

PHYSICS

Original Atomic Pile Rebuilt Three Times

See Front Cover

► THE ORIGINAL uranium and graphite used by the late Dr. Enrico Fermi and his associates in the world's first nuclear reactor have been used in the exponential assembly, or subcritical reactor, shown in the photograph on the cover of this week's SCIENCE NEWS LETTER, which was recently constructed at Argonne National Laboratory, Lemont, Ill.

The exponential assembly is an eight-foot cube that contains 30 tons of graphite into which two and a half tons of uranium have been placed in a pre-determined lattice-type arrangement.

By measuring the amount of induced radiation in indium foils placed in the reactor, as Vincent H. Shoemaker demonstrates, it is possible to obtain information needed for the design of full-scale reactors.

The original reactor, after its initial operation at West Stands, Stagg Field, University of Chicago, was dismantled and re-assembled at a remote site southwest of Chicago where it contributed useful information to the atomic energy program for more than a decade.

In 1955, it was again dismantled and much of its uranium and graphite have been used in the construction of this exponential assembly.

Science News Letter, April 21, 1956

BIOCHEMISTRY

Amino Acid Helps TB Germs Invade

► ABILITY of the tuberculosis germ to infect humans may be related to the level of glutamic acid, one of the protein building blocks and life's most abundant amino acid.

The strain of TB bacteria that infects humans has considerably higher levels of glutamic acid than non-infective strains of the bacteria, Dr. Max Dunn, Ben Ginsburg and Sarah Lovett, University of California at Los Angeles biochemists, found.

Glutamic acid content of a human virulent strain exceeded that of non-infective strains by an average of more than 50% and that of 10 other types of bacteria by nearly 70%.

Glutamic acid is the most abundant of the amino acids in life, Dr. Dunn points out. The significantly higher content in virulent TB organisms points toward a relationship to the organism's virulence, he adds.

"If we can find a chemical antagonist for glutamic acid, a substance that will block glutamic acid activity in the chemistry of the virulent organism, it may lead to a more effective therapy for the disease," he said. "Promising experiments along this line are being carried out."

Science News Letter, April 21, 1956

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