

A-84-019
9-1

DATE 9 September 1944

TO: J. O. Hirschfelder

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11/15/54

FROM: W. S. Parsons

Copied from Los Alamos National Laboratory Archive

SUBJECT: Fragment Ballistics.

Reference: (a) Bainbridge's Memorandum to Hirschfelder dated 29 August 1944.

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1. Commenting on your questions on fragment trajectories, believe we may be fortunate enough to have sufficient information at Y to estimate the trajectories with more accuracy than we can estimate weights and velocities.

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2. Lt. Comdr. Bradbury in 1941 did some firing of actual fragments from AA projectiles and from measured retardation deduced a Gâvre ballistic coefficient as a function of weight. This of course varies by a factor of two depending on shape, compactness, etc. Also it may vary considerably in flight, as orientation changes. I suggest that you consult Bradbury and get "his" law.

3. Ramsey has a copy of the Exterior Ballistic Tables 1924, based on the Gâvre resistance function. This covers the lower range of fragment velocities. The higher velocity range can be handled by numerical integration using an extrapolation of the Gâvre function based on a quadratic law. This was once done at NPG Dahlgren, but the results would be of little use here since fragments were much smaller.

wsp/ig

W. S. Parsons
W. S. Parsons
Captain, USN

cc: Bainbridge
Bradbury
Ramsey

FINAL DETERMINATION
UNCLASSIFIED
L. M. Redman
OCT 28, 1980

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