

Unraveling the Mystery of Titanic's Center Propeller

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Introduction

In 2008 Mark Chirside wrote an excellent article entitled [The Mystery of Titanic's Central Propeller](#). This groundbreaking research introduced a Harland and Wolff document which indicated that Titanic's center propeller was a 3 bladed model. Then as now, no photo evidence of Titanic's center propeller has ever been discovered. In those cases, Titanic researchers and modelers have had to extrapolate from early Olympic evidence. So in the case of Titanic's center propeller, we used early Olympic evidence which was a four bladed model. Mark Chirside's research raised an intriguing question but beyond the evidence from Harland and Wolff there wasn't much else. Consequently, researchers and modelers were reluctant to adopt the three bladed propeller as the conventional wisdom for Titanic. This is understandable. But the question became how much weight should be given to the Harland and Wolff evidence? The purpose of this article will be to try to move the subject of Titanic's center propeller from "mystery" to "most probable" status.

Photo Evidence

There is one piece of photo "evidence" which has been offered in the matter of Titanic's center propeller. It is a fitting out photo of Titanic. At dockside is a propeller shown in Figure 1.



Figure 1

Some have assumed that this propeller is Titanic's center propeller. Additionally, this photo has been analyzed and there are those who believe it is a three bladed propeller and others who believe that it is a four bladed propeller. I have dismissed this photo as any kind of useful evidence because even if the number of blades could be reliably determined, there is still no way

to positively identify it as a center propeller for Titanic. Further, even if it was a center propeller for Titanic, there is no way to determine whether it is a propeller which has yet to be installed or one which has been removed.

Propeller Dynamics

When evaluating Titanic's center propeller, the question that needs to be answered is why would they change from the four bladed design used originally by Olympic to a three bladed design on Titanic? There are two factors of propeller design to consider. For a given total propeller blade area, the fewer the number of blades, the more efficient the propeller. Also for a given total propeller blade area, the more blades, the less vibration created. If a propeller was planned for Titanic with fewer blades, the motivation had to be the need to achieve greater propeller efficiency. The area of Olympic's four bladed center propeller was 120 sq. ft. which is the same as the notation in the ledger for Titanic's 3 bladed propeller. This was accomplished in part by increasing the diameter from 16 ft. 6 in. to 17 ft. for Titanic's three bladed center propeller.

Logistics

One question which has a crucial bearing on whether Titanic did, in fact, have a three bladed center propeller is when was Olympic's three bladed center propeller installed? It is listed in the so-called Andrew's Notebook but there is no date given for the installation. Sometime during Olympic's first year of service, White Star must have thought that her four bladed center propeller wasn't producing enough thrust or they wanted to experiment with a three bladed propeller to see if it would deliver greater thrust without producing too much vibration.

We know that Olympic had a three bladed center propeller installed at some point then later reverted to the original four bladed propeller design. If Olympic had this three bladed propeller installed before Titanic's maiden voyage, then it might have been possible to install a four bladed center propeller on Titanic if Olympic's test of the three bladed center propeller had not yielded satisfactory results.

Somehow the date of installation of the three bladed center propeller on Olympic had to be determined. Fortunately a note was recently discovered on the Olympic Lines Plan which indicated that the 17 ft. diameter (three bladed) center propeller was not installed until March 1913. The note from the plan is shown in Figure 2. This is important because it means there was no test of the three bladed center propeller on Olympic prior to Titanic's maiden voyage. It also means that Titanic was to be the ship to test the performance of the three bladed center propeller.

As we know, the results of any test of the center propeller on Titanic was inconclusive due to the events of the disaster. This is why it fell to Olympic to test the three bladed center propeller. It seems that the experiment must have been a relatively short one because by the

time the third Olympic class sister, Britannic, entered service in 1915, she was equipped with the original four bladed center propeller. Olympic also eventually reverted to the four bladed center propeller.

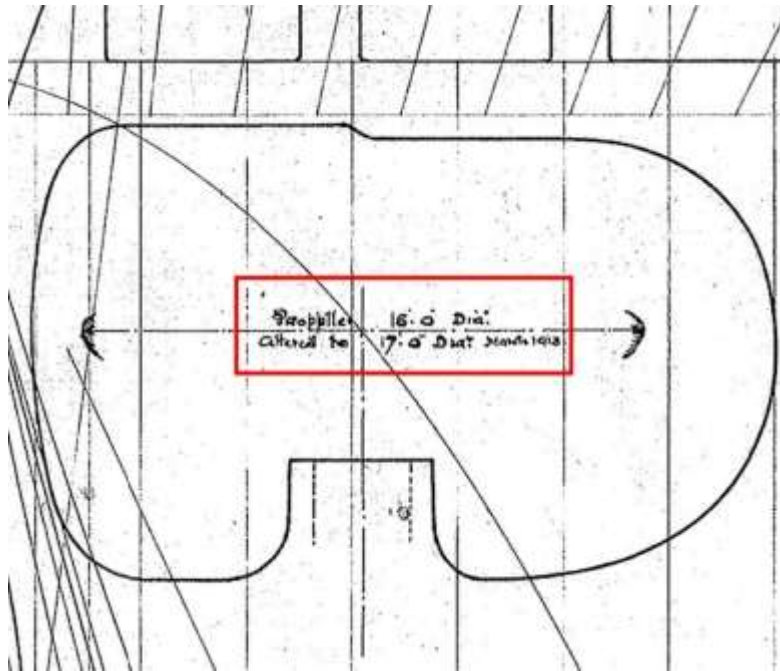


Figure 2.

Conclusion

The timing of the installation of a three bladed center propeller on Olympic appears to be the key to unraveling the mystery of whether Titanic actually had a three bladed center propeller installed for her maiden voyage. The discovery that Olympic's three bladed center propeller was not installed until March 1913 indicates that there was no test of the three bladed center propeller aboard Olympic prior to the maiden voyage of Titanic. There would have been no unfavorable results from an Olympic test of the three bladed center propeller which would have caused Harland and Wolff to revert to a four bladed propeller on Titanic. Therefore, since our only tangible evidence is that Titanic had a three bladed center propeller, supporting evidence from Olympic now seems to make it nearly certain that Titanic's center propeller had three blades. For those who are reluctant to accept a three bladed center propeller on Titanic, they must consider the fact that there is absolutely no evidence that Titanic ever had a four bladed center propeller.