of electron enhancement will take the light of the Palomar telescope and increase it 10,000 to 20,000 times in brightness.

The volume of space to be reached will be some 27 times that now visible. This means that instead of being able to see back two to three billions of years in light time travel with the 200-inch, astronomers will probe six to nine billions of light years. (See SNL, Dec. 17, 1955, p. 389.)

Most important to theories of the constitution of the universe will be new knowledge of the distribution of the galaxies in distant space. Perhaps the moot questions of whether there is an end to space or whether space bends back upon itself will come closer to solution.

It will be at least several years before the device being pioneered by Dr. E. J. Sternglass and Milton Wachtel will be attached to the 200-inch telescope. (See SNL, Jan. 21, p. 35.)

However, a model has been built and the principles seem quite clearly worked out. Light is picked up on an electronic screen that gives out four electrons for every one that hits it. This is repeated in six stages.

An early development of the device will probably be used on smaller telescopes in connection with the International Geophysical Year.

Devices related to the image multiplier will give more ability to see in the dark. They will have military and security applications. Such a device should be able to watch an area at night without lighting it, and military movements could be spotted at night from the air despite darkness that prevents ordinary photographs.

Also announced by the scientists at the new laboratory was development of an electronic "brain" that promises to result in major changes in the control of complex industrial processes.

Called Automex, the "brain" has a built-in method of distinguishing between the most promising and the least promising choices, Dr. Morris Ostrofsky, manager of the mathematics department, said.

The key to Automex's function is that it will, by repeated experimentation, try to reach a given goal with dispassionate judg-

ment in distinguishing between success and failure, Dr. Ostrofsky reported.

Dr. Robert Hooke created a mathematical scheme for accomplishing the design of Automex, and Albert Kerstukos of the Westinghouse new products department designed and built the model.

In one application, Automex would be useful to a chemist who is adding two or more solutions together to obtain a reaction in a heated container. The Automex would enable him to find out how changes in the temperature or certain amounts of the solutions would affect the reaction.

Science News Letter, September 22, 1956

PUBLIC HEALTH

Milkman to Bring Safe Water in Mass Disasters

► IN CASE FLOODS or other disasters knock out a town's water supply system, the milkman will come to the rescue, bringing safe drinking water packaged in milk containers.

Plans for this were announced by Federal Civil Defense Administrator, Val Petersen.

The plan originated, apparently, when Hurricane Diane hit Stroudsburg, Pa., in August, 1955, bringing torrential floods that put the water plant out of commission. Local civil defense authorities called the Lehigh Valley Cooperative Farmers Dairy in Allentown, Pa., asking for milk cartons.

The Lehigh group responded by sending cartons filled with pure drinking water to avoid contamination. The Lehigh group did this by simply switching their dairy from packing milk to packing water. The same machinery was used.

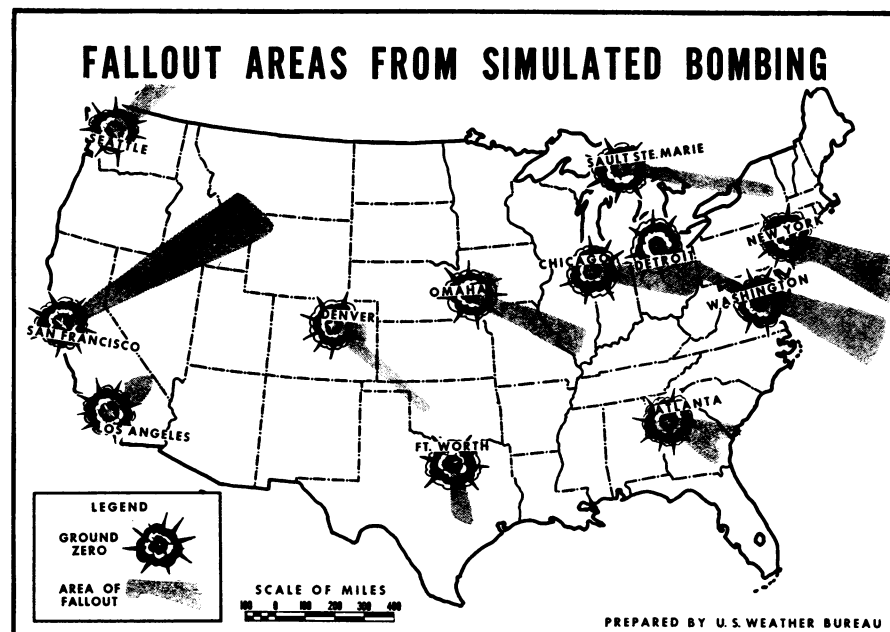
Following this successful experiment, FCDA consulted the U. S. Public Health Service, American Red Cross, and the milk and dairy and container industries. The result is the new plan.

It proposes that, in any emergency, dairies in areas affected would package water in containers usually used for milk for shipment by air, rail, truck or water to the disaster regions.

It would be the responsibility of the civil defense director in any community where the water supply was knocked out to determine the need for drinking water and the amount required. He would appeal to the nearest dairies still in operation and make arrangements for packaging and shipping the drinking water to his community.

Several companies are using hand stamps, special caps or inserting the regular cap upside down to identify the specially-packaged water.

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FALLOUT MAP—Assuming 12 cities were hit simultaneously with hydrogen bombs early on Sept. 10, 1956, the resulting fallout of radioactive particles within the 12-hour period following the bursts would have covered the areas shown shaded in this map prepared by the U. S. Weather Bureau as a special feature of Civil Defense Week. Strong northwesterly winds aloft in the eastern part of the U. S. would carry bomb debris from Detroit to the Washington area within half a day.