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O T T A W A July 15th, 1943.

R E P O R T

of the

ORE DRESSING AND METALLURGICAL LABORATORIES.

Investigation No. 1447.

Proof-Load Tests on Four After Towing Steel Castings.

(Copy No. 10.)

Bureau of Mines
Division of Metallic
Minerals
-
Ore Dressing
and Metallurgical
Laboratories

CANADA
DEPARTMENT
OF
MINES AND RESOURCES
Mines and Geology Branch

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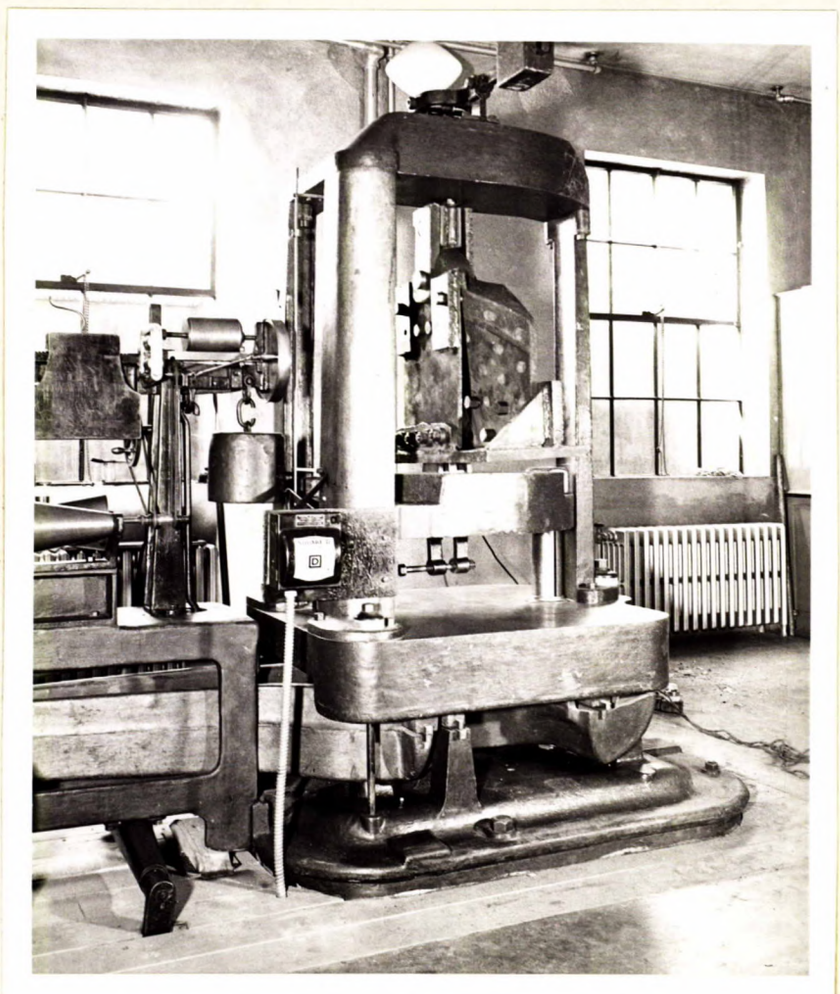
Source of Material and Object of Investigation:

On June 23rd, 1943, A/Lt. Cdr. J. R. Millard, Director of Technical Research, Department of National Defence, Naval Service, Ottawa, Ontario, requested (by letter, File No. N.S. 29-45-1 Sub. 1 Fd.3735) that proof-load tests and a check of the dimensions be carried out on four "after towing" steel castings which he was submitting, in order to determine whether or not they meet the requirements specified on Drawing T.H. 3108.

Proof-Load Tests:

These castings were each tested in an Olsen tensile testing machine under a direct pull of 61 long tons. Figures 1 and 2 are photographs showing how the casting was mounted in the tensile testing machine for proof loading. The pin which fitted through the casting eye-hole was machined to a diameter slightly less than the $3\frac{3}{32}$ (I.D.)-inch diameter of the eye-hole. Three of the castings were tested using this pin, while one of the castings was tested with a $2\frac{1}{4}$-inch-diameter pin. In all tests no change in the dimensions of the eye-hole was observed after being proof-stressed at 61 long tons.

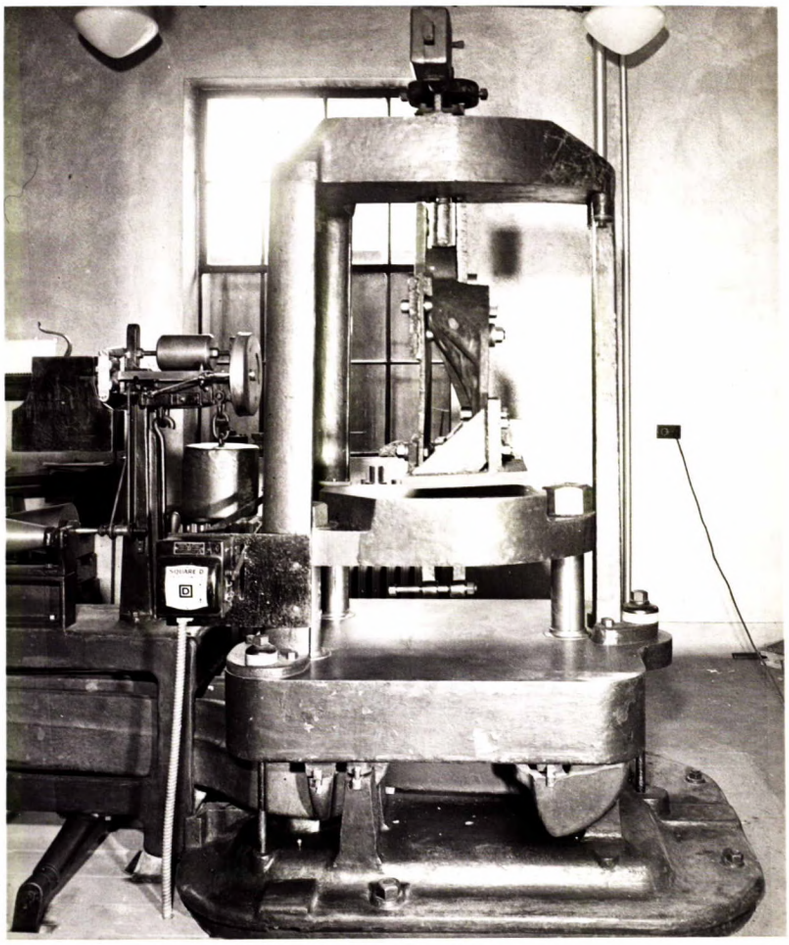
Figure 1.



SIDE VIEW OF CASTING IN
OLSEN TENSILE TESTING MACHINE.

(Proof-Load Tests, cont'd) -

Figure 2.



FRONT VIEW OF CASTING IN
OLSEN TENSILE TESTING MACHINE.

Dimensions of Castings:

The dimensions of the castings at the eye-hole checked with those given on the drawing. The width of the casting at the base measured 23⅝ inches instead of 24 inches. The rivet holes in the casting were poorly centred.

CONCLUSIONS:

The steel castings examined meet the proof-load test requirements specified on Drawing T.H. 3108.

The dimensions of the eye-hole in the castings were as specified.

The poor alignment of the rivets contributed to the length of time required to carry out these tests.

In view of the time required for making the necessary fittings for the proof-load tests on these after towing castings, it may be that some consideration should be given to the substitution of the proof-load test by an X-ray examination and a hardness survey of the casting.

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