

SEISMOLOGY

Nuclear Bomb Network

► EVERY TIME an atomic bomb or earthquake shakes the earth, giant computers will whirl and tell America's alert defense organization what is happening.

More than 40 sets of records on each earth tremor will pour into a new center which will be erected in Washington, D.C., to begin full operation by the middle of the year.

Information from 40 fixed and mobile earthquake and explosion recording stations around the country, as well as the University of Michigan mobile stations, three large permanent stations, and the new Tonto Forest Seismological Observatory near Payson, Ariz., will be sent to the proposed center where scientists will try to find some clue to differentiate between nuclear blasts and earthquakes. This is still the biggest technical stumbling block in detecting underground nuclear explosions.

The network is part of Project VELA, whose purpose is to find suitable methods for detecting nuclear explosions. It is under the direction of the U.S. Department of Defense's Advanced Research Projects Agency.

The Data Analysis and Technique Development Center will be built in the Washington area by United ElectroDynamics, Inc., of Pasadena, Calif.

Information arriving at the center will

be compared and analyzed on a specially-designed electronic system, using a high-speed digital computer, an analog computer, and many other pieces of peripheral equipment. A staff of 35 scientists, mathematicians, physicists and engineers will conduct the high-level research.

The 40 existing stations are sprinkled throughout the country with many concentrated near test sites such as those in Nevada and New Mexico. These stations have already participated in some tests, including Project Gnome.

Data from U.S. Coast and Geodetic Survey stations outside the U.S. will also be sent to the new center. According to one official, however, the stations are not adequate for monitoring most nuclear explosions.

Presently under study by project officials are a possible series of 180 control posts throughout the world. This network could provide a sound set of data for the determination of foreign nuclear blasts, according to one observer.

The center, whose site is not yet certain, will provide a central service for the analysis of seismic information from Project VELA stations, as well as for stations of cooperative agencies and other nations.

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hear lectures by eminent scientists in various broad areas of science. A spokesman for the scientific organization emphasized that the discussions will be divorced from political considerations.

"They are offered as an information and educational media," he said, "with the conviction that if Congressmen know enough about the scientific facts, they will be able to act with better judgment in areas in which such facts are relevant." Brookings Institution of Washington, D. C., is arranging the meetings.

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PUBLIC SAFETY

Shelter Survival Odds, At Best, Are Poor

► BUYING A FALLOUT shelter is like betting on a horse race. The odds on survival, at best, are poor.

"The shelter owner gambles (like the track bettor) that a complex set of variables will so arrange themselves that his shelter (or his horse) will come through," Dexter Masters, director of Consumers Union, said in Consumer Reports, Jan., 1962.

Chances for survival in a \$5,000 shelter are better than those in a \$500 one. But odds would be heavy against a family's chance to survive in the famous \$30 "Poor Man's Shelter" built by Dr. Willard Libby, former chairman of the Atomic Energy Commission. Made of old railroad ties and bags of earth, it burned down in Hollywood Hills, Calif., last November.

Dr. Libby had explained that his shelter was not meant to withstand fire. However, fire, as Mr. Masters pointed out, is one of those variables that could well be a likelier hazard of nuclear attack than fallout.

In fact, the complexities and cost of meeting all the variables involved in shelter are simply beyond the reach of most individuals, according to Consumers Union studies. "But if we are to move into a future of life underground it is the Government alone which can afford to take us there," Mr. Masters stated.

Writing in the same issue, Dr. Ralph Lapp, nuclear scientist, said that for residents of crowded central cities, the present fallout shelter plan under civil defense "is a political expedient." But he also expressed the view that in the fringe of a prime target, a well-stocked shelter, shielded adequately against radiation "might make sense." A reasonable chance for survival could be had, even in the fringe of an area subjected to a single 20-megaton explosion, in an underground blast and fire-resistant shelter containing a built-in well or large water tank, oxygen supplies and food for "at least two months."

Dr. Lapp believes such a shelter can be built for a family of four at a cost of from \$3,000 to \$5,000. He has joined with some neighbors to build a shelter that will accommodate three families.

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Live poliovirus vaccine has been termed the simplest and most effective way to immunize preschool age children.

GENERAL SCIENCE

Science and Survival

► WHEN CONGRESS reconvened this month, it was faced with issues concerning national survival in which science and scientific opinion will play a dominant role. Civil and military defense will have top priorities.

Congressional endorsement of the present civil defense shelter program will be measured by the response to the Administration's request for an additional \$700,000,000 primarily for partial subsidies of local group fallout shelters to "protect" about 20,000,000 more Americans.

Last summer, Congress appropriated \$306,000,000 to find, stock and mark "ready-made" shelter spaces in existing structures. Most of these are in or near urban centers. In the event of a blast in or near these areas, scientific studies show that such shelters would afford little or no protection from radiation from fallout and certainly none from the blast.

The Administration's shelter program has been attacked in Congress by members of both parties as inadequate. Rep. Chet Holifield (D-Calif.) favors mass underground shelters, financed almost wholly by the Federal Government, which would provide protection against blast as well as fallout. The Administration considers its civil defense program, described by Secretary of Defense Robert S. McNamara, "reasonable

and prudent measured against the other priorities of our national life."

The expanding military build-up favored by the Administration is high among "the other priorities" to which Secretary McNamara referred. Those who favor continuing arms expansion, and scientists are among them, believe that the power it will provide is a deterrent to enemy attack. And this power is a product of science. Scientists, increasingly aware of what their efforts have created, have recognized a new responsibility to somehow limit or direct these efforts toward survival rather than destruction.

At the recent conference of the American Association for the Advancement of Science in Denver, Colo., a committee of distinguished scientists advocated the founding of a new science of human survival.

An essential part of such a science, they have indicated, is to make relevant scientific facts known to the public when decisions on a national level must be made concerning disarmament, weapons build-up, nuclear testing, or even space explorations and weather research.

To provide this knowledge to members of Congress who are interested in science, the AAAS will initiate the end of this month the first of a series of six or seven evening meetings to which 30 or more members of Congress will be invited to