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Is Einstein the Father of the Atomic Bomb HARRY LUSTIG, City College of New York, emeritus — Soon after the American atomic bombs were dropped on Hiroshima and Nagasaki, the notion took hold in the popular mind that Albert Einstein was "the father of the bomb." The claim of paternity rests on the belief that E=mc2 is what makes the release of enormous amounts of energy in the fission process possible and that the atomic bomb could not have been built without it. This is a misapprehension. Most physicists have known that all along. Nevertheless in his reaction to the opera Dr. Atomic, a prominent physicist claimed that Einstein's discovery that matter can be transformed into energy "is precisely what made the bomb possible." In fact what makes the fission reaction and one of its applications,the atomic bomb, possible is the smaller binding energies of fission products compared to the binding energies of the nuclei that undergo fission.The binding energies of nuclei are a well understood consequence of the numbers and arrangements of protons and neutrons in the nucleus and of quantum-mechanical effects. The realization that composite systems have binding energies predates relativity. In the 19th century they were ascribed to potential and other forms of energy that reside in the system. With Einstein they became rest mass energy. While E=mc2 is not the cause of fission, measuring the masses of the participants in the reaction does permit an easy calculation of the kinetic energy that is released.

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