

1 HOUR AND 33 MINUTES – A TIME DIFFERENCE GONE WRONG

by Samuel Halpern

At local apparent noon, Sunday, April 14th 1912, *Titanic*'s clocks would show exactly 12:00 noon. At that time *Titanic* had reached a longitude of about 44° 31'W having traveled 1549 nautical miles since taking departure outside of Queenstown harbor on Thursday, April 11. At that longitude on April 14th in 1912 local apparent noon occurred at 2:58 p.m. Greenwich Mean Time (GMT). Therefore, on that fateful Sunday, time on *Titanic*'s clocks, which were keeping what was called Apparent Time Ship (ATS), would have been 2 hours and 58 minutes behind GMT. This is the same as being 2 hour and 2 minutes ahead of clocks in New York and Washington since both those cities in 1912 were keeping mean time for the 75th meridian of west longitude, exactly 5 hours behind GMT, just as they do today.

However, according to what *Titanic*'s Second Officer Joseph Boxhall told the US Senate Committee on April 29th 1912:

“At 11.46 p.m., ship's time, it was 10.13 Washington time, or New York time.”

This statement, if true, implied that clocks on *Titanic* were 1 hour and 33 minutes ahead of clocks in New York and Washington, or 3 hours 27 minutes behind clocks keeping GMT.

This was not the first time that that particular difference between ATS and GMT showed up. Originally, that time difference first came to light in a wireless message from Captain Rostron of *Carpathia* to Captain Haddock of *Olympic* on Monday, April 15th when Haddock asked Rostron to send details about the loss of *Titanic*. In that message Rostron wrote:

“*Titanic* foundered about 2.20 a.m., 5.47 GMT, in 41.46 north 50.14 west.”

These same times were repeated by *Titanic*'s Second Officer Charles Lightoller before the US Senate Committee on April 23rd 1912. The time difference between 2:20 ship's time and 5:47 GMT is 3 hours and 27 minutes, the same time difference implied in Boxhall's statement before the US Senate Committee just 6 days later.

In stark contrast to what Boxhall and Lightoller told the Senate committee, when the issue of ship's time came up during the questioning of *Titanic*'s Junior Wireless Operator Harold Bride, Bride had this to say about the time shown on the two clocks that were kept in the wireless cabin on the day of the disaster:

“We had two clocks...one was keeping New York time and the other was keeping ship's time...There was about 2 hours difference between the two.”

Notice that Bride did not say that there was about an hour and half difference between the two if they were really 1 hour and 33 minutes apart.

We will now prove that the information about the difference in time given by Joseph Boxhall was false, and was directly related to the erroneous distress position that he had calculated and then sent out by wireless on the night of the disaster.

Consider the following. According to Boxhall, he obtained his distress position by starting from the position of a celestial fix that was taken around 7:30 p.m. ship's time by Second Officer Charles Lightoller and Third Officer Hubert Pitman. By taking *Titanic's* course and speed and running it up to the time he used for the collision, Boxhall came up with a set of SOS coordinates at 41° 46'N, 50° 14'W. But today, since the discovery of the wreck in 1985, we know that his SOS position was about 13 miles too far west of where *Titanic* actually foundered. Undeniably, a mistake was made that night.

So let us consider the following steps by working with GMT as a time standard, the same time standard that is used by navigators worldwide:

1. 7:30 p.m. ship's time April 14th equates to 10:28 p.m. GMT April 14th based on *Titanic's* noontime longitude which was 2 hours 58 minutes behind GMT (2 hours 2 minutes ahead of mean time in NY).
2. Boxhall equated an 11:46 p.m. ship's time of impact to 10:13 p.m. NY time for April 14. This is the same as 3:13 a.m. GMT April 15. Boxhall never said how he came up with that time difference, and for this simple exercise, it really does not matter.
3. A run time from 10:28 p.m. GMT April 14th (the time of the 7:30 celestial fix) to 3:13 a.m. GMT April 15th (time of impact used by Boxhall) is 4 hours and 45 minutes, or a run time of 4.75 hours.
4. Using Boxhall's speed of 22 knots, the distance from the celestial fix to his SOS position is simply $22 \times 4.75 = 104.5$ nautical miles.
5. We were told by many that *Titanic* struck the iceberg at 11:40 p.m. ship's time. Without any clock alterations,¹ 11:40 p.m. ship's time April 14th equates to 2:38 a.m. GMT April 15th (again based on *Titanic's* noontime longitude on April 14).
6. The run time from 10:28 p.m. GMT April 14th (the time of the 7:30 celestial fix) to 2:38 a.m. GMT April 15th (the collision at 11:40 p.m. ATS April 14th) is 4 hours and 10 minutes, or a run time of 4.17 hours.
7. Using once again a speed of 22 knots, we find that the distance from the celestial fix to impact with the iceberg is $22 \times 4.17 = 91.7$ nautical miles.
8. The difference between these two distances is $104.5 - 91.7 = 12.8$ nautical miles, a distance that almost exactly corresponds to the distance between the wreck site (taken to the center of the discovered boiler field) and Boxhall's SOS position.

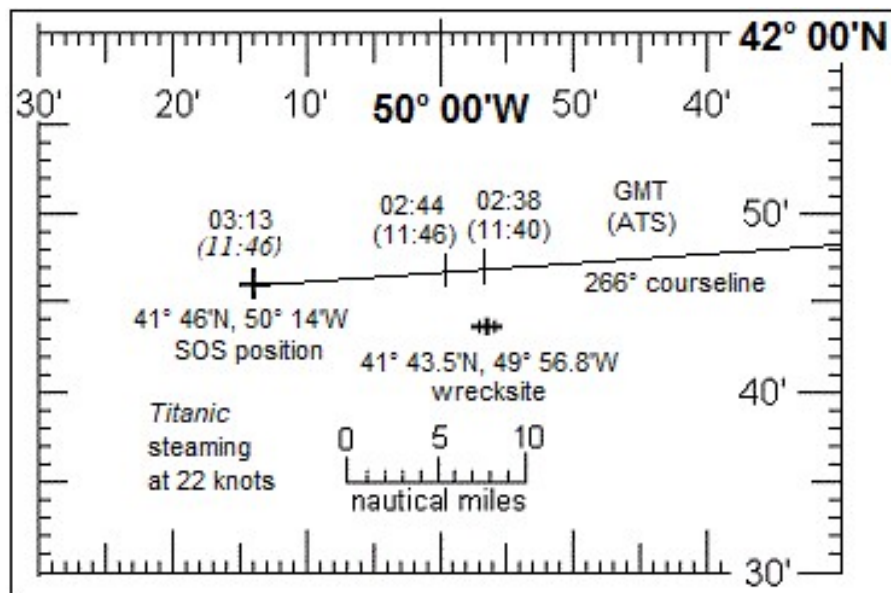
The above shows very plainly that if Joseph Boxhall had not made a mistake in time, he would have obtained a distress location that is very close to the wreck site location instead of being 13 miles too far west.

It should be noted that the precise time of when the celestial fix was actually taken does not really matter in this simple exercise. We were told by Third Officer

¹ As stated in evidence by Boatswain's Mate Albert Haines, who was in charge of the watch on deck at the time of collision, "The right time, without putting the clock back, was 20 minutes to 12."

Pitman that sights were taken, “Between half past 7 and 20 minutes to 8.” You can take the time of these sights as 7:30 or 7:40 or any time in between when doing this simple exercise. A different time for the fix will only increase or decrease the two run times that we obtained by a small amount exactly the same way. That amount will cancel out when taking the difference between the two run distances that you get. You will still get a difference between distances of 12.8 nautical miles. The numbers don’t lie.

The figure below shows the location of the wreck site along with Boxhall’s SOS position. It also shows the times in GMT when *Titanic* would have reached the locations shown traveling on the her westward coursesline from the celestial fix toward Boxhall’s SOS position. Also shown on the chart are the corresponding times for clocks that were keeping time Apparent Time Ship (ATS) for April 14th (shown in parenthesis in regular font), and the ship’s time of impact that Boxhall said he used (shown in parenthesis in *italic font*).



Area of the wreck and positions of *Titanic* along a 266° true coursesline.

The position shown for 2:38 a.m. GMT (11:40 p.m. ship’s time) is 12.8 nautical miles east of Boxhall’s SOS position for 3:13 a.m. GMT. Clearly, this shows that a collision time of 3:13 a.m. GMT, or 10:13 p.m. NY time, is obviously coupled to the erroneous distress position that Joseph Boxhall derived. Unfortunately, the erroneous location of the distress position has led *Titanic*’s surviving officers to later believe that clocks on *Titanic* at the time of collision and time of foundering were 1 hour 33 minutes ahead of clocks in NY and Washington. The reality is that those clocks were 2 hours and 2 minutes ahead of clocks in NY and Washington as displayed on the two clocks kept in the Marconi room and witnessed by *Titanic*’s junior wireless operator Harold Bride. The reality is that *Titanic* struck an iceberg at about 11:40 p.m. ATS (2:38 a.m. GMT) at a location that was about 13 nautical miles east of where she was thought to be.