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When the Monitors Came to Europe: The Danish Monitor Rolf Krake, 1863.

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It is well-known that the USS Monitor made history at Hampton Roads on the 9th of March 1862, and that the name of the ship became the generic name for that class of vessels both in America and Europe. But I am sure that it's lesser known that the first monitor commissioned in Europe was the Danish armoured gun vessel Rolf Krake of 1863. In this short piece I intend to present the Danish monitor in its context.

After the Crimean War the speed of the naval technological development increased. The classic duel between the armor and the gun became very serious. The conditions were beyond the steam power the invention and the implementation of the shell gun, the screw propeller and the ironclad ship, which emerged in the Crimean war. The period around 1860 was really a battle field for more or less realistic technical inventions in naval matters. For instance, several technicians on both sides of the Atlantic worked with pivoted platforms for naval guns on that time.

As early as in 1854 the Swedish-born American engineer, John Ericsson, offered the French Emperor Napoleon III a project for a armoured low-freeboard vessel with a gun placed in a centrally pivoted cupola. But he was turned down. In 1855 the British naval officer and ship designer, Cowper Phipps Coles, designed a raft capable of bearing a 68-pounder gun on a centrally pivoted platform protected by a dish-cover-like shield that he called a cupola. This raft, Lady Nancy, was designed for being towed. After this construction Coles turned his hand to designing other shallow-draft vessels with protected artillery. From the construction used on the mentioned gun raft it was an easy step to the turret or cupola. In 1859 Coles designed a so-called cupola-ship which had ten pivoted turrets of which the eight were placed diametrically – a kind of dreadnought before H.M.S. Dreadnought.

The Admiralty was not pleased with the construction as such, but accepted that one of the cupolas constructed by Coles was installed in one of the so-called Kinburn-Batteries in 1861. In the attacks on the Russian Coast Batteries the construction of the mentioned

turret turned out to be a successful one, and the Admiralty decided to build a ship following Coles' cupola-design. The work began on the 29th of April 1862 more than a month after the event at Hampton Roads. For many reasons this cupola-ship did not become the first monitor in Europe.

The Danish military archives contain several examples of inventions, which French and British engineers tried to sell to European governments. Mr. Rennie, London, was such an inventor. He offered the Danish government a plan to an armoured vessel with a closed-turret in 1861. This project shows that it was not only John Ericsson and Coles who worked with the same concept at that time, but may be it is a surprise why Denmark became the first country in Europe to get a monitor.

In 1807 the Royal Navy confiscated the whole sailing Danish Navy. After the war 1807-14 the Danish Government was forced to build up a navy from scratch and was therefore more receptive to the new development in spite of small funds. As a matter of fact the Danish Navy got its first steam ship in 1824 and its first screw propeller warship in 1851. In 1855 Denmark began to build combined sailing and to build steam ships the so-called full-power-ships. These warships represented a modern design for its time, but the development during the Crimean War outdated them very quickly. An illustration of this fact is that the last of the Danish full-power-ships, the screw-frigate Jylland, which still exists as a museum ship, was built in 1860, the same year as the full-metal ship H.M.S. Warrior.

Beyond the receptive attitude it played a role that the Danish Government in the beginning of the 1860s had to face an upcoming political conflict with Prussia. The Prussian Navy was, as a matter of fact, very small, but the Prussian Army was very dangerous, and for the Danish strategy it was very important that Denmark could maintain the command of the sea between the peninsula Jutland and the many islands especially Zealand where Copenhagen is placed.

The Danish Government was therefore at that time very anxious to get a few strong and effective armoured vessels suitable for use in the sheltered and shallow Danish waters. The real push came with the news about the Monitor and the events on Hampton Roads.

During the months of February and March 1862 the Danish Cabinet considered to ironclad one of the existing frigates or to build a new iron frigate.

In the outstanding diary of the Danish politician and minister A.F. Krieger we have a good source to the mentioned considerations and discussions in the Cabinet on this matter.

On the 29th of March, just after the news about the Monitor and the Virginia reached Copenhagen, the matter was again on the Cabinet's table. It's characteristic that the Secretary of the Navy, a naval officer by profession, was reserved in his attitude to the possible consequences of the event. Some of the civilian ministers on their side could see the possibilities of such a kind of vessel in a Danish context, and they proposed that

Denmark obtain a vessel like the Monitor. To raise the funds they proposed to reduce the appropriations for the Coastal Batteries in Denmark.

On a Cabinet Meeting, on the 2nd of April, the Secretary of the Navy had changed his Mind "due to influence of his naval colleagues" according to A.F. Krieger. Barely a month after Hampton Roads on a meeting on the 5th of April the Danish Cabinet agreed to get a monitor for the Danish Navy as soon as possible.

At the same time the Danish Minister in Washington D.C. W. Raasløff who was originally an officer, also saw the possibilities of the use of monitors in the Danish Defense, and without knowing the discussions in the Cabinet, he mailed home on the 26th of April several information about Monitor.

On the 9th of May the Naval Staff instructed two officers and naval constructors to go to Great Britain and the United States of America to collect information and acquire knowledge about monitors and other similar armoured vessels. They went to London and Glasgow where they visited the Shipyard Napier & Sons, which worked with armoured vessels. In a report of 23rd of May the two officers wrote that they had received an offer both from Napier & Sons and Samuda & Brothers, London. Both constructions implied guns placed in cupolas after Coles' system. The report recommended the construction of Napier & Sons even if it was the most expensive.

The Danish naval officers arrived at the U.S.A. in June and were on board the Monitor on the James River on the 14th of June 1862 thanks to the contacts of the Danish Minister. The Navy Staff in Copenhagen got a report from the two officers, which contributed to the considerations about what type of armoured vessel the Navy was to order.

In the meantime on the 24th of May, the Danish Minister in the United States received a specific offer from John Ericsson for a monitor to serve in the Danish Navy, which he mailed very quickly to Copenhagen. In the offer Ericsson described the ship in question as "a 200 feet length armor clad iron steam vessel of war with revolving turret on the monitor system". He also declared that he "agrees to finish the vessel completely ready for active service in all respects, except guns, ammunitions, coal, and stores for the sum of four hundred thousand dollars.. (he) further agrees to have the vessel ready to leave this port in six months from the day receiving orders from Your Government".

The technical discussions and research about the Danish Navy's new monitor took place in the so-called Construction Commission in June and July 1862. The commission had to choose between the American design and the English design. The two types did not differ essentially from each other, but the English had a higher freeboard, which didn't exist on the Monitor. The systems of the turrets also differed. There were four options with plans, specifications, and prices from respectively: -

1. Napier & Son, Glasgow, which worked together with Coles and at that time already had some

experiences in that matter;

2. Samuda & Brothers, London;
3. Baumgarten & Burmeister, Copenhagen, and
4. John Ericsson, New York.

Unfortunately the plans belonging to the first two options are not in the files today, but we know Nos 3 and 4. The commission found the plans and the project of Ericsson attractive of course. It had already showed its ability and effectiveness, but the commission was afraid that Ericsson's monitor had too little seaworthiness for the Nordic Waters. Another issue was that the communication with John Ericsson would take too long time. The Danish authorities were apparently in a hurry. In the end they decided to choose between the Danish project and the offer from Napier. The contract with the last mentioned shipyard was signed on the 28th of August 1862.

In the textbooks it is often mentioned that through the contract with Napier & Son Denmark chose the Coles System in favour of the Ericsson System, but it is not entirely true.

In the end of September 1862 the Danish authorities doubted that Coles' cupolas were the most suitable for the ordered monitor. Therefore they asked one of the Naval officers, who had been in England and the U.S.A. to make a report about the advantages and the disadvantages of the cupolas after the Coles System and the cylindrical turrets after the Ericsson System, respectively.

According to the report the Ericsson turrets were designed for muzzle-loaders and were heavily armoured. The turrets were turned by steam power and placed in its base directly on the deck. The Coles' conical cupolas were originally intended to be breech-loaders, which made them smaller and more narrow compared with the Ericsson turrets. The cupolas were lighter armoured and were turned by manual power. The report mentioned that, in general, for small vessels John Ericsson recommended only single turrets, because it gave a better and more comprehensive use of the guns in such a case. The conclusion was that the Ericsson turrets had the advantages.

The Napier & Sons were also asked about the cupolas, and after having consulted Coles himself, they also recommended cylindrical turrets like in the Monitor instead of the conical cupolas.

Compared with the plans Napier first offered the Construction Commission the final plans differ on several points following the Danish wishes. The Danish monitor was more a ship than the Monitor, but the Construction Commission stated that it was necessary with some masts, but not with sails as such. As a matter of fact the Danish monitor got sails and used them occasionally, Therefore it is more correct to say that the Danish armoured battery was a go-between the American and the English System. In the general

development of the monitors it represented a special type, which was imitated in the late 1860s. For instance the monitor, which Coles designed in 1865 and which later became the Peruvian Huascar, was a type very close to the Danish design.

The Danish monitor or armoured battery got the name of the Rolf Krake after a hero in the ancient history of Denmark. The construction of the ship in Glasgow was observed very closely by Danish naval officers and constructors. Just before the commission of the Rolf Krake the Danish authorities seemed to have had some difficulties because the English authorities suspected the Danes to be sympathetic to the Confederate cause in America. But the guarantee was managed, and the monitor arrived at Copenhagen Harbour in July 1863. It displaced 1.350 tons, carried four 8-inches guns in two pivoted twin turrets. The armour was of solid plate 4 ½ inches thick on the sides. The freeboard was about 3 ft. The machinery was of 700 hp. The length was 180 ft., the breadth 37 ft. and the depth 10 ft.

Through quick decisions the Danish Government managed to have a very strong and modern naval unit when the war with Prussia, as expected, broke out in the beginning of 1864. The Rolf Krake played an important role during the war and contributed to maintain the command of the sea. After the war and until 1880 it was very often in use. It was not phased out till 1907.

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