AVOIDING *TITANIC*'S FATE

The 61st Voyage of RMS *Mauretania*

by Samuel Halpern

Introduction

On April 10, 1912, the new White Star Liner *Titanic* began her maiden voyage from Southampton to New York, with stops at Cherbourg and Queenstown. The transatlantic part her journey started when she took departure off the Daunt's Rock Light Vessel outside Queenstown harbor on April 11, 1912, and would have ended upon reaching the Ambrose Channel Light Vessel outside New York harbor if not for a fatal encounter with an iceberg on the night of April 14, 1912.

The planned transatlantic voyage is depicted in the chart shown in Figure 01 below. Included on the chart is *Titanic*'s position for 7:00pm GMT on Friday, April 12, that was sent to the SS *La Touraine*, her approximate noontime positions for Friday, Saturday and Sunday (April 12, 13 and 14, respectively), and the now known location of the *Titanic* wreck site.

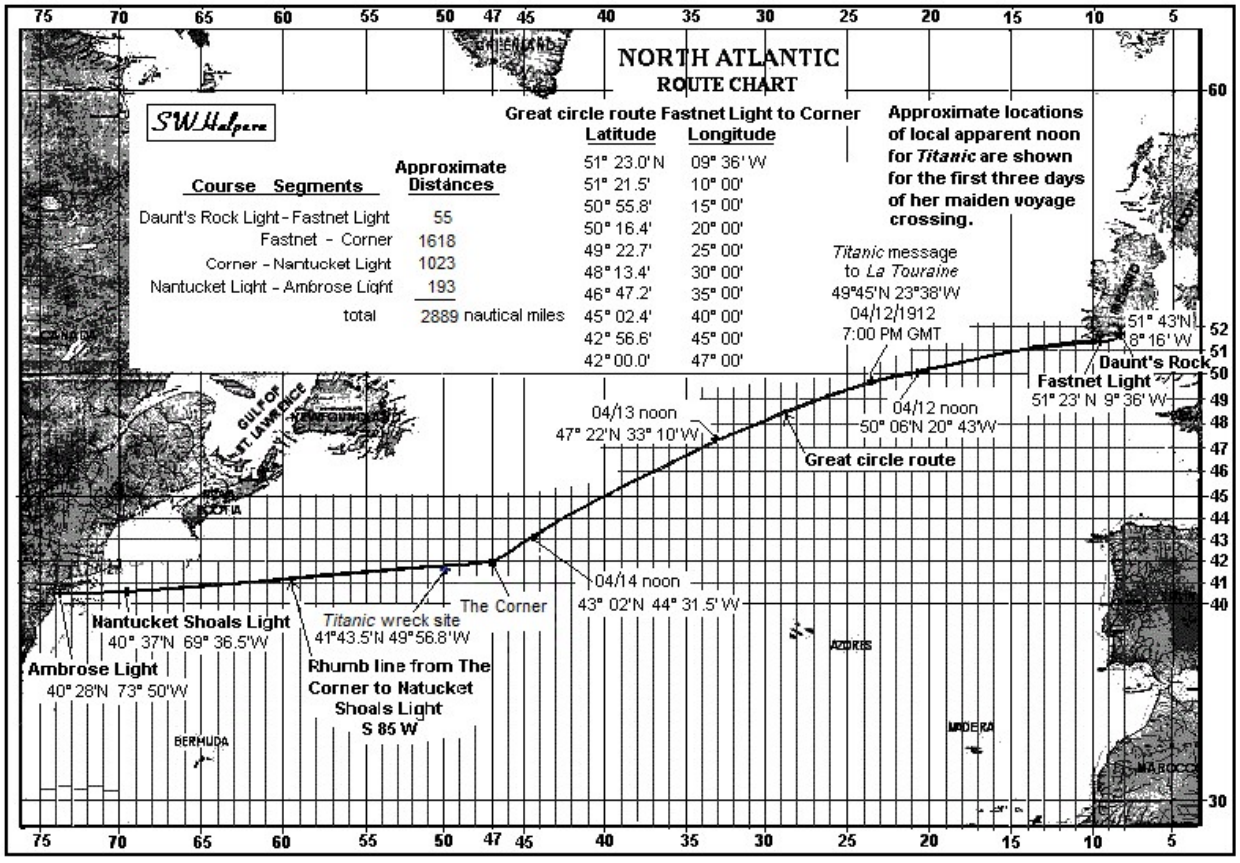

Fig. 01 – Transatlantic route from Queenstown to New York 1912.

The transatlantic portion of the voyage from Queenstown to New York for westbound steamers between the middle of January to the middle of August in 1912 consisted of four segments.[1] It began

[1] This route was known as the southern route, which was longer than the more northern route that was taken between the middle August to the middle of January. The southern routes, both westbound and eastbound, were chosen to avoid the

with the 55 nautical mile trip from the Daunt's Rock Light Vessel outside Queenstown harbor to Fastnet Light, a light house located on a small island off the far southwestern coast of Ireland. From there the route followed a great circle path to a turning point in the North Atlantic (at 42°N, 47°W) known as the westbound Corner.[2] From the westbound Corner, steamers would then take a course heading of 265° true for about 1023 nautical miles to a point just south of the Nantucket Shoals Light Vessel off the east coast of the United States.[3] From there, they would take a 193 nautical mile run to the Ambrose Channel Light Vessel located at the entrance to lower New York bay which marked the official end of the transatlantic part of the crossing.

The total distance for the transatlantic part of the outbound voyage would be around 2890 nautical miles, the exact amount depending on how closely the ship could track the overall route, especially when on the great circle path. For *Titanic*'s sister ship *Olympic* on her 8th westbound crossing in February 1912, the total crossing distance from Daunt's Rock to Ambrose that was written down in her voyage log card was 2892 nautical miles. She did that crossing in 5 days, 11 hours and 48 minutes, for an average crossing speed of 21.94 knots.

Over same route of travel, the Cunard Liner *Mauretania* covered a distance from Daunt's Rock to Ambrose of 2889 nautical miles for both her 59th and 60th westbound crossings in March of 1912. On her 60th crossing, she crossed the 2889 miles in 5 days, 0 hours and 8 minutes, for an average recorded crossing speed of 24.04 knots. However, for her 61st westbound crossing of the Atlantic in April of 1912, *Mauretania* covered the journey from Daunt's Rock to Ambrose in 2915 nautical miles taking 4 days, 22 hours and 39 minutes, for an average recorded crossing speed of 24.56 knots. (See *Mauretania* voyage data in Table-A below.) Although that trip was 26 miles longer than her previous transatlantic westbound crossing, she did it in a shorter overall crossing time running her engines at a higher overall number of revolutions.

Table – A

***Mauretania*'s outbound voyage data for March and April of 1912.**[4]							
Voyage Number	**Date Leaving Liverpool**	**Distance and Mean Crossing Time Daunt's Rock LV to Ambrose LV**				**Average Speed (knots)**	**Average Revolutions per Minute**
		Nautical Miles	**Days**	**Hours**	**Minutes**		
59	March 02	2889	5	17	59	20.93	154.4
60	March 23	2889	5	0	8	24.04	176.9
61	April 13	2915	4	22	39	24.56	180.1

But why was the transatlantic crossing distance for *Mauretania*'s 61st crossing 26 miles greater than what was recorded for her 59th and 60th crossings? The answer to that will come from the testimony of *Mauretania*'s Captain William Thomas Turner taken in a deposition at the Limitation of Liability Hearings held in New York on April 30, 1915, three years after the *Titanic* disaster. When his deposition was taken, Captain Turner was then the recently appointed Commander of the SS *Lusitania*. His testimony concerning events in 1912 came just one week before *Lusitania* was sunk off the southern coast of Ireland by a torpedo from U-20, a German U-boat commanded by Kapitänleutnant Walther Schwieger.

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possibility of ships running into ice that may have drifted southward from area of the Grand Banks in that part of the year. Unfortunately in April of 1912, ice had unexpectedly drifted further south into the agreed upon shipping lanes.

[2] A great circle path is the shortest path that can be taken on the surface of a globe.

[3] The course was referred to as a rhumb-line course because it cuts all meridians on a sphere at the same angle. It's the path taken by a ship or plane that maintains a constant compass direction.

[4] The recorded average revolutions of *Mauretania*'s engines for her 59th crossing was 154.4 rpm. For her 60th crossing, her average engine evolutions was 176.9 rpm. For her 61st crossing, her average engine evolutions was 180.1 rpm. When carrying an average of about 187 rpm on her engines, *Mauretania* would make about 25 knots on a westbound crossing. (*Mauretania* voyage data supplied by Mark Chirnside.)

Before we look at Captain Turner's 1915 testimony, let us go back and look at conditions in the North Atlantic in mid April of 1912.

Titanic's Maiden Voyage

On her maiden westbound crossing, *Titanic* received a number of wireless messages reporting ice ahead. (A table showing the content of these messages, as well as official acknowledgement messages sent back by *Titanic* when given, are presented in chronological order in Appendix–A.)

Shown in Figure 02 below is an expanded chart of the region of the Atlantic, from 41°N to 43°N latitude, and 47°W to 51°W longitude, where we show the locations of ice that were reported in six of those wireless messages. Of those six messages, those from *Caronia* (1), *Noordam* (2) and *Baltic* (3), were acknowledged by *Titanic*'s Captain E. J. Smith. Most significant of the three was the message received from *Baltic*'s Captain Ranson at 1:54pm that Sunday, April 14th 1912, which showed that field ice and icebergs had been reported by the SS *Athenai* just 3 nautical miles north of the track that *Titanic* was following. (See location no. 3 on the chart in Figure 02.) The complete message from *Baltic*'s Captain Ranson to *Titanic*'s Captain Smith read:

> [MSG] Capt. Smith, *Titanic*. Have had mod. var. winds and clear fine weather since leaving. Greek steamer *Athenai* [MTI] reports passing icebergs and large quantities of field ice today in lat. 41.51 N, long. 49.52 W. Last night we spoke German oil-tank steamer *Deutschland* [GZD], Stettin to Philadelphia, not under control, short of coal, lat. 40.42 N, long. 55.11 W. Wishes to be reported to New York and other steamers. Wish you and *Titanic* all success. Commander [Ranson].

This message was received at 1:54pm *Titanic* time, and acknowledge by Captain Smith at 2:57pm *Titanic* time, well before *Titanic* had reached her turning point for New York at 5:50pm that day.

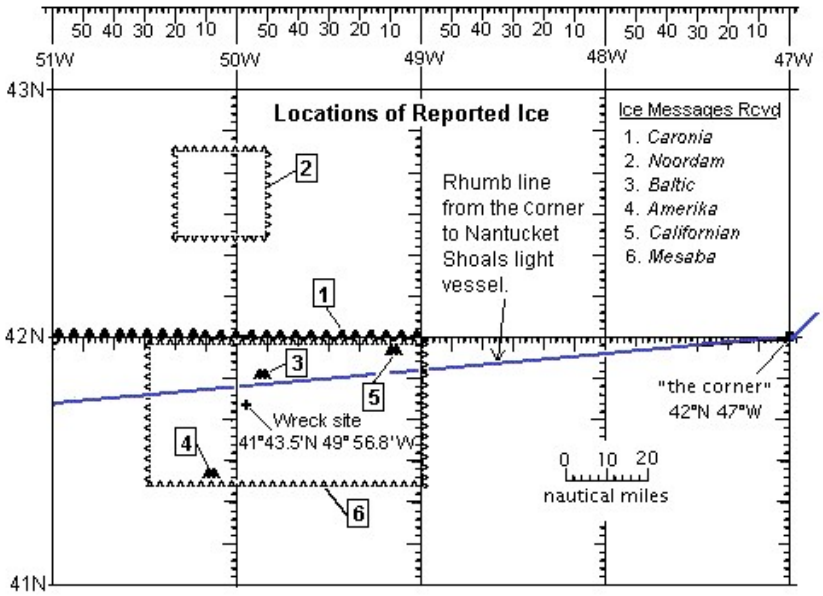

Fig. 02 – Positions of ice reported by wireless messages received by *Titanic*.

So what did Captain Smith do about the information that was conveyed in that and other messages regarding ice that he received? Essentially nothing. In fact he gave the *Baltic* message to J. Bruce Ismay, the Managing Director of the White Star Line, who happened to be on board *Titanic* for her maiden

voyage. Ismay then shared the contents of that message with several passengers, boasting that they will put on extra boilers and get out of the ice region as quickly as possible. According to Ismay, Captain Smith did not ask for that message back until around 7:15 that evening, supposedly for the purpose of posting the message in the officer's chartroom.[5]

When *Titanic*'s course was altered near the Corner at 5:50pm late Sunday afternoon, the intent was to put *Titanic* on the direct course for the Nantucket Shoals Light Vessel. During the British Inquiry into the *Titanic* disaster, it was claimed by two *Titanic* junior officers, Herbert Pitman and Joseph Boxhall, that the turn that took place at 5:50pm, was to them about 45-50 minutes late if it was Smith's intention to have the ship turn at the Corner point. The suggestion was that Smith set a late turning time to possibly avoid some reported ice. However, the navigational evidence that we have strongly suggests that there was *no delayed turn* at all. Based on a written memorandum provide by *Titanic*'s 3rd Officer Pitman at the US Senate inquiry, which took place before he testified at the British inquiry, we know that *Titanic* had traveled a total of 1549 nautical miles since taking departure from the Daunt's Rock Light Vessel to her noontime position for Sunday April 14. From her noontime position, *Titanic* had about 126 nautical miles left to travel for her to get to the Corner point, a distance that would take about 5 hour and 44 minutes at a speed of 22 knots. By turning at 5:50pm, she would have passed the Corner by only about 2 miles, not the 16-17 miles being suggested by those two junior officers.

So how did this false claim at the British inquiry by Pitman and Boxhall that there was a delayed turn of the Corner come about?

The answer has to do with the location of the erroneous SOS position sent out by wireless from *Titanic* later that night; a position worked up by 4th Officer Joseph Boxhall. In short, to reach Boxhall's SOS position, which happens to be about 146 nautical miles from the Corner point, would require a speed of about 24½ knots, assuming the ship had indeed turned near the Corner at 5:50pm. *Titanic* was incapable of achieving that speed, so a reason was therefore needed to somehow shorten the mileage between the ship's turning point and the famous Boxhall SOS position to get the speed of the ship down to the more reasonable value of 22 knots as assumed by Joseph Boxhall. Since everyone, including all of *Titanic*'s surviving officers, believed that Boxhall's position was correct, they had to conclude that the ship must have passed the Corner point much earlier than 5:50pm in order for it to reach as far west as the SOS position. As we now know, *Titanic* never reached the location that Boxhall came up with. It sank about 13 nautical miles east of the erroneous SOS position.[6]

With all the ice messages received, there were two courses of action that Captain Smith could have taken. One was to significantly reduce speed by nightfall; the other was to take the vessel well to the southward of the Corner before turning for New York. Captain Smith did neither. What he did do was to follow the southern track for westbound steamers to New York as planned, trusting that icebergs, growlers and field ice would be spotted by those looking out in enough time to be avoided.

The assumption about being able to spot ice in time to be avoided was discussed by Captain Smith and Second Officer Charles Lightoller between about 9:00 and 9:30pm Sunday night, while Lightoller was Officer of the Watch (OOW). In that discussion, according to Lightoller, they talked about the visibility conditions and the conditions of the sea that night. They admittedly expressed some concern about the increased difficulty in sighting icebergs that night because there was no moon, no wind, and the absence of a swell on the sea which prevented water from breaking at the base of icebergs. Also expressed was some concern that a recently capsized iceberg might present a dark side to them, thus making it somewhat more difficult to spot. Despite all that, they still believed that any danger would be seen in enough time to be avoided.[7] Smith left instructions to be called only if seeing conditions became

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[5] Ismay, BI 18452.

[6] See my article, "Pitman's Corner" at: https://titanicology.com/Titanica/PitmansCorner.html.

[7] Lightoller believed that an iceberg or growler could be seen at a distance of about 2 to 3 miles under clear condition on a moonless night. Actual studies by the International Ice Patrol preformed many years later showed that on a clear moonless night, icebergs could be spotted only within about 1/2 nautical mile of a vessel. It has been estimated that *Titanic* was less than

questionable. He then left the bridge and went inside to his quarters. Lightoller expected that the ship might reach ice about 9:30pm, or thereabouts. He also said that Sixth Officer Moody, who was later lost, had calculated that ice might be expected to be seen around 11:00pm, during First Officer Murdoch's watch, a calculation that was seemingly based on a different ice report than what Lightoller used. It was about 11:40pm when *Titanic* encountered that fatal iceberg.

Mauretania's 61st Voyage

RMS *Mauretania* departed Liverpool on Saturday, April 13, 1912 on her 61st voyage to New York. According to Captain William Turner, *Mauretania* was far from being full because she departed on the 13th of the month. However, the reality was that she carried about 1500 passenger, which was not all that bad for that time of the year according to official statistics.[8]

Turner's initial plan was to follow the usual westbound route for steamers crossing the Atlantic to New York, as she had done on her previous voyages that year. However, Turner received several messages reporting ice ahead on Sunday, the 14th of April, and on Monday, the 15th of April. Turner testified that he did not hear anything about the *Titanic* disaster until sometime on Monday, April 15. He claimed that he decided to divert his ship from the usual westbound track and take it further south to avoid ice before he even heard anything about *Titanic*. Turner testified:

> "After I heard there was so much ice in the track; I went 65 miles south; I intended to go 50 but as a matter of fact I went 65 and even then I saw an iceberg."

When ask more about this course alteration, he said:

> "When I left Fastnet and I got the report of the *Titanic* mishap, we went here (*indicating on a chart*); there is the corner; instead of that I went down there (*indicating*), a distance of 65 miles, and did not go here (*indicating*) and then there, like that (*indicating*)."

Unfortunately, except for Fastnet and the Corner points, we don't exactly know what were all the positions that Turner was pointing to on that chart when he spoke, but it turns out we can deduce the point he took his ship to by knowing that it was 65 miles further south than the Corner point, as he explained above, and knowing that the total transatlantic distance traveled by *Mauretania* on that 61st voyage was 26 nautical miles longer than her previous two crossings.

Shown in Figure 03 below is a route that would take *Mauretania* to a new turning point that was about 111 to 112 nautical miles beyond the westbound Corner point. Instead of turning *Mauretania* at 42° 00'N, 47° 00'W at the Corner, it seems that Turner took his ship down to a turning point located at 40° 55'N, 49° 00'W. The latitude of that point is exactly 65 nautical miles south of the latitude of the Corner,[9] and the longitude of that point is the same as the easternmost longitude of a large band of field ice and icebergs that was reported in a widely circulated ice warning that was sent out to various westbound steamers, including *Titanic*, by Captain Barr of the SS *Caronia*.[10] In that message, it was

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1/3 nautical mile from the iceberg that she struck when it was first spotted by her lookouts. See: Samuel Halpern, *Prelude To An Allision – Titanic's Fatal Encounter Revisited*, Independently published, July 2022.

[8] Information from Mark Chirnside.

[9] Although Captain Turner said that he decided to go further south before he heard about *Titanic*, it may very well have been that he decided to go 65 miles south of the Corner latitude after hearing about *Titanic*. Originally, as he said, he was going to go only 50 miles south, which would have taken him down to 41° 10'N. (The latitude of his apparent turning point at 40° 55'N was actually 51 miles south of the SOS latitude.)

[10] *Titanic* received that message from *Caronia* at 9:12am, on Sunday, April 14. Besides *Titanic*, several other ships were known to have received the same message on April 14, including the SS *Celtic* and the SS *La Bretagn*. The same message from Captain Barr was sent out the day before, on April 13, to the SS *Cincinnati* (Michael Hughes & Katherine Bosworth,

reported that icebergs, growlers, and field ice were seen by westbound steamers on April 12th in latitude 42°N, beginning from longitude 49°W to as far west as longitude 51°W. (This is the region marked no. 1 back in Figure 02.)

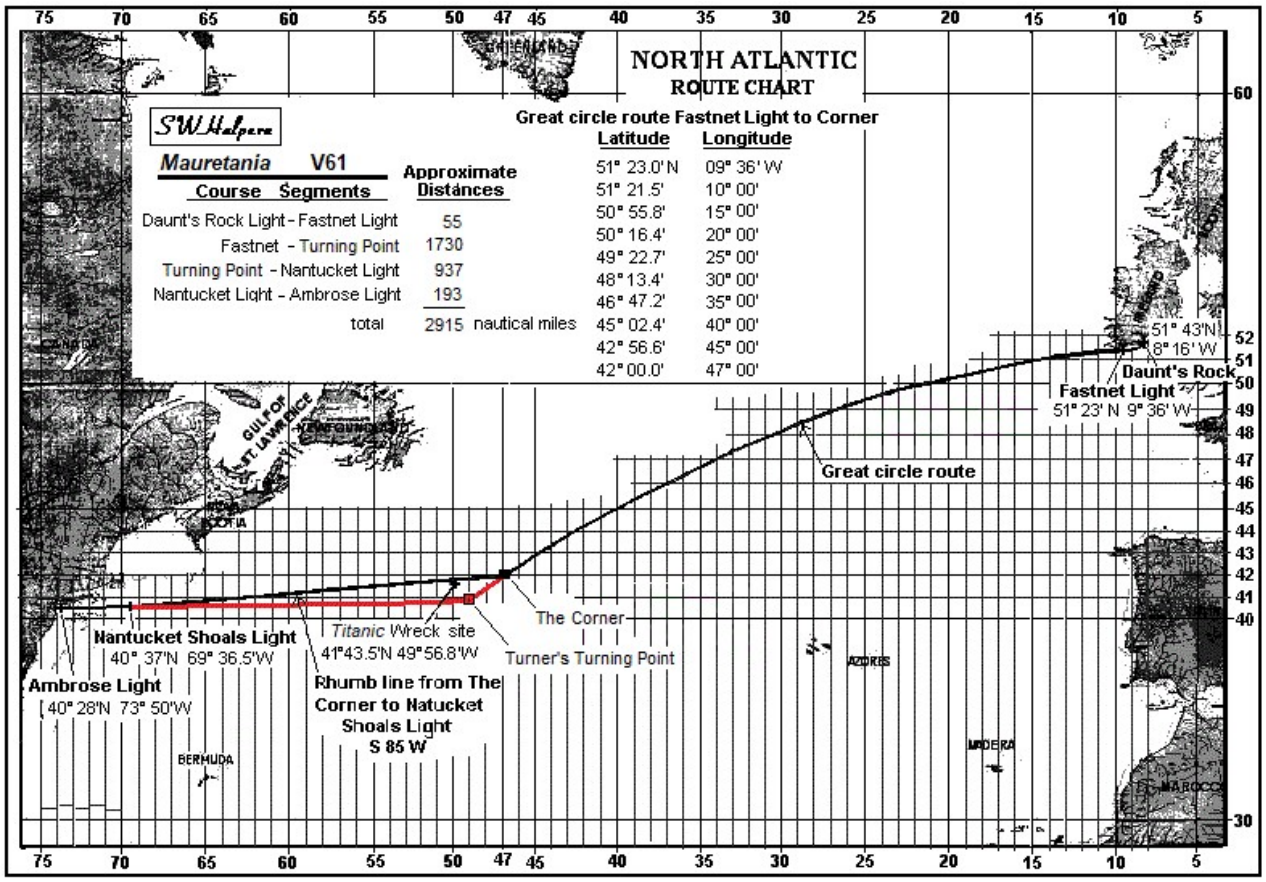

Fig. 03 – Likely track across the Atlantic for *Mauretania* on her 61st westbound crossing. (The change from the usual route is shown in red.)

Looking at the distances traveled over the four segments of this altered westbound route, we find that the distance from Fastnet to this new turning point at 40° 55'N, 49° 00'W would be about 1730 nautical miles. From this turning point to the Nantucket Shoals Light Vessel, we find a distance of 937 nautical miles. The other two segments of this alternate route would not have changed. (The run from Daunt's Rock to Fastnet being 55 miles, and the run from Nantucket to Ambrose being 193 miles.) Thus, when we add the distances of all four route segments, we find the total transatlantic distance for *Mauretania*'s 61st crossing would add up to 2915 nautical miles as reported; a distance that was only 26 miles longer than the usual route that was followed.

Actions, Inactions and Consequences

By extending his route across the Atlantic by only 26 miles, a little over an hour of steaming for *Mauretania*, Captain William Turner was able to avoid the fate that awaited *Titanic*. However, Captain Turner was not the only one that decided to divert his ship further southward to avoid the ice before hearing about *Titanic*. Captain James Henry Moore of the SS *Mount Temple* did the same.

Titanic Calling: Wireless Communications During the Great Disaster, Bodleian Library, 2012), and the same message was received by Captain Stanley Lord of the SS *Californian* on Saturday, April 13th at 4:35pm NY time (AI p. 719).

The immigrant ship *Mount Temple* departed Antwerp on Wednesday, April 03, 1912, on her 62nd voyage westbound for St. John, New Brunswick, and then on to Halifax, Nova Scotia. Her planned route of travel would have taken her westward through the English Channel to a transatlantic departure point just off Bishop Rock (49° 52'N, 6° 27'W) at the westernmost tip of the Isles of Scilly. From there she would have gone 1734 nautical miles along a great circle path to the westbound Corner point at 42°N, 47°W. From the Corner she would normally take a course of 276° true for Cape Sable (43° 29'N, 65° 43.5'W) at the southernmost tip of Nova Scotia, a distance of about 830 nautical miles, and then into the Bay of Fundy and up to St. John. Her speed was about 11 knots.

After receiving an ice warning Saturday night (April 13, 1912) from the SS *Corinthian* informing Captain Moore that SS *Corsican* had seen ice down at 41° 25'N, 50° 30'W, Captain Moore, like Captain Turner, prudently decided not to turn his ship at the westbound Corner point but to continue on further southward. Moore decided to head down to 41° 15'N, 50° 00'W, a decision that would take his ship 10 miles south of the ice that was reported to him in that *Corinthian* message. (See Figure 04 below.) From this new turning point, Moore would head up for Cape Sable and from there to St. John. By doing so, he would only extend his total voyage distance by about 22 miles, or about two hours of steaming for *Mount Temple*, and thereby hope to avoid encountering ice along the way.

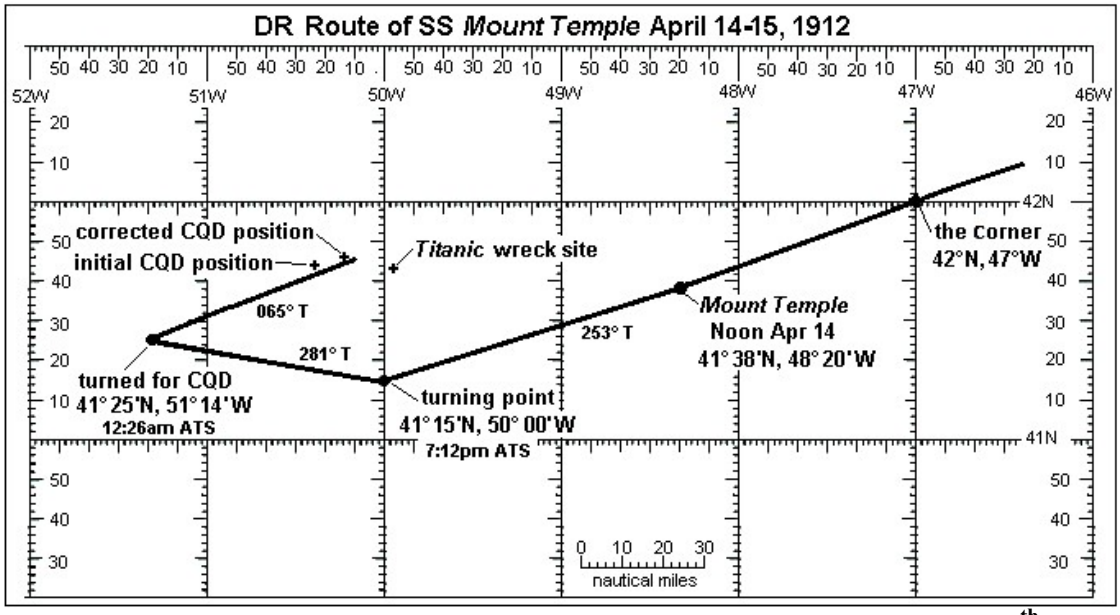

Fig. 04 – Route taken by Capt. Moore of the SS *Mount Temple* on April 14th 1912.

Captain Moore, having managed to avoided all ice, was well along this altered route heading up toward Cape Sable when his wireless operator picked up a distress call at 12:11am April 15th (*Mount Temple* time) from *Titanic*. After being informed, Captain Moore turned his ship around. By 12:26am, *Mount Temple* was heading fast toward a revised distress position, the so called "corrected" position, that was being transmitted from *Titanic*.[11] Hours later, *Mount Temple* was forced to stop when she encountered a large field of pack ice after passing the erroneous distress position that *Titanic* had been sending out. When he was able to get a good navigational measurement of the sun well after daybreak, Captain Moore realized that *Titanic* could never have reached as far west as given by her distress position. He realized that she had to have foundered quite a few miles to the east of where everyone else thought she had. In 1985, Robert Ballard proved that Moore was right.

[11] The initial distress position was for 41° 44'N, 50° 24'W. The revised position was for 41° 46'N, 50° 14'W. Both CQD and SOS distress signal prefixes were transmitted from *Titanic* that night.

Captain Smith of *Titanic* could also have diverted *Titanic*'s course early on to avoid ice. He too could have taken *Titanic* down to a turning point well south of the ice that he was aware of, just as *Mount Temple*'s Captain Moore and *Mauretania*'s Captain Turner had decided to do. By doing so, Smith would only have extended his overall crossing time by less than an hour and 15 minutes, and likely would have avoided an encounter with ice. Instead, Smith chose to continue on as if there was no danger ahead, putting his trust in the ability of the Officer of the Watch and the two lookouts up in the crow's nest to spot any danger ahead in enough time to avoid. Smith's overconfidence was such that he didn't bother to add extra lookouts, didn't bother to put his engine room on standby, and didn't believe that it was necessary for him to remain out on the navigation bridge himself during the period of time when they expected to reach ice.[12] As we know, those decisions proved to be fatal.

It has been claimed that Captain Smith was only acting as many other crack steamship commanders had done before by keeping to the course and maintaining speed when approaching an area of ice at night under clear conditions. Yet, that practice was flawed because it was based on assumptions that were never tested beforehand; namely the distance that the human eye could spot unlit objects such as icebergs and growlers on a clear, calm, dark moonless night while out at sea. As Captain William Turner said in 1915 when asked about that:

> "Would not like to say that how far you can see - it might vary; one might say half a mile, might say a mile, might say an eighth; never measured it; don't know that anybody ever did."

The practice of keeping to the course and maintaining speed when in the vicinity of ice at night in clear weather had been justified by the absence of a major serious mishap prior to *Titanic*. However, the *Titanic* disaster clearly proved that such a practice was inherently faulty. The practice, as stated in the British Wreck Commissioner's report, apparently stemmed from the intense competition between steamship companies to satisfy their passengers for a quick passage, and avoid unnecessary course deviations, slowdowns or delays when crossing the Atlantic. Slowing down or changing the route of travel were looked upon as actions to be taken only as a last resort. Though some steamship commanders, such as Captains Turner and Moore, seemed to be willing to a take a more prudent course of action by extending their overall crossing distance by only a few miles when approaching a reported region of ice under clear nighttime conditions, others commanders, including Captain Smith, were willing to take the risk and put their trust in an unconfirmed belief that those looking out would be able to see almost any danger ahead in enough time to avoid. As such, nothing special was done other that discussing the situation with one of his senior officers, and having the lookouts told to keep a sharp lookout for small ice and growlers. And we all know what happened after that.

Acknowledgement

I would like to thank my friend and maritime author and historian Mark Chirnside for sharing detailed voyage data on *Olympic* and *Mauretania* with me.

[12] Second Officer Lightoller testified that he expected to first reach the region of ice by around 9:30pm that Sunday night, the same time that Captain Smith left him alone out the bridge to go inside. He also testified that Sixth Officer Moody expected them to first reach ice around 11pm that night (BI 15546-15548). Lightoller said that he based his estimate from the data in the *Caronia* message, while it appears that Moody may have based his estimate from the *Baltic* message that appears to have been finally posted up late that evening.

Appendix–A

Known Ice Messages Received by *Titanic*

The following, in chronological order, is a list of wireless messages sent to *Titanic* that contained ice warnings as well as any official reply messages received back from *Titanic*.[13] Times for these messages are shown in *Titanic* Apparent Time Ship (ATS) along with the time [in brackets] that was logged on company service forms.[14] Also shown [in brackets] are the three-letter call signs of the various wireless stations involved, and the message prefixes that were used.

Date and Time	From/To	Text of Message
12 April 5:46pm *Titanic* [7:10pm GMT]	*La Touraine* [MLT] to *Titanic* [MGY]	[MSG] (De) *Touraine* (a) Captain *Titanic*. My position 7pm GMT lat. 49.28 long. 26.28 W. Dense fog since this night. Crossed thick icefield lat. 44.58, long. 50.40 Paris. Saw another icefield and two icebergs lat. 45.20 long. 45.09 Paris. Saw a derelict lat. 40.56 long. 68.38 Paris. Please give me your position. Best regards and *Bon Voyage*. Caussin.
12 April 6:21pm *Titanic* [7:45pm GMT]	*Titanic* [MGY] to *La Touraine* [MLT]	[MSG] (De) *Titanic (*a) Captain *La Touraine*. Thanks for your message and information. My position 7pm GMT, lat 49.5 long 23.38W Greenwich. Had fine weather. Compliments. Smith.
14 April 9:12am *Titanic* [7:10am NYT]	*Caronia* [MRA] to *Titanic* [MGY]	[MSG] Captain *Titanic*. West bound steamers report bergs, growlers, and field-ice in 42N from 49 to 51 West April 12. Compts. Barr.
14 April 10:28am *Titanic* [1:26pm GMT]	*Titanic* [MGY] to *Caronia* [MRA]	[MSG] Captain *Caronia*. Thanks for message and information. Have had variable weather throughout. Smith.
14 April 11:47am *Titanic* [2:45pm GMT]	*Noordam* [MHA] to *Titanic* [MGY] via *Caronia* [MRA]	[Message forwarded by MRA to MGY at 2:45pm GMT. Sent from MHA to MRA at 2:30pm GMT.] [MSG] Captain SS *Titanic*. Congratulations on new command. Had moderate westerly winds, fair weather, no fog. Much ice reported in lat 42.24 to 42.45 [N] and long. 49.50 to 50.20 [W]. Compliments. Krol.
14 April 12:31pm *Titanic* [3:29pm GMT]	*Titanic* [MGY] to *Noordam* [MHA] via *Caronia* [MRA]	[Message sent at 3:29pm GMT from MGY to MRA and then forwarded by MRA to MHA at 3:50pm GMT.] [MSG] Captain Noordam. Many thanks. Had moderate variable weather throughout. Compliments. Smith.
14 April 1:49pm *Titanic* [11:47am NYT]	*Amerika* [DDR] to *Titanic* [MGY] for forwarding to Hydrographic Office, Washington, DC via Cape Race [MCE]	[MXG] Hydrographic Office, Washington, DC. *Amerika* passed two large icebergs in 41° 27'N., 50° 8'W. on the 14th of April. Knuth. Note: There is no evidence that this message was delivered to *Titanic's* bridge, but it was forwarded from *Titanic* to Cape Race at 7:30pm NYT.

[13] Compiled from evidence presented at the 1912 British Inquiry and from the book by John Booth and Sean Coughlan, *Titanic Signals of Disaster*, White Star Publications, 1993.

[14] Wireless message times were logged by Marconi shipboard operators in Greenwich Mean Time (GMT) when east of 40°W longitude, and in New York Time (NYT) when west of 40°W longitude. GMT = NYT + 5 hours. On April 12, *Titanic* ATS was 1 hour 24 minutes behind GMT. By April 14, *Titanic* ATS was 2 hours 58 minutes behind GMT.

14 April 1:54pm *Titanic* [11:52am NYT]	*Baltic* [MBC] to *Titanic* [MGY]	[MSG] Capt. Smith, *Titanic*. Have had mod. var. winds and clear fine weather since leaving. Greek steamer *Athenai* [MTI] reports passing icebergs and large quantities of field ice today in lat. 41.51 N, long. 49.52 W. Last night we spoke German oil-tank steamer *Deutschland* [GZD], Stettin to Philadelphia, not under control, short of coal, lat. 40.42 N, long. 55.11 W. Wishes to be reported to New York and other steamers. Wish you and *Titanic* all success. Commander [Ranson]. Note: This message showed ice near the path of *Titanic*.
14 April 2:57pm *Titanic* [12:55pm NYT]	*Titanic* [MGY] To *Baltic* [MBC]	[MSG] Commander *Baltic*. Thanks for your message and good wishes. Had fine weather since leaving. Smith.
14 April 7:37pm *Titanic* [5:35pm NYT]	*Californian* [MWL] to *Antillian* [MJL] intercepted by *Titanic* [MGY]	[MSG] Capt. *Antillian*. 6.30pm ATS lat. 42.3 N, long. 49.9 W. Three large bergs five miles to southward of us. Regards. Lord. Note: This would put the position of the icebergs at 41° 58'N, 49° 09'W. This message was acknowledged by *Antillian*'s Capt. Japha at 6:00pm NYT.
14 April 9:32pm *Titanic* [7:30pm NYT]	*Titanic* [MGY] to Cape Race [MCE] from *Amerika* [DDR]	[MXG] Hydrographic Office, Washington. *Amerika* passed two large icebergs in 41.27N, 50.8W on the 14th of April. Knuth. Note: This message, received from *Titanic*, was forwarded by Cape Race to office 29Z at 8:34pm NYT.
14 April 9:52pm *Titanic* [7:50pm NYT]	*Mesaba* [MMV] to *Titanic* [MGY]	[SG] In lat. 42 N to 41.25 [N], long. 49 W to long. 50.30 W saw much heavy pack ice and great number large icebergs, also field ice. Weather good, clear.