

GENERAL SCIENCE

Science for Disarmament

Science and technology, used in the past for building up armaments, are now being utilized for the first time for arms reduction and disarmament, Lillian Levy reports.

► SCIENCE AND TECHNOLOGY, used so successfully to develop and build bigger and better armaments, now are being utilized for the first time by the Government for arms reduction and disarmament on a world-wide basis.

Just how they can best be employed is part of a vast complex of study and research projects undertaken by the United States Arms Control and Disarmament Agency (ACDA) established by Congress just four months ago.

While inspection and detection appear to be the major areas in which science and technology can and will contribute to disarmament, they are not the only ones. Initial research by ACDA indicates that scientific and technological skill can develop the programming for the broad economic adjustments that will necessarily follow any limitation on arms.

For example, approximately half of the national research and development (R&D) effort currently is financed by defense agencies. Each dollar of defense production is supported by between six and seven times as much R&D as each dollar of civilian production. Consequently, even if a reduction in military R&D spending was accompanied by proportional rise in civilian R&D spending, it has been estimated that a total elimination of defense spending would cause about a 40% reduction in total R&D.

This cutback would not be evenly spread throughout the economy but would be concentrated in industries such as aircraft, missiles and electronics. Industries that produce machinery, equipment and metal products also would be hit hard. The impact would be substantial on industrial laboratories and on Government defense laboratories. Universities also would be affected, particularly those whose research centers have projects contracted by defense agencies.

Various policies and programs can be used to make the necessary adjustments. While Government spending and tax programs are an obvious remedy and could help considerably, it is believed by some authorities that diversion and conversion of manpower and resources now used for defense to an expanded peacetime space program to advance weather control, communications, interplanetary exploration might be even more useful. The conversion could occur with a minimum of effort.

The freeing of R&D resources could prove to be one of the most important economic benefits of disarmament. The resources could be diverted to so many vital developments in health, industry, agriculture, education and improvement of natural resources, that the ultimate economic and social benefits resulting would dwarf all problems required by adjustment, President

John F. Kennedy said recently. For while many technical developments of major importance to the civilian economy have come from military R&D, most military R&D has extremely little civilian application.

Studies show that, oddly enough, the impact of disarmament would be less on scientists and engineers than on any other occupational groups. This is because most defense R&D money now buys materials and overhead and less scientific personnel than the non-defense R&D dollar. In addition, the need for scientists and engineers in civilian industries continues to exceed the supply. In fact, employment of scientists and engineers continues to grow at a faster rate than employment of almost any other occupational group.

The training and retraining of less skilled manpower that would be freed from defense industries poses the greatest challenge. Presently ACDA is evaluating proposals for a nationwide system of collecting information on employment opportunities and available manpower in order to be able to match men and jobs.

Undoubtedly, extension of unemployment compensation for workers released from the defense industries and for service veterans will be required for an interim period. Present programs by the Federal Government to help depressed areas could be used to bring new employment opportunities to regions where defense industries would be curtailing operations.

Those working in ACDA are confident that a first step toward arms control and ultimate disarmament can be made in Geneva on March 14 when 18 members of the United Nations meet to seek comprehensive disarmament treaty program.

President Kennedy said in a special message to Congress on the first annual report of ACDA that he expected "significant progress" from the March meeting.

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OCEANOGRAPHY

Antarctic Research Ship In Capital Before Cruise

► A DISTINGUISHED visitor to the Nation's Capital has been groomed for a long sail through the icy Antarctic waters beginning in April.

The converted cargo ship, USNS Eltanin, made an official visit to Washington before she joined the United States research fleet to study the areas surrounding the South Pole, the National Science Foundation reported.

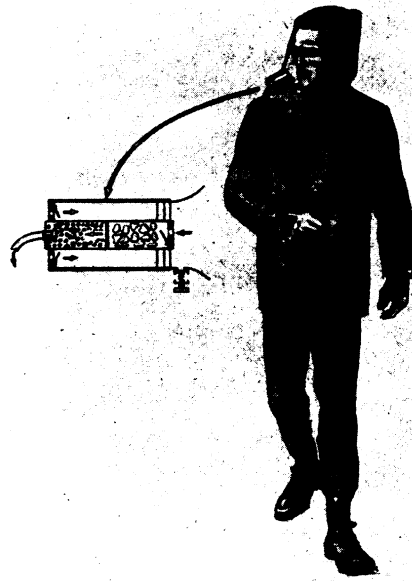
Eltanin is a full Antarctic research station afloat. She was welded and bolted and ham-

mered until she was "shipshape," complete with an ice-breaking bow, helicopter deck and laboratories for everything from water sampling to bug dissecting.

The Eltanin will carry 32 scientists and technicians from 12 university and Government organizations in her cruises around the Pole.

Water and air temperatures, marine biology, subsurface geology, ice formations, radio noise, cosmic rays and several other scientific and technical phenomena will be studied.

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HEAT FROM BREATH—Dotted lines on protective suit show where flexible tubes lead from canister (sketched in at left) to shoes and gloves, heating the wearer by his own breath's warmth.

TECHNOLOGY

Breath Supports Heating Unit for Arctic Clothing

► MAN'S BREATH will be able to support a heating system for arctic wear, space suits and possibly hunting outfits.

A novel heating unit, being developed by Ethyl Corporation scientists in New York, will be energized by the moisture in human breath instead of depending upon electricity or other power units.

Breath will pass through a newly developed canister containing sodium aluminum hydride, which releases hydrogen from the water vapor. The hydrogen, along with exhaled oxygen, is too dilute to support ordinary combustion, but by distributing it through flexible tubes to special catalyst units in shoes and gloves, enough heat can be produced to keep a person comfortable under extreme conditions.

The company said that the system can be adapted to meet many operational needs.

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