

The Difference in the Principal Dimensions of the Engelhardt Collapsible Boats of *Titanic* vs. *Olympic*

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Introduction

Recent information has been uncovered which suggests that *Titanic's* Engelhardt collapsible boats had different dimensions than those of her sister ship *Olympic*. I say "suggests" because the measurements depend on the landmarks from which the measurements were taken. The source and meaning of the new information will be discussed.

Source of New Information

The Ballast Trust recently processed a collection of documents held by the Glasgow City Archives. Among the documents was an order book from McAlister & Sons which was the builder of the Engelhardt collapsible boats for *Olympic* and *Titanic*. This order book can be seen here: <http://ballastblog.blogspot.co.uk/2012/04/r-mcalister-and-titanic-lifeboats.html>

Part of the online article had an image of the page which contained the information about *Titanic's* Engelhardt collapsible boats. The cropped section from this page can be seen in Figure 1.

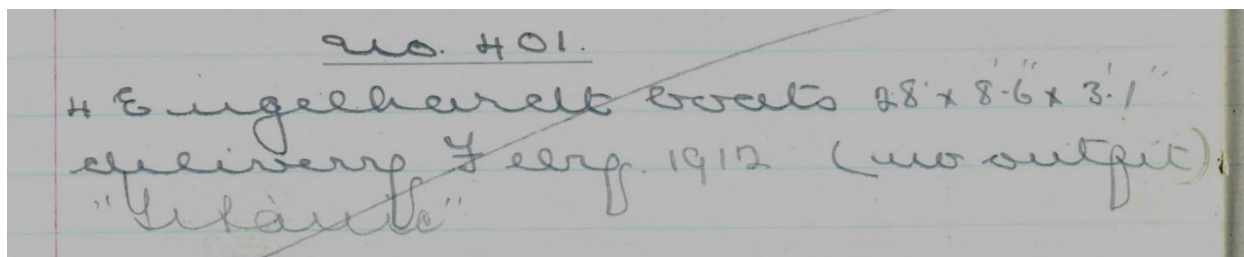


Figure 1

The Measurements

The measurements for *Titanic's* Engelhardt collapsible boats as shown in the McAlister & Sons order book are: length = 28 feet, breadth = 8 feet 6 inches, and depth = 3 feet 1 inch. Until now we have assumed that the Engelhardt boats of *Olympic* and *Titanic* had the same dimensions. Since we didn't have the dimensions for *Titanic's* Engelhardt boats, we relied on the measurements found in the Drawing Office copy, a.k.a. "Andrews Notebook". This book documented main features of *Olympic* from the time she was built through her 1913 refit. There are two sets of measurements for the same boats. The first is the notation originally recorded in 1911. It can be seen in Figure 2.

~~4 ENGELHARDT COLLAPSIBLE BOATS 396 1584~~
~~27-5 x 8' x 3'~~

Figure 2

As you can see, this notation has been marked through. This was not because these boats had been eliminated but rather because a new listing of the ship's boats was entered on the facing page. The new list can be seen in Figure 3.

BOATS ORIGINALLY FITTED TO COMPLY WITH OLD B. of T. REGULATIONS.

BOATS.

DESCRIPTION.	N° of PERSONS EACH BOAT	TOTAL NUMBER OF PERSONS.
14 OPEN LIFEBOATS. 30'-0" x 9'-0" x 4'-0"	64	896
2 WOOD CUTTERS 25'-0" x 7'-0" x 3'-0"	33	66
4 DECKED LIFEBOATS 28'-0" x 8'-0" x 3'-0"	40	160
12 OPEN LIFEBOATS 27'-5" x 8'-6" x 3'-7"	51	612
12 DECKED " 27'-5" x 8'-6" x 3'-7"	46	552
8 OPEN " 29'-0" x 8'-6" x 3'-7"	55	440

TO COMPLY WITH I. REGULATIONS

Figure 3

Figure three has the same original Engelhardt boat dimensions highlighted in yellow. The text outlined in red indicates that these were the original *Olympic* boats from 1911 which were kept as part of the complement of the 1913 refit.

What is evident in these two entries is that the dimensions are identical except for the length measurement. Why is this? They were the same boats. The answer is because the length was measured from two different landmarks. The 28 ft. length indicated the extreme length from the outside of the stem and sternpost. The 27 ft. 5 in. length was measured using Board of Trade landmarks which were considered the official dimensions. These landmark conventions for measuring boats will be described in the following paragraphs.

The British Board of Trade had specific landmarks for each of the principal dimensions of lifeboats. The length was measured from the point at which the upper plank met the rabbet of the stem to the corresponding point where the upper plank met the rabbet of the sternpost. This measurement for an Engelhardt boat is shown in Figure 4.

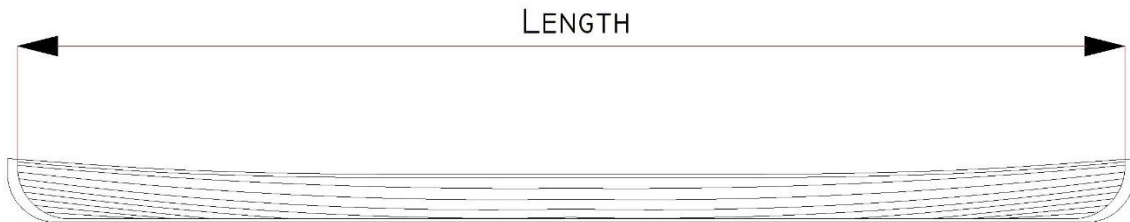


Figure 4

The breadth is measured to the outside of the planking where the breadth of the boat is the greatest. Figure 5 show where the breadth measurement would be taken on an Engelhardt collapsible boat.

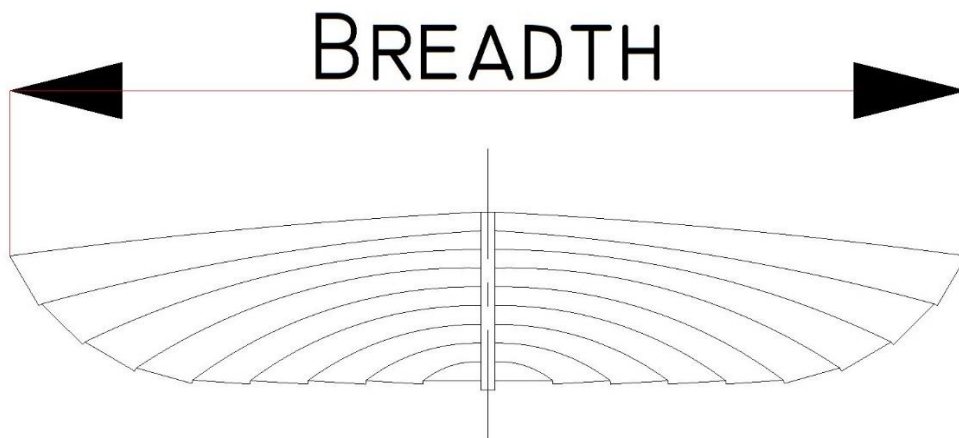


Figure 5

The depth measurement for a collapsible boat like an Engelhardt was taken differently than for a regular wooden lifeboat. It was found from original Engelhardt drawings that the depth was taken from where the garboard plank met the keel rabbet to the lowest point of the raised collapsible bulwarks. On wooden boats it was taken from the inside surface of the garboard plank next to the keel to the top of the lowest point of the sides of the boat usually found near the middle of the boat. Since the interior of the wooden hull of the Engelhardt boat was sealed over by the deck, a similar measurement to the inner surface of the garboard plank could not be taken. So the measurement was taken on the outside surface of the garboard next to the keel. This measurement for an Engelhardt boat is shown in Figure 6.

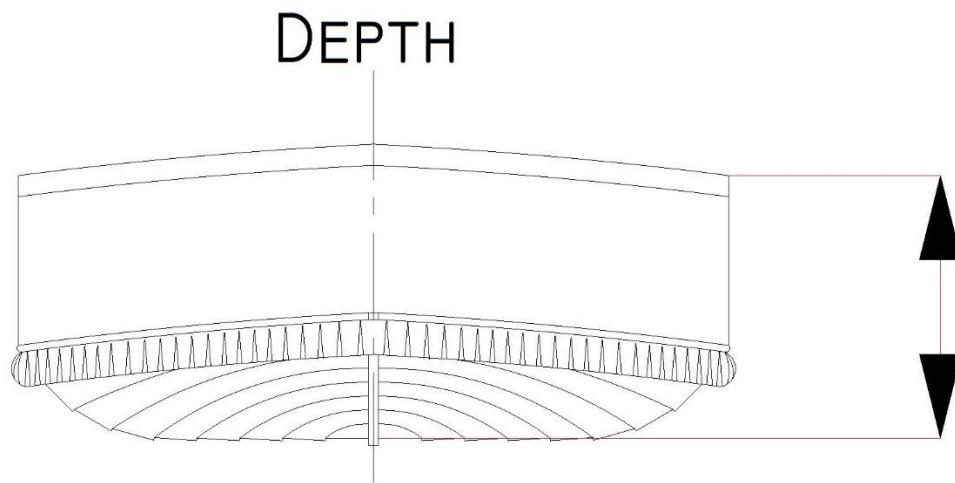


Figure 6

Analysis

The purpose of this analysis is to determine where the measurements of the Engelhardts of *Olympic* and *Titanic* differed. If we look first at the length it appears that there is a difference of 7 inches between the 27 ft. 5 in. of *Olympic* and the 28 ft. of *Titanic*. If we look at page 44 of the Andrews Notebook where the dimensions of *Olympic's* boats are shown, the measurement of the length shown in Figure 3 from the notebook is 28 ft. while that shown in Figure 2 from the notebook is 27 ft. 5 in. Why the difference? I believe the difference in the length measurements can be explained by the 28 ft. figure being the overall length (l.o.a.) which includes the stem and sternpost. I believe the 27 ft. 5 in. figure is the length using the Board of Trade method. So the length of *Olympic's* Engelhardt boats and *Titanic's* is practically identical.

The depth measurement is again almost identical at 3 ft. for *Olympic* and 3 ft. 1 in. for *Titanic*.

Where we find the biggest discrepancy is in the breadth measurement. *Olympic's* 8 ft. measurement vs. *Titanic's* 8 ft. 6 in. measurement cannot be accounted for by measuring to more extreme landmarks like on the length measurement. The length measurement has a

difference between the l.o.a. and the Board of Trade measurement of 7 inches. This can be accounted for by the width of the stem and sternposts. There is no similar structure outside the planking which could account for the difference in the breadth measurements. Therefore I believe that *Titanic's* Engelhardt boats were actually 6 inches wider than *Olympic's*.

There are no known measurements of *Titanic's* Engelhardt boats outside of the McAlister figures. We have always used the *Olympic* figures. In Board of Trade documents, the only numerical figure given for *Titanic's* Engelhardt boats is their passenger capacity which was 47 persons per boat. This was calculated differently than for the wooden boats. To calculate the number of persons an Engelhardt boat could carry, the area of the deck of the boat was calculated using a Stirlings rule formula. Then 3.8 sq. ft. were allotted to each occupant. So the occupant capacity was the deck area divided by 3.8. The depth of the boat was considered immaterial to the calculation of the capacity.

Conclusion

Recently uncovered evidence from McAlister & Sons, which was the builder of *Olympic* and *Titanic's* Engelhardt collapsible boats, indicates that the dimensions differed primarily in the breadth of the boats. Negligible differences can be found in the length and depth but the breadth measurements are of a magnitude that cannot be explained by measuring to different landmarks. Therefore the primary difference is that *Titanic's* Engelhardt boats appear to be 6 inches greater in breadth than *Olympic's*.