

Speed and More Speed

By Mark Chirnside and Samuel Halpern

(Revised: 26 March 2014)

“I see no reason why a Commander should not go full speed in the ice region as long as he can see sufficiently far ahead of him to enable him to clear any object which he may encounter.”

– J. Bruce Ismay, at the Limitation of Liability Hearings in New York, June 1914.

Despite receiving five separate wireless messages containing coordinates of observed icebergs and field ice on Sunday, April 14, 1912, the SS *Titanic* continued to follow the normal westbound route for steamers heading from Fastnet Light, off the southeast coast of Ireland, to the Nantucket Shoals Light Vessel, off the east coast of the United States. At the time she collided with an iceberg at 11:40 p.m. that Sunday night, *Titanic* was racing ahead at her highest speed ever. In this article we will examine several related issues:

- ❑ Just how fast was *Titanic* going when she collided with an iceberg, and when did they first achieve that speed?
- ❑ Did they have enough coal on board to run the vessel at full speed all across the Atlantic?
- ❑ Was *Titanic* out to break any crossing record on her maiden voyage and get into New York a day ahead of schedule?
- ❑ How much influence did J. Bruce Ismay, then Managing Director of the White Star Line, have on Captain Smith regarding the manner in which the vessel was being driven?
- ❑ Was there any justifiable reason why Captain Smith would drive his ship at full speed at night in a region of ice?

Increasing Revolutions

The new White Star Line steamship *Titanic* set out on her maiden voyage from Southampton on April 10, 1912. From the very beginning, her speed was increased continually. At the American inquiry, Bruce Ismay provided some insight into the increase in revolutions that were taking place each day and the mileages run:

“She arrived at Southampton on Wednesday, the 3rd, I think, and sailed on Wednesday, the 10th. She left Southampton at 12 o'clock. She arrived in Cherbourg that evening, having run over at 68 revolutions. We left Cherbourg and proceeded to Queenstown [a distance of about 316 nautical miles]. We arrived there, I think, about midday on Thursday. We ran from Cherbourg to Queenstown at 70 revolutions. After embarking the mails and passengers, we proceeded at 70 revolutions. I am not absolutely clear what the first day's run was, whether it was 464 miles or 484 miles. The second day the number of revolutions was increased. I think the number of revolutions on the second day was about 72. I think we ran on the second day 519 miles. The third day the revolutions were increased to 75, and I think we ran 546 or 549 miles.”



J Bruce Ismay

It is apparent from the above statement given by Bruce Ismay at the American inquiry that he was a little unsure of some of the distances traveled each day. However, we have other independent sources to rely on for this information including a list in a memorandum presented at the American inquiry by *Titanic's* Third Officer Herbert Pitman. What we know is that the distance covered for the first day's run of the transatlantic part of the voyage was 484 nautical miles, measured from the time the ship passed the Daunt's Rock Light Vessel outside the harbor of Queenstown at 2:20 p.m. GMT on April 11 until the ship reached local apparent noon the following day on April 12.¹ For the second and third days' runs the distances were measured from local apparent noon on one day to local apparent noon the next day. At noon on April 13 the ship made 519 nautical miles from noon the previous day.² At noon on April 14 the ship made 546 nautical miles from noon the day before.³ What we don't know are the times that those increases in revolutions per minute (rpm) that Ismay talked about were actually made. What is clear, however, is that the speed of the ship was increased each day as the voyage progressed, and the total distance traveled since departing Daunt's Rock at 2:20 p.m. GMT on April 11 to local apparent noon on April 14 was 1549 nautical miles.

Based on the total distance traveled and the known route of travel, the location of *Titanic* at local apparent noon on April 14 would be close to 43° 02' N, 44° 31' W, or about 126 miles before the "corner" point at 42°N, 47°W, which marked the end of the great circle part of her westbound voyage and the start of a direct rhumb line path toward New York.⁴ The total time from passing Daunt's Rock to the completion of her third day's run at noon April 14, 1912 was 72 hours and 38 minutes, and the average speed made good was 21.33 knots.⁵ As a point of comparison, *Titanic's* sister ship *Olympic* ran a distance of 1504 miles in 70 hours

¹ Departure and arrival times in British and Irish waters were recorded in GMT (IMM Rule 116). Confirmation for the first day's run of 484 miles listed in the Pitman memorandum comes from Ismay.

² Confirmation for the second day's run of 519 miles listed in the Pitman memorandum comes from Ismay and second-class passenger Lawrence Beesley. In his book, *The Loss of the SS Titanic*, Beesley wrote that the purser [most probably Reginald L. Barker] had mentioned to him that the 519 mile run for day 2 was a disappointment.

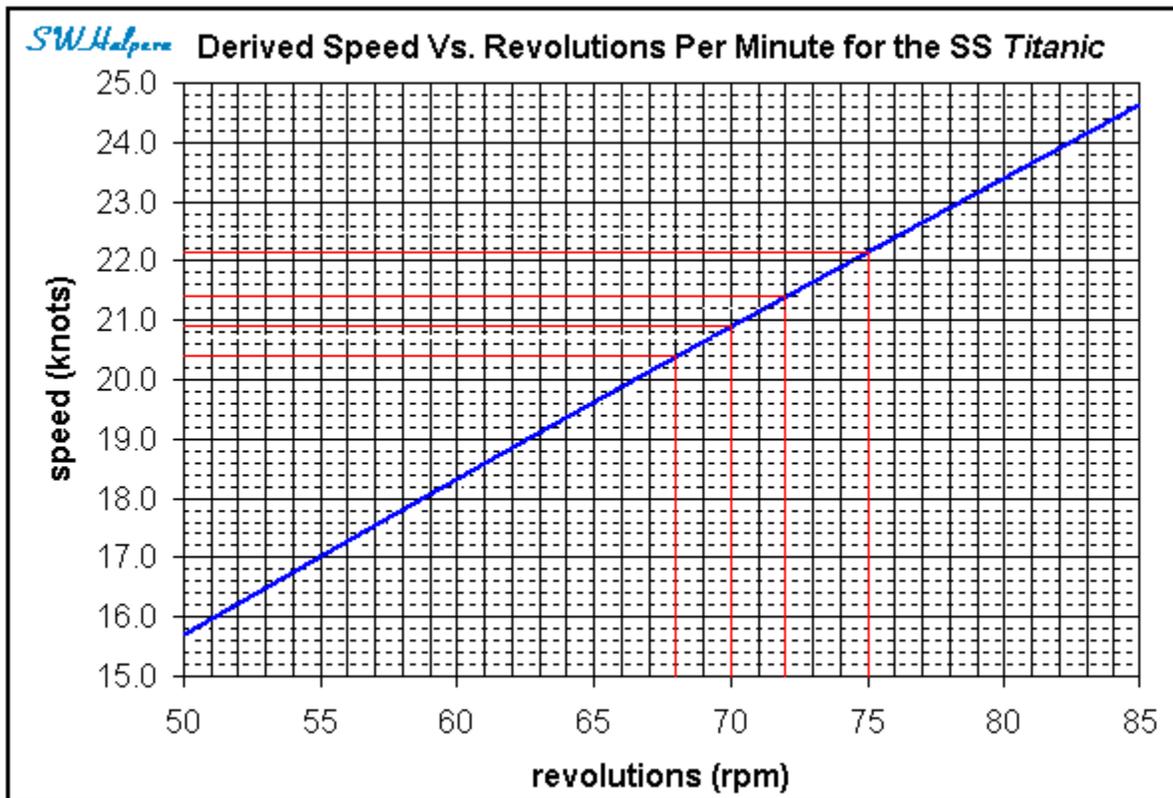
³ Confirmation for the third day's run of 546 miles listed in the Pitman memorandum comes from Ismay, and passengers Lawrence Beesley, Henry Stengel and Archibald Gracie.

⁴ Samuel Halpern, "Keeping Track of a Maiden Voyage," the Irish Titanic Historical Society's *White Star Journal*, Vol. 14, No. 2, August 2006. Also *Encyclopedia Titanica Research Article* at: <http://www.encyclopedia-titanica.org/item/5479/>.

⁵ Average speed made good = 1549/72.63 = 21.33 knots.

and 34 minutes on her maiden voyage westbound after completing her third day's run at local apparent noon on June 18, 1911. The average speed made good for *Olympic* up to that point was 21.31 knots.⁶ So to this point in time, at noon on the third day out, we see that *Titanic* had done about the same as her famous sister ship had done on her maiden voyage the year before.

Now according to Bruce Ismay's testimony, *Titanic* was making about 68 revolutions per minute in the channel crossing from Southampton to Cherbourg, 70 revolutions in the overnight trip from Cherbourg to Queenstown, 70 revolutions upon leaving Queenstown on the first day of her transatlantic crossing, 72 revolutions on the second day, and 75 revolutions on the third day. The propelling machinery installed on *Titanic* in early 1912 was essentially the same as that on *Olympic* except for some propeller changes which would account for about a 1.45% increase in speed of *Titanic* over *Olympic* for the same number of revolutions.⁷ Based on reported data for *Olympic*, curves of speed versus reciprocating-engine revolutions were developed for *Titanic*.⁸ Shown below is the derived curve for revolutions greater than 50 per minute with the central turbine connected up.



From these derived results we see that Ismay's 68 revolutions equates to about 20.38 knots, 70 equates to 20.89 knots, 72 equates to 21.39 knots, and 75 equates to 22.15 knots. (It must be strongly emphasized that this data shows speed through the water, not speed made good. Speed made good would be affected by current, wind, and sea state conditions.)

⁶ *Olympic* started her maiden voyage crossing somewhat late passing Daunt's Rock Lightvessel at 4:22 p.m. on June 15, 1911. The daily mileages for her first 3 days out were 428, 534, and 542 miles. Average speed made good for her first three day's = $1504/70.57 = 21.31$ knots.

⁷ In the deposition of J. Bruce Ismay, taken at the Limitation of Liability Hearings in New York on 4 June 1914, Ismay admitted that *Titanic* was expected to perform about $\frac{1}{4}$ knot better than *Olympic*.

⁸ Samuel Halpern, "Speed and Revolutions," Revised January 2012, <http://www.titanicology.com/Titanica/SpeedandRevolutions.htm>.

Speeding Through the Night

It is quite clear from Ismay's testimony that the speed of the ship was continually increased as the voyage progressed. This is not at all surprising for a new ship on her maiden voyage. However, by early Sunday morning, April 14, reports started to come in of icebergs and field ice that lay ahead of them. Knowing this information, does it make sense to increase the speed of the ship any further or continue at a high rate of speed?

At the American inquiry *Titanic's* Third Officer Herbert Pitman was asked how and when *Titanic's* speed was increased:

Senator FLETCHER. How much had you increased your speed Sunday night?

Mr. PITMAN. To 21 1/2 knots. ...

Senator FLETCHER. What increase was that over the speed you had been making prior to that?

Mr. PITMAN. Only about a knot.

Senator FLETCHER. You had been making about 20 1/2?

Mr. PITMAN. Yes, 20 1/4 and 20 1/2 first, after we left Queenstown.

Senator FLETCHER. How long did that continue?

Mr. PITMAN. The next day, 21.

Senator FLETCHER. And you kept increasing up to 21 1/2, so that at the time the iceberg was struck you were traveling at the highest rate of speed at which you had been going during the trip?

Mr. PITMAN. Oh, no; the same speed we had been traveling for the last 24 hours.

It is apparent that Third Officer Pitman seemed to get a bit defensive here. He said that the ship started out at about 20½ knots when leaving Queenstown on the first day out, increased to about 21 knots on the second day out, and was making about 21½ knots on the third day out. But on the night of April 14, Pitman suggests that her speed did not increase over the last 24 hours. Is that true? Did *Titanic* make 21½ knots on her third day out as Pitman claimed?

In a memorandum submitted by Pitman on the 5th day of the American inquiry to Senator Perkins, Pitman listed the run for the third day as 546 nautical miles.⁹ The time from local apparent noon on the second day (April 13) to local apparent noon on the third day (April 14) was listed in the memorandum as 24 hours 44 minutes, or 24.7 hours. The calculated speed put down in the memorandum was 22.1 knots, clearly contradicting the information that Pitman had told Senator Fletcher.

In his testimony before the British Wreck Commission, Bruce Ismay said that they planned to increase the number of revolutions some time on Monday or Tuesday to 78, which he claimed would drive the ship at her full speed if the weather cooperated:¹⁰

“I understand it has been stated that the ship was going at full speed. The ship never had been at full speed. The full speed of the ship is 78 revolutions. She worked up to 80. As far as I am aware she never exceeded 75 revolutions. She had not all her boilers on, none of the single-ended boilers were on. It was our intention if we had fine weather on Monday afternoon or Tuesday to drive the ship at full speed.”

It is somewhat interesting that Ismay would say that 78 revolutions was the full speed of the ship but that “she worked up to 80.” At one point during the maiden voyage of *Olympic* the revolutions reached 79 and 81 per minute on her two reciprocating engines without any of the auxiliary single-ended boilers lit up.¹¹

⁹ The distance recorded, 546 miles, is confirmed by Lawrence Beesley, Henry Stengel and Archibald Gracie.

¹⁰ British inquiry, 18378-18386.

¹¹ Posted by Mark Chirnside on Encyclopedia Titanica Message Board, Monday, February 19, 2001, <http://www.encyclopedia-titanica.org/cgi-bin/discus/show.cgi?tpc=5664&post=20469#POST20469>.

According to *Olympic*'s Chief Engineer Robert Fleming, the maximum revolutions that *Olympic* worked up to was 83 per minute, at which point the ship's machinery would be producing about 59,000 horsepower. It is almost certain that that amount of power would have required all 29 of her boilers, including the 5 auxiliary single-ended boilers, to be connected up.

At 10 p.m. on the night of April 14 a routine two-hour taffrail log reading was entered into the Quartermaster's notebook of *Titanic* by standby Quartermaster (QM) Robert Hichens just before taking his trick at the wheel:¹²

"I took the log which was part of my duty at half a minute to ten, as near as I can tell, and the vessel was going 45 knots by the Cherub log every two hours...Forty-five was registering on the log."

What Hichens meant was that the taffrail log reading, which measures the total distance run through the water since noon, had advanced about 45 nautical miles in the two-hour period from 8 to 10 p.m. on the night of April 14.¹³ That observation implies an average speed of 22.5 knots if the 45 miles he stated was a precise measure. Hichens also said that the quartermasters were talking about how fast the ship was traveling all day Sunday in their quarters, and "the reading for the last day had been 45 miles," meaning that the ship was advancing an average of about 45 nautical miles over each two-hour interval that Sunday. He also admitted that he could not recall what the exact log reading was at 10 p.m.¹⁴

We also know from testimony given by QM George Rowe at the American inquiry, that from 12 noon to 11:40 p.m., the time of collision, *Titanic* ran 260 nautical miles through the water:

"As soon as the berg was gone I looked at the log and it read 260 miles. The log was reset at noon. I had charge of the taffrail log, which was a Neptune log."

A distance of 260 miles in 11 hours and 40 minutes gives us an average speed of 22.29 knots through the water since noon, certainly much greater than what Third Officer Pitman would have us or Senator Fletcher believe.

Titanic's Fourth Officer Joseph Boxhall had this to say about the speed of the ship late Sunday night:

"I thought the ship was doing 22 knots...It was an estimate that I had arrived at from the revolutions, although I had had no revolutions that watch; but, taking into consideration that it was smooth water and that there ought to have been a minimum of slip, I allowed 22 knots....I have no immediate recollections of what the revolutions were at 8 o'clock. I do not remember them. As a matter of fact, I never received them. The Sixth Officer, when we went on watch, generally took them from the telephone."

The last time that Boxhall was on deck before coming on at 8 p.m. was during the First Dog Watch from 4 to 6 p.m. that evening. We also have evidence that *Titanic* was averaging 76 revolutions sometime between 4 and 8

¹² British inquiry, 965-966.

¹³ Again we see a reference to distance given in "knots." This goes back to the days of ships of sail where speed was measured by throwing a log overboard to which was attached a long rope that was knotted. By measuring how many knots played out in a given time interval, the speed of the ship through the water could be calculated. The taffrail logs used on steam vessels were devices that rotated as the ship steamed through the water. The rotations of the log were translated onto dials that measured distance traveled through the water in nautical miles, similar to an odometer in an automobile. The distance run was reported every two hours by the Quartermaster stationed out on the poop. As noted before, these distances were sometimes stated as knots traveled which really is nautical miles traveled. To get the speed you needed to divide the distance run by the time. Although Hichens referred to the log as a "Cherub log," it was actually a "Neptune log" that *Titanic* carried.

¹⁴ British inquiry, 1378-1385.

p.m.¹⁵ Joseph Boxhall was the officer who worked out the SOS distress position that was picked up by the *Carpathia* and other ships that night.

Titanic's Fifth Officer Harold Godfrey Lowe was questioned by Senator Smith at the American inquiry about the speed of the ship that Sunday. Lowe was the junior officer who worked up the ship's 8 p.m. dead reckoning (DR) position that was put in the ship's night orders book. This is what he had to say about the speed that he used in working that out:

“Her speed from noon until we turned the corner was just a fraction under 21 knots...I used the speed for the position at 8 o'clock, and got it by dividing the distance from noon to the corner by the time that had elapsed from noon until the time we were at the corner...This is the only figuring that is required to get the speed [handing the chairman a paper]...Twenty-one knots or under; it was really 20.95, about. If the speed had been increased or reduced during the interval when I was off duty, I would have been informed of it.”

On the surface it seems quite clear what Fifth Officer Lowe had done. He did not bother with engine revolutions or taffrail log readings to get the speed to use in working out the 8 p.m. DR position. Instead he divided the measured distance from the noontime fix to the corner point by the elapsed time from noon to the corner. What he said is that he obtained a speed just under 21 knots. He did this in real time before Senator Smith taking the distance to the corner and dividing it by 6 hours of time.¹⁶ The result, written on a slip of paper and handed to Senator Smith, read 21 knots; a result which Smith repeated while looking at the paper handed to him. But the problem is that the time from noon to when they “turned the corner” was 5 hours and 50 minutes, not 6 hours.¹⁷ If you take the distance to the corner, approximately 126 miles, and divide that by 5 hours 50 minutes, you would get 21.6 knots over ground, assuming the ship turned precisely at the corner which was not very likely.

Second Officer Charles Lightoller spoke of the revolutions carried on the night of April 14. At the British inquiry he had this to say:

13505. Now what did you notice about the speed of your vessel? – [Lightoller] As far as I could tell, her speed was normal.

13506. Were they telegraphed at full speed ahead? - At full speed.

13507. (The Commissioner.) What do you mean by normal? - Full speed.

13508. What is full speed; can you give me how many knots? - We were steaming, as near as I can tell from what I remember of the revolutions - I believe they were 75 - and I think that works out at about 21 1/2 knots the ship was steaming.

13509. (The Solicitor-General.) Is it the regular course for a message to be sent to the engine room from time to time, and a report to be got as to how many revolutions she is making? - As a rule, at the end of the watch, the junior officer rings up the engine room and obtains the average revolutions for the preceding watch.

13510. And is that one of the matters that would be brought before your notice when you go on duty? - No, not necessarily. It is entered up in the logbook, and anyone who wishes to know can merely ask and the information is given him.

13511. When you say your recollection is that it was 75 revolutions, just help us. What is it you have in your mind? - I could not say where I got that from, but it is in my mind that it was about 75 revolutions.

¹⁵ British inquiry, 4836-4840.

¹⁶ If you work the information he gave backwards, that is if you multiply the 6 hours of time that he told Senator Smith by 21 knots, you get a distance from noon to the corner of 126 nautical miles.

¹⁷ Senator FLETCHER. “At 5.50 p. m. you turned what you call the ‘corner?’” Mr. PITMAN. “The corner, yes.” (American inquiry, Page 303.) Fourth Officer JOSEPH BOXHALL: “The course was altered at 5.50” (British inquiry, 15315).

13512. In the course of the voyage across the Atlantic, had the engines, as far as you know, exceeded 75 at any time? - On one occasion I have a recollection of one side turning 76, not necessarily both sides though.

13513. That would be one or other of the sets of reciprocating engines? - Port or starboard reciprocating, yes.

13514. Subject to that as far as you know, did she ever attain a greater number of revolutions than 75? - Not to my knowledge, and I think I should have heard of it if she had.

13515. And during your watch which extended from 6 till 10, did she maintain the same speed, as far as you know? - As far as I know.

Second Officer Lightoller, *Titanic's* only surviving senior officer, was Officer Of the Watch (OOW) on April 14 from 6 to 10 p.m. Just like Third Officer Pitman, Lightoller seemed to downplay the speed of the ship somewhat. He, like Pitman, said that at 75 revolutions the ship would be making about 21½ knots. We get 22.15 knots for 75 revolutions which also agrees with other evidence presented at the British inquiry.¹⁸ It is interesting to note, however, that in 1935 Charles Lightoller wrote in his book, *Titanic and Other Ships*, that *Titanic* was “then making an easy 22 knots” when he referred to speed of the ship that Sunday night. And as we have seen, 22 knots is the speed that Fourth Officer Joseph Boxhall had used in calculating the SOS position. Boxhall's number, the highest estimate given by any of *Titanic's* surviving officers, is consistent with the revolutions being carried that evening.¹⁹



***Titanic's* Surviving Officers. Standing (left to right): 5/O Lowe, 2/O Lightoller, 4/O Boxhall. Seated (front): 3/O Pitman.**

Besides the inconsistent information concerning speed given to us from *Titanic's* surviving officers, and the information that we have from the taffrail log readings provided by the two quartermasters, is there any other evidence that can shed some light on how fast the ship was going late Sunday night just before the collision?

¹⁸ British inquiry, 18372.

¹⁹ It is also interesting that according to Lightoller the OOW did not necessarily know the exact number of revolutions carried unless he chose to inquire. As OOW he of course knew that the engines were being run at full ahead as indicated on the engine-order telegraphs, but the average number of revolutions was something that was recorded at the end of each watch, and the OOW can get that information if they cared to. Since the task of working out the ship's dead reckoning position was usually left to one of the junior officers, it should not come as a surprise if the OOW was not too concerned about such details.

Down in the Stokeholds

Leading Fireman Frederick Barrett worked in the stokehold from 8 a.m. to noon, and again from 8 p.m. to midnight. From his testimony before the British Wreck Commission we are told that 9 boilers (out of a total of 29) were not lit for the first two days after leaving Southampton, and that 8 boilers were not lit during the next two days. On the day of the accident, however, 3 additional double-ended boilers were lit up about 8 a.m. in Boiler Room No. 2, the second boiler room forward of the reciprocating engine room, and that it takes about 12 hours before any one of these could be put on line.²⁰ What Barrett was not sure of is when, or even if, these additional boilers were connected up that night. He was, however, quite sure that the ship's five auxiliary single-ended boilers in Boiler Room No. 1 were never lit at all.²¹

Frederick Barrett was also able to provide us with some insight into the number of revolutions that *Titanic* was carrying both Saturday and Sunday. He said:

“Seventy-five was my order...The second engineer gives orders to me of the revolutions he wants, and I pass the word to all my other men.”

Although Barrett did not have direct knowledge of how many revolutions the ship was making on Sunday, he said that the engineers “would ring though on the telephone” to the stokeholds if they failed to make the revolutions called for. The order for 75 revolutions came to Barrett on Saturday, April 13, and although Barrett did not know what the revolutions were on Sunday, there were no complaints from the engineers.²² It seems that 75 revolutions per minute was the required minimum. Barrett's station was Boiler Room No. 6 at the forward end of the machinery spaces.

Trimmer Thomas Dillon was able to verify that the 5 single-ended auxiliary boilers in Boiler Room No. 1 were never lit. When asked about his duties on board ship, Dillon said: “I belonged to the upper section, but the upper section of boilers was not lit up, and they sent us to the engine room to assist in cleaning the gear.” Thomas Dillon was on duty in the engine room when the collision with the iceberg occurred at 11:40 p.m.

Fireman Alfred Shiers, who was on duty from 4 a.m. to 8 a.m., and again from 4 p.m. to 8 p.m., reported that “three main boilers and five auxiliary boilers” were unlighted when he went off duty at 8 a.m. that Sunday morning. This confirms what Barrett said about 8 boilers being out at that time. However, Shiers found that “they [the three unlit double-ended boilers] were alight when I went on watch” at 4 p.m., and that later “the engineer came through and told us they were connected up at 7 o'clock.” Shiers also said that the engineers told them to “ease down firing.” The only reason to do that would be to keep the revolutions from increasing over what was being called for. Otherwise, for the same firing rate, the revolutions would have increased from 75 to over 78 per minute with all 24 double-ended boilers on line.

Leading Fireman Charles Hendrickson was on the shift from 4 p.m. to 8 p.m., the one that preceded Barrett's. He too was asked at the British inquiry about the revolutions carried that night. Hendrickson said that he made it his business to find out, and that the second engineer told him that the ship was making 76 revolutions at that time.²³

²⁰ British inquiry, 2203-2233.

²¹ *Titanic* had 24 double-ended boilers and 5 single-ended boilers for a total of 29 boilers on board. The 5 single-ended auxiliary boilers were all in Boiler Room (BR) No. 1 just ahead of the reciprocating engine room. Moving forward from there, we find 5 double-ended boilers in each boiler room beginning with BR No. 2 through BR No. 5. In BR No. 6, the most forward boiler room, we find only 4 double-ended boilers due to the narrowing of the ship as you approached the bow.

²² British inquiry, 2206-2215.

²³ British inquiry, 4836-4840.

Greaser Frederick Scott was on duty in the turbine engine room at the time of the accident. He said: "We did 75 revolutions at 11 o'clock."²⁴ It seems that this information must also have come from one of the engineers who was on duty at that time.

There are a few other sources of information available to us concerning the speed of the ship on the night of April 14. One of these comes from an interview with Fireman John Thompson. For the first three days out he was assigned to work in the engine rooms. Why? Well we know from Barrett and Shiers that not all of *Titanic's* double-ended boilers were lit before Sunday morning. So, like Thomas Dillon, some of the firemen and trimmers were put to work doing odd jobs in the engine rooms. However, on Sunday morning more double-ended boilers were lit up, and more firemen and trimmers were needed to work in the stokeholds. By Sunday afternoon John Thompson was transferred to work in the stokehold. In an interview with a reporter Thompson mentioned that "I watched the gauges, and they were always getting higher, showing that we were increasing our speed all the time." He also said that on Sunday "the engineers got two more boilers working and the speed was increased." Thompson went on to say that they were carrying 215 pounds (per square inch) of steam pressure in the boilers all day Sunday, and that "a bulletin was posted in the hole at 3 o'clock Sunday afternoon which stated that we were making seventy-seven revolutions a minute." He also remarked, "I was told the ship was making close to twenty-three knots when she hit." Fireman John Thompson was on duty during the noon to 4 p.m. watch that Sunday afternoon.

It has also been reported that Fireman George Kemish told author Walter Lord that an order was received for 23 knots before the collision, and that they were making about that at the time of the collision. This agrees with what John Thompson said he had heard. However, firemen are told about the firing rate and the revolutions that are being asked for. They have no control over the speed of the ship. If they heard anything about the speed it would come from an engineer. But the engineers did not measure speed. That was done by the deck officers and quartermasters based on the measured distance run over a given time interval when carrying a certain number of revolutions. It was the type of work the Fifth Officer Lowe was involved with when working on his slip table. If an engineer knew anything about the speed of the ship, it was either a guess or something reported to them from the junior officer calling down to get the revolutions at the beginning of a watch.

Some indirect implications about the speed of the ship comes from observations of the steam pressure being carried in *Titanic's* boilers. Trimmer William McIntyre mentioned that he noticed 220 pounds per square inch on the steam pressure gauges at the time of the crash. He also mentioned: "From the time we left Queenstown we went the limit. It was hard work down there, firing, and I went through the engine room at 11:40 to relieve my man to let him get extra sleep...I had just reached the engine room when we ran into the iceberg. I looked at the gauges and remarked to one of the other men, 'Keeping up the old speed, are you?' 'Yes, we are,' he said, 'and we are trying to put on more.'"

There is also testimonial evidence of increased boiler pressures late Sunday night from Trimmer George Cavell who was working in Stokehold No. 6 at the aft end of Boiler Room No. 4 when the crash came. He started work at 8 p.m. and was lucky to come out of his bunker alive after the coal around him caved in from the shock of the collision. Cavell said he noticed, "225 pounds of steam...by the gauge...alongside the boiler...just before I went into the bunker." When he was asked about the pressure at any other time during the trip he said that they "had orders to keep 200 pounds of steam" before that time.²⁵

From what we have just seen, it appears that *Titanic* was carrying between 220 and 225 lbs of steam pressure in her boilers late Sunday night. The high pressure cylinders of the reciprocating engines were designed to take steam at a nominal working pressure of 215 lbs per square inch for 75 rpm.²⁶ A ten pound increase in steam pressure from 215 to 225 would result in increasing the work done by the engines by almost

²⁴ British inquiry, 5806.

²⁵ British inquiry, 4383-4397.

²⁶ From the chapter on "The Propelling Machinery," in *The Shipbuilder*, Summer 1911 Souvenir Number.

5%, and theoretically result in an increase in revolutions of about 2%.²⁷ However, it is the steam pressure delivered at the input to the high pressure cylinder that determines engine performance, not necessarily the pressure at the boiler output. Some loss in the steam supply line could be expected, especially from a boiler located a good distance away from the engine room.

A Few Perceptive Passengers

Some other indirect evidence of *Titanic* running at a high rate of speed late Sunday night comes from the following observations of several *Titanic* passengers:

Mrs. Mahala D. Douglas (in an affidavit submitted to the US inquiry) – “As we went to our stateroom - C-86 - we both remarked that the boat was going faster than she ever had. The vibration as one passed the stairway in the center [just aft of the engine room casing] was very noticeable.”

Mr. C. E. Henry Stengel (in testimony before the US inquiry) – “I called my wife's attention to the fact that the engines were running very fast. That was when I retired, about 10 o'clock. I could hear the engines running when I retired, and I noticed that the engines were running fast. I said I noticed that they were running faster than at any other time during the trip.”²⁸

Mr. Lawrence Beesley (from his book, *The Loss of the SS Titanic*) – “After undressing and climbing into the top berth, I read from about quarter-past eleven to the time we struck, about a quarter to twelve. During this time I noticed particularly the increased vibration of the ship, and assumed that we were going at a higher speed than at any other time since we sailed from Queenstown.”

Mr. George Rheims (from his deposition at the Limitation of Liability Hearings in NY, November 1913) – “I was in the smoking room with my brother-in-law, Joseph Loring, who was lost, and we were trying to figure on the speed of the boat to see what the run would be the next day; then the steward who I think they called the Commodore Steward, because I think he is the oldest steward, came up to us and said, ‘Gentlemen, - we might figure on a bigger run.’ and we said, ‘Why?’, and he answered ‘Because we are making faster speed than we were yesterday.’ My brother-in-law said ‘That don’t mean anything.’ He said, ‘Gentlemen, come out and see for yourself.’ He said, ‘You notice that the vibration of the boat is much greater tonight than it has ever been.’ We went out in the passage hallway right outside of the smoking room and we stood there and he said ‘Now you will notice the vibration.’ and we did notice the vibration, which was very strong that night, and my brother-in-law, whose stateroom was right underneath the passage, said: ‘I never noticed this vibration before; we are evidently making very good speed.’”

From all the available evidence, direct and indirect, it is very apparent that *Titanic* was traveling at a relatively high rate of speed late Sunday night. However, it should be noted that observations of increased vibration from the engines does not prove that the number of engine revolutions had actually increased. This could easily have been a case of the two reciprocating engines achieving a point of resonance in their rotational speed while the ship was traveling through very calm waters.

²⁷ The thrust delivered by the propellers goes up as the square of the speed, while the power required goes up as the cube of the speed. Power is a measure of energy used per unit of time.

²⁸ It should also be noted that Henry Stengel also mentioned that between 1 and 2 o'clock Sunday afternoon, a report came from the engine room that the engines were turning three revolutions faster than at any time on the voyage. This would be consistent with the revolutions going up from about 72 to about 75 rpm.

From all the indications that we have available to us, it seems that *Titanic* was making between 75 and 76 revolutions most of the time Sunday afternoon. This would drive the ship at about 22.3 knots through the water; a speed consistent with the taffrail log reading taken by QM George Rowe at 11:40 p.m.²⁹

Just how fast could *Titanic* go without those single-ended boilers added on? As we have noted before, *Olympic* at one point during her maiden voyage was run up to 79 and 81 revolutions on her reciprocating engines without any of her single-ended boilers connected up. And we know that *Titanic*'s sister ship made about 22.8 knots when running at 79 revolutions.³⁰ And we also know from Ismay that it was planned to increase *Titanic*'s revolutions to 78 in a trial run on Monday afternoon or Tuesday if conditions allowed. Since we know that all double-ended boilers were connected up by 7 p.m. Sunday night, it seems that Monday would have been the day for that trial run if it were not for an encounter with an iceberg changing all that. At 78-79 rpm, *Titanic* was expected to reach about 23 knots through the water. If they worked up to 80 rpm, a speed of about 23.4 knots could be expected. Unfortunately, the chance to find out never came.

“We Did Not Want to Burn Any More Coal”

Did *Titanic* have enough coal on board to run her at high speed? The answer is yes. Despite a coal strike that affected other White Star Line ships at that time, there was no shortage of coal on board *Titanic* during her maiden voyage.

Mr. ISMAY. She had about 6,000 tons of coal leaving Southampton.

Senator PERKINS. Sufficient to make the voyage to New York and return to Southampton?

Mr. ISMAY. No; but sufficient coal to enable her to reach New York, with about two days spare consumption.

To judge from the available evidence, Ismay's testimony seems to be entirely accurate. *Titanic* actually had 5,892 tons of coal on board when leaving Southampton,³¹ a number which represents 89 percent of her total bunker capacity (excluding the reserve coalbunker) of 6,611 tons.³² We also know that *Olympic* consumed a total of 3,540 tons of coal during her maiden voyage the year before, arriving in New York with more than 1,300 tons of coal to spare.³³

Ismay's testimony in America is particularly interesting because it would have been in Ismay's interest to say if *Titanic* was actually short of coal. After all, with charges being laid that the liner was steaming too fast prior to the collision, those charges could have been countered with the information that coal was in short supply. This would have the influence of downplaying the perception of the ship's high speed.

Part of the belief in a coal shortage seems to stem from testimony of *Titanic*'s officers, including some exchanges with Third Officer Pitman:

²⁹ Some people have claimed that taffrail log readings may not give an accurate measure of the distance run. However, Rowe's reported 260 miles is very close to the 258 mile distance-made-good that *Titanic* would have traveled from her noontime location to the wreck site over the known route of travel. It therefore seems that *Titanic*'s taffrail log was working quite well.

³⁰ Duncan Haws, *Merchant Fleets: White Star Line*.

³¹ From reports filed with the BOT Surveyor's Office in Dublin, *Titanic* was loaded with 5,892 tons of coal before leaving Southampton on April 10, 1912.

³² Although it has been claimed (David G. Brown, *The Last Log of Titanic*, McGraw-Hill, 2000, page 15) that "the bunkers had been less than half full due to a coal strike," this is not the case. Since 5,892 tons were available, *Titanic*'s coal capacity would have needed to be at least 11,785 tons for the statement to be true. In fact, even allowing for the reserve bunker and several hundred tons on the stokehold plates, it did not come remotely close.

³³ Mark Chirnside. *RMS Olympic: Titanic's Sister*. Tempus Publishing; 2004. Page 75.

“Were you trying to reach 24 knots?” Senator Smith asked.

“No; we had to study the coal. We had not the coal to do it,” Pitman replied.

This is usually taken to mean that there would be no attempt to maintain maximum speed for the remainder of the crossing due to a lack of coal. However, Pitman later explained in more detail his understanding.

“I understood we had not quite sufficient; there was not sufficient there on board to drive here on at full speed,” he said to Senator Fletcher.

Pitman stated he had heard that from an Engineer. However, Senator Fletcher asked when referring to the speed on Sunday:

“You were told, you say, by the Engineer, that you did not have enough coal to go at a faster rate of speed than that?”

“He remarked,” Pitman replied, “**we had not sufficient coal on board to drive her full speed all the way across** [authors’ emphasis].”

Pitman’s last remark does appear to be an important detail, for we know that *Titanic* was not being driven at full speed for the first few days of her maiden voyage, and despite her increasing speed the day before the collision, there were still a number of boilers that were not being used. It was only several hours before the collision that additional double-ended boilers had been connected up to the steam supply lines, and the firemen were told to ease down the firing rate.

If we take the highest estimates for *Titanic*’s fuel consumption and then suppose that she was being driven at full speed right from the time she left Queenstown, then Pitman’s comments would be correct as far as implying a shortage of coal on board. However, as we have seen, Pitman was referring to the hypothetical that *Titanic* would be driven at full speed *throughout* the entire maiden voyage, which was certainly not the case.

Second Officer Lightoller also maintained that there was a shortage of coal, stating that a number of boilers were off:

14362. I do not suggest that you wanted to make a record passage on this occasion, but had not you all in mind the desirability of making a very good first trip, from the speed point of view? - No, I am afraid not, because we know that in the White Star, particularly the first voyages - in fact you may say pretty well for the first 12 months - the ship never attains her full speed.

14363. Were not you on this occasion taking as much speed as you could get out of *Titanic*? - Oh, no, not at all; I am under the impression she was under a very reduced speed compared with what she was capable of doing.

14364. What maximum speed do you think you could have attained? - Well, just as a matter of hearsay, or rather, what we estimated roughly, for instance myself, I judged that the ship would eventually do about 24 knots.

14365. Did you say yesterday that you were going at as high a speed as you could in view of the coal you had on board? - Did I say so yesterday?

14366. Yes? - I was not on the stand yesterday.

The Solicitor-General: Yes, you were.

14367. [Mr. Scanlan.] You were being examined yesterday? - Oh, yes; I beg your pardon. Not only with regard to shortage of coal, but I understand several boilers were off.

14368. Do you know any reason for those boilers being off? - Merely that there was no wish for the ship to travel at any great speed.

Lightoller's adversarial exchanges with Scanlan became famous, as Scanlan sought to demonstrate that *Titanic's* officers had been reckless in maintaining a high speed prior to the accident. As the senior surviving officer, unfortunately for him, Lightoller had to defend his actions and those of his dead colleagues. Lightoller may have played down the ship's speed in his testimony, and his allusion to a "shortage of coal" certainly did his case no harm in terms of trying to make the argument that *Titanic* was not being pushed on the maiden voyage. In light of the coal strike early in 1912, it certainly sounded plausible. Whether Lightoller was unaware of the amount of coal onboard is a matter for debate, for his belief that there was a "shortage of coal" certainly does not fit with the known statistical evidence.

Ismay's testimony before Lord Mersey at the British inquiry is also very interesting, for he described a conversation he had with Chief Engineer Bell at Queenstown:

18387. With whom would you discuss this question of driving her at full speed on the Monday or Tuesday? - The only man I spoke in regard to it was the Chief Engineer in my room when the ship was in Queenstown.

18388. Is that Mr. Bell? - Yes.

18389. The Chief Engineer? - Yes.

18390. Can you tell me on what day it was that she first made the 75 revolutions on this voyage? - I think it would be on the Saturday.

18391. And when was it that you discussed the question of putting her at full speed on the Monday or Tuesday? - On the Thursday when the ship was at anchor in Queenstown Harbour.

18392. Will you explain that. It is not quite clear why you should discuss the question in Queenstown? - The reason why we discussed it at Queenstown was this, that Mr. Bell came into my room; I wanted to know how much coal we had on board the ship, because the ship left after the coal strike was on, and he told me. I then spoke to him about the ship and I said it was not possible for the ship to arrive in New York on Tuesday. **Therefore there is no object in pushing her. We will arrive there at 5 o'clock on the Wednesday morning, and it will be good landing for the passengers in New York, and we shall also be able to economise our coal. We did not want to burn any more coal than we needed** [authors' emphasis].

In spite of his testimony in America, Ismay seemed to imply that there was a shortage of coal on board when questioned before Lord Mersey. Although he knew that there was plenty of coal onboard, he implied in his testimony before Lord Mersey that they wanted to economize on coal and stated that it would not have been possible for *Titanic* to arrive in New York on the Tuesday, and by that he meant arrival at the Ambrose Channel Lightship.³⁴ However, this was not the case. *Titanic* was perfectly capable of arriving early – barring any unforeseen accident.³⁵

It is possible to make some estimates, using figures provided by Harold Sanderson into *Olympic's* coal consumption for twenty-four hour periods at various speeds.³⁶ Although Sanderson's figures date from 1915, they seem to match the originally anticipated coal consumption of *Olympic*. As we have seen, *Olympic* burned significantly less coal than anticipated over the course of her maiden voyage, and this seems to hold true for other voyages in 1911 as well.³⁷ Sanderson's figures can therefore be taken as a *worst case* scenario for coal

³⁴ Question 18653. "Did you fix with him the time it was suitable to arrive?" – [Ismay] "I told him I thought we should arrive at the Ambrose lightship about 5 o'clock on Wednesday morning."

³⁵ Mark Chirnside and Sam Halpern, "*Olympic and Titanic: Maiden Voyage Mysteries*," *Journal of Titanic International Society, Voyage*, Spring 2007, p. 123. Also posted as a research paper on Encyclopedia Titanica at: <http://www.encyclopedia-titanica.org/item/5540/>.

³⁶ For a more complete explanation and table of data, see appendix 11 in Mark Chirnside's: *The 'Olympic' Class Ships: Olympic, Titanic & Britannic*, Tempus Publishing; 2004. Written in 2001, the appendix itself provides a detailed analysis of the various issues of coal consumption, supply and a number of hypothetical calculations.

³⁷ In fact, on her second westbound crossing *Olympic* averaged 21.72 knots and consumed approximately 650 tons of coal each day, which was less than the original expectation that she would consume 710 tons at 21 knots.

consumption, and may significantly overstate the amount of coal that was likely to be consumed. Using the known mileages and average speeds for the successful part of *Titanic*'s maiden voyage, and using a potentially high value of 23 knots between the collision site and New York's Ambrose Channel Lightship, it seems that *Titanic* would have arrived in New York with close to 1,000 tons of coal left over, or a little more than a day and a half consumption at the average crossing rate she made from Queenstown to the collision point of 21.44 knots.

In a 1997 Marine Forensics Panel report,³⁸ evidence from the wreck itself appears to confirm that coal was plentiful:

“The amount of coal distributed around the debris field is testimony to the fact that there was plenty of coal in boiler room 1 and the adjoining bunkers on either side of the bulkhead between this boiler room and boiler room number 2. These two spaces were the only boiler rooms which could yield coal in the amount found in the debris field. The coal in other boiler rooms would have stayed with the ship.”

With two days of spare consumption, according to Ismay's testimony, plus all of the comparative data available from *Olympic*, we have a very good knowledge of *Titanic*'s coal supply and the amount of coal that she was likely to consume over the course of the maiden voyage. As the engine revolutions were gradually worked up, plenty of coal was available to increase speed considerably as *Titanic* neared New York. The amount of coal on board was never really an issue and played no part in the increase in speed that took place during *Titanic*'s ill fated maiden voyage, other than ensuring that the ship's speed could be increased without worrying about running short of coal.

“We Will Beat the *Olympic*”

So why was the speed of *Titanic* her highest ever Sunday night knowing full well that the ship was entering a region of ice? There are really two parts to that answer. The first had to do with intent. The second had to do with practice and a concern. The intent was for *Titanic* to better *Olympic*'s maiden voyage crossing time. The practice was not to slow down or change course until a clear and present danger was seen. So let us first explore the issue of intent.

By 11:40 p.m. on April 14 *Titanic* had already averaged 21.44 knots, which already matched the overall average crossing speed of *Olympic* in June 1911. As we have seen, *Titanic* was averaging over 22 knots since noon Saturday, and was well on her way to beating *Olympic*'s maiden voyage performance. But is there some direct evidence of such an intent?³⁹

First class passenger Elisabeth Lines provided some very interesting information in this regard. She had boarded *Titanic* at Cherbourg with her seventeen-year-old daughter, enjoying an outside cabin forward of the reception room on D-deck. Shortly after lunch, around 1:30 p.m. on Saturday, April 13, 1912, she stopped for coffee in the first class reception room, or “lounge” as she always called it, selecting a table near the forward port corner of the elegant room near the outer side of the ship. Shortly after she had sat down, Bruce Ismay and Captain Smith entered and sat at a table in the corner near to her – in fact, the same table and settee that she had noticed them sitting at on Friday, the day before. She recognized Bruce Ismay from when she had lived in New York some years earlier, and had confirmed his identity with a Steward. The two men were to talk for “at least two hours” she later recalled. At the 1913 limitation of liability hearings following *Titanic*'s sinking she was questioned about what they had spoken about:

³⁸ Cited by Mark Chirnside, with kind permission of William Garzke, in: *The 'Olympic' Class Ships: Olympic, Titanic & Britannic*. Tempus Publishing; 2004. Page 331.

³⁹ For a more detailed look into the supportive evidence see: George Behe, *Titanic Safety, Speed and Sacrifice*, Transportation Trails, 1997, Chapter I.

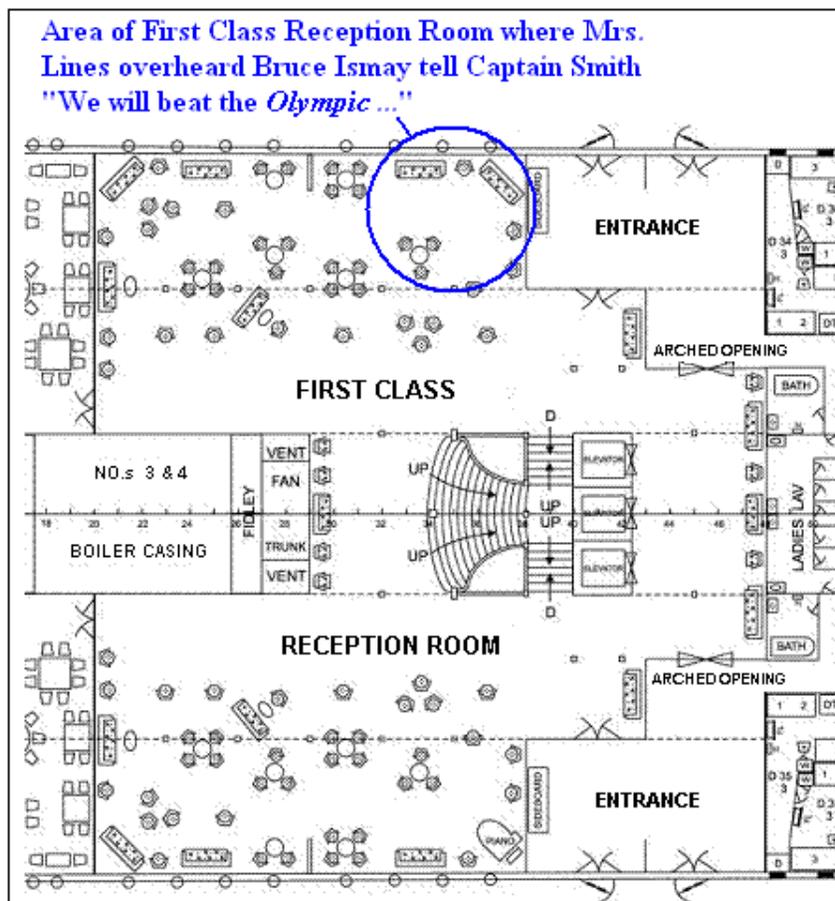
Q: Are you able to state from your recollection the words that you heard spoken between Mr. Ismay and Captain Smith on that occasion?

A: We had had a very good [day's] run. At first I did not pay any attention to what they were saying, they were simply talking and I was occupied, and then my attention was arrested by hearing the day's run discussed, which I already knew had been a very good one in the preceding twenty-four hours, and I heard Mr. Ismay – it was Mr. Ismay who did the talking – I heard him give the length of the run, and I heard him say “Well, we did better today than we did yesterday, we made a better run today than we did yesterday, we will make a better run tomorrow. Things are working smoothly, the machinery is bearing the test, the boilers are working well.” They went on discussing it, and then I heard him make the statement: “We will beat the *Olympic* and get into New York on Tuesday.”

Asked to clarify, she said that she heard Ismay's statement given “in those words.” She described that she had not heard Captain Smith speak at all, although she noted him nodding in agreement. She said that the tone and gesture of Mr. Ismay “was very positive, one might almost say dictatorial. He asked no questions.”

There was “a great deal of repetition” during the conversation, Mrs. Lines recalled, while she noticed that Bruce Ismay appeared very pleased with *Titanic's* performance with respect to *Olympic's* maiden voyage performance. When she was asked about the substance of the conversation as regards *Olympic*, she said that “it was comparison, and that *Titanic* was doing equally well, and they seemed to think a little more pressure could be put on the boilers and the speed increased so that the maiden trip of *Titanic* would exceed the maiden trip of the *Olympic* in speed.”

Eventually Mrs. Lines heard Bruce Ismay remarking: “Come on, Captain, we will get somebody and go down to the squash courts.”



It is quite clear from Mrs. Lines' statements that Bruce Ismay had indeed voiced a desire to Captain Smith that *Titanic's* maiden voyage should be faster than her sister's, with the new ship arriving in New York on Tuesday. Indeed, *Titanic's* 546 mile run from noon Saturday to noon Sunday would be her best posted performance, only two miles shy of *Olympic's* best ever maiden voyage daily run, and she did that with only 21 of her 24 double-ended boilers connected up.

There is no evidence that gives us any reason to doubt Mrs. Lines' veracity. Her recollection of the conversation was between Ismay and Smith was very clear and consistent. Unlike other passengers, she did not lose any relatives in the disaster, and it is not known that she even filed an insurance claim.⁴⁰ However, there are some interesting points from her account. The first seems to be that she already believed that *Titanic's* just-completed Friday-to-Saturday 519 mile run had been "a very good one." In fact, it fell slightly behind *Olympic's* second day's run of 534 miles. Apparently, Mrs. Lines was merely comparing the posted number for *Titanic's* second day's run of 519 miles with the first day's figure of 484 miles.

Would Ismay have been very pleased with the second day's run? *Titanic's* first day's run certainly compared well with her sister's. *Olympic* had run 428 miles at an average of 20.46 knots, whereas *Titanic* (over a longer time period) ran 484 miles at a higher average speed of 20.98 knots. *Olympic's* second day's run of 534 miles averaged 21.46 knots, yet by comparison *Titanic's* run of 519 miles averaged 20.91 knots. Although revolutions were increased, an easterly current set of about half-a-knot seems to have retarded her distance made good somewhat even as her speed through the water increased. Ismay may not have been aware of the slight reduction in ground speed. (As we shall see, his comments to Mrs. Ryerson indicate that his perception of the average speed required to attain a certain number of miles was rather inaccurate, as he underestimated the ship's speed by more than a knot.) That being the case, he may have felt that *Titanic* was certainly running about equal with her sister that Saturday, and indeed she was. Ismay knew that not all of *Titanic's* double-ended boilers had been lit yet, and that the increased pitch of her wing propellers (compared to the original pitch on the propellers carried on *Olympic's* maiden voyage) and the slightly larger center propeller would have made *Titanic* a little more efficient. At the limitation of liability hearings he admitted that *Titanic* was expected to be a little faster than *Olympic*. As he put it, "She was, I think about one-eighth to a quarter knot better."⁴¹

So Ismay had considerable reason to be optimistic. It may be that *Titanic* was using fewer boilers (and carrying fewer revolutions) than *Olympic* to maintain a similar speed, thereby giving Ismay considerable reason for optimism, yet it is unfortunate we do not have any specific figures from *Olympic's* early days to confirm or refute this possibility. We need to recall that Lines remembered the comparison with *Olympic* was "that *Titanic* was doing equally well, and they seemed to think a little more pressure could be put on the boilers and the speed increased so that the maiden trip of *Titanic* would exceed the maiden trip of the *Olympic* in speed."

Ismay's optimism was rewarded the very next day. *Titanic's* third day's run of 546 miles at 22.06 knots bested *Olympic's* third day's run of 542 miles at 21.88 knots. By the time of the collision, she was well on course to do at least as well as her previous day's run of 546 miles, and if revolutions were increased as planned on Monday, she would have beat *Olympic's* highest daily run of 548 miles of her maiden voyage.

Can we be positive that the gentlemen that Mrs. Lines overheard were, indeed, Captain Smith and Bruce Ismay? It is necessary to recall that many of the people onboard *Titanic* would not have known many of their fellow passengers or crew personally, or by name, and so this question is of importance.

Mrs. Lines had lived in New York twenty years previously and knew Mr. Ismay by sight at that time, having seen him in passing at his New York residence. She recognized Ismay when he came on board *Titanic* and confirmed his identity with her table steward. As for recognizing Captain Smith, Mrs. Lines had never seen *Titanic's* master before but deduced his identity by his position at the Captain's table. As with Ismay, Mrs. Lines confirmed Smith's identity with her table steward.

⁴⁰ In conversation with *Titanic* historian Don Lynch, the wife of Mrs. Lines' grandson said that it was not in Mrs. Lines' character to have made up her testimony. The evidence that survives as to her character seems to indicate that of an entirely sincere and honest lady.

⁴¹ The only significant difference between the propelling machinery of *Olympic* and *Titanic* by April of 1912 was the diameter of *Titanic's* center propeller which was 17 feet 0 inches compared to *Olympic's* 16 feet 6 inches.

When questioned under cross examination by Mr. Henry Duke, counsel for the Petitioner, to describe the personal appearance of Captain Smith, her immediate response was: "I do not think I can. He had a fine face and a white beard." She was then pressed about such things as Smith's and Ismay's facial details, drinking and smoking habits, how they were dressed, and other such items. It was then that she became somewhat defensive and uncertain about their physical appearance, and said:

"It made very little impression upon me. If I had known that I would have so many questions to answer I should certainly have paid more attention...I was interested in hearing the discussion of the ship's run...It was the only thing that brought the matter to my attention. I was going to my own country and I was interested in it, I was interested in hearing of the run of the preceding [sic] day, and I was also impressed, rather, with the manner of the conversation."

Mrs. Lines was able to confirm that Ismay "was in ordinary clothes" and "Captain Smith was in uniform," and also confirmed that the steward brought over coffee, cigars and liqueurs, as was customary to do on a steamship. It is questionable as to how much specific attention she would have paid as to who was drinking what since it was the content of their conversation that really captured her interest. It may have been that she had assumed that both were drinking liqueurs since that was put down on their table along with coffee and cigars. By her own admission, she only became interested when her attention was drawn to the discussion about the ship's progress. But the important thing here is that Mrs. Lines had confirmed the identities of both men with her steward. The human memory is not infallible and this has to be borne in mind with all eyewitness accounts. Having confirmed the identities of the two men with her steward, there was no need for her to recall such details as the particular cut of Smith's beard. She was – in her own words – "interested in hearing the discussion of the ship's run" and "it was the only thing that brought the matter to my attention."

Ismay flatly denied having such a conversation with Captain Smith in the reception room or anywhere else. Although he also said that he knew that the ship had been doing "very well," he stated that "I have no knowledge at all with regard to the speed of the ship," and that he "had no knowledge at all as to what was being done down below." Although these statements can be considered literally true, they are also misleading. In 1915, Jack Thayer recalled that he and his father were constantly in the company of Bruce Ismay during the first few days of the voyage and on the Sunday, April 14, they spoke to Ismay about the ship's speed and when they might expect to arrive in New York. Ismay told them that *Titanic's* speed was to be increased soon and remarked that "two more boilers are to be opened up today." Thayer's testimony on the subject at the limitation of liability proceedings was subsequently reported in the press. As we have seen, those boilers were lit that morning and connected up at 7 p.m. that evening.

Mrs. Emily Maria Ryerson had boarded *Titanic* at Cherbourg and was traveling with her husband, three children, her maid Miss Victorine Chaudanson, and her son's governess Miss Grace Scott Bowen. Around 5 or 6 p.m., after spending much of the Sunday afternoon in her cabin, she went up on deck with her friend Mrs. John Thayer who had invited her for a walk. About 6 p.m., with the sky quite pink, they sat down by the companionway on A-deck. It was getting very cold outside as the ship by now was coming under the influence of the cold Labrador current.⁴² Bruce Ismay approached the two ladies asking Mrs. Ryerson if her staterooms were comfortable. She had been told by her husband that Ismay had kindly offered them an extra stateroom and steward, and his gesture was no doubt appreciated.

"We are in among the icebergs," he commented, showing her an ice warning received by wireless from the steamship *Baltic* that was given to him earlier by Captain Smith.⁴³ He also told her: "We are not going very

⁴² Sunset for those on *Titanic* on April 14, 1912 came at 6:52 p.m. ship's time, about an hour after the ship turned the corner point.

⁴³ The complete message from the wireless log (called a *procès-verbal*) of *Baltic* read: "Captain Smith, 'Titanic.' - Have had moderate, variable winds and clear, fine weather since leaving. Greek steamer 'Athenai' reports passing icebergs and large quantities of field ice to-day in lat. 41° 51' N., long. 49° 52' W. Last night we spoke German oiltank steamer 'Deutschland,' 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."

fast, 20 or 21 knots, but we are going to start up some extra boilers this evening.”⁴⁴ She thought it may have been two or three, but she wouldn’t swear to that.

Emily Ryerson had noticed the word *Deutschland* on the telegram and asked Ismay about it. Ismay explained: “It is the *Deutschland* wanting a tow, not under control.” Mrs. Ryerson remembered asking: “What are you going to do about that?” Ismay replied that they were going to do nothing about the *Deutschland*, yet gave her the distinct impression that *Titanic*’s performance would surprise everybody. In her deposition at the limitation of liability hearings she recalled: “I can’t remember his exact words; I am only giving the impression left on my mind, that we are going to get in [earlier than expected] and surprise everybody. I don’t know whether he used the word ‘record’ but it was left on my mind, that we had no time to delay aiding other steamers.” Mrs. Ryerson also recalled a discussion about the ship’s arrival time in New York, saying: “my impression was that it would be very late Tuesday night, or early Wednesday morning, because I discussed it with my husband after I went down stairs and the question was what we would do if we got in so very late.”

If Ismay had used the word “record” in that conversation with Mrs. Ryerson it certainly had nothing to do with wresting the Blue Riband from Cunard’s *Mauretania*.⁴⁵ If anything, it would have been a reference to setting a maiden voyage crossing record for a ship of the White Star Line. If *Titanic* would arrive off Ambrose at anytime before midnight on Tuesday, April 16, she would easily have logged the best maiden voyage crossing time of any previous White Star Line vessel, something that would not go unnoticed by the press.

Mrs. Ryerson talked to others about that ice warning and the conversation she had with Ismay while she was returning to New York on *Carpathia*. In an affidavit submitted to the American inquiry and dated May 2, 1912, Mrs. Mahala Douglas wrote:

We heard many stories of the rescue from many sources. These I tried to keep in my mind clearly, as they seemed important. Among them I will quote Mrs. Ryerson, of Philadelphia. This story was told in the presence of Mrs. Meyers, of New York, and others.

(Mrs. Ryerson speaking.) “Sunday afternoon Mr. Ismay, whom I know very slightly, passed me on the deck. He showed me, in his brusque manner, a Marconigram, saying, “We have just had news that we are in the icebergs.” “Of course, you will slow down,” I said. “Oh, no”; he replied, “we will put on more boilers and get out of it.”

The fact that Ismay was even given this message by Captain Smith clearly shows that Ismay was kept well informed about important matters, including those dealing with the navigation of the vessel. A message from the commander from one vessel to the commander of another concerning navigational matters, referred to as a Master Service Message, was given the highest priority by the wireless operators. It was noted in the wireless log of *Baltic* that this message was sent to Captain Smith of *Titanic* at 11:52 a.m. New York time on April 14. Time on *Titanic* was about 2 hours ahead of time in New York.

At the British inquiry, Ismay would testify that he looked upon himself as “simply as an ordinary passenger” while on board. When suggested that he was not there as just an ordinary passenger, he said “So far as the navigation of the ship was concerned, yes [just an ordinary passenger].” They then began to ask him about the ice message from *Baltic*. He said that the message was handed to him by Captain Smith just before he went to lunch. When questioned about what time that would be, Ismay said: “I should think it would be somewhere about 20 minutes past one. No, I am wrong; I think it would be about 10 minutes to one.” This did not go well with the Attorney-General who knew that the Marconigram was first transmitted to *Titanic* “somewhere near 2 o’clock” ship’s time and told Ismay that at the American inquiry he had testified: “It is very difficult to place the time. I do not know whether it was in the afternoon or immediately before lunch. I am not certain.” Ismay’s reply to this challenge was that “I know it was immediately before we had lunch, and now

⁴⁴ Ismay’s account is curious, since the previous day’s run worked out to an average of over 22 knots over the ground. Presumably he had noted the day’s run of 546 miles, yet if he had calculated the average speed for himself then he had not been very accurate in doing so. Ismay’s denial as to his own knowledge as to the ship’s speed in knots may have been largely true in that regard.

⁴⁵ *Mauretania* captured the Blue Riband of the North Atlantic Westbound in September 1909 after making the 2784 mile crossing from Queenstown to New York in 4 days, 10 hours, and 51 minutes for an average speed of 26.06 knots.

when I come to think of it, when we go west, we have lunch at 1 o'clock, and coming east we have lunch at half-past one, so that it must have been half-past one when he handed me the Marconigram. That is to the best of my knowledge and belief." When the Attorney-General then suggested that what he (Ismay) said in America was more accurate, that he was not certain whether it was in the afternoon or immediately before lunch, Ismay held firm saying: "I am practically certain it was before lunch...It was the hour of lunch I was trying to fix the time by."

As we have seen from the deposition of Elisabeth Lines, she usually went to the reception room immediately after lunch to have her coffee. She estimated it would be about 1:30, a time that would be consistent with Ismay's recollection that going westward they would have lunch at 1 o'clock. Unless Ismay was going to lunch about an hour late that Sunday, it would be impossible for that message to be in his hands as early as 1:30 because the earliest it could have been in Captain Smith's hands would be close to 2 o'clock on *Titanic*. And strangely, Captain Smith did not send a reply to *Baltic* confirming that he had seen the message until almost an hour later.⁴⁶

Ismay testified that nothing was said about the message when it was handed to him by Captain Smith. There were other passengers about and he said nothing to them about it. He just "glanced at it very casually" and put it in his pocket and went down to lunch. When asked if he lunched alone, his reply was, "Absolutely."

At the limitation of liability hearings in 1914 Ismay said he received the message from Captain Smith while on one of the passenger decks:

"I should think about 1:30...Yes, just before we went down to lunch...I glanced at it and put it in my pocket...I think Mr. and Mrs. Widener were there...I do not think the telegram made very much impression on me with regard to the ice; what I was more impressed about was the steamer being broken down."

Again we see Ismay's belief that he was handed that message *before* he went to lunch. However, what is most interesting is that he said he was more impressed about the broken down steamer that was not under control, the *Deutschland*, and was not impressed at all by the presence of ice ahead of them. Why would that be? Could Ismay have already known that ice lay ahead and that they would be up to the ice later that night?

At the limitation of liability hearings Ismay was asked if he knew that they were approaching the region of ice Sunday night, and did that come from the Marconigram handed to him earlier by Captain Smith. Ismay said he presumed they would be up to the ice sometime during the night but not because of the information in that Marconigram. He said "I think it is from a remark that Dr. O'Loughlin made to me. He told me that we were about turning the corner."

The "corner" Ismay referred to is at 42° N, 47° W. We know from surviving officers Boxhall and Pitman that *Titanic* turned the corner at 5:50 p.m. that Sunday. Ismay said he had dinner with Dr. O'Loughlin in the ship's restaurant "somewhere about half past 7, between quarter past and half past, I think it was...I do not think I was in the restaurant three-quarters of an hour." Yet, when he met Mrs. Ryerson earlier on the enclosed part of A-deck sometime around 6 p.m., about the time the ship actually turned the corner, he told her (according to Ryerson) that "We are in among the icebergs."

So it seems that Ismay obviously knew well before dinner time that they would be up to the ice that night. It was already getting very cold outside, and the ship had already turned the corner and was heading almost due west. And if he was not impressed by the information in the message about ice when it was first handed to him, then could it be that he viewed that information given to him by Captain Smith at that time as confirming what he and Captain Smith already knew and discussed beforehand?

A little after 9 a.m. on the morning of April 14 *Titanic* received a wireless message from *Caronia* warning of the presence of icebergs and field ice ahead.⁴⁷ This Master Service Message was acknowledged by

⁴⁶ From the wireless log of *Baltic*: "14th April. 'Baltic' Office. Received from 'Titanic' 12.55 p.m. To Commander 'Baltic.' Thanks for your message and good wishes; had fine weather since leaving. - Smith."

⁴⁷ The message was sent at 7:10 a.m. New York time. It read: "Captain, 'Titanic.' West-bound steamers report bergs, growlers, and field ice in 42 degrees N., from 49 to 51 W. April 12. Compliments. Barr."

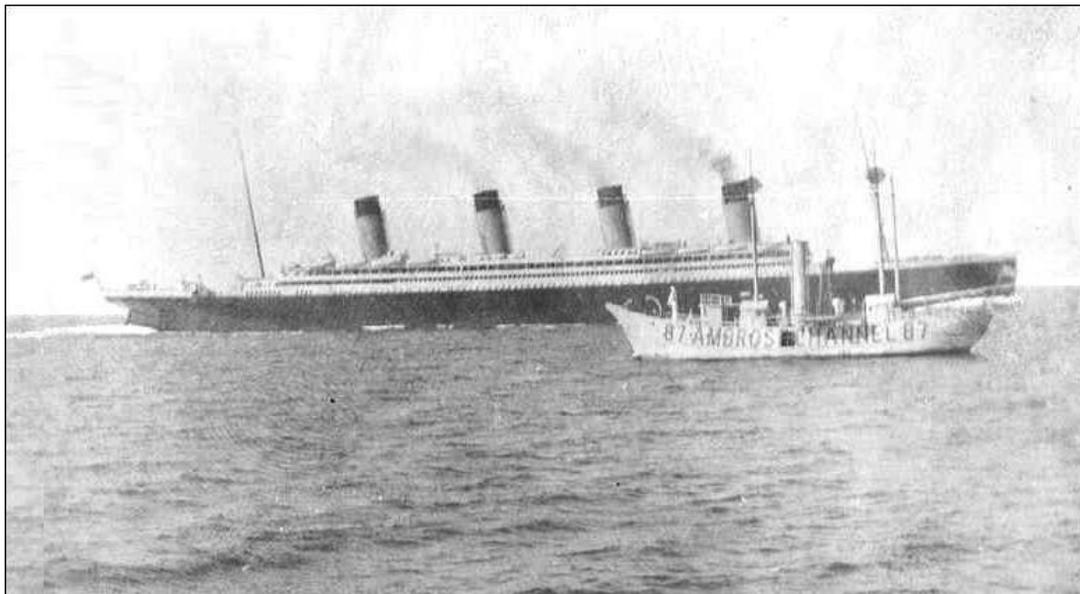
Captain Smith.⁴⁸ It is also the message that Captain Smith showed to Second Officer Charles Lightoller at about 12:45 p.m. while Lightoller was relieving First Officer Murdoch for lunch. Smith was holding it in his hands and told Lightoller to “read it.”

Did Smith also advise Ismay of this first ice message sometime after it was received that morning? We have no record that he did. But it is entirely plausible that Ismay may have received this information from Smith sometime before 1 p.m., before lunchtime, and the implications of that *Caronia* message discussed between the two of them. We can only speculate about this. But if that is what happened, then Ismay’s reaction of not being impressed about the mentioning of ice in the *Baltic* message later on makes perfect sense. Not only would he not have been alarmed by the ice report, he would have already known what Captain Smith was planning to do about it. And that knowledge is what may have led him to respond the way he did to Mrs. Ryerson’s questions.

A great deal of talk had taken place among the passengers as to how well the ship was progressing after *Titanic*’s 546 mile run had been posted on Sunday. “We were told that the next twenty-four hours would see even a better record made,” first class passenger Colonel Archibald Gracie later wrote.⁴⁹ He also wrote that despite wireless messages received advising the officers of the presence of icebergs and ice-floes, “no diminution of speed was indicated and the engines kept up their steady running.” Other passengers, as we have seen, concluded that night that the ship was making a better speed than at any other time during the voyage.

Is there any reason to doubt that Ismay felt it would be desirable for *Titanic* to arrive late on Tuesday evening on her maiden voyage? Would not such a late arrival prove inconvenient for *Titanic*’s passengers?

To answer these questions we need to distinguish between arrival at the dock and arrival at the “point of arrival” that marked the termination of an Atlantic crossing. The point of arrival and departure for ships arriving or departing from New York on a transatlantic voyage was the Ambrose Channel Lightship. This lightship marked the entrance to the great channel leading into the harbor of New York. It was the time of arrival at Ambrose that was logged as the end of the voyage and upon which the crossing time and average crossing speed were based. However, from Ambrose it would take at least 4 more hours if not more before a ship like *Titanic* could get up to the dock, having to first go up through the narrows (that separated upper New York bay from the lower New York bay) to a Quarantine station just off Staten Island, and then cross the upper bay into the North river to reach her pier.⁵⁰



Olympic passing the Ambrose Channel Lightship - 1911

⁴⁸ The acknowledgement message read: “Captain ‘Caronia.’ Thanks for message and information. Have had variable weather throughout – Smith.”

⁴⁹ Colonel Archibald Gracie, *The Truth About Titanic*, Mitchell Kennerley; 1913. Chapter I.

⁵⁰ The distance from the Ambrose Channel Lightship to the New York Wharf was about 23 nautical miles.

A good example of how long it would take from passing Ambrose to discharging her passengers is *Olympic's* fourth westbound crossing of 1911. *Olympic* took departure off Daunt's Rock Lightship (outside the harbor of Queenstown) at 3:11 p.m. on August 31, about an hour later than usual. She reached Ambrose at 5:40 p.m. on Tuesday, September 5, after completing 2,781 miles in 5 days, 7 hours, and 29 minutes for an average crossing speed of 21.81 knots.⁵¹ Philip A. S. Franklin, vice president of the International Mercantile Marine Company in the United States, was absolutely delighted when he wrote to Ismay:

“We were very glad to have this steamer docked Tuesday evening, and although there was more tide than expected, requiring more time for docking, the baggage was all gotten out promptly considering the very large quantity, and the cabin passengers were well away before 11:30, and everybody seemed to be well satisfied and there were no complaints.”

Just a few weeks before, on July 18, *Olympic* completed her second westbound crossing at an average speed of 21.72 knots, higher than she had achieved on her maiden voyage, and was abeam Ambrose at 10:08 p.m. Tuesday night.⁵² However, she did not leave Quarantine until early the next morning, and reached the end of her pier at 8:16 a.m. At the time Franklin believed that *Olympic* could have “easily” arrived on Tuesday afternoon and wrote to Ismay that “we think it would have been a good thing to have allowed her to have done it.” He wrote that “it will material assist in advertising the steamer, and help us very much in turning her round, and give everybody on shipboard a better chance, and I am sure it would please the passengers.”⁵³

On July 27 Ismay told Franklin that his recommendation would “receive consideration,” writing:

“I at once admit that docking on Tuesday evening would help you in turning the ship round, and give those on board a better chance of getting the ship in good shape for the Saturday sailing, and further, that if we could make it a practice to do this, it would please the passengers, but as I have repeatedly stated, I feel very strongly that passengers would be far more satisfied to know, when they left here, that they would not land until Wednesday morning, rather than be in a state of uncertainty in regard to this for the whole of the trip. I do not think you can have ever experienced the miseries of a night landing in New York; had you done so, I think your views might be altered.”

In another letter dated July 31, Ismay wrote to Franklin: “I am not favourably disposed to trying to land on Tuesday afternoon, but if, after talking the matter over with Lord Pirrie, Captain Smith and Mr. Bell, the consensus of opinion is in favour of this being done, you may rest assured I will not allow my individual feeling to stand in the way.”

On August 11, 1911, Captain Smith was informed that “it will be right for you to go full speed **when on the short track** [authors' emphasis], subject to your considering it prudent and in the interests of safe navigation to do so.”⁵⁴

Olympic completed her third westbound voyage on Tuesday, August 15, 1911, after crossing 2890 miles in 5 days, 12 hours, and 23 minutes for an average crossing speed of 21.83 knots, her highest crossing speed yet. She was abeam Ambrose at 9:10 p.m. that Tuesday night. It was her last westbound crossing of 1911 on the longer track. On August 19 Franklin wrote to Ismay: “I was sorry the *Olympic* did not dock on Tuesday, but am pleased with her Eastbound bookings.” Ismay replied back to Franklin on September 5 in a letter that was filled with sarcasm:

⁵¹ This was her first voyage westbound using the shorter northern track that was used from August 24 to January 14.

⁵² George Behe. *Titanic: Safety, Speed & Sacrifice*. Transportation Trails; 1997. Page 30.

⁵³ See also: Mark Chirnside. *RMS Olympic: Titanic's Sister*. Tempus Publishing; 2004. Page 78.

⁵⁴ The short track was used from August 24 to January 14. It was about 110 miles shorter than the long track that was used from January 15 to August 23, thereby saving about 5 hours in crossing time assuming an average of 22 knots.

“Your sorrow that the *Olympic* did not dock on Tuesday night last voyage will, I hope, be mitigated by her docking on Tuesday this voyage [her fourth], as we have just received a cable that at 9 o'clock last night she was 271 miles east of Nantucket, which we calculate would make her due at Ambrose Channel at 6 o'clock to-night, and I presume she will get up to the dock at about 10 o'clock, which will make an extremely comfortable (!!!) landing for her passengers, and I am sure they will much prefer this to dawdling away time and landing on Wednesday morning, to say nothing of their having had the pleasant uncertainty, from the time they left here, as to whether they would land on Tuesday evening, or not.”

As we have seen, *Olympic* on her fourth crossing westbound when on the shorter track reached Ambrose 20 minutes ahead of Ismay's expected time of arrival, and all the first and second class passengers were well away from the ship by 11:30 p.m. to the delight of Franklin. If she would have departed about an hour earlier, as she did on her second and third crossings before, she would have made Ambrose close to 4:30 p.m. and all cabin passengers would have been gone by 10:30 p.m.

The White Star Line had a policy to ensure that passengers did not suffer inconvenience if one of their ships were to dock late at night. In a booklet of “Notes” provided in the staterooms of first class passengers there was one that read:⁵⁵

“LANDING AT NEW YORK, BOSTON AND MONTREAL. – Should the steamer arrive at the Wharf after 8 p.m. passengers have the option of remaining onboard overnight and landing after breakfast on the following morning.”

Although it is probable that many passengers would want to remain onboard overnight, those who wished to do so could disembark in the event of a late docking.

It is not known whether Ismay changed his opinion between the summer of 1911 and the spring 1912, yet it is evident from his correspondence that he said he would not stand in the way of *Olympic* arriving on Tuesday if his colleagues felt that this was desirable. He had acknowledged some of the advantages, such as *Olympic*'s popularity with American passengers, assisting with advertising, and allowing more time to turn the ship around. However, we need to bear in mind that in April of 1912 *Titanic* was *not* on the shorter track, and it seems probable that any intention for her to better her older sister's maiden voyage time would have merely involved an arrival at Ambrose late Tuesday evening instead of sometime early Wednesday morning.

Unfortunately for Ismay, the 1911 discussions would prove to be a “double edged sword.” He had considered writing a public letter to a newspaper after the British Wreck Commission's report was published proving that he was not in favor of Tuesday arrivals and therefore would not have pressed for a higher speed. On August 1, 1912, he was advised by his lawyer F. M. Radcliffe:

“I am strongly of the opinion that the incident of the *Olympic* has a double edge. If you seek to use it as showing that you personally do not press for high speed, you must not be surprised if other people use it as showing that you are prepared to acquiesce in a speed higher than you yourself think necessary when others press for it for business reasons, and since the determining vote is yours, as Chairman, the responsibility is yours. Captain Smith was Captain of the *Olympic* as well as *Titanic*. There is no evidence that he knew of the difference in the office on this question or of your individual views, but if he did, he knew equally that you waived those views. I know all that is to be said on the other side; but I think, if you start a correspondence,

⁵⁵ These “Notes for First Class Passengers” are very interesting. It seems that this policy was in effect for many years. There is a May 1907 White Star Line “Notes for Passengers” brochure which confirms this March 1910 booklet statement about arriving in New York at night. The policy of allowing passengers the option of staying on board until after breakfast the next day also appeared in a 1928 brochure for eastbound passengers. The input of Daniel Klistorner and J. Kent Layton is much appreciated. (See also the two-part article by J. Kent Layton, “*The Arrival That Never Took Place*,” *Titanic International Society's Voyage*, Issue 54 - Winter 2005, and Issue 55 - Spring 2006.)

you would be giving any ill-disposed person pellets to fire at you, on such a doubtful basis; and I think you may well be content with the very clear finding of Lord Mersey in this matter.”⁵⁶

In light of the evidence as to the practicality of Tuesday night arrivals (and night arrivals in general), it does seem hard to credit arguments that it would have been either impossible or undesirable for *Titanic* to have arrived on Tuesday at the conclusion of her maiden voyage. Again, the distinction between *Titanic* arriving at the Ambrose Lightship on Tuesday and actually docking on Tuesday needs to be borne in mind. *Titanic* was certainly on course to reach Ambrose on Tuesday evening marking the conclusion of her maiden voyage transatlantic crossing in the abstract log and thereby not only beating *Olympic*'s maiden voyage crossing time, but also setting a new maiden voyage record for a White Star Line vessel.

“He Was Justified in Going Fast to Get Out of It”

Why would Captain Smith allow the speed of his ship to increase and continue at a high rate of speed knowing that dangerous ice conditions were in their path? Just how much influence did Ismay have on the decisions that Captain Smith took that night?

Some insight into the logic behind the answer to the first questions can be found in the testimony of Bruce Ismay at the British inquiry. Ismay was asked by the Attorney-General, Sir Rufus Isaacs, “What is the object of continuing at full speed through the night if you expect to meet ice? Why do you do it?” Ismay's reply was:

“I presume that the man would be anxious to get through the ice region. He would not want to slow down upon the chance of a fog coming on... I presume that if a man on a perfectly clear night could see far enough to clear an iceberg he would be perfectly justified in getting through the ice region as quickly as he possibly could.”

Bruce Ismay was certainly no navigator, nor was he an expert about weather conditions in the vicinity of icebergs and field ice. But he did have more than one conversation with Captain Smith during the voyage, and we know that Captain Smith handed him that ice warning received from *Baltic*, the one that Ismay showed to Mrs. Ryerson. Ismay was certainly no average first class passenger, nor was he treated as one despite what he wanted others to believe. More than likely, it was Captain Smith who would have confided to Ismay that fog or haze can form in the vicinity of ice, and if that were to happen, they would be forced to slow down or even stop. But it is also likely that he would have told Ismay that if the weather remained clear with perfect visibility, it would be better to get through the region as quickly as possible before any fog or haze could start to develop. It was generally believed that the presence of icebergs by themselves posed little danger as long as they can be seen in time to be avoided.

Is such a concern about the formation of fog or haze a reasonable one, and could it have had some bearing on a decision to go at full speed ahead that night?

At the British inquiry a question was put to Sir Ernest Shackleton, the famed Antarctic explorer:

25073. Just one question, Sir Ernest: Do you frequently find a haze in close proximity to an iceberg? – [Shackleton] Generally when the temperatures are different - the temperature of the water and the temperature of the air.

⁵⁶ The British Wreck Commission report written by Lord Mersey stated: “It was suggested at the bar that he [Captain Smith] was yielding to influences which ought not to have affected him; that the presence of Mr. Ismay on board and the knowledge which he perhaps had of a conversation between Mr. Ismay and the Chief Engineer at Queenstown about the speed of the ship and the consumption of coal probably induced him to neglect precautions which he would otherwise have taken. But I do not believe this. The evidence shows that he was not trying to make any record passage or indeed any exceptionally quick passage. He was not trying to please anybody, but was exercising his own discretion in the way he thought best.”

As it turned out, both the air and water temperatures all Sunday night were never very far apart.⁵⁷ However, that fact was not known beforehand. From years of experience on the North Atlantic run, it was known that conditions could change fairly rapidly with little notice. And it was the possibility of such changing conditions that Captain Smith seemed to be most concerned about.

Captain Smith came on the bridge about 5 minutes to 9 that evening to talk to Second Officer Charles Lightoller who was the Officer Of the Watch at that time. According to Lightoller:

“We spoke about the weather; calmness of the sea; the clearness; about the time we should be getting up toward the vicinity of the ice and how we should recognize it if we should see it - freshening up our minds as to the indications that ice gives of its proximity. We just conferred together, generally, for 25 minutes...Capt. Smith made a remark that if it was in a slight degree hazy there would be no doubt we should have to go very slowly.”⁵⁸



Captain E J Smith

Lightoller provided many more details of his conversation with Captain Smith at the British inquiry:

“At five minutes to nine, when the Commander came on the bridge (I will give it to you as near as I remember) he remarked that it was cold, and as far as I remember I said, ‘Yes, it is very cold, Sir. In fact,’ I said, ‘it is only one degree above freezing. I have sent word down to the carpenter and rung up the engine room and told them that it is freezing or will be during the night.’ We then commenced to speak about the weather. He said, ‘There is not much wind.’ I said, ‘No, it is a flat calm as a matter of fact.’ He repeated it; he said, ‘A flat calm.’ I said, ‘Yes, quite flat, there is no wind.’ I said something about it was rather a pity the breeze had not kept up whilst we were going through the ice region. Of course, my reason was obvious; he knew I meant the water ripples breaking on the base of the berg...and we went on to discuss the weather. He was then getting his eyesight, you know, and he said, ‘Yes, it seems quite clear,’ and I said, ‘Yes, it is perfectly clear.’ It was a beautiful night, there was not a cloud in the sky. The sea was apparently smooth, and there was no wind, but at that time you could see the stars rising and setting with absolute distinctness...We then discussed the indications of ice. I remember saying,

⁵⁷ A table of sea and air temperatures taken every four hours was submitted in evidence at the American inquiry from the log of *Californian* which showed that the two readings differed by no more than 2°F throughout the night while in the region of ice.

⁵⁸ American inquiry, p. 67.

‘In any case there will be a certain amount of reflected lights from the bergs.’ He said, ‘Oh, yes, there will be a certain amount of reflected light.’ I said, or he said; blue was said between us - that even though the blue side of the berg was towards us, probably the outline, the white outline would give us sufficient warning, that we should be able to see it at a good distance, and, as far as we could see, we should be able to see it. Of course it was just with regard to that possibility of the blue side being towards us, and that if it did happen to be turned with the purely blue side towards us, there would still be the white outline...We knew we were in the vicinity of ice, and though you cross the Atlantic for years and have ice reported and never see it, and at other times it is not reported and you do see it, you nevertheless do take necessary precautions, all you can, to make perfectly sure that the weather is clear and that the officers understand the indications of ice and all that sort of thing. That is a necessary precaution that is always taken.”

The only “necessary precautions” that Lightoller mentioned was the Commander making sure that his senior officers understood the indications of ice and to watch out for the slightest change in the weather. There was no talk of changing the ship’s course or increasing the number on lookout. The only talk about slowing down was a comment by Smith, “If it does come on in the slightest degree hazy we shall have to go very slow.” The last words that Smith said to Lightoller before leaving the bridge about 25 minutes past 9 was: “If it becomes at all doubtful let me know at once; I will be just inside.”⁵⁹

But what did Smith actually mean by “doubtful?” As Second Officer Lightoller explained:

“It means to say if I had any doubt at all in my mind...About the weather, about the distance I could see - principally those two conditions it would refer to. If there were the slightest degree of haze to arise, the slightest haze whatever, if that were to any degree noticeable, to immediately notify him.”

Smith’s reminder to Lightoller to call him if at all doubtful was really unnecessary since all senior deck officers knew quite well what their responsibilities were.⁶⁰ He could have just said “if you need me I’ll be inside.” Since he specifically mentioned about conditions becoming doubtful, that seems to suggest that a change in conditions is what worried him the most, not that they might encounter ice in their path which was expected. It is unlikely that they would have decided to speed up that night to get through the region even faster. After all, the remaining double-ended boilers that were lit up early Sunday morning were done so before a number of ice warnings were received. But they also did not hold off from connecting those boilers up because they were approaching a region of ice that evening. This all seems to be consistent with the concept of better get through the region as quickly as you can rather than run this risk of getting caught in possible changing weather conditions.

The practice followed by most steamship companies in competition on the North Atlantic run was to maintain the course and speed at night if the weather was clear and the sea calm. As written in the British inquiry’s “Report on the Loss of *Titanic*:”

“It was shown that for many years past, indeed, for a quarter of a century or more, the practice of liners using this track when in the vicinity of ice at night had been in clear weather to keep the course, to maintain the speed and to trust to a sharp look-out to enable them to avoid the danger. This practice, it was said, had been justified by experience, no casualties having resulted from it...Its root is probably to be found in competition and in the desire of the public for quick passages rather than in the judgment of navigators. But unfortunately experience appeared to justify it...and he [Captain Smith] was doing only that which other skilled men would have done in the same position.”

⁵⁹ British inquiry, 13635.

⁶⁰ International Mercantile Marine (IMM) Co., “Ship’s Rules and Uniform Regulations,” July, 1, 1907, Rule 252 – [Officer of the Watch] Duties.

Certainly that appears to have been the practice of White Star Line ships. As Captain Joseph Barlow Ranson of *Baltic* testified when questioned about navigating his ship at night in clear weather:

“We go full speed whether there is ice reported or not...It has always been my practice...for the last 21 years...I always keep my course whether ice is reported or not, on the track.”

The night of April 14, 1912 was perfectly fine, clear and calm. Visibility was unobstructed out to the horizon all around. There was not a breeze in the air. The sea was as flat as a lake. At 10 p.m. Second Officer Charles Lightoller was relieved as OOW by First Officer William Murdoch. As Lightoller explained at the American inquiry:

“We remarked on the weather, about its being calm, clear. We remarked the distance we could see. We seemed to be able to see a long distance. Everything was very clear. We could see the stars setting down to the horizon.”

Visibility conditions were so good, that despite some minor concern about not being able to see water breaking at the base of an iceberg because of the lack of any wind, Captain Smith did not think it necessary to increase the number on lookout, divert the ship from its current course, or even bother to inform the engine department that they should be in extra readiness should a need to take special action. He was very confident that icebergs and growlers would be seen in plenty of time to be avoided.

Charles Lightoller, for one, believed that a low-lying growler or small iceberg could be seen “at a mile and a half, more probably two miles,” and a 50 foot high iceberg under normal conditions at “3 or 4 miles away.” At a minimum, he thought an iceberg could be seen “at least a mile and a half or two miles.” He also thought you can see field ice from “five miles away.”⁶¹

If these distances were true, there would not have been an accident that night. Today we know that under conditions of a very dark, clear and moonless night, a medium sized iceberg – such as the one that *Titanic* ran into – can be seen by reflected starlight at an average distance of only about ½ mile away; and a low-lying growler or small iceberg, can only be seen at a distance of less than ¼ mile away.⁶² And with a ship racing ahead at over 22 knots, a distance of ¼ nautical mile will be closed in 40 seconds. But what was believed at the time by those in charge is what mattered. It was those beliefs that colored their actions. And so the practice was to keep to the course, maintain the speed, and put your trust in those keeping a sharp lookout.

On the night of April 14, 1912, not only was there no apparent reason to decrease the speed of the ship as it steamed toward a region of ice, a seemingly logical reason was offered to get out of the ice region as quickly as possible. As most of us know, applying logic does not always result in the outcome that we seek.

As to the influence of Ismay on the decisions of Captain Smith, we must look at the various observations and statements of those that were there with some caution before jumping to conclusions. Ismay was obviously very proud of the newest ship to be added to the White Star Line fleet. She was well on her way to living up to all his expectations. And into the hands of her Commander, Edward J. Smith, he entrusted the safety of the lives and property of all of those that sailed on her. Smith was not on board *Titanic* to take orders from Ismay or anyone else. He knew what was expected of him as Commander of the vessel. But he also knew that he, and he alone, bore the ultimate responsibility for the safe and efficient navigation of his vessel. Bearing this responsibility, however, did not mean that he was unwilling to take some risk. He certainly was not known to be overly cautious.

According to Charles Lightoller:⁶³

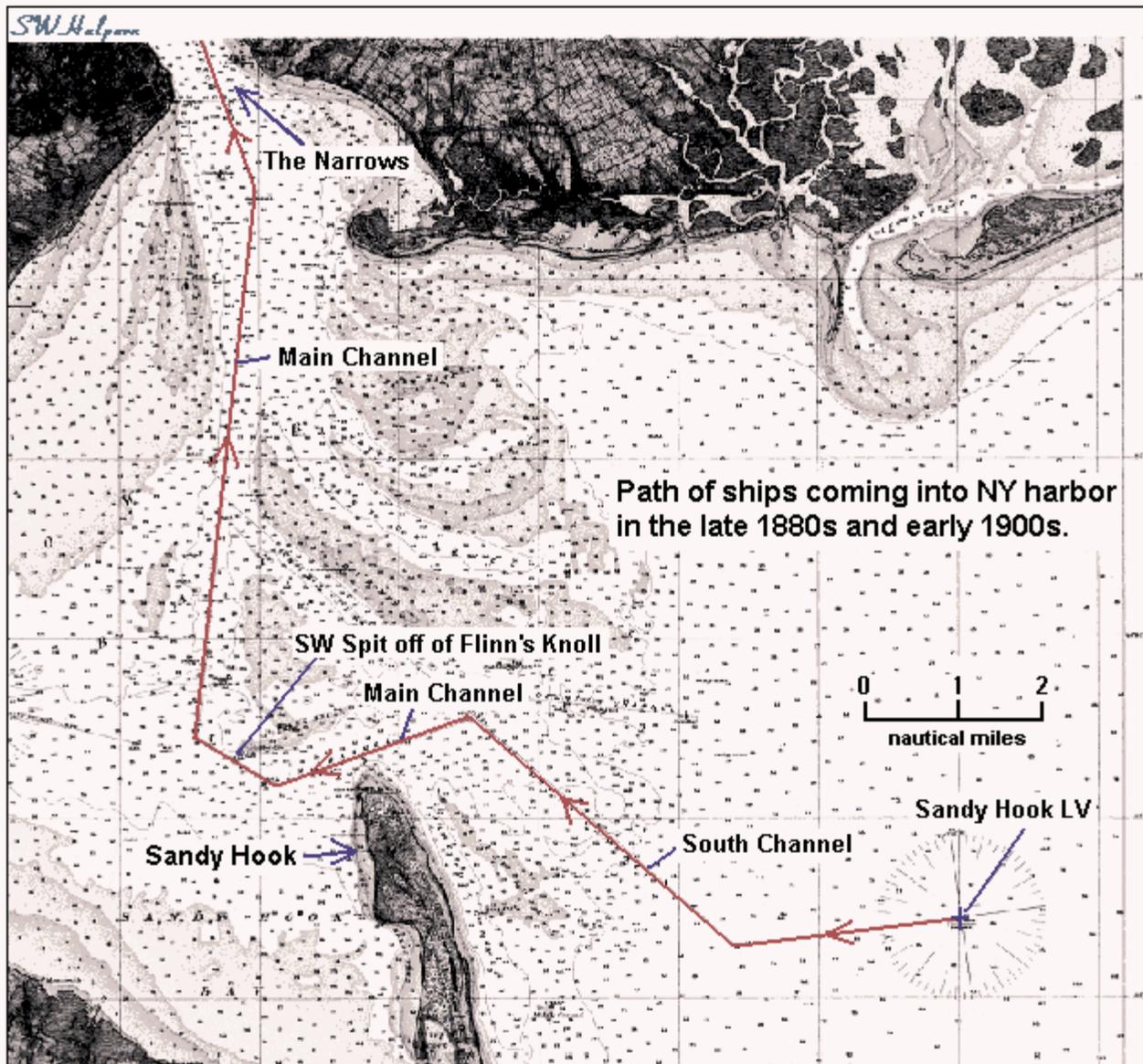
⁶¹ British inquiry, 13567, 13648-13652, 14204.

⁶² Samuel Halpern, “Iceberg Right Ahead,” Encyclopedia Titanica Research Article, April 29, 2006, http://www.encyclopedia-titanica.org/iceberg_right_ahead.html.

⁶³ Charles Lightoller, *Titanic and Other Ships*, Ivor, Nicholson and Watson, 1935, Chapter 30.

“I had been with him many years, off and on, in the mail boats, *Majestic*, mainly, and it was an education to see him con his own ship up through the intricate channels entering New York at full speed. One particularly bad corner, known as the South-West Spit, used to make us fairly flush with pride as he swung her round, judging his distances to a nicety; she heeling over to the helm with only a matter of feet to spare between each end of the ship and the banks.”

Lightoller served on *Majestic* with Captain Smith before Smith took command of the new White Star Line's *Baltic* in 1904. What Lightoller was describing is shown on the chart below. This shows the path that steamers used to take across lower New York bay from the Sandy Hook Light Vessel up to the Narrows in the early 1900s before the Ambrose channel came into being. Taking a ship through those channels at full speed and around those banks required great skill and much confidence in your ship and your ship handling abilities. The slightest error in judgment could result in a serious grounding accident.



Smith's confidence in his judgment was also apparent when he brought *Baltic* into New York on her maiden voyage in 1904. He bragged to reporters: “I tried to see how she would work coming around the tail of the

Southwest Spit, and, as the channel was clear, I sent her around at full speed. She behaved admirably.”⁶⁴ So we see that E. J. Smith was prepared to send a brand new, largely untested command, around the Southwest Spit at full speed just as he had done when he commanded *Majestic* when Lightoller served under him. One almost gets the feeling that Smith may have been close to the point of being overconfident, even reckless, in his shiphandling. The problem with being overconfident is that you may not recognize it as such until it is too late.

Charles Lightoller describe “E. J.” as “quite a character in the shipping world:”

“Tall, full whiskered and broad. At first sight you would think to yourself ‘Here’s a typical Western Ocean Captain.’ ‘Bluff, hearty, and I’ll bet he’s got a voice like a foghorn.’ As a matter of fact, he had a pleasant quiet voice and invariable smile. A voice he rarely raised above a conversational tone--not to say he couldn’t; in fact, I have often heard him bark an order that made a man come to himself with a bump. He was a great favourite, and a man any officer would give his ears to sail under.”

We have seen that Bruce Ismay has been referred to as presenting a very “brusque manner” even when conversing with passengers. Mrs. Line’s described his voice as sounding “very emphatic.” In contrast, Smith was described as a very confident and skillful commander, having a “pleasant quiet voice” that rarely was raised above a conversational tone.

When Ismay was with Smith, Ismay was just being Ismay, and Smith was just being Smith. Ismay was most concerned about pleasing the passengers and exceeding their expectations. Smith was most concerned about how the ship was running and making sure that all was going as smoothly as possible. There is nothing to suggest that Smith would have acted any differently if Ismay were not on board. Yes, he discussed with Ismay the progress they were making and possibly shared some concerns that he may have had such as the somewhat disappointing second day’s run. But Smith also knew what his ship was capable of doing, having taken *Olympic* across many times before. And they both were willing to push her a little more because of the experience gained with *Olympic*. By Saturday afternoon they both knew that they could be well on their way to setting a maiden voyage record for a White Star Line vessel. For Ismay, beating *Olympic*’s maiden voyage performance must have appeared to be a certainty. For Smith, it must have appeared to be a very good possibility.

As a seasoned commander, Smith crossed the Atlantic too many times to know that things don’t always work out the way you want them to. Fog may develop. A storm may come out of nowhere. Machinery may unexpectedly break down. All these things had happened before. There are just too many things that could go wrong that nobody has control over. But there are also some things you can do that you do have control over. And taking a calculated risk is one of them.

We believe E. J. Smith did not consider that he was taking any greater risk than he, or many other crack steamship captains, had not taken before. Being in the largest, most modern and well equipped vessel the White Star Line had to offer, he may well have felt he was taking less of a risk than in some other ships he commanded earlier in his career.⁶⁵ If his actions or inactions that night were the result of having Ismay on board, at a minimum you would think that he would have taken some extra precautions such as increasing the lookout, sending word down below to be on the standby, or for him to personally have stood watch on the outer bridge along with the OOW until they were well past the known region of reported ice. He did none of these because he felt they were unnecessary.

⁶⁴ Newspaper article in Mark Chirside’s collection, “Greatest Ship Ever Built Comes to Port.” Published in *The New York Times*, July 9, 1904.

⁶⁵ When commanding the *Adriatic*, Captain Smith was reported to have said: “*I cannot imagine any condition which would cause a ship to founder. I cannot conceive of any vital disaster happening to this vessel. Modern shipbuilding has gone beyond that.*”

A Few Conclusions

There is no doubt that *Titanic*'s speed was increased steadily throughout her maiden voyage. The nexus of evidence supports that, as we know that revolutions were increased, boilers brought online, and preparations were being made to further increase the ship's speed. Early on, she was broadly running level with *Olympic*'s performance on her maiden voyage, and as the speed increased, *Titanic* was well placed to exceed her sister's average speed.

Contrary to popular myth, *Titanic* was not short of coal in any sense. Her supply was plentiful for the intended voyage. She even had plenty in reserve. Given the extraordinary disaster that overtook White Star's *Atlantic* many decades earlier, which was blamed on a shortage of coal, it would have been surprising indeed if there had not been enough coal on board.

When we examine the evidence of passengers including Elisabeth Lines, Emily Ryerson and Jack Thayer, there is a strong case that Ismay had a greater knowledge of the ship's speed than he was subsequently (and understandably) prepared to admit to. Elisabeth Lines, in particular, provides a clear and sincere account of overhearing Bruce Ismay discuss the ship's performance with Captain Smith. It would be entirely natural for the two men to hope that *Titanic*'s maiden voyage would be faster than her sister ship's. Grotesque, evil caricatures of Ismay have no place whatsoever in an informed historical analysis or understanding. Voicing a belief or desire to Captain Smith is one thing; attempting to order him to do something is quite another, and quite beyond reason or hard evidence. There is little doubt that it would have been impractical for *Titanic* to have docked on Tuesday evening and allow her passengers to disembark, yet for her to reach the Ambrose Lightship on Tuesday night would have been achievable from a practical point of view, and welcome for the company. Having bettered her sister's time, the passengers would suffer no inconvenience as *Titanic* docked – to a warm welcome – very early Wednesday morning, April 17, 1912. This was precisely the scenario on *Olympic*'s second westbound voyage when she reached Ambrose on Tuesday night and docked early the following morning, having beaten her maiden voyage performance.

Captain Smith's actions as *Titanic* approached the region of ice would surely have been identical regardless of whether Ismay was onboard or not. Smith did not have a problem with navigating the huge liner at very high speed. Unfortunately, Smith and his officers over-estimated their ability to see an iceberg ahead in sufficient time to avoid it. Although he asked Lightoller to inform him if conditions became "doubtful," Smith did not feel it was necessary to take any additional precautions. Acting from experience, *Titanic*'s commander made a simple and understandable error in judgment. His actions were justified by years of experience on the North Atlantic run, following the usual practices. They were condemned by hindsight.

Acknowledgements

We would like to thank Scott Price, Historian at the U.S. Coast Guard Headquarters in Washington, DC for his kind permission for us to use the USCG photograph of *Olympic* passing the Ambrose Channel Lightship in 1911. We would also like to thank researcher George Behe for his review and many suggestions concerning this article, and Bruce Beverage for the use of his general arrangement plan of *Titanic*'s 1st Class Reception Room. Finally, we would also like to thank researcher Don Lynch for providing us with the information concerning Mrs. Elisabeth Lines' character from the wife of her grandson.