Location of Titanic's Trotman Anchors

The scope of this article is limited. Its purpose will be to identify the location of Titanic's two Trotman patent anchors. I will not be examining the uses of these anchors. By the time of Olympic and Titanic, the use of this particular type of anchor seems to have become anachronistic. These anchors were still a Board of Trade requirement but they were later removed on Olympic. No known instance of their use ever seems to have been recorded. The purpose of this article will be to try to determine where each of the two different sized Trotman anchors was located.

The two Trotman anchors are not shown in a lot of photos of Olympic and Titanic so I will start by displaying a patent drawing of the Trotman and a couple of photos showing aspects of them.

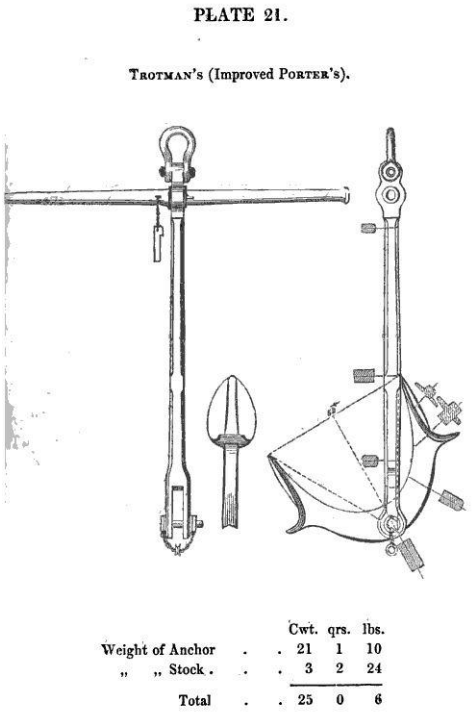


PLATE 21.

TROTMAN'S (Improved PORTER'S).

	Cwt.	qrs.	lbs.
Weight of Anchor . .	21	1	10
„ „ Stock . . .	3	2	24
Total . .	25	0	6

Figure 1

Figure 1 is the original patent drawing for the Trotman anchor. A patent drawing does have some specificity but production models of this anchor appear to have some minor design variations from the original patent design. Figures 2 & 3 show the fluke area of a Trotman

anchor and we can see that the design seems somewhat simplified from the original patent. From photos, this appears to be a close match to Olympic and Titanic's Trotman anchors.

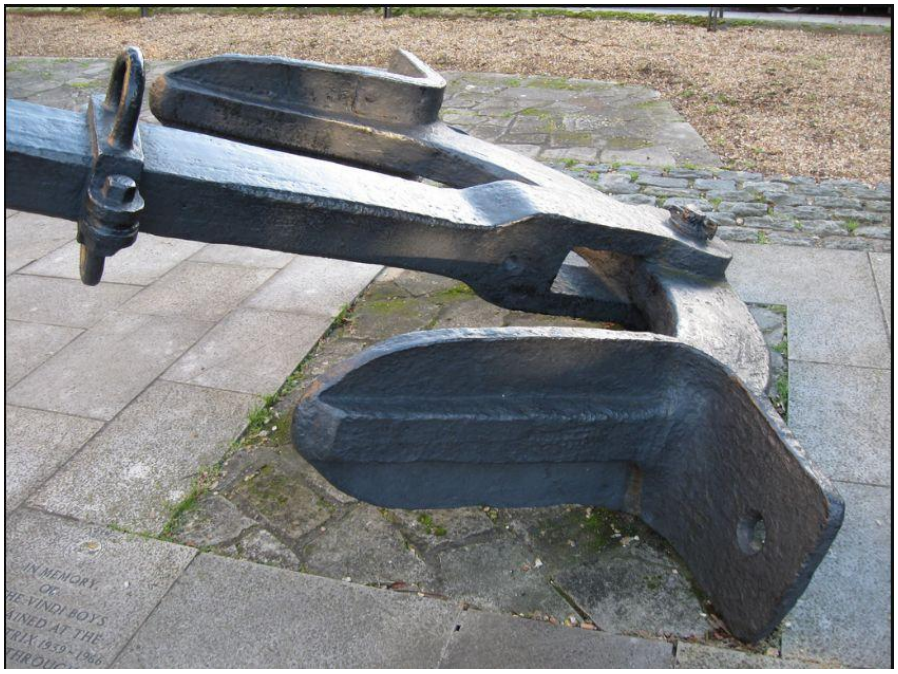
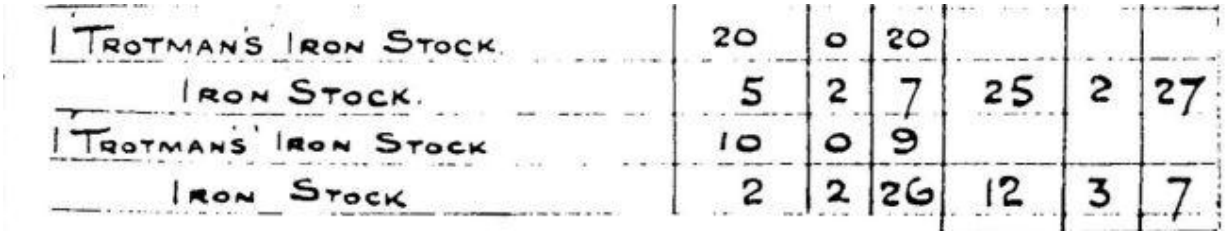


Figure 2

Figure 3

One place where these anchors are specified is in the so called Andrews Notebook. A copy of the specification is shown in Figure 4.



1 TROTMAN'S IRON STOCK	20	0	20			
IRON STOCK.	5	2	7	25	2	27
1 TROTMANS' IRON STOCK	10	0	9			
IRON STOCK	2	2	26	12	3	7

Figure 4

For those unfamiliar with the units represented by these numbers, they are given in "hundredweight" increments. A hundredweight was 100 pounds. So we have one anchor which is 2,000 pounds and one which is 1000 pounds. For our purposes we will refer to these as the 1 ton Trotman anchor and the ½ Ton Trotman anchor.

There is also a citation in Engineering Magazine (February 27, 1914) regarding these anchors for Britannic: 'Engineering' of 27 February 1914 describing *Britannic's* suite of anchors:

The Britannic is to carry five anchors--one 11-ton and one 9-ton bower anchor of the "Dreadnought" type, a 16-ton Hall's patent stockless anchor, **a "stream" anchor of 20 cwt., and a kedge anchor of 10 cwt.**

While preparing another research article I was taking measurements of the structures around the Trotman used on the poop deck. I wanted to confirm that this was the 1 ton Trotman and that the ½ ton Trotman was on the forecastle. Some preliminary analysis of photos raised a red flag. In modern references we are told that the 1 ton Trotman was on the poop deck and the ½ ton Trotman was on the forecastle. It seemed as if I had stumbled across a contradiction so I decided to examine the matter more closely. Rather than try to determine all the various dimensions of these anchors, my task was merely to determine which was the larger and which was the smaller. We know that one of these anchors weighed twice what the other did but what would be the difference in their size? I had to make two assumptions before calculating the size differential. First, I assumed that the designs were identical and the only difference was size. Second, I assumed that they were made of the same material.

An object which is twice as heavy as another does not have dimensions which are twice that of the smaller. To create an object of double the weight of another it must have twice the volume. However volume is a cubic measurement not a linear one. Therefore to solve for the increase in linear measurements we must take the cube root of the factor by which the weight is increased. Therefore, since the weight is increased by a factor of two the linear dimensions

will be increased by a factor of the cube root of two or 1.26. So the 1 ton Trotman's would be 1.26 the dimensional size of a ½ ton Trotman's.

When one object is larger than another by a factor of 1.26, it would be difficult to discern the difference unless they were sitting side by side. Unfortunately the two Trotman anchors on Olympic and Titanic are separated by about 800 feet on the ship so we don't see them side by side. To do this analysis I had to rely on photos. Using the standard method of metric photo analysis, I used objects of known dimension to compare to objects of unknown dimension. Of the two anchors, I decided to first analyze the Trotman's anchor on the poop deck.

The poop deck Trotman's anchor was mounted just to starboard of the midline against the poop deck railing between the flagstaff and the starboard treble farlead rollers. There aren't any photos which show a straight on shot of this anchor which shows the entire extent of the anchor. I had to rely on two separate photos shown in Figures 5 & 6 which shows the upper and lower extent. The photo showing the lower extent also shows the horizontal dimensions.

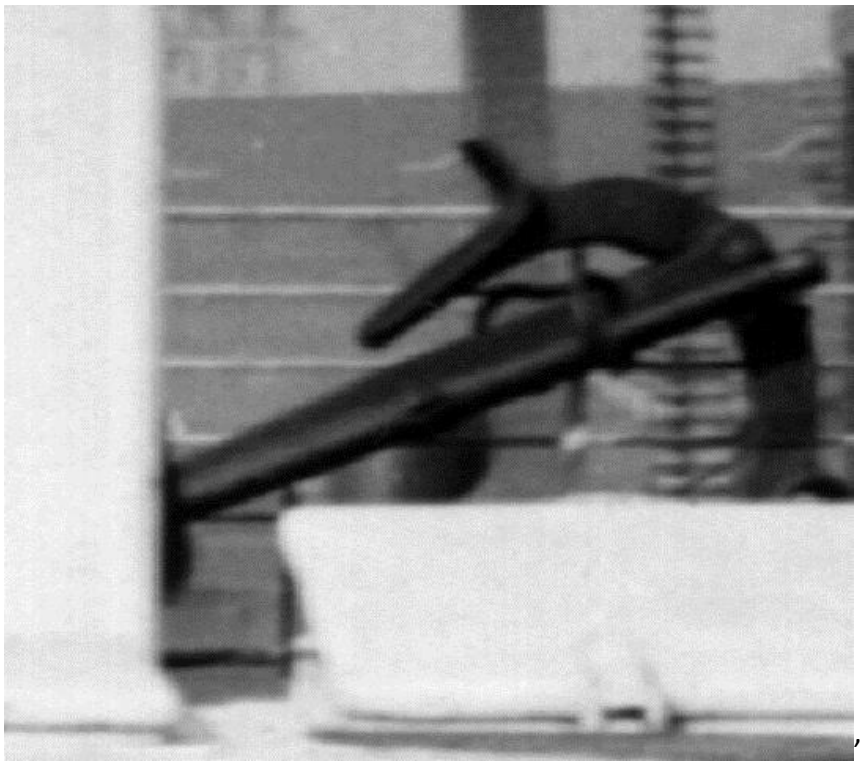


Figure 5

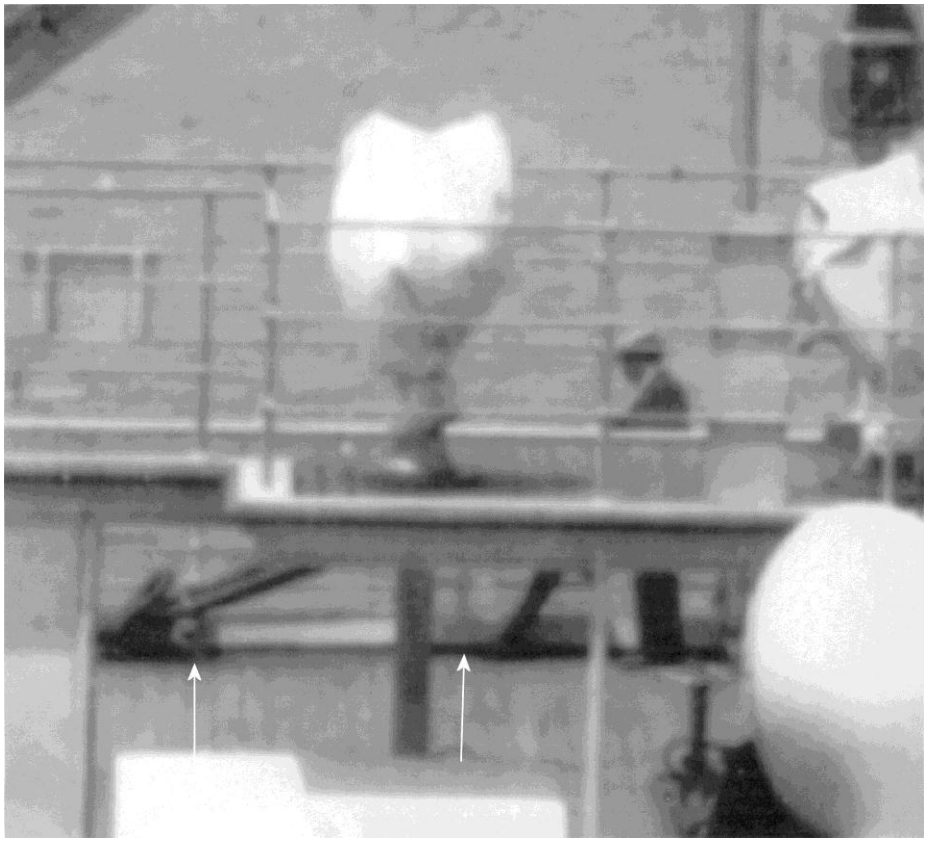


Figure 6

In Figure 6 the location of the first two railing stanchions starboard of the midline stanchion are indicated with arrows. In order to get measureable dimensions for comparison, I drew a representation of this anchor using the AutoCad drafting program. This simplified drawing is shown in Figure 7 looking at the poop deck Trotman's anchor from inboard.

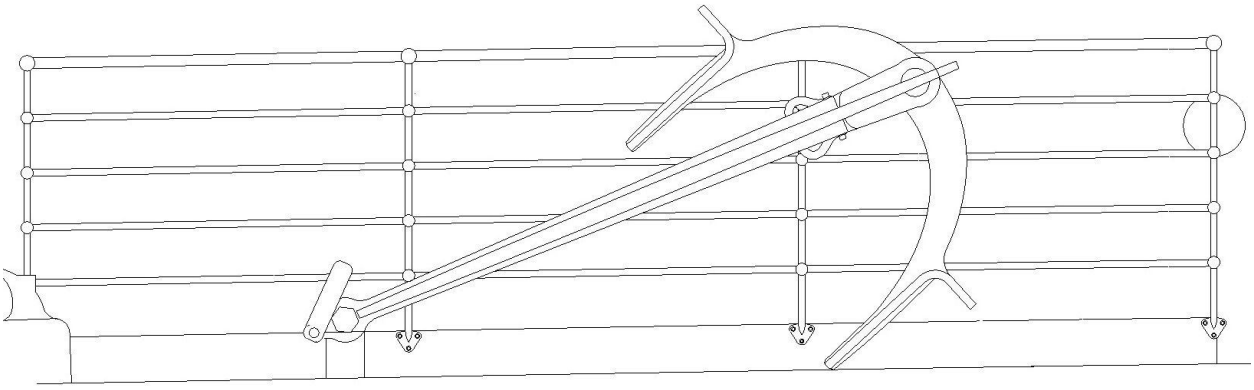


Figure 7

Now that the dimensions for this anchor have been determined within a relatively narrow range, the next step is to approximate the dimensions of the Trotman's anchor on the forecastle for comparison.

Figure 8 shows the forecastle Trotman's anchor on Titanic's forecastle.

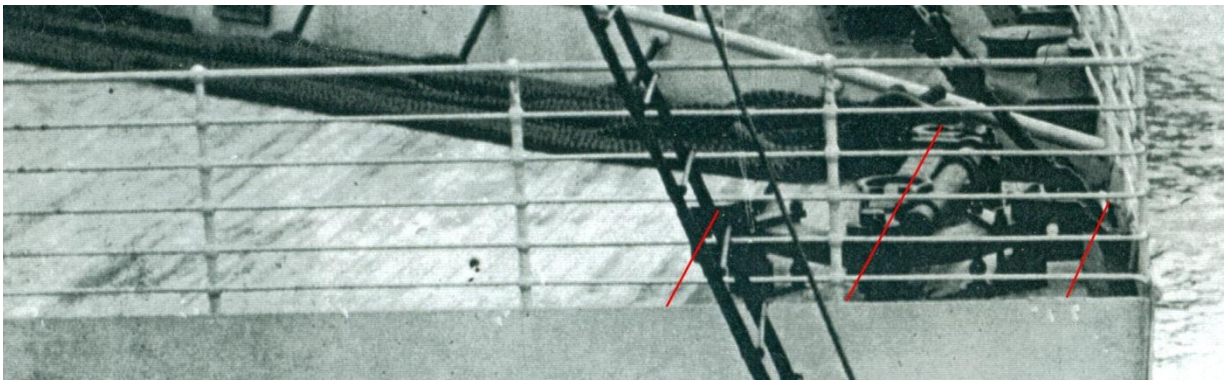


Figure 8

This anchor is mounted on deck with the body of the anchor perpendicular to the aft forecastle railing. I have drawn a red line down the center of the body to see where it intersects the aft railing. The intersection of this line would be at the level of the second raiing from the bottom. I then drew lines parallel to the first to indicate where the widest extent of the anchor intersected at the level of the lower railing. Utilizing a scale recreation of this railing, I can now move the anchor created in Figure 7 to the drawing shown in Figure 9 to compare its width to that indicated on the railing taken from Figure 8.

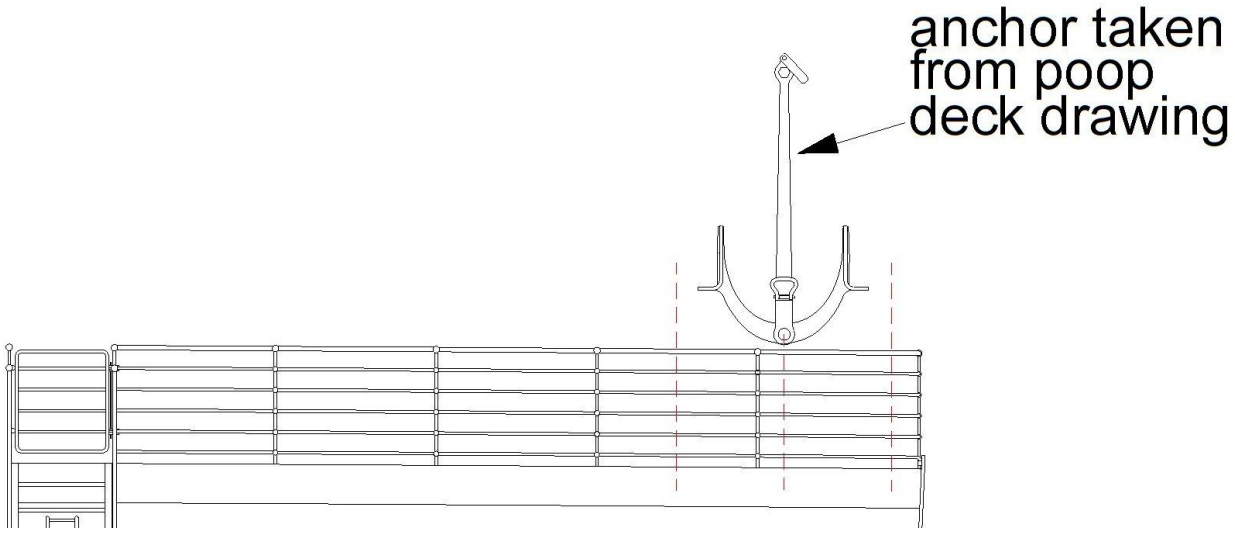


Figure 9

The dashed lines in Figure 9 represent the extreme width of the anchor as compared to the aft railing taken from the photo in Figure 8. One can see that it is measurably narrower.

The next step in my analysis was to assume that the aft Trotman's anchor was the smaller of the two. To see how the larger Trotman's anchor would compare to the forecastle railing, I utilized a precision tool found in the Autocad drawing program. It is the Scale function. With this tool I can scale any drawing larger or smaller by a precision factor. Earlier it was determined that an anchor which was twice as heavy would be 1.26 times larger in any of its linear dimensions. So I utilized the Scale function in Autocad to scale up the anchor shown in Figure 9 by a factor of 1.26. I then placed this anchor next to the drawing in Figure 9 to compare it to the extents of the anchor found in Figure 8. The result is seen in Figure 10.

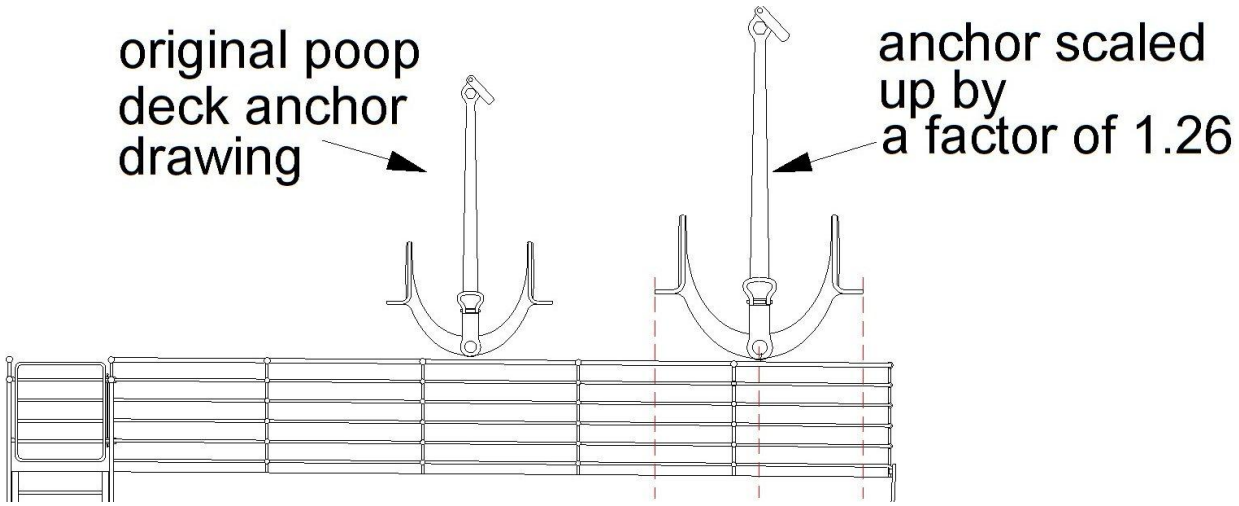


Figure 10

Conclusion

From this analysis, the only conclusion at which I could arrive was that of the two Trotman's anchors, the 1 ton anchor was located on the forecastle and the ½ ton anchor was located on the poop deck. This analysis is relatively simple in that all one is trying to determine from the photos is which anchor is larger. Once that is known then each can be identified. The analysis could have been done without drawings but they give a better "feel" of what is happening. There may be minor errors in the drawings but not enough to account for a difference of a factor of 1.26. However one analyzes the photos, I can see no way in which one can determine the opposite of what this article has found. What this does is reverse our understanding of where the Trotman's anchors were located.