ADDRESS BUREAU OF ORDNANCE, NAVY DEPARTMENT,
AND REFER TO NO. 3858.

WASHINGTON, D. C.,

(3 Enclo.)

April 4,1904.

Sir:-

1. The Bureau desires to determine the probable force which comes on the tail of the torpedo at the moment when it leaves the spoon of the submerged tube, and for this purpose it will be necessary to obtain the radius of gyration of the torpedo.

2. The Bureau encloses herewith three sketches, A, B and C, which indicate how an experiment may be made to obtain the period of vibration of the torpedo when suspended on an axis perpendicular to the axis of the torpedo. It is not material where the axis of suspension may be located, provided the exact position is accurately known and that the swings are quick enough to be conveniently counted. The torpedo should, of course, be weighted to the exact weight and balance of actual firing.

3. The Bureau requests that an experiment to determine the radius of gyration of the 5 metre torpedo be made as soon as possible, and the data obtained transmitted to the Bureau.

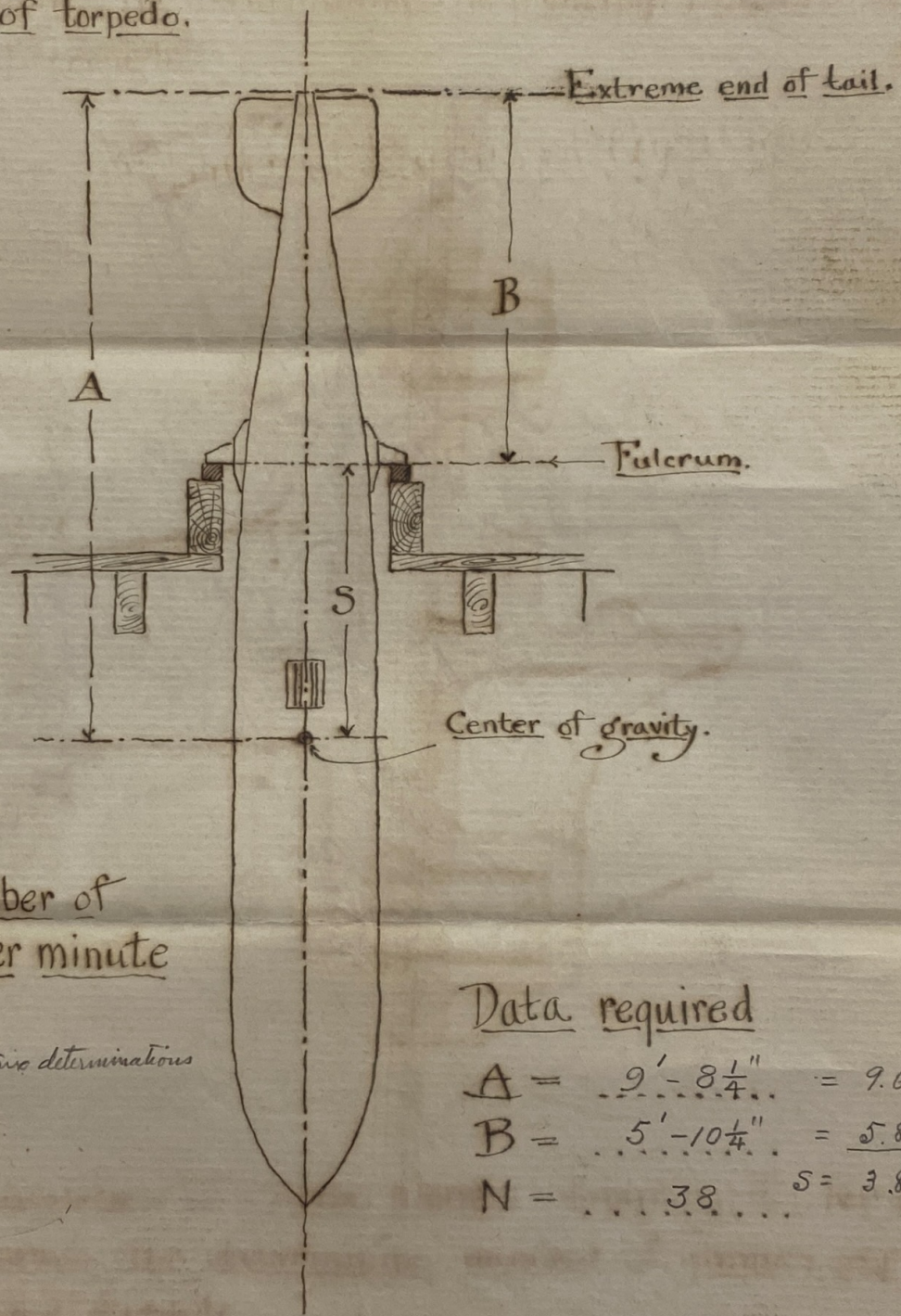
Respectfully,

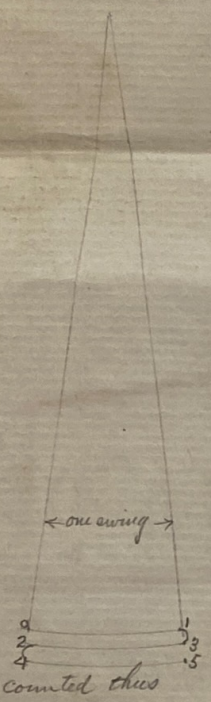
Chief of Bureau of Ordnance.

Inspector of Ordnance in charge,
Naval Torpedo Station,
Newport, R.I.

L.

Experiment for determining the principal radius of gyration of torpedo.





N = number of swings per minute

= 38

a mean of six determinations

Data required

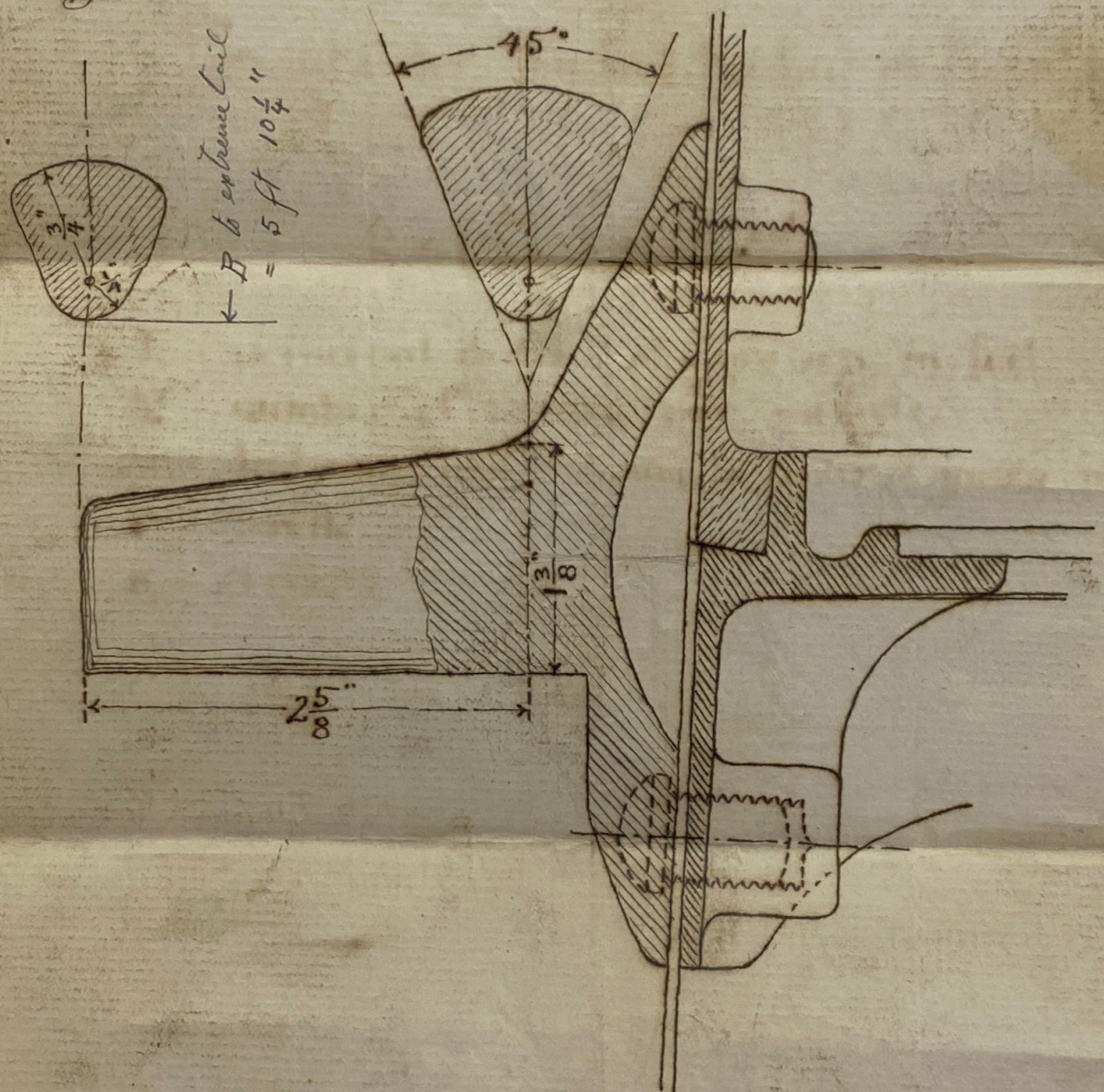
A = 9′-8¼″ = 9.6875 ft

B = 5′-10¼″ = 5.854 ft

N = 38 S = 3.8335

No 229 h

Experiment for determining the principal radius of gyration of torpedo.



Special modification of SIDE GUIDE adapting it for use as a fulcrum for determining number of swings per minute of suspended torpedo.

No 229 h

Formula for Principal Radius of Gyration.

$$k = \left(\frac{60}{\pi N}\right)^2 gS - S^2$$

k = principal radius of gyration in feet.
N = number of swings per minute
S = distance from fulcrum to center of gravity in feet.
π = 3.1416
g = 32.2

3858

NAVY DEPARTMENT,

BUREAU OF ORDNANCE,

4/4/, 1904

SUBJECT:

What is force on tail of torpedo when leaving tube. What is radius of gyration of torpedo. Experiment report.

L. Brown