ENGINEERING

Italian Dam Tragedy Will Not Happen Here

➤ THE ITALIAN DAM calamity will not happen in the United States. Strict precautions are being taken with U.S. dams to avoid any tragedy similar to that of the Vaiont Dam in Italy.

The Italian dam, over which millions of tons of water spilled to drown an estimated 2,200 persons, is called a thin arch dam. Constructed of concrete, the dam bulges in toward the water reservoir in two planes, vertical and horizontal—like a U-shaped saucer, a U.S. Bureau of Reclamation official said. These curves permit firmer footing of the dam sides into the surrounding hillsides.

A similar type dam, with modified design, is being constructed on the Gunnison River in Colorado. This Morrow Point Dam is being built on rock foundations.

A careful analysis of the dam site has been undertaken, and possibilities of certain natural phenomena such as earthquakes or landslides were carefully considered in its design and construction. At the time of analysis of the dam site, the surrounding area was also closely inspected and careful checks continue to be taken.

Yet even with the high engineering standards in the U.S. and Europe, the forces of nature remain unpredictable. The devastating rush of water over the Vaiont Dam occurred not from the dam's breaking, but from the landslide dumping tons of debris into the reservoir.

Landslides can result from various factors, such as differences in rock structure, the angle of the slope, the amount of rain water and the extent of natural or artificial undercutting at the base of the slope.

The 858-foot-high Vaiont Dam in northeast Italy is the highest arch dam in the world, and the fourth highest dam in the world. The two highest dams are the Ingurskaya Dam, 988 feet high, and the Nurek Dam, 978 feet high—both in Russia and both under construction. Third highest dam is the Grand Dixence, 932 feet high, in Switzerland.

The highest dam in the U.S. is the Hoover Dam, which stands at 726 feet. The height of the Morrow Point arch dam will be 465 feet when it is completed in 1967.

• Science News Letter, 84:260 Oct. 26, 1963

ARCHAEOLOGY

New Type of Fossil Found in Norway

➤ A NEW TYPE of ancient fossil has been discovered in ancient rocks of southern Norway.

Similar structures have not been reported from such old rock beds before, N. Spjeldnaes of the Institute for Geology, Oslo, reported in Nature, 200:63, 1963.

Named *Papillomembrana,* the complex fossil somewhat resembles types of algae. The fossil body has a thin outer membrane from which extend thin-walled, hollow protuberances. These bulges are somewhat swollen at the tips, and some carry hooks and small spines. Internal structures are different from anything found in the algae group they resemble.

The original shape of the fossil is not known, since all five specimens that have been observed are compressed.

The fossils were found in a black mudstone pebble rock that may have been formed in the earliest Precambrian Age—an age that dates as far back as four billion years. Other less well-defined fossils were discovered in the same rock.

• Science News Letter, 84:260 Oct. 26, 1963

PLANT PHYSIOLOGY

Smog Instrument Aids Plant Hormone Discovery

➤ A HIGHLY SENSITIVE instrument used to study smog has aided the discovery of a new plant hormone in citrus fruit.

The growth-stimulating hormone is structurally different from either of the two known types, indole or gibberellin hormones.

Rashad A. H. Khalifah, an Egyptian graduate student at the University of California in Riverside, found the substance in navel oranges, valencia oranges and lemons, using a spectrophotofluorometer that permits detection and measurement of small quantities of compounds.

The new hormone is called a citrus auxin. If the hormone is essential to citrus fruit growth, it will help to regulate fruit production. A report on the isolation of citrus auxin was published in Science, 142:399, 1963.

• Science News Letter, 84:260 Oct. 26, 1963

SPACE

Mercury Team Wins Collier Trophy Award

➤ THE NAMES of Project Mercury's seven astronauts, already emblazoned in the memories of people in all lands, have been added to the long list of venerated pilots to win the Robert J. Collier Trophy.

President John F. Kennedy presented the award to the astronauts "for pioneering manned space flight in the United States." The trophy, first given in 1911, is sponsored yearly by the National Aeronautic Association and Look magazine.

The trophy is given for the "greatest achievement in aeronautics or astronautics in America with respect to improving the performance, efficiency or safety of air or space vehicles, the value of which has been thoroughly demonstrated by actual use during the preceding year."

The winning team, which achieved fame with its six manned Project Mercury space flights, consists of Navy Lt. Cmdr. M. Scott Carpenter, Air Force Maj. L. Gordon Cooper Jr., Marine Lt. Col. John H. Glenn Jr., Air Force Maj. Virgil I. Grissom, Navy Lt. Cmdr. Walter M. Schirra Jr., Navy Cmdr. Alan B. Shepard Jr. and Air Force Maj Donald K. Slayton.

Last year's award went jointly to X-15 test pilots Maj. Robert White, U.S. Air Force, Navy Cmdr. Forrest Peterson, Joseph Walker and Scott Crossfield.

• Science News Letter, 84:260 Oct. 26, 1963

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