

Olympic and Titanic : Maiden Voyage Mysteries

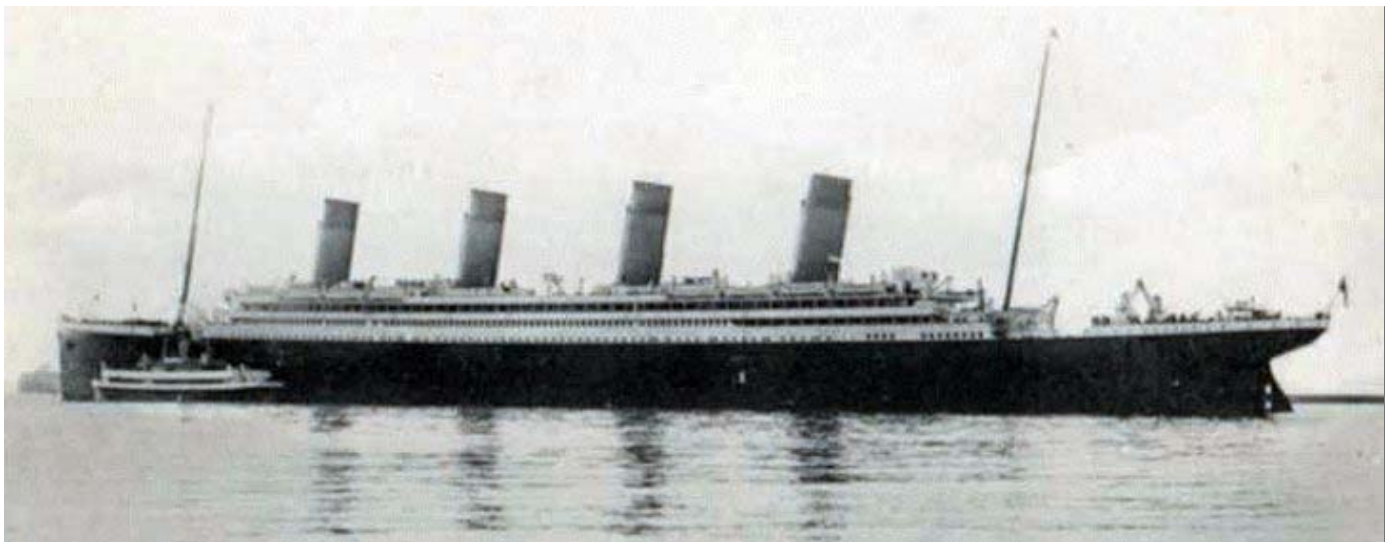
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ROUTES ACROSS THE ATLANTIC

The new White Star liner *Olympic*, the first of three gigantic liners ordered by the White Star Line for the highly competitive transatlantic service, was launched from the Queen's Island yard of Harland and Wolff on October 20, 1910, and was completed by the end of May 1911. She departed on her maiden voyage from Southampton to New York on June 14, first stopping at Cherbourg that Wednesday evening to pick up passengers and mails, and then stopping at Queenstown the following day to pick up more of the same. The westbound transatlantic passage officially began when the ship passed the Daunt's Rock Light Vessel at 4:22 p.m. Greenwich Mean Time (GMT) outside of the harbor of Queenstown, and ended when the ship passed the Ambrose Channel Light Vessel at 2:24 a.m. New York Time (NYT) on June 21, 1911, before entering New York Harbor. After taking her departure from the Daunt's Rock Light Vessel, *Olympic* traveled around the southern coast of Ireland to Fastnet Light, a lighthouse located on a rock several miles off the tip of Ireland's southwestern coast. The ship then followed a great circle route from Fastnet Light across the Atlantic to a point called "the corner" at 42° N, 47° W, the turning point for westbound steamers that was used to avoid encountering ice along the route in the vicinity of the Grand Banks of Newfoundland for that time of year. From the corner point, the *Olympic* followed a rhumb line course to a point south of the Nantucket Shoals Light Vessel, and then straight to the Ambrose Channel Light Vessel marking the arrival point to New York Harbor and the official endpoint of the westbound transatlantic crossing.¹

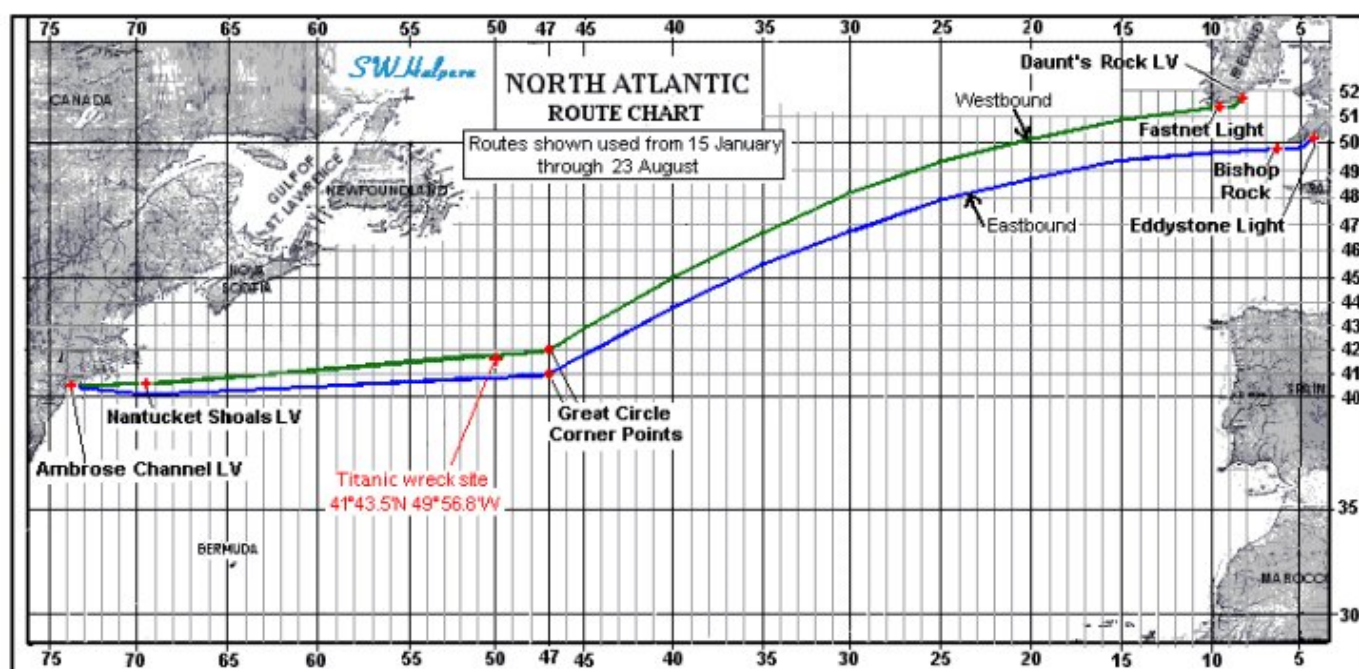


Olympic stops at Cherbourg on her maiden voyage

A rhumb line is the path that a ship follows if its heading remains unchanged. The great circle route is the shortest path between any two points on a globe. When following a great circle path, a ship must make several heading changes to stay close to the track. From detailed data that we studied from several *Olympic* voyages, it appears that course segments (in true degrees) would be laid down at Local Apparent Noon (LAN) each day. However, it also seems that very small course adjustments took place as often as every six hours. Whenever possible, being on a great circle path is desired, since it minimizes the overall length of a passage.

Olympic departed New York on June 28, 1911 for her eastbound maiden voyage back to Southampton, with two stops along the way. After leaving New York, *Olympic* crossed the Atlantic to discharge passengers and mails at Plymouth, England on July 4, 1911. From Plymouth she went on to Cherbourg to discharge more passengers and mails, and then on to her home port of Southampton, the final port of call. The official passage across the Atlantic eastbound began by taking departure off the Ambrose Channel Light Vessel outside of New York Harbor on June 28, 1911 at 5:06 p.m. NYT. From Ambrose, she headed for a turning point near 40° N, 70° W, and from there followed a rhumb line course to 41° N, 47° W, the corner point for eastbound steamers at that time of the year. From the corner, *Olympic* followed the great circle route across the Atlantic to a point south of Bishop Rock Light, a small lighthouse located off the westernmost tip of the Isles of Scilly. From Bishop Rock she went due east to about the longitude of Lizard Point Light, and then on to Eddystone Light, a lighthouse located on a group of rocks some fourteen miles out from the Plymouth breakwater. The arrival of the *Olympic* off Eddystone Light on July 4, 1911 at 4:36 p.m. GMT marked the official endpoint of the eastbound transatlantic crossing.

A chart of these westbound and eastbound routes for this relatively new White Star Line service is shown below. These routes, known as the southern tracks, were used by steamers from January 15 through August 23 to avoid running into ice. From August 24 to January 14, steamers followed more northerly tracks, thus shortening the transatlantic distance by about 110 miles.² The southern tracks shown below are also the same routes that *Titanic* was to follow when she entered service in April 1912.



OLYMPIC'S MAIDEN VOYAGE LOG CARD

Olympic's maiden voyage details for her first Atlantic crossing appeared on her log card, which gave the departure time and date, the arrival time and date, the latitude and longitude of the ship at Local Apparent Noon for each day, the distance run for each day, the total distance run from departure point to arrival point, the total passage time in days, hours, and minutes, and the average speed for the crossing in knots taken to two decimal places. It also included remarks about the weather and sea conditions, listed the voyage number and direction, the departure and arrival points for the transatlantic part of the voyage, and all the ports visited for the voyage. A scan of her maiden voyage log card, courtesy of Günter Bäbler, is shown below.

R. M. S. "OLYMPIC." COMMANDER E. J. SMITH, R.N.R.



SOUTHAMPTON TO NEW YORK VIA CHERBOURG AND QUEENSTOWN.

VOYAGE NO. 1. WEST, JUNE 14, 1911.

DAUNTS ROCK LIGHT VESSEL ABEAM, JUNE 15. AT 4,22 P.M. DEPARTURE.



DATE	WIND	LAT.	LONG.	MILE	REMARKS.
16	SE.	50,22	19,17	428	STRONG TO LIGHT SE. WINDS, ROUGH TO MOD. SEA
17	SE. & NE.	47,51	32,20	534	LIGHT TO STRONG SE. TO NE. WINDS, ROUGH SEA
18	NE. & SE.	43,45	43,52	542	FRESH NE. TO LIGHT SE. & S. WINDS, MOD. SEA
19	SW.W.	41,33	54,47	525	LIGHT TO FRESH SW. TO W. WINDS, SLIGHT SEA
20	W.	40,41	66,50	548	MOD. WESTERLY WIND, SMOOTH SEA
				317	TO AMBROSE CHANNEL
		DISTANCE	2894	AVERAGE SPEED	21.17 KNOTS
ARRIVED 21ST. AT 2,24 A.M. PASSAGE 5 DAYS, 16 HOURS, 42 MINUTES.					

Maiden Voyage Log Card

Courtesy of Gunter Babler

The following table summarizes the important data from this log card:

RMS Olympic, Voyage 1, Westbound, Southampton to New York Via Cherbourg and Queenstown

Depart Daunt's Rock LV	June 15 4:22 PM	Lat. (deg. min) N	Long. (deg. min) W	Miles	
	June 16 noon	50,22	19,17	428	
	June 17 noon	47,51	32,20	534	
	June 18 noon	43,45	43,52	542	
	June 19 noon	41,33	54,47	525	
	June 20 noon	40,41	66,50	548	
Arrive Ambrose LV	June 21 2:24 AM			317	
				Distance: 2894	
		<u>days</u>	<u>hours</u>	<u>minutes</u>	<u>knots</u>
Total passage:	5	16	42	Average speed:	21.17

OLYMPIC'S MAIDEN VOYAGE DISCREPANCIES

As soon as those in charge of *Olympic* spoke to reporters and the ship's passengers carried away their souvenir log cards for "Voyage 1, Westbound," the impressive statistics of her maiden voyage were known. She had completed the 2,894-mile crossing from Daunt's Rock to Ambrose in only 5 days, 16 hours and 42 minutes, which added up to a swift 21.17 knots. These statistics were printed on the log card, and widely distributed in the newspapers of the day. Bruce Ismay was ecstatic at the new liner's performance and cabled the time back to Liverpool. These statistics have been repeated unquestioningly since. However, upon a close examination some discrepancies become apparent.

Olympic's arrival time at the Ambrose Light Vessel was reported as 2:24 a.m. on Wednesday, June 21, 1911, which appears confirmed by the fact that she was at Quarantine shortly afterwards. However, while this authoritative time was printed on the log card, the departure time from Queenstown (or rather Daunt's Rock) was printed as 4:22 p.m. on Thursday, June 15, 1911. Captain Smith also used the time in a telegram which was transmitted during the maiden voyage, reporting his ship's progress. The problem arises when the passage time of 5 days, 16 hours and 42 minutes is taken into account. Counting back from the 2:24 a.m. arrival time, *Olympic's* departure on Thursday appears to have been 2:42 p.m. instead of 4:22 p.m. in order for everything to fit. Those researchers aware of the conflict would have considered the likeliest explanation to be a reversal of the first two digits of the printed time, to make it read "4:22" instead of the correct "2:42." However, there is strong evidence that the 4:22 p.m. departure time was correct, and that there was no such mistake.

OLYMPIC'S QUEENSTOWN DEPARTURE TIME

Although it was known that *Olympic* had been delayed in arriving at Cherbourg, that was not proof that she was late arriving at (or departing from) Queenstown. Indeed, it could only be expected that Captain Smith would have attempted to make up for lost time so that the maiden voyage would be punctual. This made the departure time of 4:22 p.m. at Daunt's Rock seem questionable, even if it was recorded on the log card. However, the fact that *Olympic* had been delayed in leaving Queenstown was confirmed by Captain Smith himself, who was quoted in the *Manitoba Free Press* in Winnipeg on July 1, 1911. According to the reporter, Smith explained that *Olympic* had "fulfilled every expectation."

She had averaged more than twenty-two knots during a part of the voyage, and we started from Queenstown fully three hours late. The Olympic can be depended on to be a Wednesday morning ship, just as she was designed for. To be sure, there was no severe weather to try her out, for the passage was an ordinary June run. But we have power enough to take care of emergencies. In the engine rooms, Chief Engineer John [sic] Bell and Engineer John Fleming both report that everything went without a hitch.

Smith's words would appear to be the definitive answer. Who better than *Olympic's* commander to answer the question as to her departure time? There would seem to be no logical explanation for Smith saying that the *Olympic* had been late unless he was mistaken or unless she had indeed been late in departing Queenstown.

OLYMPIC'S NEW YORK ARRIVAL TIME

Olympic's arrival time of 2:24 a.m. on the Wednesday morning, June 21 at the Ambrose Light Vessel also needs to be borne in mind. In a *New York Times* article on Tuesday, June 20, 1911, it was reported that the *Olympic* was expected to reach Ambrose Channel late that night and dock at her pier Wednesday morning. It quoted a dispatch from Capt. Smith received the day before which read:

On Board Olympic, via Cape Race, 9:30 A. M., June 19, 1911

Up to this hour the Olympic has exceeded the speed promised by her builders, her average from noon Saturday to noon Sunday being 21.89 knots. Since passing Daunt's Rock at 4:22 P. M. Thursday she has done the following: To noon Friday, 458 [sic] knots; to noon Saturday, 524 knots; to noon Sunday 542 knots. Weather fine. Present weather outlook less favorable. At this writing all going smoothly.

The following day, June 21, the same newspaper reported that *Olympic* was sighted east of Fire Island at 12:17 a.m. The article also said:

The *Olympic* was reported 433 miles east of the Ambrose Channel Light Vessel at 6:58 o'clock yesterday morning. Her commander, Capt. E. J. Smith, commodore of the White Star Line, wirelessly to the liner [*sic*] soon afterward that he expected to reach Quarantine about 3 o'clock this morning.

Assuming that report was accurate, and assuming the time given in *Olympic's* wireless message was Apparent Time Ship (ATS), also known as ship's time, then that puts *Olympic* 433 nautical miles east of Ambrose at 6:26 a.m. NYT on Tuesday morning. How would we know this? As seen in the data on her log card, *Olympic* was at 66° 50' W longitude at local apparent noon on Tuesday, June 20. For that location and date it turns out that *Olympic's* time was 32 minutes ahead of New York Time. Therefore, to get to New York Time, we have to subtract 32 minutes from 6:58 which gets us to 6:26 a.m. NYT for that position report. Assuming the ship would maintain about 22 knots average speed over ground, it would take *Olympic* 19 hours and 41 minutes to cover those 433 nautical miles. That gives us an expected arrival time off Ambrose at 2:06 a.m. Wednesday morning. So, it appears that the actual recorded arrival time at Ambrose, 2:24 a.m., is also correct.

A 100-MINUTE MISTAKE

Since it appears that both the departure time and the arrival time on *Olympic's* log card are correct, the only possibility is that there was an error made when some junior officer worked out the total passage time for her westbound crossing – an error never corrected until now.

How can such an error happen? The answer can only be speculated but, to get the total passage time, several conversions must be made, such as days into hours and hours into minutes. Allowance must also be given for a five-hour difference between GMT, the time used by White Star Line ships when in English and Irish waters, and the time for the 75th meridian, used when passing arrival points to the east coast of the United States and Canada.³ The most probable error appears to have occurred during a subtraction process while working out the crossing time. Once the conversion was made to a common time reference, such as GMT, the time of the passage can easily be derived by subtracting the arrival time from the departure time. The resulting time difference is then converted into days, hours and minutes for the passage. By expressing the same time difference in total hours, one can get the average crossing speed by dividing passage time into the total crossing mileage.

Let's take the specific example for *Olympic's* westbound transatlantic maiden voyage. We begin by referring to the day of departure, June 15, as Day Zero. The recorded time of departure was 4:22 p.m., or 16:22 in GMT. To express this as total minutes since the beginning of Day Zero at 00:00 GMT, we simply convert 16 hours and 22 minutes into total minutes since midnight on the day of the start of the transatlantic crossing from Queenstown. This comes out to a total of 982 minutes of time.⁴

Now we look at the arrival time of 2:24 a.m. on June 21. This is the same as 07:24 GMT for the same date.⁵ But June 21 is 6 days beyond June 15. Therefore, to get the total minutes counting from 00:00 GMT on June 15, we have to convert 6 days 7 hours and 24 minutes into total minutes. That comes out to a total of 9,084 minutes.⁶

The passage time is just the difference between 9,084 minutes and 982 minutes. This works out to 8,102 minutes, or 135.033 hours. This is precisely the same as 5 days, 15 hours and 2 minutes, the correct crossing time for the passage. Also, 135.033 hours divided into the crossing distance of 2894 nautical miles gives an average crossing speed of 21.43 knots, the correct average speed for the transatlantic crossing.

Now suppose, in subtracting 982 minutes from 9,084 minutes, that an error of 100 minutes crept into the process, giving a passage time of 8,202 minutes instead of 8,102 minutes. Converting 8,202 minutes into days, hours, and minutes gives 5 days, 16 hours, and 42 minutes, the value on the log

card. Also, 8,202 minutes is the same as 136.700 hours. Dividing that into the crossing distance of 2894 miles gives an average speed of 21.17 knots, the value on the log card.

As we have shown, the correct difference in time from departure at 4:22 p.m. GMT on June 15 off the Daunt's Rock Light Vessel to 2:24 a.m. NYT on June 21 off the Ambrose Channel Light Vessel really works out to 5 days, 15 hours, and 2 minutes, and the average speed works out to 21.43 knots. At the end of the voyage, Bruce Ismay was greatly pleased with *Olympic* and her performance, as well as the satisfaction she had given to her passengers. Little did he suspect that there was an error in the crossing time that understated her performance. The ghost of Bruce Ismay, if there be one, must surely be smiling now. The ship did much better than what anyone was told.

SOME MAIDEN VOYAGE FACTS

Based on the location data reported in the *Olympic's* log, we can also derive several other interesting facts and statistics regarding her westbound maiden voyage, like the amount the clocks went back each night and the average speed for each day's run.

On White Star Line ships, the clocks were adjusted at midnight each night so that at Local Apparent Noon the next day the clocks would read 12:00. If necessary, a slight correction was made in the forenoon when a sun line was taken to check their longitude.⁷ For westbound ships, the clocks went back. For eastbound ships, the clocks went forward. A 1924 brochure given to White Star Line passengers for the westbound voyage read:

. . . It is necessary to put the clock back every 24 hours. The alteration in time is made at about midnight, and the clock is usually put back from 35 to 45 minutes on each occasion, the exact amount of time depending upon the distance the ship is estimated to make by noon the next day. During the first 24 hours, however, owing to the change from mean time to apparent time, the alteration is likely to be considerably more than 45 minutes, especially while summer time is in use.

The amount the clocks went back each night, the average speed for each day's run, and the correct totals for *Olympic's* westbound maiden voyage are all shown in the table below. Date and times are given in GMT:

<u><i>RMS Olympic, Voyage 1, Atlantic Crossing Westbound</i></u>						
<u>Date and time (GMT)</u>	<u>Clock adjustment</u>	<u>Lat (deg. min)</u>	<u>Long (deg. min)</u>		<u>Miles</u>	<u>Average speed</u>
Depart June 15 16:22	-1:17	51° 43'N	08° 16'W			
LAN June 16 13:17	-0:53	50° 22'N	19° 17'W		428	20.46
LAN June 17 14:10	-0:46	47° 51'N	32° 20'W		534	21.46
LAN June 18 14:56	-0:44	43° 45'N	43° 52'W		542	21.88
LAN June 19 15:40	-0:48	41° 33'N	54° 47'W		525	21.23
LAN June 20 16:28	-0:32	40° 41'N	66° 50'W		548	22.10
Arrive June 21 07:24		40° 28'N	73° 50'W		317	21.23
	Total: -5:00					
	<u>Total time for passage</u>		<u>Total distance traveled</u>		<u>Average voyage speed</u>	
	5 days, 15 hours, 2 minutes		2894 miles		21.43 knots	

WHAT GOES OUT MUST COME BACK IF ALL GOES WELL

Olympic left New York on June 28, 1911 for her eastbound return voyage to Southampton by way of Plymouth and Cherbourg. She completed that crossing in 5 days, 18 hours, and 30 minutes arriving off Eddystone Light on July 4, 1911 at 4:36 p.m. The table at the top of the following page summarizes the data on the log card for this return voyage:

RMS Olympic, Voyage 1, Eastbound, New York To Southampton Via Plymouth and Cherbourg

Depart Ambrose LV	June 28 5:06 PM	<u>Lat. (deg, min) N</u>	<u>Long. (deg, min) W</u>	<u>Miles</u>
	June 29 noon	40,19	65,23	389
	June 30 noon	40,45	54,32	495
	July 01 noon	42,29	43,25	525
	July 02 noon	46,15	32,21	526
	July 03 noon	48,45	19,45	532
	July 04 noon	49,48	06,34	520
Arrive Eddystone Light	July 04 4:36 PM			94
				Distance: 3081
Total passage:	<u>days</u> 5	<u>hours</u> 18	<u>minutes</u> 30	Average speed: <u>knots</u> 22.30

Once again, there appears to be a slight error in the data. The total mileage for the eastbound crossing was 3,081 miles. The total time of passage is given as 5 days, 18 hours and 30 minutes. This time, there was no mistake in the passage time calculation. Nor was there a mistake in the crossing distance, which matches closely with other eastbound crossings over the same route of travel. So, it appears that an arithmetic error was made when the average crossing speed was calculated. The correct average crossing speed works out to 22.25 knots, not 22.30 knots as appears to be written on the log card.⁸In this case, *Olympic's* average crossing speed was overstated.

As before, we can derive some other interesting statistics, such as the amount the clocks were adjusted forward each night, the average speed for each day's run, and the totals for the passage distance, time and correct passage speed. These are all shown in the table below. As before, dates and times are given in GMT:

RMS Olympic, Voyage 1, Atlantic Crossing Eastbound

<u>Date and time (GMT)</u>	<u>Clock adjustment</u>	<u>Lat (deg, min)</u>	<u>Long (deg, min)</u>	<u>Miles</u>	<u>Average speed</u>
Depart June 28 22:06	+0:35	40° 28' N	73° 50' W		
LAN June 29 16:25	+0:44	40° 19' N	65° 23' W	389	21.24
LAN June 30 15:41	+0:44	40° 45' N	54° 32' W	495	21.28
LAN July 01 14:57	+0:44	42° 29' N	43° 25' W	525	22.56
LAN July 02 14:13	+0:50	46° 15' N	32° 21' W	526	22.61
LAN July 03 13:23	+1:23	48° 45' N	19° 45' W	532	22.96
LAN July 04 12:30		49° 48' N	06° 34' W	520	22.49
Arrive July 04 16:36		50° 11' N	04° 16' W	94	22.93
Total: +5:00					
<u>Total time for passage</u>		<u>Total distance traveled</u>		<u>Average voyage speed</u>	
5 days, 18 hours, 30 minutes		3081 miles		22.25 knots	

OLYMPIC & TITANIC – A COMPARISON OF TWO GIANTS

RMS *Titanic* left Queenstown on her maiden voyage crossing on April 11, 1912, passing Daunt's Rock Light Vessel at 2:20 p.m. GMT. She then proceeded at 70 revolutions per minute along a path that hugged the same southern coast of Ireland toward Fastnet light as did her famous sister the year before. As we all know, *Titanic* never completed her maiden voyage. On the night of April 14, she struck an iceberg at 11:40 p.m. AT, and sank just 2 hours and 40 minutes later. But we do know some facts about *Titanic's* maiden voyage that allow us to make some comparisons.

We know the start time and date of her transatlantic crossing, the date and time she collided with the iceberg, and the date and time she foundered. We also know the daily distances traveled for the first three days out, and we also now know the position of the wreck site. Other details of *Titanic's* maiden voyage can be derived such as the approximate position for the ship at Local Apparent Noon for each day of the crossing, the time in GMT of Local Apparent Noon for each day out, the amount the clocks were set back each night so that they would read 12:00 at Local Apparent Noon the next day, and the average speed for each day's run. These results are all summarized in the following table:⁹

<u>RMS Titanic, Voyage 1, Atlantic Crossing Westbound (till collision)</u>					
<u>Date and time (GMT)</u>	<u>Clock adjustment</u>	<u>Lat (deg, min)</u>	<u>Long (deg, min)</u>	<u>Miles</u>	<u>Average speed</u>
Depart April 11 14:20	-1:24	51° 43'N	08° 16'W		
LAN April 12 13:24	-0:49	50° 06'N	20° 43'W	484	20.98
LAN April 13 14:13	-0:45	47° 22'N	33° 10'W	519	20.91
LAN April 14 14:58		43° 02'N	44° 31'W	546	22.06
Collision April 15 02:38		41° 47'N	49° 56'W	258	22.11
Total: -2:58					
<u>Total time till collision</u>		<u>Total distance traveled</u>		<u>Average voyage speed</u>	
3 days, 12 hours, 18 minutes		1807 miles		21.44 knots	

There was a clock setback of 47 minutes planned for the night of April 14 that was not done because of the accident.¹⁰ The collision coordinates in the above table were based on the location of the *Titanic* wreck site after allowance was made for a surface current of 1.2 knots at 197° true based on the location of the wreckage observed Monday morning and the location of the wreck site.¹¹ The calculated distance from Local Apparent Noon on April 14 to the collision point, 258 miles, was based on the known route of travel between those two points. It should be mentioned that this derived distance agrees very well with the log reading taken by quartermaster George Rowe when *Titanic* collided with the iceberg at 11:40 p.m. Rowe testified the ship struck at 20 minutes to twelve by his watch and, when he then looked at the patent log, it showed a run of 260 miles through the water since noon.¹² That makes for an average speed of 22.28 knots through the water. The average speed made good over ground that we show, 22.11 knots, is simply obtained by dividing 258 nautical miles, the distance run over ground, by 11 hours and 40 minutes, the time from noon to the collision.

As we shall soon see, the position and times of the *Titanic* along the route of travel of her maiden voyage were not too different from the positions and times of the *Olympic* for her second transatlantic crossing.

AN ISSUE OF TIME

There are some in the *Titanic* community who are claiming that the real collision time was 12 hours and 4 minutes past noon instead of 11 hours and 40 minutes. If that were the case, the average speed over ground would calculate out to 21.38 knots instead of the 22.11 knots that we show. That

is a drop of nearly $\frac{3}{4}$ of a knot from what was averaged over the previous 24 hours and 45 minutes. This is clearly at variance with all known evidence regarding the increase in revolutions that was occurring during the course of the voyage, and the independent observations of several passengers of increased engine vibrations noticed that Sunday night.¹³ It also does not hold up when viewed against the supporting evidence provided by quartermaster Robert Hichens that the ship was observed doing about 22.5 knots through the water during the hours from 8 p.m. to 10 p.m. as measured by the ship's log,¹⁴ a two-hour average that is consistent with the results obtained from Rowe's observation and with the apparent increase in revolutions noticed by several passengers.¹⁵ The difference between the speed of the ship through the water and a ground speed of 21.38 knots that comes from using a longer time interval is simply inconsistent with what the ship was actually doing that night. Nor can it be explained by the ship traveling over a longer path because of an alleged delay in turning the corner, something that came about in an attempt to explain how the ship managed to reach a collision point some 13 miles west of the now-known wreck site.¹⁶ Nor does a collision time of 12:04 a.m. hold up when one carefully looks at the reported time of that event as observed by many passengers and crew members alike. From a purely navigational sense, such theories simply do not stand up under careful analysis.

In looking at the positional and time data for *Titanic's* maiden voyage, it will be noticed that on April 14, *Titanic's* clocks were 2 hours 58 minutes behind GMT, or 2 hours and 2 minutes ahead of NYT. This was based on her expected longitude at Local Apparent Noon when the clocks are adjusted the night before and then corrected slightly if necessary in the forenoon. Those readers familiar with the two inquiries into *Titanic's* loss may notice a discrepancy between this result and the times in the final reports of those inquiries. The conclusion of the American Inquiry had *Titanic* time as 1 hour 33 minutes ahead of NYT. The British Inquiry had *Titanic* time as 1 hour 50 minutes ahead of NYT. At the limitation of liability hearings in New York in 1913, the time given by the White Star Line in response to a question asked by the interrogatories had *Titanic* time as 1 hour 39 minutes ahead of NYT. It is far beyond the scope of this article to go into all the details relating to why there has not been a consistent answer to this fundamental question of relating apparent time ship to Greenwich Mean Time or New York time. The process of how time on White Star Line ships was adjusted was explained quite clearly in testimony given by *Titanic's* second officer Lightoller and third officer Pitman. Yet, it almost seems as if some people may have deliberately withheld critical information to make solving the question of time a difficult, if not almost impossible task. When tracing back the origins of the numbers that came out in the inquiries and hearings, we find that the American Inquiry settled on a difference of 1 hour 33 minutes, apparently from the testimony of *Titanic's* fourth officer Boxhall, a number that had also worked its way into a wireless message sent Monday evening from Captain Rostron on the *Carpathia* to Captain Haddock on the *Olympic*, a message which included the incorrect foundering coordinates that came from Boxhall. The British Inquiry settled on a difference of 1 hour 50 minutes from NYT, apparently by equating *Titanic* time to time on the SS *Californian*. And at the limitations of liability hearings, a difference of 1 hour 39 minutes was offered up by the White Star Line by simply adjusting ship's time to the longitude of 50° 14' W that was sent out in what we now know to be an erroneous distress position.

The question of time will be addressed much more fully in a separate paper dealing specifically with that particular long-standing issue.

“SHE WAS BUILT FOR A WEDNESDAY SHIP”

After her noted arrival abeam of Ambrose Channel Light Vessel in the early morning hours of Wednesday, June 21, 1911, *Olympic* proceeded on to her Quarantine station off Staten Island. She left Quarantine at 7:45 a.m., and was saluted on her way up New York Harbor by all kinds of craft as she steamed to Pier 59 in the North River. With the assistance of twelve tugs, *Olympic* was safely moored at 10 a.m. after taking the better part of an hour, as there was a delay in getting the ship far enough in to allow her gangways to be opened.

It was reported in a *New York Times* article published on June 22 that Captain Smith said the *Olympic* had done all that was expected of her, and behaved splendidly. He was then asked, "Will she ever dock on Tuesday?"

"No," he replied emphatically, "and there will be no attempt to bring her in on Tuesday. She was built for a Wednesday ship, and her run this first voyage has demonstrated that she will fulfill the expectations of the builders."

Yet, despite Captain Smith's remark that there would be no attempt to bring her in on Tuesday, he did precisely that on *Olympic's* second transatlantic crossing westbound. On Wednesday, July 19, 1911, *The New York Times* headlined, "OLYMPIC CUTS HER OWN TIME," 5 days, 13 hours, 20 minutes from Daunt's Rock to the [Ambrose] Lightship. Data taken from the *Olympic's* second voyage log card showed the following:

RMS Olympic, Voyage 2, Westbound, Southampton to New York Via Cherbourg and Queenstown

Depart Daunt's Rock LV	July 13 2:02 PM	<u>Lat. (deg, min) N</u>	<u>Long. (deg, min) W</u>	<u>Miles</u>
	July 14 noon	49,59	21,48	525
	July 15 noon	46,56	35,05	560
	July 16 noon	42,36	46,03	534
	July 17 noon	41,15	57,26	526
	July 18 noon	40,35	68,49	518
Arrive Ambrose LV	July 18 10:08 PM			228
			Distance:	2891
Total passage:	<u>days</u> 5	<u>hours</u> 13	<u>minutes</u> 6	<u>knots</u> 21.72
			Average speed:	21.72

As before, we can easily derive additional statistics from the data on the log abstract, such as clock adjustments and average speed over ground for each day's run. These are all given in the table below.

RMS Olympic, Voyage 2, Atlantic Crossing Westbound

<u>Date and time (GMT)</u>	<u>Clock adjustment</u>	<u>Lat (deg, min)</u>	<u>Long (deg, min)</u>	<u>Miles</u>	<u>Average speed</u>
Depart July 13 14:02	-1:33	51° 43'N	08° 16'W		
LAN July 14 13:33	-0:53	49° 59'N	21° 48'W	525	22.32
LAN July 15 14:26	-0:44	46° 56'N	35° 05'W	560	22.51
LAN July 16 15:10	-0:46	42° 36'N	46° 03'W	534	21.59
LAN July 17 15:56	-0:45	41° 15'N	57° 26'W	526	21.24
LAN July 18 16:41	-0:19	40° 35'N	68° 49'W	518	20.93
Arrive July 19 03:08		40° 28'N	73° 50'W	228	21.82
	Total: -5:00				
	<u>Total time for passage</u>		<u>Total distance traveled</u>	<u>Average voyage speed</u>	
	5 days, 13 hours, 6 minutes		2891	21.72	

There were no computational errors in the log card data for *Olympic's* second voyage westbound. *Olympic* arrived abeam of the Ambrose Channel Light Vessel on Tuesday, July 18, 1911 at 10:08 p.m. NYT, and was expected at her pier by 8:00 a.m. Wednesday morning after leaving Quarantine. Among her passengers was Lord Pirrie, head of Harland and Wolff's shipbuilding yard at Belfast, who was a principal associate with J. Pierpont Morgan in forming the International Mercantile Marine Company of which the White Star Line was a part.¹⁷

There are those who believe that it was never intended for these ships to make any arrivals before Wednesday. That is not true. Looking at the progress the *Titanic* made until the time of the accident, it is quite clear that she was averaging as well as her famous sister did over her entire maiden voyage – and the *Titanic* had completed only 62% of her crossing.

Over her last 36 hours and 25 minutes before the accident, she was averaging over 22 knots. Using the power of a spreadsheet, we can easily project the expected time of arrival (ETA) for the *Titanic* at Ambrose, assuming no accident or anything else to cause a major slowdown or change of course. Setting the average speed of the vessel over ground for the remaining 1,084 miles of her voyage as the parameter, we get the following results:

Assumed speed (knots)	ETA Ambrose – NY time	Projected time of passage
21.40	Wed April 17 12:17 AM	5 days, 14 hrs, 57 min
21.50	Wed April 17 12:03 AM	5 days, 14 hrs, 43 min
21.60	Tue April 16 11:49 PM	5 days, 14 hrs, 29 min
21.70	Tue April 16 11:35 PM	5 days, 14 hrs, 15 min
21.80	Tue April 16 11:21 PM	5 days, 14 hrs, 02 min
21.90	Tue April 16 11:07 PM	5 days, 13 hrs, 48 min
22.00	Tue April 16 10:54 PM	5 days, 13 hrs, 34 min
22.10	Tue April 16 10:41 PM	5 days, 13 hrs, 21 min
22.20	Tue April 16 10:27 PM	5 days, 13 hrs, 08 min
22.30	Tue April 16 10:14 PM	5 days, 12 hrs, 55 min
22.40	Tue April 16 10:01 PM	5 days, 12 hrs, 41 min
22.50	Tue April 16 09:48 PM	5 days, 12 hrs, 29 min

It is quite clear that *Titanic* under all average speeds considered would have beaten *Olympic's* maiden voyage performance. If she would have maintained an average speed of 21.6 knots or greater, she would have been abeam of Ambrose some time on Tuesday night. Notice that the results for the passage time have nothing to do with the time that a voyage begins. It has to do with distance traveled and speed made good over ground.

INCONSISTENCIES UNDER OATH

On Day 16 of the British Inquiry into the loss of the *Titanic*, J. Bruce Ismay had this to say:

“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 is 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 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.”

If what Ismay said were true, then the *Titanic* would have had to slow down to something like 19.5 knots for the remainder of her voyage. Yet Mr. Ismay also said,

“The intention was that if the weather should be found suitable on the Monday or the Tuesday that the ship would then have been driven at full speed.”

To what speed would they have increased? *Titanic* was already doing a measured average of 22½ knots between 8:00 and 10:00 p.m. with none of her single-ended boilers lit. And, apparently, she was going to make Ambrose several hours ahead of Ismay's 5:00 a.m. target arrival time if it weren't for an accident and an ice field that lay ahead. She was already out to better *Olympic's* maiden

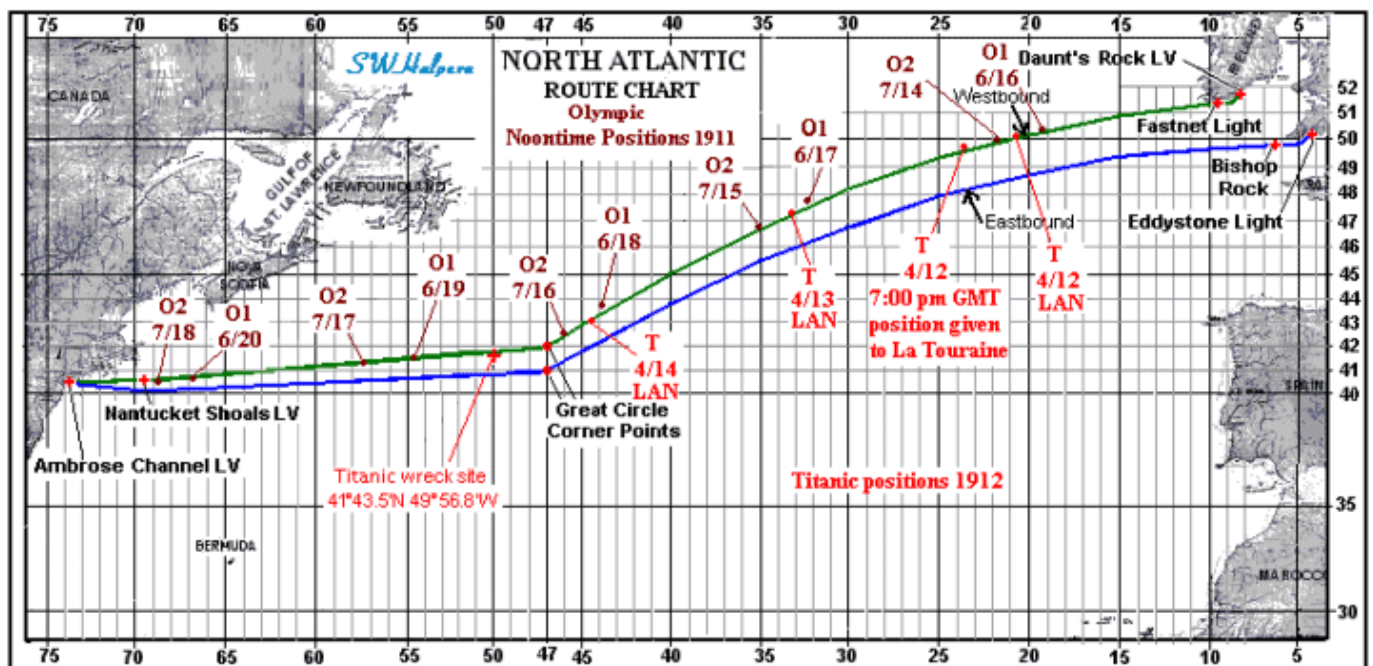
crossing speed.¹⁸ As we have seen in *Olympic's* second crossing statistics, a Tuesday night arrival for these ships was not only feasible, but had in fact already been accomplished. Despite Ismay's claim, conservation of coal was certainly not a factor in driving the *Titanic* at her best speed of her short voyage on the night of April 14, 1912.¹⁹ As Ismay himself had admitted to Senator Perkins, "She had about 6,000 tons of coal leaving Southampton . . . sufficient coal to enable her to reach New York, with about two days' spare consumption."

Despite the numerous warnings of ice ahead, there was no plan to reduce speed or change course until danger was clearly seen. As Sir Rufus Isaacs, the Attorney-General at the British Inquiry, said to Bruce Ismay:

"Assuming that you can see far enough to get out of the way at whatever speed you are going, you can go at whatever speed you like. That is what it comes to."

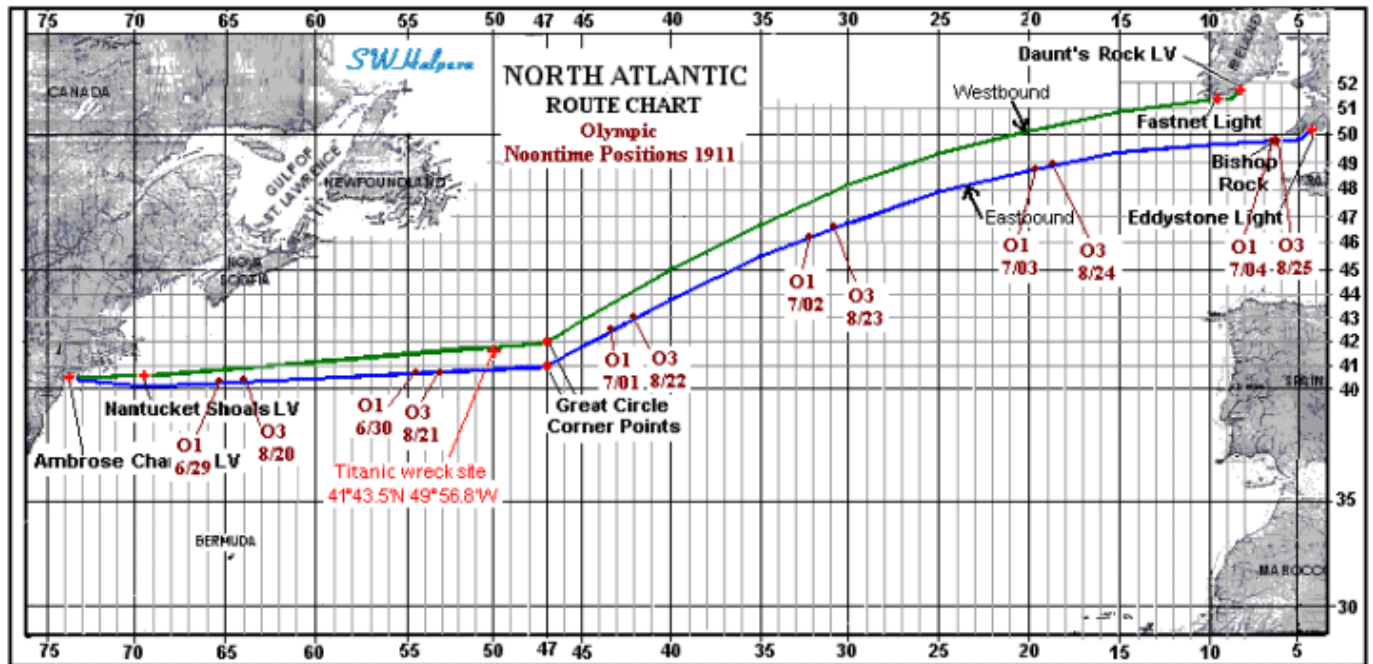
APPENDIX A – CHART OF WESTBOUND VOYAGES OF *OLYMPIC* AND *TITANIC*

The following chart shows the noontime positions for the first two westbound voyages of the *Olympic* and the maiden voyage of the *Titanic*. The wreck site location of the *Titanic* is also included as well as a position report sent from the *Titanic* to *La Touraine* for 7:00 p.m. GMT on April 12. The *Olympic* noon positions for voyages 1 and 2 are identified as "O1" and "O2," respectively. Positions for the *Titanic* are identified as "T."



APPENDIX B – CHART OF EASTBOUND VOYAGES OF *OLYMPIC*

The following chart shows the noontime positions for the first and third eastbound voyages of the *Olympic* that were available to us. The *Olympic* positions for voyages 1 and 3 are identified as "O1" and "O3," respectively.



Notes

1. On a Mercator projection chart, rhumb line tracks appear as straight lines while great circle tracks are curved.
2. After the *Titanic* disaster, the southern tracks were shifted farther southward.
3. International Mercantile Marine (IMM) Company, *Ships' Rules and Uniform Regulations*, issued July 1, 1907, Rule 116 – "Time to be Kept."
4. Note: 16 hours, 22 minutes = $16 \times 60 + 22 = 982$ minutes.
5. To convert NYT to GMT, add 5 hours.
6. Note: 6 days, 7 hours, 24 minutes = $6 \times 24 \times 60 + 7 \times 60 + 24 = 9,084$ minutes.
7. Testimony of *Titanic's* third officer Pitman and second officer Lightoller, American Inquiry, p. 294. Also see IMM Rule 259 – "Ship's Time."
8. 5 days, 18 hours, 30 minutes is the same as 138.5 hours. Dividing this into 3,081 nautical miles gives 22.25 knots.
9. Samuel Halpern, *Keeping Track of a Maiden Voyage*, Irish Titanic Historical Society's *White Star Journal*, Vol. 14, No. 2, August 2006, pp. 9-14.
10. American Inquiry, p. 294.
11. This is consistent with results obtained in the Marine Accident Investigation Branch (MAIB) Reappraisal of Evidence Relating to the *SS Californian* in 1992.
12. American Inquiry, p. 519 and p. 523, and British Inquiry questions 17608-17630.
13. These include documented observations from Mr. Lawrence Beesley, Mr. C. E. Henry Stengel, Mrs. Mahala D. Douglas and Mr. George Rheims.
14. British Inquiry, questions 965-966.
15. It was also mentioned that two or three additional double-ended boilers were lit up that Sunday morning (fireman Frederick Barrett) and put on line that Sunday evening at 7:00 p.m. (fireman Alfred Shiers). This suggests an increase from 75-76 revolutions per minute to about 78 revolutions per minute during the last few hours before the accident.
16. Samuel Halpern, *A Minute of Time*, Titanic Historical Society's *Titanic Commutator*, Volume 29, Numbers 171 and 172, pp. 150-157 and 208-219.
17. *The New York Times*, July 19, 1911.
18. George Behe, *Titanic – Safety, Speed and Sacrifice*, Transportation Trails, 1997; and J. Kent Layton, *The Arrival That Never Took Place*, Titanic International Society's *Voyage 54*, Winter 2005, p. 56.
19. Mark Chirside, Appendix Eleven: "Short of Coal?", *The Olympic-Class Ships – Olympic, Titanic, Britannic*, Tempus Publishing, 2004.

Mark Chirnside is a well known researcher and author in the *Titanic* community. To his credit he has written several books dealing with such ships as the [*RMS Olympic*](#), [*RMS Majestic*](#), and [*RMS Aquitania*](#), as well as a book dealing with the three 'Olympic' class ships: *Olympic*, *Titanic*, and *Britannic*. He also has authored a number of articles on various related subjects. He maintains a website at www.markchirnside.co.uk.

Sam Halpern has been involved with detailed *Titanic* related research for the past several years. He has authored a number of research articles for ET as well as published a number of articles that appeared in the Titanic Historical Society's *Commutator*, the Irish Titanic Historical Society's *White Star Journal*, and the Titanic International Society's *Voyage*. In addition, he has presented several technical papers at the Titanic Symposium in Toledo, OH last September, 2006.

This article also appears in the latest edition of *Voyage* (#59), the journal of the Titanic International Society.

Courtesy of Samuel Halpern

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