

Sea Mines Warfare 1914 – 1918 (5_14)

How to describe sea mines in action?

This section is an annexe to the previous chapter on War at Sea 1914-18, and aims to increase public awareness to the fact that the war at sea in those days was a force big enough to alter the course of climate. Evidently, by the end of 1918 a Severe Warming occurred at Spitsbergen. The shift was so massive that the whole Northern hemisphere warmed up for two decades. The northern part of the North Atlantic must have experienced a Severe Warming at Spitsbergen. The only external force available that could have caused this event at that time was the war in the North Sea and around the British Isles.

By a number of aspects mines play an important part in ‘changing the sea’ scenario that will be discussed in the following. The number of mines laid, ships sunk by mines and mine sweeping efforts turned every metre of the seas around Britain upside down many times over a short period. Mine warfare in WWI culminated in the building of an engineering masterpiece, viz. the Northern Barrage between the Orkney Islands and the Norwegian coast, which could actually have been ‘the final straw’ to make a Severe Warming happen somewhere further north by the end of 1918. 70,000 mines had been laid since summer 1918. Whether this barrage alone or together with other military activities at sea had made the big shift is not the core question. Accounting all naval means together they had the potential to change the composition of huge sea areas from top to bottom and that should be in focus.

The war at sea from 1914 to 1918 had two phases. The first phase lasted for two years until late 1916. This phase was moderate until the second phase that followed. From late 1916 on, the full potential of sea mines, submarines and depth charges was utilised. The employment of the entire range of destructive means and the time when the Severe Warming at Spitsbergen occurred, lie very close to each other. From all general figures mentioned in the following, presumably two-thirds and more belong to the years 1917 and 1918 and to events in the North Sea and the waters around Britain. The following text concentrates on data from this region.



Mines laid during the war

The North Sea was the main location to lay sea mines. The location and the number of mines laid depended on the anticipated target in view. Some of the main aims for all warring parties were to defend their coasts, coastal

travel, ports and naval bases. The Germans laid mines in distant waters to sink merchant and naval vessels serving Britain. The Allies often specifically targeted the German U-boats in the Strait of Dover, the Hebrides, and, most important, the Northern Barrage (see below).

Main minefields in the North Sea were the British East Coast including the Strait of Dover, Helgoland Bight and the Northern Barrage. A rough figure for each of these areas is 50,000 mines. The total number of mines in the North Sea was 190,000 and the total number during the whole of WWI was 235,000 sea mines.

Mine sweeping

Minesweeping is an activity that stirs and shakes the sea on an unprecedented scale. The ‘stir impact’ on the seas could possibly be even many times higher than the mine laying and the impact of mines that ‘hit a target’ together. Between two sweepers in motion ‘hung’ a sweep wire, with a kite, to cut the mooring rope of the mines. Britain alone had more than 700 minesweepers in permanent operation and the Germans also had a considerable number. Possibly 500 ships swept the North Sea every day, day and night. Admiral Sir R. Bacon responsible for ‘The Dover Patrol’ claimed that between 1915 and 1917 his minesweepers had swept a distance equal to twelve times around the earth¹. “Minesweepers were constantly being sent further and further afield as new minefields appeared (in 1917), and by the end of the year, over 1,000 miles of coastal waters in Great Britain and Ireland were being swept daily for mines, the work starting at dawn by different sections of sweepers stationed along the coast”.

Due to the destructive force of mines many minesweepers were lost. One example only: On April 14th, 1916, the trawler *Alberta* was blown up while sweeping a large German minefield. Undeterred its sweeping mate, the *Oracle*, went alongside the sinking vessel and she was also blown up with the loss of twelve out of fourteen men².

Manifold accounts and analyses about the loss of life at sea and damage and loss of ships exist but any questions concerning the impact on the sea have rarely been assessed. The following two reports may illustrate one aspect of sea mining that could have occurred hundreds of times.

Field Report – Example 1

From Taffrail³

While sweeping was in progress, mines usually detonated far enough astern of the sweeper to be harmful. If countermining occurred, however, a second or third mine might explode under a sweeper with disastrous results.

¹ Taffrail, p.20, p.123.

² Taffrail, p.247

³ Taffrail, p.314

A classic example of this occurred when a flotilla had been sent to skim a British deep minefield, which had been laid against submarines. The object was to skim the deep field to sweep up any mines that had been caught in shallow depth, and might be dangerous to surface ships. The minefield was large, and roughly covered the area between Rathlin Island and Skye (Northeast Ireland and West-Scotland).

Sweeping began and presently a mine went off in the sweep. Within a few seconds, the sea became chaotic with sprouting plumes of spray and smoke.



Each line of mines went off in a succession of terrific detonations until none was left. The entire minefield, deep and shallow, was thus unintentionally and automatically cleared in three minutes!

According to Taffrail⁴, Britain laid about 1,000 mines in the Rathlin

Island/Skye area, the Germans also presumably laid an equal number.

Field Report – Example 2

From Taffrail⁵

Presently a mine went off in the port wing sweep. A second later, two more exploded simultaneously – this time nearer to the ship and obviously not touched by the sweep. Countermining had started. Things were becoming exciting. Everyone looked on in apprehension, wondering where the next explosion would take place.

Thundering upheavals had now passed the ships on the port wing and were coming the line. A moment later a heavy concussion was felt in the bottom of all sweepers, and a huge dome of white water rose close at the stern of the next ship to the *Leamington*.

Operation continued

Minesweeping continued well after the armistice in November 1918 with 55 different flotillas still operating in June 1919. The British searched over 40,000 square miles until November 1919.

Drifting Mines

According to the terms of the Hague Convention mines were supposed to lose their danger from the moment they broke from their mooring. In practice

⁴ Taffrail, p.336f ⁵ Taffrail, p.315

one could not take that for granted. Actually, they often remained active and were regarded a danger to shipping and to civilians when swept ashore. Thousands of mines drifted long distances.

Losses on account of Mines

From the total number of merchant vessels sunk, ca. 6.000 vessels (12 Million tons) - only 259 ships (700,000 tons) are attributed to sea mines. The British also claimed a loss of 63 fishing crafts. Concerning minesweepers and other naval vessels sunk by mines, Taffrail⁶ gives the following account:

H.M.Ships (e.g. battle ships, destroyers, patrol boats, etc): 46,
 Auxiliaries on Admiralty services: 225,
 Minesweepers (sunk or seriously damaged): 214.

Northern Mine Barrage



U-boats had been a serious threat to the Allies since 1916. They regarded it paramount to prevent U-boats from leaving the North Sea into the Atlantic. To ‘close’ the northern outlet of the North Sea, about 150 sea miles (ca. 275 km), a long barrage between the Orkney Islands and Norway would be required. Off the Norwegian coast the water is 300 metres deep and the coast off Orkney about 100 metres. Sea currents can reach 3-4 nautical miles/hour. That was a challenge and required the development of a new mine, the MK6, to meet it. The charge consisted of 300 pounds of grade B trinitrotoluol (TNT). The mine itself was supposed to have a destructive radius of 100 feet (ca. 30 m) against submarines. Calculations showed that approximately 100,000 mines should effectively prevent U-boats from passing the line. Actually, only about 70.000 mines were laid until October 1918.

Mines were available by March 1918⁷, laying started. “Shortly after mine laying had commenced mines began to explode prematurely. By counting the explosions it was estimated that between 3 and 4 per cent of 3,385 mines laid blew up”⁸. In the middle section “A” mines were supposed to be



⁶Taffrail, p.335

⁷ Daniels, No.2

⁸Daniels, No.2, p.105

laid as follows: 10 rows of mines at 80 feet submergence, 4 rows of mines at 160 feet submergence, 4 rows of mines at 240 feet submergence.

Corresponding rows were laid before the Orkney Islands (section B) and Norway (section C).

From a detailed account by Daniels⁹ here are some illustrative events:

- When deep level mines exploded, ‘a circle of brown discoloured water was spreading slowly around the vessel’¹⁰.
- July 6th, a mine had been found on the Norwegian coast in the vicinity of Bergen (Daniels, p.108).
- July 14th, 5,395 mines had been laid in 4 hours and 22 minutes (Daniels, p.109).
- Approximately 5% of the mines exploded prematurely – a slight increase over previous statistics.
- July 29th, 5,399 mines laid with 14% of mines going off (Daniels, p.111), at one time even 19% in section C (Daniels, p.112).
- August 18th, 12% of mines exploded prematurely.
- Section A; mines which had been laid in this area by the British in March 1918, had in the meantime been swept up. (Daniels, p.115).
- September 29th, the Norwegian Government said that mines would be laid in the vicinity of Udsire Island, and it is understood that this had been done by October 07th (Daniels, p. 119).
- With the signing of the armistice on November 11th, the building of the mine barrage ended. (Daniels, p.120).
- Final Status of Barrage (extract): up to November 11th a total of 56,760 United States and 16,300 British mines have been laid. Completion of the barrage within the Norwegian territorial waters had been effected by Norway herself.

Mine sweeping started in spring and ended in autumn 1919. From more than 73.000 mines

- about 5,000 exploded prematurely soon after laying;
- 20,000 mines were disposed of while the work was in progress;
- from the remaining ca. 50,000 mines
 - more than 30,000 mines



⁹Daniels, No.2

¹⁰Daniels, No.4, p.47, picture caption

- were already ‘gone’ in spring 1919, either drifted away, or exploded during winter storms;
- rest 20,000 were swept in 1919.

Six months of sweeping operation comprised seven sweeping missions involving more than 70 vessels and 10 supply vessels.

Before closing this section, a final excerpt from Daniels’ report¹¹: In December 1918 it was regarded necessary to determine the actual condition of the mines in the barrage. Two small wooden sailing vessels *Red Rose* and *Red Fern* were chosen to cross the field. On December 22nd, “a few minutes before noon, as the vessels crossed the first line of invisible mines, a giant column of discoloured water sprang high into the air close astern of Red Rose. The first mine of the North Sea barrage has thus been swept”.

Mine warfare and the Norwegian Coastal Current



The Norwegian coastal current begins in the Skagerrak, about at the position 58° 45’ North and 10°00’ East, with water from the Oslo Fjord and Kattegat and follows the coastlines of Norway. The coastal current’s speed varies between 0.5 and 1.3 nautical miles per hour (nm/h) and would have crossed the area of the Northern Barrage.

The Norwegian Current, as the extended arm of the Atlantic Gulf Current has a higher speed than its original with about 0.4 and 1.2 nm/h.

If taken a medium speed (ca. 0.8 nm/h), sea water would flow from Scotland to the North Cape in about 35 days and to Spitsbergen in about 45 days.

Summary

Together with other war at sea means the sea mines warfare played a considerable role. It has been outlined in a previous chapter the war at sea impact cooled Britain down from 1915 to 1918. With excessive snow generation during these war years, a major change could also have happened in the sea water body that generated a Severe Warming at Spitsbergen. After all, 200,000 sea mines, are more than a drop in the ocean.

¹¹ Daniels, No.4, p.12