

Abstract Submitted  
for the APR12 Meeting of  
The American Physical Society

**Francis Perrin's 1939 Analysis of Uranium Criticality** CAMERON REED, Alma College — In May 1939, French physicist Francis Perrin published the first numerical estimate of the fast-neutron critical mass of a uranium compound. While his estimate of about 40 metric tons (12 tons if tamped) pertained to uranium oxide of natural isotopic composition as opposed to the enriched uranium that would be required for a nuclear weapon, it is interesting to examine Perrin's physics and to explore the subsequent impact of his paper. In this presentation I will discuss Perrin's model, the likely provenance of his parameter values, and how his work compared to the approach taken by Robert Serber in his 1943 Los Alamos Primer.

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Date submitted: 14 Oct 2011

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