China's Latest Atom Test Is Believed a Failure

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WASHINGTON, Jan. 3—Preliminary analysis by the United States indicated today that the latest Chinese Communist nuclear test was a failure.

The indications were that China was attempting to achieve a thermonuclear explosion in the test conducted on Dec. 24.

Two pieces of admittedly circumstantial evidence made public today by the Atomic Energy Commission pointed to a failure. One was the presence of thermonuclear material in the device; the other was the small explosive force of the detonation, indicating that the thermonuclear material had not ignited.

The apparent failure would help explain Peking's unusual and, to United States officials, perplexing silence about the latest nuclear test.

In contrast to the earlier explosions, which were widely publicized by China, Peking has made no public mention of the latest test, the seventh in a series since October, 1964.

Speculation that the test was a failure seemed to be borne out by chemical analysis of radioactive debris collected by United States high-altitude planes in the Far East and analyzed in a secret laboratory at Travis Air Force Base in California.

The Atomic Energy Commission announced today that preliminary analysis of the debris indicated that the Chinese device contained all the ingredients for a thermonuclear explosion.

U.S. Notes a Discrepancy Between H-Bomb Material and the Low Yield

It contained enriched uranium (uranium-235), which is used as a fission trigger to set off a thermonuclear explosion. It contained lithium-6, a light metal used in compounds with hydrogen as the fusionable material for a thermonuclear explosion. And it contained natural uranium (uranium 238), which is made to fission by the neutrons given off by a thermonuclear raection, thus producing a triple-stage, or fission-fusion-fission, explosion.

It thus appeared that China was attempting to conduct a triple-stage explosion similar to its first hydrogen-bomb test June 17, estimated to have unleashed the force of at least three millions tons of TNT.

But what apparently happened was that the fission trigger of enriched uranium detonated and failed to set off the fusion reaction in the thermonuclear material.

The explosion, conducted in the vicinity of Lop Nor, the site of previous Chinese tests, had a force of about 20 kilotons, or 20,000 tons of TNT, or roughly the yield of a fission trigger. If thermonuclear material had been ignited, the force would have been at least hundreds and more likely several thousands of kilotons.

An A.E.C. spokesman acknowledged, in response to inquiries, that "it was possible the test was a dud." But he declined to elaborate.

It was speculated that in the latest test China attempted to improve the efficiency and weight of the device by including less thermonuclear material and reducing the size of the fission trigger.

The Chinese may have gone too far in reducing the amounts, with the result that the device was blown apart before the fusion reaction could occur. The components must be put together in such a manner that the thermonuclear materials will ignite in the microsecond before the entire device is blown apart by the explosive force of the fission trigger.