The test at Alamagordo, in March, 1945, could not be called a test in the full scientific sense, because it had to be conducted under wartime pressure, which permitted no time for obtaining full instrumental and photographic data.

Adm. Parsons was in charge of Naval activities at the atomic bomb factory at Los Alamos, N. Mex., where the weapon was developed.

Science News Letter, August 10, 1946

PHYSICS

Atomic Age Up to Now

The first anniversary of the bombing of Hiroshima records a brief but portentous history. Great strides include shipping of isotopes for peacetime research.

➤ THE WORLD'S new era, the Atomic Age, has had a very brief history so far, but one packed with tense drama. First intimation that most people had that the dreamed-of possibility of using atomic energy had been realized came just a year ago. The Japanese city of Hiroshima was blotted out by a single air-borne bomb, hastening the end of the second World War.

The first anniversary of this epoch-marking catastrophe was heralded only a few days ago by two less spectacular events which may, however, prove even more significant in the longer perspective of history. First was the signing of the atomic energy control bill by President Truman on Aug. 1, putting the power over fissionable materials and their uses definitely into the hands of a civilian commission. Second was the shipment from Oak Ridge, Tenn., of nuclear fission products intended for peacetime scientific purposes. These steps should mark the turning of atomic power from the ways of war to the paths of peace.

Although Aug. 6 will probably be observed hereafter as the anniversary day of beginning of the Atomic Age, actually that age had a dawn running back into the last few years of the nineteenth century, when X-rays and related phenomena were discovered in European laboratories, followed shortly by the demonstration of radioactivity and the discovery of the element radium by the Curies.

A much condensed chronology of the later dates in atomic energy history includes at least the following:

1939, Jan. 26: American physicists first heard of European experiments showing that slow-neutron bombardment would split nuclei of a uranium isotope, with release of energy.

1942, Dec. 2: First self-maintaining nuclear chain reaction was initiated in a uranium-graphite pile at the University of Chicago.

1945, July 16: First atomic explosion engineered by man blasted the New Mexico desert. Cost of project, to this date, $2,000,000,000.

1945, Aug. 6: First military use of atomic bomb resulted in destruction of Hiroshima, Japan.

1945, Aug. 11: Second atomic bomb exploded over Nagasaki, Japan.

1946, June 30: First atomic bomb exploded in air over naval vessels at Bikini atoll, sinking five and severely damaging many more.

1946, July 24: Second (subsurface) atom-bomb explosion at Bikini sank three capital ships and several submarines, and damaged other vessels.

1946, Aug. 1: Civilian control of atomic energy becomes law of the land in U. S.

1946, Aug. 2: First shipment of fission products for scientific research made from Oak Ridge, Tenn.

Science News Letter, August 10, 1946

METALLURGY

Slag, Useful By-Product

➤ OUT OF the blast furnace comes not only iron for America's large ships and high buildings, but slag, constructing material for highways, bridges, and airports. About one ton of slag is produced along with every two tons of iron.

Slag is made in the Ohio valley, along the shores of the Great Lakes, by the Chesapeake and in the folds of the mighty Appalachians. It is used in almost every state east of the Mississippi, from Canada to the Gulf.

During the past four decades over 100,000,000 tons of slag have been used in various types of construction. Approximately 60% of this was used in building and maintaining highways in 23 states. Another 25% was used as ballast by railroads.

Molten slag floats on top of molten iron because it is lighter. Either of the two may be drawn off separately. When withdrawn from the furnace, the dissolved gases tend to escape from the molten slag. Some of the bubbles are trapped, however, and generate the pore structure in the solidified slag.

These cells or bubbles within the slag are near-vacuum. They expand the volume of the slag materially, decreasing its weight, yet its structural strength is reduced but slightly. Some slag today is specially treated so it will have a large number of air pockets.

Most of the mineral wool used for insulating is made from slag. Melted in a small furnace or cupola, the slag is run down small grooves where jets of air or steam under high pressure shred it into small blobs. The very speed of these tiny bullets forces the material in them to develop into tails of very fine threads which in turn use up the mass of slag. Mineral slag has only a tiny "shot" head attached to a long fiber tail.

One of the newest uses for slag is in neutralizing soil that is too acid. Sometimes used in place of lime, agricultural slag is made by crushing pieces of slag to extreme fineness.

If you would like to have samples of light-weight slag, mineral wool, slag coated roofing and other specimens, you can secure the Slag Unit of THINGS of Science, a kit prepared by Science Service, by sending 50 cents to SCIENCE NEWS LETTER, 1719 N St., N. W., Washington 6, D. C., and asking for THINGS unit No. 69.

Science News Letter, August 10, 1946

ANIMAL NUTRITION

Cattle Thrive on Phosphate Drink

➤ CATTLE on the King Ranch in southern Texas have been getting a phosphate drink and thriving on it. Phosphate salts are added to the drinking water to make up for insufficient supplies in the native vegetation in experiments conducted by the U. S. Department of Agriculture and Texas scientists. Besides being convenient for cattle owners, putting the phosphates in the drinking water enables each animal to get its supply in a soluble form readily assimilated.

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