

## GENERAL SCIENCE

# 'Atomic Playground'

## See Front Cover

► AN "ATOMIC PLAYGROUND" exclusively for children is part of the New York World's Fair.

Designed to entertain as well as instruct youngsters, Atomsville U.S.A. is part of the U.S. Atomic Energy Commission's exhibit in the Hall of Science. Parents, not allowed in the juvenile area, may watch their children through one-way mirrors and on closed-circuit television. They may browse through the nearby second section of the AEC exhibit—Radiation and Man.

Atomsville, with entrance and exit only five feet high to exclude adults, contains a maze of equipment. A pinball machine shoots "neutrons" at "uranium atoms." A simulated nuclear reactor talks to the youngsters as they operate it.

In Atomsville, the young visitor is confronted with questions about atomic energy, and obtains the answers by pushing buttons, moving levers, and otherwise activating the colorful displays. The questions follow the story of atomic energy from uranium ore to various applications of nuclear energy in medicine, agriculture and industry.

The children manipulate make-believe

radioactive materials with mechanical hands like those used in atomic energy installations, look into the whirlwind world of "inner space," determine their weight in atoms and "prospect" for uranium on a world map, as seen on this week's front cover.

They produce electricity by riding stationary bicycles and compare their output with that of fissioning uranium. The youngsters handle such everyday tools of the atomic age as geiger counters and oscilloscopes.

Radiation and Man carries the visitor from familiar forms of radiation, such as visible light and heat, across the electromagnetic spectrum to radio waves and rays. This exhibit also introduces cosmic rays, alpha and beta particles, and neutrons.

Other displays explain nuclear half-life and radiation protection. One unit dramatizes man's existence in a sea of radiation, identifying the sources of both natural and artificial radiation.

Both Atomsville U.S.A. and Radiation and Man were designed, fabricated and operated by the Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tenn.

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**CHILDREN ONLY**—Parents are left behind by young visitors as they enter Atomsville U.S.A. operated by Oak Ridge Institute of Nuclear Studies at the New York World's Fair.

as well as destroy would support another scientist's thesis on possible substitutes for war, W. F. H. Ansell reported in *Nature* 202:1032, 1964.

Mr. Ansell commented on a symposium of the Institute of Biology on the "Natural History of Aggression," reported in *Nature*, 201:129, 1964. This symposium brought out the fact that the terrifying history of overt aggression such as wars and murders seems essentially to be human. Under natural conditions animals do not fight to the death with members of their own species.

Man's profound need for aggression could be substituted by ritual and other forms of struggle, such as football and perhaps the space race, according to one scientist at the symposium.

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## SPACE

## Space Comes to Earth In Huge Laboratories

► OUTER SPACE comes to earth in a new multimillion dollar space environment and flight simulation laboratories being built at Kent, Washington State, near Seattle, for the Boeing Company.

Eleven space simulators will reproduce high vacuum, extreme cold and sun's radiation in space. One chamber, 50 feet high, can hold earth-bound space-suited astronauts under pressures of 400 miles above the earth. Five times the intensity of radiation experienced on earth will test materials and men.

A pilot can see moon, earth, stars and sun as he would from space. Two movable full-sized models imitate how space vehicles can meet in orbit and join together on their trip to the moon. Computers will control as they will in actual space.

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## MILITARY SCIENCE

# A Step to Disarming

► EFFECTIVE CIVIL DEFENSE is urged as "a necessary precursor of disarmament," by Prof. Eugene P. Wigner of Princeton, one of last year's Nobel prize winners in physics, in a report in *Technology Review* of the Massachusetts Institute of Technology.

Prof. Wigner was scientific director of Project Harbor, a study of civil defense undertaken by the National Academy of Sciences.

"The present precarious balance of international relations is caused, to a considerable extent, by the preponderance of offensive weapons over defensive ones," Prof. Wigner said. "This preponderance gives the party striking first a great advantage."

"Either strengthening the defensive capabilities or weakening the offensive power might reduce this instability," he said. "The most effective measure in the first direction would be a buildup of civil defense. Disarmament is a step in the second direction."

Some inspection system will be required if the United States and the Soviet Union agree on gradual disarmament, he observed, but inspection cannot guarantee the destruction of all weapons or erase knowledge of how to make weapons from men's minds.

"After disarmament was ostensibly complete," Prof. Wigner continued, "the Soviet Union could still threaten us with a few weapons, which would be superior to no weapons at all. With our population protected, we could resist such threats for a

few months, and gain the time required to assemble our own weapons again. Without civil defense, we would be at the mercy of the aggressor."

Those who have seriously studied civil defense, Prof. Wigner reported, agree that preparations could drastically reduce the civilian casualties in a nuclear war. But highly educated, sophisticated people have not supported civil defense, he thinks, because they wish to live "in a refined atmosphere into which the brutal activities of the defense of our country do not penetrate."

Prof. Wigner doubts that an anti-ballistic missile system which would provide substantial protection for our people can be developed in the next 20 years. If we should be attacked despite our deterrent power, he concludes, "civil defense would have immense life-saving value which cannot be replaced by any other defense."

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## PSYCHOLOGY

## Field Sports Suggested As Substitute for War

► FIELD SPORTS with various elaborate rules could possibly substitute for man's deep-seated drive for war, suggests a British official with the Game and Fisheries Department in Fort Jameson, Northern Rhodesia.

Games with detailed rules that are essentially not much use to society as a whole but could reflect man's desire to preserve