

Abstract Submitted
for the APR13 Meeting of
The American Physical Society

Robert Serber's 1943 Los Alamos Primer Analysis of Fission Bomb Efficiency CAMERON REED, Alma College — In an analysis of the expected efficiency of a fission bomb presented in his 1943 Los Alamos Primer, Robert Serber remarked that “it is just possible for the reaction to occur to an interesting extent before it is stopped by the spreading of the active material.” Due to the exponential nature of the time-dependence of a chain reaction, the efficiency of the explosion can be very sensitive to parameters such as the number of neutrons liberated per fission, the fission cross-section, and the number of critical masses of material used. In this paper I examine efficiency predictions for both uranium and plutonium bombs. Had some parameter values proven only modestly different from their true values, history may well have been very different.

Cameron Reed
Alma College

Date submitted: 13 Nov 2012

Electronic form version 1.4