

## **Evidence for the success of Hülsmeier's demonstrations on 17 May 1904:**

On the morning of 17 May 1904 a demonstration of Hülsmeier's system was made at the Dom Hotel in Cologne. There are two newspaper reports that were published the next day, on 18 May 1904. A translation of the first, from the *Kölner Tagesblatt*, reads as follows:

*Kölner Tagesblatt*  
*From Cologne and the counties*  
*Cologne. 18 May 1904*

*Detection of ship collisions at sea. Wireless telegraphy is becoming more and more popular. The engineer Christian Hülsmeier has invented an apparatus which – based on the principle of wireless telegraphy – aims to detect ships and other metallic objects on the sea; he calls this the Telemobiloskop.*

*The difference between the existing application of wireless telegraphy and the invention of Hülsmeier's, apart from the constructive innovations, is merely that, while in the wireless telegraphy the transmitters and receivers are used separately on different ships, the Telemobiloskop is arranged on a single vessel. The electrical waves emitted by the transmitter do not directly actuate the receiver, but must be reflected by a metal object, ie a ship, located on the sea, and thus reach the receiver in an indirect way. So if a ship is equipped with the apparatus, the moving transmitter will independently search the sea to a certain radius - 3 to 5 kilometers; If the emitted electric waves strike the impenetrable metal of a ship, they are reflected back and on the transmitting vessel, the "receiver" actuates an alarm and signal apparatus, which not only notifies the captain, up to 5 km away, of the presence but also of the course of another ship, so that even under foggy conditions he still has time enough to give his vehicle a direction to avoid a collision.*

*While both ships must have the necessary equipment for wireless telegraphy to communicate between two ships at sea, the vessel equipped with the Telemobiloskop can detect another ship without the latter having to possess the equipment. Considering how many ships are destroyed by collision and how many people perish, one will certainly appreciate this new application of wireless telegraphy.*

*Of course, the invention could have special value for military applications. To introduce the invention, the Telemobiloskop company Hülsmeier & Mannheim has been formed, which presented the invention yesterday afternoon in the courtyard of the Dom Hotel of a gathering of interested parties and members of the press. For this survey, senior engineers of the North German Lloyd and the shipping company Argo came to Cologne from Bremen and these experts were wholly unreserved about the idea underlying this invention as well as the practical usefulness, as far as it can be judged by the model apparatus. The transmitter and receiver were arranged one above the other, but isolated from each other by metal plates. Once the encoder has been set, the transmitted electric waves, coming from a farm gate about ten yards away, came back and set in motion a bell at the receiver, lit an incandescent light, turned a small motor, and exploded cartridges of the kind used to ignite mines.*

*The apparatus worked extremely precisely. The inventor explained also that a non-metallic target reflects the electric waves, which could propagate through the wall of the hotel and act in the same and in the same way as before without obstacles. **The spectators felt that they were witnesses of the first demonstration of one of the most important inventions of our time.***

The second is from the *Kölnische Zeitung*. The German version of this is given in Arthur Bauer's description [1], p24, and it translates as:

*The Telemobiloskop, an invention of the engineer Christian Hülsmeier in Dusseldorf, was demonstrated yesterday morning at 11 o'clock in the Dom Hotel in front of representatives of the North German Lloyds, the steamship company Argo in Bremen and other invited gentlemen. The invention is based on the principle of wireless telegraphy and aims to detect ships and other metallic objects on the sea. The difference between the existing application of wireless telegraphy and this invention is that while wireless telegraphy uses a transmitter and a receiver on different ships, in the Telemobiloskop the transmitter and receiver are located on the same ship. The electric waves emitted by the transmitter cannot reach the receiver directly, but must be reflected by a metallic object on the sea (that is, by ships), and thus reach the receiver. **The attempt with the small apparatus, which was arranged only for small distances, succeeded perfectly.** To exploit the invention has a company has been formed under the name Telemobiloskop Society Hülsmeier u. Mannheim.*

Both of these newspaper reports are clear that the demonstration at the Dom Hotel was successful.

According to several accounts, after this the party moved to the banks of the Rhine, just a few minutes away (the proposed location of the plaque) for a second demonstration. However, we have not been able to find unequivocal proof of the success of this.

However, there is a recording of Hülsmeier himself made in 1954 [2] in which he speaks of a demonstration of his system 'unter der Rheinbrücke' (under the bridge on the Rhine). Bauer points out that it is not clear whether or not he meant the demonstration of 17 May 1904, but it is quite likely.

*... Ich habe dann auch in Köln die Apparate unter der Rheinbrücke auf dort vorbeifahrende Schiffe vorgeführt, in Beisein des Professors Bernbach (Dernbach?) ...*

*... In Cologne, too, I demonstrated the apparatuses **under the Rhine bridge to ships passing by**, in the presence of Professor Bernbach (Dernbach?).*

So the location and the success of the demonstration in detecting ships are clearly stated.

Another factor is that one week after these demonstrations (25 May 1904) Hülsmeier wrote to J.V. Wierdsma, the Director of the Holland Amerika Line shipping company, to arrange a further demonstration in the harbor of Rotterdam, The Netherlands (the letter is on p29 of [1]). This demonstration took place on 9 June 1904. Surely Hülsmeier would not have done this unless the demonstrations in Cologne on 17 May 1904 had been successful.

Finally, the original equipment is on display at the Deutsches Museum, Munich [3] in the Marine Technology section, with the description:

*Erste Radarvorrichtung ("Telemobiloskop") von Christian Hülsmeier (1904)*

which is translated as:

First Radar Device ("Telemobiloscope") by Christian Hülsmeier (1904)

The equipment is in working order and, as noted in Fred Daum's letter, achieves a detection range of roughly 3 km.

My proposed solution to this is to amend the wording on the plaque to read:

On 17 May 1904, close to this site, Christian Hülsmeier demonstrated his *Telemobiloskop*: a spark gap transmitter, simple parabolic antennas, detector and an indicator. Using electromagnetic waves, it rang a bell when a barge passed in front of the system at a range of several hundred meters. He patented this device in Germany, the UK and in the USA. This device was the world's first radar.

That seems to me to be factually and verifiably correct. The ringing of the bell can be heard at the beginning of the audio recording [2].

[1] <http://www.cdvandt.org/Huelspart1def.pdf>

[2] <http://www.cdvandt.org/huelsmeier.mp3>

[3] <https://www.deutsches-museum.de/ausstellungen/verkehr/schiffahrt/marinetechnik/>