GENERAL SCIENCE

Atomic Era 20 Years Old

Whether man will use the immense power of the atom wisely or destructively still remains a question 20 years after the first atomic bomb was dropped—By Charles A. Betts

➤ TWENTY YEARS AGO the world entered the atomic age.

Immediately, the world speculated what this terrible new weapon would mean to humanity. Twenty years later the speculation goes on, with the choice for destruction or undreamed-of peaceful progress perhaps less resolved than in 1945.

The first bomb was set off July 16, 1945, at Alamogordo, N. Mex. A few weeks later, Aug. 6, an atomic bomb was dropped on Hiroshima. Another hit Nagasaki three days later. World War II was over.

Almost immediately at home there began controversy over the wisdom of the United States in creating the bomb.

Almost immediately in the Pacific Theater of Operations there began an overwhelming feeling of relief among hundreds of thousands of Allied troops that the United States had been wise enough to create the bomb.

In the 20 intervening years, the world has seen a proliferation of atomic and later hydrogen weapons. Now most experts believe as many as 20 nations can build a hydrogen bomb if they choose to take the time and money.

In the 20 years, the United States has been involved in a war in Korea and one in Viet Nam. It has seen the buildup of a Communist state in Cuba, at one time a Red nuclear arsenal stripped only by the risk of major war with the Soviet Union during the Administration of the late President John F. Kennedy. It has seen a Berlin Airlift, an Iron Curtain, the growth of Communist China, the establishment of a United Nations, the emergence of nationalism in Africa, a North Atlantic Treaty Organization and a tottering European Economic Community.

For the 20 years since July 16, 1945, the nations of the world have lived, fought and negotiated under the spectre of an all-out nuclear war from which no one could emerge the winner. For the first time in modern history, the people of the United States have had to face the possibility of war being brought to this country.

The U.S. has gone through civil defense, bomb shelters, air-raid warning systems. The Defense Department, through the Strategic Air Command, set up a round-the-clock vigilance against air attacks.

In the 20 intervening years, the peoples of the world have talked about banning bombs and channeling nuclear energy into peaceful programs. We have utilization of atomic power. We have nuclear-powered ships. We have brought modern science to bear in the conquest of space. We are talking about using nuclear power to dig ditches and build new canals to link the oceans.

We have not learned to live at peace.

In August 1945 Dr. H. D. Smyth published his famous report on how to make an atomic bomb. His preface says that "The ultimate responsibility for our nation's policy rests on its citizens and they can discharge such responsibilities wisely only if they are informed."

Certainly, they and the rest of the world have been informed of the chain of events leading from the work reported in "A General Account of the Development of Methods of Using Atomic Energy For Military Purposes Under the Auspices of the United States Government."

With the rapid end of World War II and the rebirth of Japan, perhaps history has already written the answer to the advisability of using the atomic bomb. What history can say on the 40th anniversary or even the 21st rests in the minds of men in their goals and aspirations, and in their use of the tremendous power given the world 20 years ago.

• Science News Letter, 88:55 July 24, 1965

TECHNOLOGY

Computer Program Checks on H-Bomb Test

➤ A U.S. HYDROGEN BOMB, exploded high over the Pacific Ocean more than three years ago is still of enough concern that a special computer technique has been devised to make possible repeated rapid checks of the bomb's lasting effects.

On July 9, 1962, a 1.4 megaton hydrogen bomb was set off 250 miles in the air above Johnston Island, creating a man-made radiation belt of high-energy "starfish" electrons. The detonation marked the beginning of Project Fish Bowl, an overall U.S. high-altitude weapons test. Within hours of the detonation, the Injun 1 satellite, which had been launched about a year previously, was telemetering data to map the new belt.

The starfish electrons were estimated at the time of the test to have a possible life of up to 20 years, during which time the electrons in the belt would slowly decay to the energy level of ordinary electrons.

To simplify the necessary repeated checks of satellite data from the belt, a National Aeronautics and Space Administration scientist has developed a computer program that will do all the mathematical "busy work" in a fraction of a second.

E. G. Stassinopoulos of NASA's Goddard Space Flight Center in Greenbelt, Md., designed the program. However, he warned that increased solar activity in the years ahead will greatly affect the lifetimes of the starfish electrons, making the computer program relatively useless after 1966.

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TECHNOLOGY

Atomic Energy Provides Power for Foghorn

See Front Cover

➤ ATOMIC ENERGY is being used for the first time to provide power for a foghorn and two flashing beacons on an oil rig in the Gulf of Mexico.

The 60-watt generator, designated SNAP-7F, has been installed on an offshore platform, seen on this week's front cover, about 81 miles southwest of Morgan City, La. The Atomic Energy Commission says that the expected five-year life of the unattended facility "far exceeds" that of the diesel power system it replaces.

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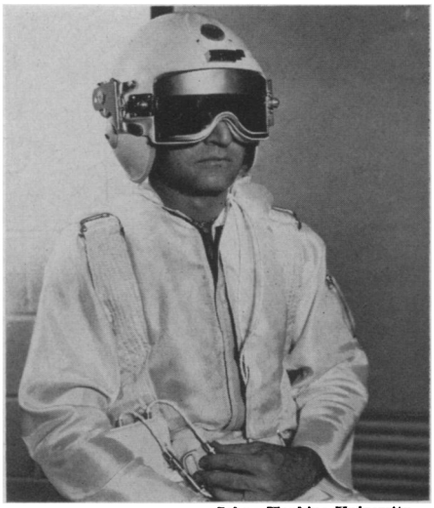

Johns Hopkins University

EYE PROTECTORS—Goggles to protect the eyes from the flash of a nuclear blast have been developed for its aviators by the U.S. Navy. The goggles are blacked-out by an opaquing shield triggered by the system in the wired package (lower left) carried in aviator's pocket.

TECHNOLOGY

Goggles Protect Eyes From Nuclear Explosion

➤ NEW AVIATION GOGGLES which can shut off the flash from a nuclear explosion faster than the human eye can react to it have been developed for the U.S. Navy.

The goggles, expected to be in production shortly, will protect against flashblindness and permanent eye damage from any kind of explosion or sudden and intense burst of lights.

The onset of a flash of light is first observed by a photo sensor in the pilot's helmet. In microseconds, this triggers the expelling of an opaque fluid from a reservoir above the lenses into a vein between them, thus barring the light. The goggles were developed under the direction of the Applied Physics Laboratory of the Johns Hopkins University.

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