

The Titanic's Wireless History

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The “Shack”

The Titanic's radio room, known as the Marconi Room, comprised three compartments within the officers' quarters.

Layout of the radio suite: The Marconi Room

The Marconi Room was the height of modernity: luxury and technology, the envy of any amateur radio operator, although, in 1912, amateur radio was still in its infancy, with no regulations whatsoever. To some extent, professional telegraph operators looked down on the “radio amateurs” of that era. We were accused of causing interference, even deliberately, and of being poor telegraph operators.

In any case, those early sets and antennas used by the pioneers of amateur radio bore no resemblance to the magnificent 5 kW spark-gap transmitter fitted to the Titanic. The Marconi ‘T’ antennas ran the length of the ship from bow to stern, seeking to carry the transmitter's signal as strongly and as far as possible. This antenna is still in use today, or at least something similar to it. DL8LAS produces one of the strongest signals on the 160-metre band using a ‘T-shaped Marconi’ antenna.

On the frequencies used by the Titanic at that time, between 500 and 1000 kHz, or expressed in metres, between the 300 and 600 metre bands, signals could reach 800 kilometres in daylight and somewhat more than 3000 kilometres, at night. The amateur radio operators of that era could not even imagine anything like this with their rudimentary equipment.

This Marconi room housed the transmitting and receiving section, and of course, it contained the most important element for Marconi: a tube through which the telegrams arrived that the passengers sent in great numbers to their friends on land. And this is a key issue in the history of the shipwreck, as we shall see later.

In addition to the telegraph keys, the radio room also had several synchronised clocks; let us not forget that during its voyage, the Titanic crossed different time zones.

Finally, it also housed a battery-powered spare transmitter, in case the ship's main power supply failed.

Layout of the radio suite: The silent room

One of the many innovations in these quarters was the construction of a soundproof room to isolate the noise generated by the 5 kW rotating spark transmitter and the transformers themselves that powered the equipment.

Layout of the radio suite: The operators' cabin

After endless days spent sending hundreds of 'Marconigrams' – as the telegrams sent via Marconi transmitters were known – the operators had a small room, adjoining the radio room, equipped with bunk beds, a wardrobe and a washbasin so that they could rest a short distance from their workstation.

First radio contacts

The Titanic was built in Belfast, Northern Ireland, and set sail from there on 2 April 1912 to carry out tests on the radio station. That

very afternoon, local contacts were made at low power to begin adjusting the antenna, transmitters and receivers, as explained by José Dávila Dorta, EA8EX, RIP, in an article held in the EA4DO historical archive. Today, José's son, Ruca, retains the call sign EA8EX.

The sea trials were so successful that Captain Smith decided not to return to port and set course for Southampton.

The following day, once the adjustments were complete, the first full-power test was carried out: "V V V CQ DE MGY".

This call was answered by the Tenerife Radiotelegraph Station. The distance between the ocean liner and the coastal station was 2,000 nautical miles (around 3,700 km), making the island of Tenerife a key player in the Titanic's 'wireless history'.

Another contact with the radio station in Port Said, Egypt, 3,000 nautical miles (around 5,500 km) away, confirmed to the telegraph operators that the Titanic's radio station was ready for the voyage, which began on 10 April 1912 bound for New York.

MGY

Initially, the Titanic's radio station was assigned the official call sign "MCU", but a few days later it emerged that MCU was a call sign already assigned to the US ship "Yale", so it was changed to MGY. The 'M' indicated that the radio had been manufactured by Marconi (or 'T' in the case of Telefunken). The second letter stood for the ship's country, in this case 'G', representing the United Kingdom (Great Britain). The 'Y' identified the Titanic.

Let us talk about three telegraph operators from the early 20th century: John George Phillips, 'Jack' Phillips, who was the officer in charge of the Marconi room; Harold Sydney Bride, who was his second operator; and Harold Thomas Cottam, who was the

telegraph operator on the RMS Carpathia, the ship that was the first to come to the rescue.

This is the story of the final “dots” and “dashes” transmitted by MGY: the RMS Titanic.

The first warnings

12 April 1912, the second day of the voyage. The Titanic receives at least 12 warnings of icebergs floating in the Atlantic from other ships in the vicinity. The messages are relayed to the bridge, and the course is altered to less icy waters before heading for New York. The captain orders the lookouts to be reinforced.

The radio breaks down

That same evening, on the 12th, a problem arises. A fault renders the radio station inoperable. Phillips and Bride, disregarding Marconi's instructions, attempted to locate the fault, which they would not find until many hours later.

Full steam ahead!

The Titanic maintained its speed of 22 knots; the lookouts scanned the horizon on a clear night with calm seas. Were these good conditions for spotting an iceberg? Definitely not, and perhaps even less so as they were unable to use binoculars.

A calm sea makes it difficult to spot icebergs, as there are no waves breaking against them and the characteristic foam that alerts sailors to the possible presence of a floating mass of ice does not form.

Why couldn't they use binoculars? Because David Blair, the second officer and the person in charge of the binoculars, was replaced at the last minute by Charles Lightoller, and Blair did not board the ship; he was transferred to the RMS Oceanic. Due to the haste with which the handover took place, he forgot to inform anyone of the location of the binoculars, nor did he remember his duty to hand over the key to the cupboard where they were kept.

The radio is working again!

13:40 UTC on 14 April. The fault is finally identified. A very lengthy repair, but it must be said in defence of Phillips and Bride that they were not radio technicians; although they had some knowledge of electronics, they were merely telegraph operators. Marconi employed specialist technicians who were the only ones authorised to carry out repairs on his radio stations. And they were not on board.

Many hours had passed with the Titanic's radio switched off. Up to that point, over 250 Morse code messages had been transmitted, and another 200 telegrams were piled up on the desk, waiting to be sent. Most of these messages were of little consequence, but they represented a significant source of income for Guglielmo Marconi's company.

But that was not the worst consequence of the breakdown: during all those hours without radio, the Titanic had failed to receive a significant number of messages from various ships, warning of icebergs floating in those waters.

Once the radio was working again, two more ships, the RMS Mesaba and the SS Californian, warned the Titanic of how close their vessels were to large masses of ice, but these messages were never taken into account by the captain, and there is an explanation for this. When a message was sent addressed to the ship's captain,

the message had to be headed with the initials 'MSG', and some of those messages did not have that heading, probably due to the sender's lack of knowledge, and that is why they did not reach Smith. It is possible that there were other messages that did carry the 'MSG' heading and were ignored, but that is another story.

MGY: Stop the engines, we're surrounded by icebergs!

The SS Californian, which was just 20 miles from the Titanic, warns that they are stuck amidst large masses of floating ice. The Californian's telegraph operator, on his captain's orders, insists on reporting the gravity of the situation. Jack Phillips confirms that he has received the message and asks the Californian's telegraph operator not to disturb him any further, so that he can continue with his traffic of passenger telegrams (this could be a case of a message without the "MSG" header).

At 23:30 UTC on 14 April 1912, Cyril Evans, the radio operator on the Californian, tired after a long shift, confident that the Titanic had already been warned of the danger, and seeing that his radio operator's sole concern was to transmit the passengers' messages, switched off the radio and went to sleep.

Iceberg in sight!

23:40 on 14 April 1912. A lookout reported an iceberg ahead. Captain Smith was resting in his cabin, having been relieved on the bridge by the first officer, William McMaster Murdoch, who ordered the ship to turn sharply to port (left) in a desperate attempt to avoid the iceberg on the starboard (right) side. But it was already too late; they were travelling at 22.5 knots, nearly 42 kilometres per hour, and the Titanic struck the iceberg on its starboard side.

The collision

Today, some researchers question whether the ice actually tore large gashes in the side of the liner—the account accepted for over 100 years—and instead tend to believe that, in reality, the Titanic dragged its hull over one of the submerged parts of the iceberg, leaving countless small holes that allowed water to seep in along the hull. This is what the new 3D models appear to show, as suggested in the National Geographic documentary “Titanic: The Digital Resurrection”, and as had long been pointed out by the discoverer of the Titanic, Dr Robert Ballard, who, before his death, revealed his conviction that the Titanic’s hull had serious structural problems and issues with the quality of its construction materials. One of the proven facts is that most of the ship’s rivets were made of wrought iron, and not even of the best possible quality for that era, containing a large amount of impurities.

There are other conspiracy theories, in which the sunken ship was not the Titanic, but its ‘twin’, the ‘Olympic’, as part of an alleged scheme to claim the ‘Olympic’s’ insurance.

An even more extreme theory than the previous one, if that is possible, is the one which claims that the whole affair was a plot by J.P. Morgan to eliminate the millionaire John Jacob Astor; mining magnate Benjamin Guggenheim and Macy’s co-owner Isidor Straus, who were blocking the creation of the US central bank—what we now know as the Federal Reserve— which was established a year later... but we shall not delve into those depths.

Be that as it may, following the collision, the captain of the Titanic returns to the bridge and requests a damage report. He then goes to the Marconi room, briefs Jack Phillips on what has happened and warns him of the possibility that they may have to send out a distress call.

35 lost minutes

Over the next 35 minutes, life does not change much on board the liner; in fact, in the radio room, they remain overwhelmed by the volume of unsent messages and continue to transmit passengers' telegrams to Cape Race.

00:15 UTC, 15 April 1912. Jack Phillips, tired and bored, sends one more telegram:

"TITANIC TO CABO RACE: GEORGE SIMUND. NEW YORK. DELICIOUS WEATHER. FEELING WELL. HOPE EVERYONE IS TOO".

We're sinking!

At that moment, Captain Smith bursts into the radio room and orders the transmission of the "CQD" signal (the maritime distress call used by Marconi). The content of the next telegram changes drastically:

CQD FROM MGY (Titanic's call sign) (The call is repeated up to six times)

POSITION: 41.44N 50.24W (The position would be corrected minutes later to 41.46N 50.24W and subsequently to 41.46N 50.14W, probably due to the drift of the ship as it was already sinking).

First responses to the "CQD"

The first ship to respond to the Titanic's distress call was the RMS Frankfurt, a slow vessel that was a long way from the area. Phillips continued to transmit "CQD" until, shortly afterwards, he received a reply from the telegraph operator Harold Cottam on the RMS

Carpathia, which would ultimately be the first ship to reach the scene of the wreck, four hours later.

From 00:45 onwards, Harold Bride suggested to his boss that they transmit “SOS”, the new maritime distress signal which, since 1908, had begun to be used in place of Marconi’s “CQD”.

“SOS”, of German origin, is quicker to transmit and more recognisable than “CQD”, especially in poor reception conditions. Contrary to what many people think, that is the only reason why those three letters were chosen. It does not stand for “Save Our Souls” or “Save Our Ship”, which had already been in use for several years prior. The RMS Slavonia, in 1909, was the first ship to transmit an SOS. It is simply a highly recognisable sound, even to people unfamiliar with Morse code.

But what happened to the Californian?

The SS Californian was 11 miles from the spot where the Titanic struck the iceberg, as established by subsequent judicial inquiries conducted after the liner’s sinking. From the Californian, they saw the white flares launched from the Titanic at 00:55. The captain of the SS Californian, Stanley Phillip Lord, who was asleep in his cabin, was informed and asked how to proceed, and the captain replied that these were not distress signals, but rather signals identifying the shipping company. At the trial, Captain Lord stated that he did not recall that conversation, perhaps because he was asleep.

The officer in charge, Herbert Stone, ordered an attempt to communicate with the ‘ship in sight’ using the ‘Morse lamp’—a system of light signals—to which the Titanic did not respond.

Why such nonsense?

Why Stone did not wake the radio operator on the Californian is a mystery that the judges were unable to resolve. The watchkeepers observed that the ship approaching them was getting smaller and smaller, so they concluded that it was moving away under its own steam. The truth is that what they were witnessing was the sinking of the Titanic.

The court deemed these events to be an act of gross negligence. Captain Lord was dismissed from the Leynard Line shipping company and the second officer, Stone, took responsibility as the officer on watch on the bridge.

Phillips! Bride! Abandon ship!

Various sources consulted agree that, faced with the imminent sinking of the Titanic, at 02:10 UTC Captain Smith relieved the two telegraph operators of their duties. Jack Phillips insisted on continuing to transmit as many distress calls as possible, until the radio stopped working.

In the seven minutes that followed, there was time for one final incident. Bride had left the radio room for a moment and, upon returning, found a stoker attempting to steal Jack's life jacket, whilst Jack was concentrating on his final SOS signals. Bride rebuked the thief, and together they overpowered him. The man was knocked unconscious. Water had already flooded the Marconi room; it was the end. At exactly 02:17, the generators gave out and the Titanic fell silent.

Every man for himself!

The scene that greeted both telegraph operators as they stepped out onto the deck was devastating: the bow of the Titanic was

already visibly submerged in the water, to the extent that the stern, rising above the sea, revealed the ocean liner's gigantic propellers. It is said that music could be heard coming from somewhere near the third funnel, but this is one of the myths surrounding the Titanic, both debunked and corroborated in various accounts. What could be heard perfectly clearly were the terrified screams of people scrambling for a final lifeboat to climb into and save themselves from certain death.

The lifeboat

Bride encountered the Titanic's second officer, Charles Lightoller, who was asking for his help in launching a folding lifeboat. Together with other crew members, they deployed the boat and, at that very moment, at 02:18 UTC, the ship's hull split in two. One of the davits holding the boat was torn clean off, causing it to capsize and land upside down on the Titanic's deck. According to various sources, Jack Phillips ran towards the stern of the ship at that moment, looking for an alternative, but there are witnesses who confirm that he was seen in a boat. In any case, that was the last time Bride saw Jack.

The two miracles

Harold Bride was trapped beneath the lifeboat that had just fallen onto the deck. The fate of the Titanic's second telegraph operator seemed sealed; but fate can be very capricious, and on this occasion it worked in Bride's favour. When the hull split in two, water flooded that section of the liner's deck; the lifeboat floated upside down and drifted slowly away from the ship, carried by the waves caused by the funnels that had collapsed onto the sea's surface.

Bride, still beneath the lifeboat, survived thanks to the air pocket that remained beneath it. Up to fifteen people then climbed onto the hull of the lifeboat, onto which Bride himself later climbed, showing clear signs of hypothermia. Subsequently, after spending many hours standing in the capsized lifeboat with his feet in the water, he suffered severe frostbite.

Charles Lightoller, who had unsuccessfully helped to prepare another lifeboat, jumped into the water at the last moment and miraculously ended up in the same boat as Bride. From there, they watched as the Titanic disappeared into the cold waters off Newfoundland at 02:20 UTC, with hundreds of people on board.

Charles Herbert Lightoller, second officer of the RMS Titanic, was the last survivor rescued by the Carpathia.

The wrong place at the wrong time

The stern was the last part of the ship to sink. During the sinking, some of the engineers who had designed the liner did not tell the passengers the whole truth, assuring them that there was no cause for concern because the Titanic was divided into independent, unsinkable compartments, and so the stern was a safe place. It was not. The bulkheads were not fully sealed, acting as communicating vessels as the bow sank. When the ship split, the fracture was not clean, and until it finally broke in two, the bow of the Titanic was dragging the stern towards the seabed. Once the bow and stern separated, the stern settled back onto the sea, leading many to believe it would not sink, but this was a mirage. Within minutes, the water gushing in brought the stern back upright and it sank at a faster rate than the bow itself.

This is why the two are now 600 metres apart. The bow had a downward angle, whilst the stern plunged straight down.

The legend

At that very moment, at 02:20 on 14 April 1912, the telegraph operator Jack Phillips became a legend. Nothing more was heard of him; his body was never recovered. In an ironic twist of fate, the man who managed to get a multitude of ships to respond to his distress calls—including the RMS Carpathia, the first to reach the scene of the wreck— was unable to help either himself or the hundreds of people who had already gone down with the Titanic, or died of hypothermia, drowning or trauma, two hours earlier.

Jack Phillips remained at his radio post far beyond the call of duty. He wanted to send every last signal the Titanic allowed him to transmit, regardless of the cost to his own life. Together with Bride, he disregarded Marconi's orders and repaired the Titanic's radio, without any fear of reprisals for disobedience.

The other hero

The Titanic's second telegraph operator, Harold Bride, was later transferred to the Carpathia, where, though physically and emotionally shaken, he helped the steamship's telegraph operator send messages to the mainland to compile a list of those who had survived the most memorable maritime disaster in history.

Mysteries at a depth of 3,800 metres

The reasons why some of the iceberg warnings received and allegedly sent to the bridge by Phillips and Bride, or why the SS Californian did not come to the Titanic's aid despite having it in sight, are mysteries that sank with the liner and with the 1,517 people who could not be saved on 14 April 1912 at 02:20 UTC.

However, more than 700 people survived, thanks to the Titanic's crew and the three Marconi telegraph operators, whose hands did not falter until the very last dot, until the very last dash.

Manifesto on Telegraphy

This memorial to these three telegraph operators—Jack Phillips and Harold Bride of the Titanic, and Harold Cottam of the Carpathia—serves to honour their memory, but also to remind administrations, amateur radio associations and amateur radio operators themselves around the world that Morse code and CW must be safeguarded as a fundamental heritage for the whole of society, a heritage that we must strive to pass on to future generations, from generation to generation.

Let us respect all modes of transmission, but let us not leave the very first one in the lurch. If the authorities do not wish to require training for telegraph operators, then let the associations themselves, and we ourselves, rebel against that decision, and let us strive to generate interest in telegraphy and train future CW operators.

Perhaps you believe that telegraphy deserves to be considered intangible cultural heritage of humanity. This proposal has been promoted by various bodies, starting in 2011 with the International Amateur Radio Union Region 1 (Europe, Africa and the Middle East). Associations such as the Deutscher Amateur Radio Club (DARC), which succeeded in having Morse code included in Germany's National Register of Intangible Cultural Heritage in 2014, a necessary preliminary step for the application to UNESCO.

In the Netherlands, too, the Vereniging voor Experimenteel Radio Onderzoek (VERON) is working towards this goal.

In Belgium, several communities have joined this campaign, securing national recognition for Morse code.

In Spain, we know of prominent members of the Spanish Amateur Radio Union (URE) who strongly support the initiative to raise awareness among our governments regarding the place Morse code should occupy in history.

An example of this is the Radio Club Llíria, which carries out outreach work to raise awareness of the importance of this language as a shared heritage.

And we, the organisers of the Titanic Memorial, from the Vigo-Val Miñor Amateur Radio Union, are joining in this support.

We are convinced of this, and we wish to raise awareness amongst the Spanish amateur radio community, the URE and all relevant institutions, so that this initiative may be debated in Spain, as has already been done in the countries we have mentioned.

We telegraph operators don't want to be like the Titanic's orchestra. This cannot be our swan song before we disappear. There is still a collective memory of telegraphy. Don't do this to our history. Telegraphy deserves to be recognised as part of humanity's heritage.