

The Sinking of the Titanic and the Northern Light

In November and December 1984 my wife and I lived in Tromsø, northern Norway. During that time we had become familiar with this fascinating nature phenomenon – the northern light. While studying the topic, I noticed that during that dreadful night of 14-15 of April, 1912 when the Titanic hit the iceberg and sank, the northern light appeared in the sky. In 1985 I wrote an article on the topic, and sent it to a publication devoted to the Titanic. I got a response but, as far as I know, the article was never published. Today is the 100th anniversary of that night, so to commemorate the event in a personal way, I post the article online.

Tampere, April 14, 2012

from the desk of

EDWARD S. KAMUDA
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10/12/85

MR. DAVID LANDAU
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28360 PORI 36, FINLAND

Dear Mr. Landau:

Just a note to thank you for yours of the 4th October.

The article you wrote looks very interesting and I hope to include it in a future edition of our journal. Is there any way to obtain better copies of the charts you included? I'm afraid that if I try to print them as is, they will not show up too well.

Once again, my sincere thanks for your efforts they are very much appreciated.

Yours truly,

Ed Kamuda
Ed. Kamuda

THE NIGHT OF THE TITANIC

David Landau

The R.M.S. Titanic of the white star line 'The Queen of the Ocean' sailed from Southampton on Wednesday April 10, 1912 with more than 2200 passengers and crew aboard on her 'never-to-be-forgotten' maiden voyage to New York. Four days later, on Sunday April 14 at 11.45 p.m. Titanic time, the 'unsinkable ship' collided with a floating iceberg about 150 kilometers south of the Grand Bank of New Foundland. The collision tore a 91 meter gash along the starboard (right) side of the hull and water burst in like a cataract. The 'latest, Largest and Finest Steamer Afloat' (269 meter) started sinking and after two hours and forty minutes it foundered leaving behind 18 lifeboats with some 700 survivors, mostly women and children and score of others bundled with life-belts swimming and trying to survive in the subfreezing salt water. There were not enough lifeboats on the ship for all the people aboard. According to Walter Lord, the British inquiry reported 1490 dead, the British board of Trade 1503 and a U.S. Senate investigating committee 1517.

Mr. Lawrence Beesley, a 34 year old Englishman, a bachelor^r, was in lifeboat no. 13. In his memoirs of that night which were first published in 1913 he related: "...the stars seemed really to be alive and to talk. The complete absence of haze produced a phenomenon I had never seen before: where the sky met the sea the line was clear and definite as the edge of a knife... we rowed slowly forward - or what we thought was forward, for it was in the direction the Titanic's bows were pointing before she sank. I see now that we must have been pointing northwest, for we presently saw the Northern lights on the starboard, and again, when the Carpathia came up from the south, we saw her from behind us on the southeast, and turned our boat around to get to her... Towards 3 A.M. we saw a faint glow in the sky ahead on the starboard

quarter, the first gleams, we thought, of the coming dawn. We were not certain of the time and were eager perhaps to accept too readily any relief from darkness - only too glad to be able to look each other in the face and see who were our companions in good fortune; to be free from the hazard of lying in a steamer's track, invisible in the darkness. But we were doomed to disappointment: the soft light increased for a time, and died away a little; glowed again, and then remained stationary for some minutes: "The Northern Lights": It suddenly came to me, and so it was: presently the light arched fanwise across the northern sky, with faint streamers reaching towards the Pole-star. I had seen them of about the same intensity in England some years ago and knew them again. A sigh of disappointment went through the boat as we realized ~~that~~ that the day was not yet; but had we known it, something more comforting even than the day was in store for us."

The Northern Light is produced by electrically charged particles coming from the sun. These particles travel in interplanetary magnetic field. On the last part of their voyage, the particles are guided by the earth's magnetic field and precipitated into the atmosphere creating strong electrical currents in the Earth's ionosphere at about 120 km altitude.

There were two ways the Northern Light could affect the events of that night: one way was through disturbances in wireless Telegraphy. The Titanic was equipped with 1.5 kilowatt wireless Marconi Telegraph. The apparatus was already in use in 1900 and during the next years, it was installed in increasing number of transatlantic liners. The day range of the instrument was some 400-650 km and at night it could span a distance of some 3200 km. The messages still consisted of series of dots and dashed. Geoffrey Marcus whose thorough account of the Titanic disaster 'The Maiden Voyage' was published in 1969, maintains that "conditions were fairly good at that night; though not a few operators in this region of the ocean had occasion to complain of 'freaky reception' static and serious jamming. This freaky reception or fading" he explains, "may be ascribed to the Northern Lights which are known to have a considerable effect on radio propagation (and were certainly seen that night)."

The night of the Titanic was free of such disturbances. At least seven ice reports, indicating location of ice field, reached the Titanic that Sunday, but the ship kept on full speed. At 9.40

p.m. another message was received: "From Mesaba to Titanic... Ice-report in lat. 42° N. to 41° 25' N., long 49° to 50° 30' W. Saw much heavy pack ice and a great number large icebergs. Also ice. Weather good, clear."

But the operator was busy sending telegrams for private passengers to a shore station in Cape Race Newfoundland. He put the message from Mesaba under the pile of paper of marconigrams still to be transmitted and there it stayed. This message had never been delivered to the bridge.

Another message came around 11 p.m. The operator of an American liner S.S. Californian transmitted: "Say, old man, we are surrounded by ice and stopped". The Titanic operator reply 'came in with a bang': "Shut up, shut up I am busy; I am working Cape Race. You are jamming me". So the Californian's operator shut up and waited. After some time he put the phones down, took off his clothes and turned in. Shortly afterwards the Titanic struck the iceberg and began sinking. Messages were transmitted to all directions asking for urgent help. Ships changed course and raced through the night and the ice to rescue the ship in distress. The Californian lay only few kilometers away. It could save all the people aboard, but its wireless transmitter was shut off. 24 hour wireless watch was installed as a result of events surrounding the foundering of the Titanic. Another ship eventually came and rescued the survivors still at sea. As it turned out, it was neither the 16 watertight compartment, which divided the ship from prow to stern and render it 'practially unsinkable', the swimming pool, the gymnasium, the squash court, the exotic turkish bath with full time masseuse nor the complete well staffed modern hospital which helped rescue few hundreds persons, but the 1.5 kilowatt wireless marconigraph. The Northern Light did not interfere at all.

The second way the Northern Light could affect the events of that 'night to remember' was through geomagnetic disturbance on the mariner compass needle. In the middle of the 18th century, a Swedish scientist, Olof Peter Hiorter discovered a correlation between the Northern Light and the magnetic needle movemet. In his treatise he emphasized the necessity to be cautious and to take this phenomenon into account when the compass needle was used for navigation, surveying and metal seeking.

At the beginning of the 20th century, explained Geoffrey Marcus, there were two complimentary ways to determine the geographical position of the ship. One way, called 'dead reckoning', was based on 'estimating the course steered and distance ran with due allowance for set of currents and leeway from wind and sea'. Since this method could not be completely accurate because of compass deviation and other possible errors, another method was utilized; few times a day the exact location of the ship was ascertained by solar and stellar observations and the use of nautical charts.

Could the Northern Light affect the Titanic's mariner compass needle that night?

During strong auroral disturbances, the magnetic needle can be shifted by more than 10° . If a ship sails in a speed of 22.5 knots (41.7 km/hr), as much as the Titanic was hastening that night, 1° of displacement of the magnetic needle can result in more than 700 meters of navigation error in one hour.

Today observations of the Earth magnetic field are carried out at more than 200 stations around the world. These observations are made by the most sophisticated instruments continuously 24 hours a day. In 1912 only few dozens of stations conducted these observations and in some of them it was still eye reading made once an hour.

On Sunday April 14 at 7.30 p.m. the ill-fated ship position was fixed by stellar bearings. At 11.45 p.m. the ship struck the iceberg. According to observations made at that night in Agincourt observatory which is 25 km northeast of Toronto, Canada, in almost the same latitude as the location of the Titanic's disaster, a disturbance in the earth magnetic field started some 25 minutes before the collision. At the time the ship struck the iceberg, the magnetic needle was shifted by $18'$ (0.3°). The course of the ship could be changed by as much as 45 meters during these 25 minutes. In maritime navigation this error is negligible. By all accounts, the ship Carpathia which was the first to arrive at the scene of the disaster early in the morning of April 15, had no difficulty immediately finding the lifeboats.

But since the iceberg was rather 'a small black mass not rising very high of the water' these 45 meters could have been crucial. The Titanic might have miss that iceberg or hit it in a way that

MAGNETIC TRACES RECORDED

AT THE

Observatory, Agincourt (Toronto), 1912.

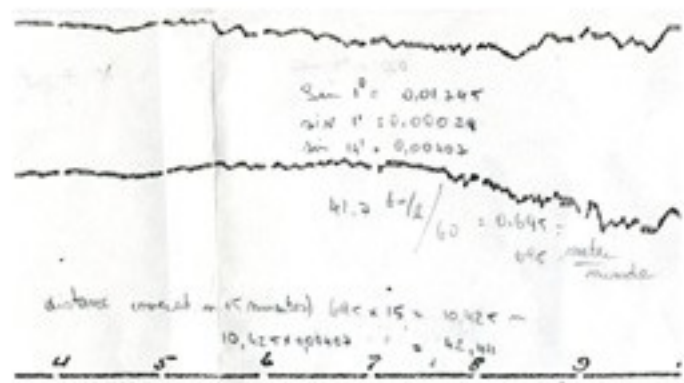
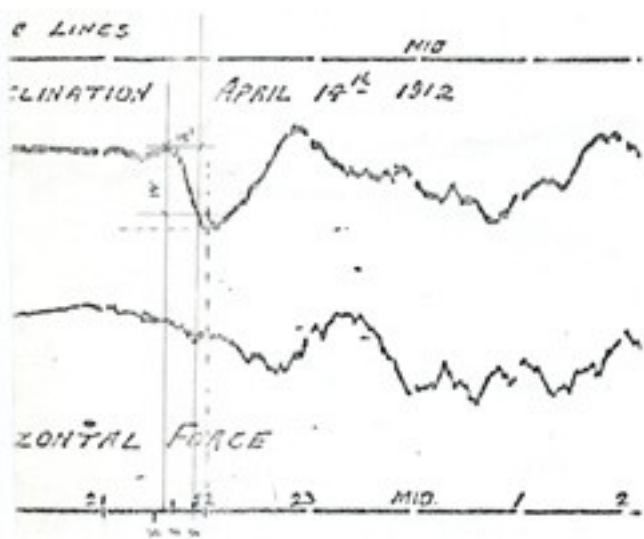
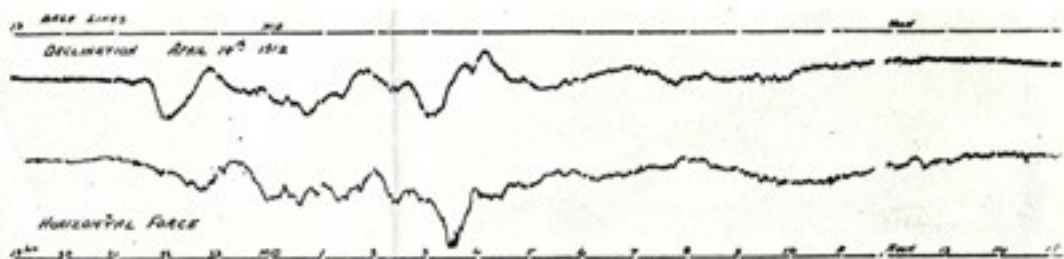
CANADA

AGINCOURT (TORONTO)

Lat 43° 47' N
Long 79 16 W

5 Hours East of GREENWICH

BY W
ST. GEORGE



would not have been fatal. Or the ship might have hit another iceberg. There were quite a few of them in that area that night.

The Agincourt magnetic traces were published by the Canadian Department of marine and fisheries and copies of them are kept in the basement of the Meteorological Institute in Helsinki. According to these data the magnetic disturbances continued for some hours which explains why the Northern Light was observed by Mr. Beesley and other survivors in lifeboat no. 13 during the night of the rescue.

Commander Charles Herbert Lightoller, the Titanic's second officer who went down with the ship and miraculously survived maintained in his memoirs which were originally published in 1935 that "the disaster was just a combination of circumstances that never occurred before and can never occur again".

Geoffrey Marcus disagreed: "The root cause of this appalling catastrophe was simply bad seamanship". Despite all the urgent warnings of ice by radio and signal lamp, the Titanic continuously increased her speed in an area which was known to have icebergs. The Officer of the Watch relied on the ship's two lookouts. When the iceberg was observed, it was too late to turn the huge liner, since she was too slow to respond to the movements of her rudder.

Were the officer and the sailors on Watch looking at the Northern Light instead of the sea before them or was their view disturbed by reflections from the northern light? There are no evidences to support this possibility.

Commander Joseph Grove Boxhall the fourth officer of the Titanic during that voyage told a reporter of the Nautical Magazine in 1959 that "the sea was absolutely calm, and thus the usual phosphorescence that played around the base of an iceberg in any sort of a disturbed sea was absent, and the lookout's job was made doubly difficult by there being no moon and the night pitch-black. However, visibility was otherwise good, and stars sparkled brightly in the frosty air".

As far as the fate of the Titanic, its passengers and crew is concerned, the Northern Light is not guilty, repeat, not guilty.

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