

## PSYCHOLOGY

# Atomic Dangers Overrated

**Fear of the atomic bomb has so colored public opinion that people are unduly afraid of health hazards that may result from peaceful uses of nuclear energy.**

► PEOPLE are unduly afraid of atomic energy, Dr. James H. Sterner of Eastman Kodak, Rochester, N. Y., charged at the Third United Nations International Conference on the Peaceful Uses of Atomic Energy in Geneva.

Health problems created by practical peaceful uses of nuclear energy are not significantly different from other hazards satisfactorily solved, he said. Not a single instance of injurious radiation effect has been observed in individuals whose exposure to radiation has been less than limits set for safety.

Fear of atomic bombs has colored the public's attitude toward atomic energy, Dr. Sterner observed.

Much more stringent requirements have been adopted than for other equally hazardous industrial agents. An example cited by Dr. Sterner is that to obtain a relatively small thickness gauge for use in industry, one must register the radiation source with the state agency having responsibility for radiation control, demonstrate the safety precautions for all projected uses, and show that qualified personnel are available to supervise the installation and operation.

This same industry can purchase and use many tank cars of benzol or carbon

tetrachloride or chlorine, or many other chemicals more reactive and more toxic, with the only restriction that, in some states, if ventilating equipment is used, these plans be approved by the state, and that the official factory inspector, if and when he visits the plant, judges the operation to be safe.

Similarly, the community is apt to regard an atomic energy installation with suspicion and apprehension while accepting or ignoring a chemical operation of equal or greater potential hazard.

Different standards of acceptance and performance, and the disordered and confused state of the mechanisms by which society develops the judgments and action in balancing environmental hazards with benefits, can result in discriminatory and even capricious controls, he said.

These may even ultimately deprive our society of needed and beneficial goods and services. He urged that we view the benefits and hazards of atomic energy with the perspective of other comparable activities and their environmental hazards.

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## Dig With Atomic Energy

► BY USE OF nuclear explosive excavation, the digging of a new sea-level canal across the American Isthmus connecting the Atlantic and the Pacific appears more feasible and less costly than earlier studies indicated, Gerald W. Johnson and Gary H. Higgins of the Lawrence Radiation Laboratory, Berkeley, Calif., told the Third United Nations International Conference on the Peaceful Uses of Atomic Energy in Geneva.

The total cost of producing such a canal is now estimated to be about \$500 million. It would have a width of 1,000 feet and a minimum depth of 60 feet.

Improvement in explosive technology and reduction of radioactivity makes the project more inviting than when it was first studied in 1960.

Experiments on the underground uses of nuclear explosives, the project known as Plowshare, encouraged the new planning that has undoubtedly been given impetus by the fact that there has been conflict over the Canal Zone and demands from Panama concerning the lock canal.

The experts who have worked upon atomic excavation have increased confidence in the feasibility and the economic advantage of nuclear digging.

"Further development of nuclear explosives has resulted in impressive reductions in fallout to be expected from excavation projects," the U.S. experts said.

"The land areas that would have to be temporarily excluded have been reduced to

those that must be controlled to avoid hazard from throw-out of material, dust, air blast and ground shock."

The contained nuclear explosions that have been fired in the tests suggest that nuclear explosives can be used for breaking up rock in certain kinds of mining such as for molybdenum and possibly in low-grade copper deposits. Nuclear explosions underground could also lead to increased production from petroleum gas wells.

It is likely that, as a result of the U.S. tests, new kinds of atomic varieties, useful isotopes, can be manufactured by atomic explosions underground through use of specially designed explosive methods of creating the isotopes that could then be recovered.

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## Nuclear Power, A.D. 2000

► BY THE END of this century, nuclear power will dominate the construction of new power plants and will furnish about half of the U.S. power generated, Commissioner Gerald F. Tape of the U.S. Atomic Energy Commission predicted in Geneva.

He summarized, for the Third United Nations International Conference on the Peaceful Uses of Atomic Energy, forecasts of U.S. future energy needs and the role of nuclear power in filling them.

Total energy consumption in the United States for the year 2000 is estimated to triple the 1960 consumption, based on studies summarized by Commissioner Tape and his associates, Frank K. Pittman and Milton F. Searl, both of the U.S. Atomic Energy Commission.

Coal, the principal fuel for power at the present time, will be adequate for at least well into the next century, Commissioner Tape believes, but he reported divergent opinions as to the availability of technology to provide these coal resources at or below present cost. U.S. resources of crude oil and natural gas will almost certainly become scarce long before coal, he said, although the domestic supply picture will be substantially improved by imports, shale oil, conversion of coal, or perhaps production of other synthetic fuels with the aid of nuclear power.

Commissioner Tape, in his survey, found that opinions differ widely as to the rate at which nuclear power will penetrate the electricity market in the next few decades.

Estimates from only a few years ago of the amount of nuclear capacity to be installed through the year 2000 have had to be increased, Commissioner Tape said.

Realization of predicted amounts of nuclear power are dependent upon further advances in water reactor technology and the development of advanced converter and breeder technology.

The direct economic benefits of the installation of nuclear power will be many billions of dollars by the year 2000, he predicted. Substantial additional benefits will result from stimulation of competitive fuels to reduce costs, reduction of atmospheric pollution, extension of resources, and promotion of international trade.

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NASA

**TO IMPROVE BREED**—Full-scale model of ATS (Advanced Technological Satellite) is adjusted by Paul Norsell, project manager at Hughes Aircraft Company. Five different ATS models are being built under the management of Goddard Space Flight Center, Greenbelt, Md., for NASA, to find ways to improve future satellites.