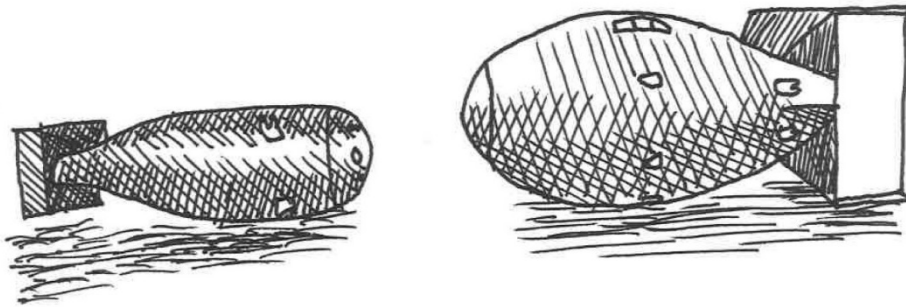


## Why were there two different designs for atomic bombs??

There were actually a little more than three designs for atomic bombs during the Manhattan Project. At the beginning of the project, there was one design. That plan called for using a cannon to assemble a supercritical mass by firing one subcritical mass into another subcritical mass. This assembly must happen quickly or the two objects will start to disintegrate as they get closer together, hence the cannon. The uranium bomb was called Little Boy, and the plutonium version, requiring a longer gun, Tall Man.



Meanwhile, some attention was being paid to the concept of using implosion to compress plutonium to a supercritical density using high explosives. This would be considerably more difficult than building the gun weapon, and the idea simmered on the laboratory's back burner.

Also, early on in Project Y, the Hungarian physicist Edward Teller began arguing for a version of atomic weapon that used nuclear fusion. Teller was so persistent, and according to some, so annoying, that he was given his own small subset of scientists to pursue what he called the "Super." Little came of this effort during WWII.

More than a year into the work at Los Alamos, Italian chemist Emilio Segrè discovered that the plutonium arriving from Hanford, Washington, was too reactive for even the fastest gun. By then there was confidence that if there was enough uranium 235 from Oak Ridge, the Little Boy design would work. The "Crisis of 1944" forced the lab to change direction and focus on implosion. Scientists were reassigned, many more people were hired, and the race was on to develop Fat Man, which was detonated over Nagasaki a year later.

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