

# Militärisch-Industrieller Komplex?

Rüstung in Europa und Nordamerika  
nach dem Zweiten Weltkrieg

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With a little help from your friends ...  
Rebuilding the Royal Danish Navy 1945–1965

1. Introduction

Denmark is an island nation and as such the Danish navy has always been a cornerstone of the defense of the nation. From the establishment of the navy in 1510 until the British seizure of the fleet in 1807, a large fleet was one of the main reasons for Denmark's role as a major power in Northern Europe. Neither the country nor the fleet ever regained the pre-1807 strength and since then Denmark has been just another small military power in Europe.

From almost the very beginning, the armament industry in Denmark has been a government-controlled branch of the industry. The Royal Danish Navy received its major warships from the Royal Dockyard (from 1866 until 1993 known as Orlogsværftet): in the 18<sup>th</sup> and early 19<sup>th</sup> century one of the largest and most innovative industrial complexes in Denmark. The shipyard swiftly managed the shift from sail to steam. As a result, the submarines, torpedo boats and coastal defense ships built during the years leading up to the First World War were tailored for Danish waters and comparable if not superior to similar vessels from other navies.

During the inter-war years the fleet was, however, reduced by almost 50 percent and a lot of know-how disappeared. In short, Denmark became too small a country to have its own armament industry, and during most of the Cold War the armed forces had to procure almost all of its weapons from foreign countries. Although the ships were still built at the Royal Dockyard or civilian shipyards, their weapons and electronic equipment were for the most part acquired in the US or from other NATO allies. Furthermore, a persistent lack of funds made the Danish Armed Forces a very conservative buyer: there was almost no money for experiments, which meant that the armed forces mainly let other nations bear the burden of research and development. Hence, the armed forces generally did not buy equipment before other nations had proven it worth buying. This might have been a sound economic decision but meant that the Danish Armed Forces through most of the Cold War were constantly one step behind its allies.

## 2. The Second World War and its Aftermath

Denmark was one of the few nations in Europe which made it relatively unscathed through the Second World War. The German Wehrmacht occupied the relatively small constitutional monarchy in April 1940. It was an almost peaceful occupation because the Danish government took the conscious decision not to fight, since its own army and navy were no match for the invading forces. Following the invasion, the Royal Danish Army and Navy were granted permission by the Wehrmacht administration to keep most of their original equipment. This created an odd situation: they could continue operating, albeit without a real mission, as the Wehrmacht was »protecting« Denmark. This ended on August 29<sup>th</sup>, 1943, when the government in Copenhagen resigned. The following night German troops tried to take over the Royal Danish Navy's ships and the equipment of the Army. For this very event the commanding officers had hatched a plot: when the Germans mustered their troops for the sanction, most of the Danish ships were scuttled by their own crews<sup>1</sup>.

When the Second World War ended in May 1945, the Royal Danish Navy was virtually non-existent. Just one old torpedo boat, three small minesweepers and nine cutters had made it to an »internment« in Sweden in August 1943 and returned to Denmark in May 1945. A small number of former Danish naval vessels were found in Danish and German ports in the months after the war, and some of them could be repaired and re-commissioned to service with the navy.

Throughout the Second World War, the Royal Dockyards had the permission from the German occupiers to continue building ships for the Danish Navy. When the Germans seized the Danish fleet in August 1943, six small and two large torpedo boats were under construction. The work on these ships was suspended until the end of the war to be completed only after the German defeat, with the ships commissioned to service around 1948.

Ships were badly needed, given the two major tasks the Royal Danish Navy was facing in May 1945: The first task was clearing thousands of mines, which the Germans as well as the Allies had placed in Danish waters during the war. This had to happen very quickly due to the fact that Denmark is an island nation and has always been dependent on its straits for supplying the country's more than 80 inhabited islands with almost everything from primary materials to agricultural and industrial manufactured goods<sup>2</sup>. The second task was rebuilding a fleet capable of protecting the sovereignty of the Danish, Faroese and Greenlandic waters by force, if necessary<sup>3</sup>.

Even though Denmark had made it through the war with minimal losses and damages, especially compared to countries north or south of it, the Danish industry and agricultural sector still needed large investments to rebuild and renew their infrastructure. Moreover, commodities were needed for almost everything and there

<sup>1</sup> Of the Navy's 50 ships 32 were scuttled, burned or otherwise disabled or destroyed by their own crews. For more information see Søren Nørby, *Flådens sænkning – 29. august 1943*, Odense 2003.

<sup>2</sup> When the Navy's mine sweeping operation was concluded in 1975, the ships had neutralized 20 500 mines and the ships had sailed a distance equaling 40 times the equator.

<sup>3</sup> Søren Nørby, *Aldrig mere en 9. april! Genopbygningen af det danske forsvar 1945–51 med vægt på søværnet*, Speciale ved Institut for Historie 2004, pp. 21–37.

was only little money for the number of new ships the Naval Command under Vice Admiral Aage H. Vedel demanded<sup>4</sup>.

In 1945 the Royal Dockyard was in a bad state: The stores had been emptied by the Germans and in the last months of the war the buildings at Holmen in Copenhagen had been used as emergency field hospitals for the many wounded German soldiers sent to Denmark in this final stage of the war. After the war the shipyard could have built the many new ships needed if enough money and raw materials had been available – but they were not. Also, the shipyard had not been able to keep up with the technological developments of the allied powers during the war. The navy, therefore, had to find another and cheaper way of procuring the required ships and materials.

Luckily the British government was more than ready to lend the Royal Danish Navy a hand – and a few ships. »Talks« about British help were in fact initiated in late 1944, when Vice Admiral Vedel managed to smuggle a letter with the Danish post-war needs from Copenhagen to Sweden and from there to London. As a result of this and further negotiations after the end of the war, in June 1945 Denmark bought two frigates of the River class and one Flower class corvette and leased three submarines (one U class and two V class) from the Royal (British) Navy. This stock was quickly augmented by ten British and 20 ex-German minesweepers. Consequently, by the summer of 1945 the Royal Danish Navy was sweeping mines, enforcing Danish sovereignty and training new crews for their »new« ships. At the same time a number of Danish officers were sent abroad – mainly to Great Britain – to learn about the many new inventions – e.g. radar and asdic/sonar – that had been made during the war<sup>5</sup>.

The British government had originally offered to sell Denmark a much larger fleet of ships, but due to financial constraints and lack of crews, the Danish government decided to buy and lease only the six vessels mentioned<sup>6</sup>. London had two reasons for selling and leasing ships to Copenhagen. Great Britain was low on cash in the late 1940s and if Denmark acquired British ships, the British could earn some money supplying the Royal Danish Navy with ammunition, spare parts etc. Furthermore, the ships served the purpose of tying Denmark to Britain, as the Royal Danish Navy became dependent on British supplies<sup>7</sup>.

The two frigates and one corvette certainly were not sufficient for the defense of Denmark and the Naval Command entered into a new series of negotiations with the British and American occupation forces in Europe. In 1947, an agreement was reached under which 18 ex-German S-boats (motor torpedo boats) were transferred to Denmark<sup>8</sup>. At the same time the Danes received a large number of mines from

<sup>4</sup> Poul Villaume, *Allieret med forbehold*, København 1997.

<sup>5</sup> The sonar was viewed as so extraordinary that two specialists from the Royal Navy were invited to Copenhagen, where they spent a number of years teaching at the Danish Navy Sonar School. For more information see Nørby, *Aldrig mere en 9. april!* (see n. 3), p. 32.

<sup>6</sup> *Ibid.*

<sup>7</sup> *Ibid.*

<sup>8</sup> The new motor torpedo boats necessitated a shift in the Danish Navy ordinance from the pre-war 45 cm torpedoes to the German type with a 53.3 cm diameter. The Navy made a profitable deal through a man who had salvaged a German transport ship that had sunk in the Baltic during the

the US Navy. As a result of these deliveries, mines were actually the only weapon the Royal Danish Navy could then have employed in case of a war in the Baltic Sea.

### 3. The Rising Threat from the East. The Beginnings of the Cold War

Any hopes that the bloodshed of the Second World War would make the human race realize that war was a bad idea were soon extinguished. In the summer of 1945, it was already obvious that there still was a clear and present threat against Denmark. It was no longer coming from Germany in the south, but from the East. The Soviet Union, which before the war had controlled only a few hundred miles of the Baltic coast, was now the main power in the Baltic Sea – and already locked in what would become a Cold War against the West.

The policy of neutrality which Denmark had followed since the defeat in the German-Danish War of 1864<sup>9</sup> had shown itself to be an untenable policy, and following a failed attempt to establish a Northern Defense Union with Sweden and Norway, Denmark joined NATO on April 4<sup>th</sup>, 1949<sup>10</sup>.

In the wake of the NATO membership, the Danish government finally managed to pass the first defense agreement since 1937<sup>11</sup>. In the years since 1937, a number of provisional laws had guided the armed forces, but no long-term law had been passed by parliament. Among the many changes in the law of 1950 was the founding of the Danish Air Force<sup>12</sup>, the establishment of a joint defense ministry<sup>13</sup> and defense command and a tripling of the defense budget. The rise from 309 million Danish kroner (DKK) in 1949 to 927 million DKK in 1954 did, however, not change the fact that Denmark remained one of the NATO members with the smallest defense budget throughout the Cold War<sup>14</sup>. Copenhagen attached greater importance to the economic recovery than the military one.

However, Denmark possessed two assets that made it a very valuable member of the NATO alliance. The first one was Greenland, where especially Thule Airbase with its giant radar was to play a vital role for the US defense of Canada and the

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war with a load of German torpedoes. Hans C. Bjerg, *Flåde og teknik 1739–1989. Søværnets Tekniske Tjeneste 250 år*, København 1989, p. 104.

<sup>9</sup> The Danish view: 1864. *Fra helstat til nationalstat*. Ed. by John Christensen, Fårevejle 1998; the German view: Jürgen Angelow, *Von Wien nach Königgrätz. Die Sicherheitspolitik des Deutschen Bundes im europäischen Gleichgewicht (1815 bis 1866)*, München 1996 (= *Beiträge zur Militärgeschichte*, 52).

<sup>10</sup> Denmark had joined the United Nations in 1945. By 1949, the Danish Navy comprised 58 ships: two frigates, two large torpedo boats, six smaller torpedo boats, ten motor torpedo boats, three submarines, three minelayers, four large minesweepers, 24 small minesweepers, two ocean patrol vessels and two surveying ships. Nørby, *Aldrig mere en 9. april!* (see n. 3), p. 92.

<sup>11</sup> *Ibid.*, p. 95.

<sup>12</sup> Until then, army and navy each had had their own air detachment.

<sup>13</sup> Before, the army and navy each had had their own ministry, but the two were now merged into the Defense Ministry.

<sup>14</sup> *Dansk Sikkerhedspolitik 1948–1966*. Ed. by Udenrigsministeriet København 1966, pp. 434–435.

United States<sup>15</sup>. The second asset was also geographical, namely Denmark's position as the »gatekeeper« of the Baltic Sea. All naval traffic to and from the Baltic Sea passes through Danish waters, and the control over the Great Belt (Storebælt) and the Sound (Øresund) was of great importance for NATO, but at the same time a key objective for the Soviet Union in case of war<sup>16</sup>.

#### 4. Help from the West. Mutual Defense Assistance Program

One of the reasons Denmark (and Norway) joined NATO was the hope that the membership would give access to much-needed weaponry for their Royal Army, Navy and Air Force. Both Denmark and Norway were hard up for money and hoped that the membership of NATO would come along with much-needed – for free or at significantly reduced prices – ships, aircraft and tanks. Even before the Danish Foreign Minister Gustav Rasmussen had signed the NATO treaty, he was working on convincing the US administration that they needed to supply the Royal Danish Navy and Army with new weapons as soon as possible. He succeeded, and in 1950 Washington agreed to include Denmark in the Mutual Defense Assistance Program (MDAP) which helped a number of western European countries rebuild their armed forces after the Second World War.

As part of the MDAP, the Royal Danish Navy received 21 ships between 1950 and 1953: 18 newly built and three old American landing crafts<sup>17</sup>. As a result, in 1956 the navy comprised 41 combat units and about 20 auxiliaries. This number of units was a one-time high and fell dramatically during the late 1950s, when the Naval Command decided to scrap a number of old and obsolete ships. The new ships, however, made it possible for the Naval Command to begin thinking about the right way to use a Danish combat fleet for the defense of the Danish waters and the Baltic Approaches. It was in these years that the Navy embraced the idea of a forward defense: the plan was to engage and defeat the enemy before it reached Danish waters<sup>18</sup>.

On the downside, the large number of ships gave the Danish Naval Material Command (Søværnets Materialkommando) a big challenge. With vessels from five different nations (Denmark, Germany, Great Britain, Italy and the United States) under command, logistics became a nightmare. The artillery section for example

<sup>15</sup> Villaume, *Allieret med forbehold* (see n. 4).

<sup>16</sup> The Sound and the Great Belt both have status as international straits and are as such subject to special rules for maritime traffic as laid down in the Geneva Convention of 1958. For more information see: *The Royal Danish Navy*. Ed. by Forsvarskommandoen, Vedbæk 1982, p. 3.

<sup>17</sup> One depot ship (ex-USS LSM 500), two minelayers (ex-USS LSM 390 & ex-USS LSM-392), four corvettes (built in Italian shipyards), six motor torpedo boats (built in civilian Danish shipyards), and eight minesweepers (built in shipyards in the United States). Gunnar Olsen and Sverre Storgaard, *Flådens skibe og fartøjer 1945–1995*, København 1998 (= *Marinehistoriske Skrifter*, 28).

<sup>18</sup> Niels C. Borck and Søren Nørby, *Søheltenes Skibe. Historien om Søværnets torpedomissilbåde af Willemoes-klassen*, København 2007; Jørgen F. Bork and Søren Nørby, *Åbent hav. Mit liv i søværnet 1945–1990*, København 2010.

only had to have more than ten different kinds of shells in stock. All in all, the Naval Material Command had to have more than 250 000 different spare parts on hand, and it was not until the middle of the 1950s that the command acquired a system to keep track of all these parts<sup>19</sup>.

### 5. A First Step. The Lisbon Agreement

The build-up of the Soviet navy, which was initiated during the 1950s, led to a NATO response in form of the Lisbon Agreement 1952. Under this Agreement, the Royal Danish Navy was supposed to be expanded to more than 140 vessels: a gigantic leap from the about 60 ships in service in 1952<sup>20</sup>. The plan was never implemented, however, since the Danish government was reluctant to spend so much money on defense<sup>21</sup>.

In 1952 the Navy had to abandon a project to build three new »coastal destroyers« for lack of budget funds. Instead, it leased three additional frigates from the Royal British Navy. The three frigates (escort destroyers of the Hunt II class) entered the Royal Danish Navy in 1954 and remained in service until the first years of the 1960s. The ships had spent seven years mothballed before being transferred to the Denmark, so they all had to undergo a complete overhaul before they could join the fleet. Like a number of other ships in the Royal Danish Navy, these three frigates were all from the Second World War and therefore somewhat outdated.

In 1954, the Danish economy went from bad to worse and all plans for new ships for the Navy were put on hold. In the period between 1950 and 1959, only the minelayer »Langeland« and two small cutters were built for the navy. Following the loss of the passenger ship »Hans Hedtoft« near Greenland in January of 1959 – 95 people disappeared along with the ship –, the public outcry made the Danish government allocate the funds needed for four new ocean-patrol ships, designed for operations around Greenland and the Faroese Islands<sup>22</sup>. The ships were designed by the navy, but the task of building them was deemed to be too big for the Royal Dockyard and was therefore commissioned to three civilian shipyards.

<sup>19</sup> Sven Egil Thiede, *Dansk Søartilleri 1860–2004*, København 2005, p. 672.

<sup>20</sup> According to the Lisbon Agreement, the Danish Navy was to consist of 5 frigates, 9 corvettes, 15 patrol vessels, 5 submarines, 8 mine layers, 19 minesweepers and 21 motor torpedo boats plus a reserve force of 4 frigates, 8 corvettes, 12 motor torpedo boats, 46 minesweepers and 2 submarines. Søren Nørby, Steen Schøn, *Fregatterne Peder Skram og Herluf Trolle. Flådens flagskibe under Den kolde Krig*, København 2006, and Bjerg, *Flåde og teknik* (see n. 8), p. 106.

<sup>21</sup> Nørby/Schøn, *Fregatterne Peder Skram* (see n. 20), pp. 15 ff.

<sup>22</sup> The first vessel of the Hvidbjørnen-class was commissioned in 1962. Olsen/Storgaard, *Flådens skibe og fartøjer 1945–1995* (see n. 17).

## 6. Organizing the Defense of the Baltic Approaches

When West Germany was accepted as a member of NATO in 1955, many Danes were reluctant to work with the country that just ten years before had occupied Denmark<sup>23</sup>. For the members of the armed forces it was, however, clear that the Royal Danish Army, Navy and Air Force needed a re-armed West Germany in order to have a fair chance of defending the Baltic Approaches in case of an attack from the Soviet Union and the Warsaw Pact<sup>24</sup>.

In the late 1950s, the Danish and West German Navy established a close relationship in the Baltic Sea and through the creation of the NATO Command Allied Forces Baltic Approaches (BALTAP)<sup>25</sup> a joined strategy for defending the Baltic Approaches was drawn up. The relationship between the two navies became close and was characterized by a high degree of professionalism. Even though the West German Navy soon grew to a size four times that of the Royal Danish Navy, the Germans never gave in to the temptation to act as a big brother<sup>26</sup>.

During the 1940s and 1950s, NATO strategy stipulated that in case of war a number of British warships were to be allocated to the defense of the Baltic Approaches, but from the 1960s onwards NATO considered the West German and Danish Navy strong enough to perform the task without any help from other NATO allies. The Royal Danish Army and Air Force were still expected to receive reinforcements from Great Britain and the United States even though they cooperated closely with the Bundeswehr in Northern Germany.

Starting in the 1950s, the Royal Danish Navy built up a constant presence in the Baltic Sea, with the main objective of surveillance of all seaborne traffic in the western part of the Baltic Sea. Together with the Royal Danish Air Force the task was to establish a normal traffic pattern, because any deviation from it could indicate the Soviets had hostile intentions, and early indications to this end would be crucial for NATO<sup>27</sup>.

<sup>23</sup> Nørby/Schøn, *Fregatterne Peder Skram* (see n. 20), pp. 15 ff., and Karl C. Lammers, *Hvad skal vi gøre ved tyskerne bagefter? Det dansk-tyske forhold efter 1945*, København 2005, pp. 154–160.

<sup>24</sup> Nørby/Schøn, *Fregatterne Peder Skram* (see n. 20), pp. 15 ff., and Bork/Nørby, *Åbent hav* (see n. 18).

<sup>25</sup> BALTAP was the NATO command with responsibility for the Baltic Sea area. It was stationed in Karup/Denmark and in existence from 1962 to 2002. BALTAP was led by a Danish officer with the rank of a Lieutenant General or Vice Admiral who had the designation Commander Allied Forces Baltic Approaches (COMBALTAP). His deputy was a German officer of the same rank. From 1962 to 1993, COMBALTAP was under the NATO command Allied Forces Northern Europe (AFNORTH) in Kolsås outside Oslo in Norway. In case of war, COMBALTAP would have had to lead the NATO forces assigned to it. According to plans, all Danish forces with the exception of some units in the outer regions were to be placed under COMBALTAP. Germany had provided for its land and air forces stationed in the BALTAP area, and its entire naval and naval air forces, to be subordinate to COMBALTAP. In addition, external reinforcements from the United States and Britain were planned. For more information see: Lammers, *Hvad skal vi gøre ved tyskerne bagefter* (see n. 23), pp. 154–160; Norbert Rath, *Headquarter Allied Forces Baltic Approaches (HQ BALTAP)*. In: *Marine Forum*, 4 (1997), S. 3–8.

<sup>26</sup> Nørby/Schøn, *Fregatterne Peder Skram* (see n. 20), pp. 15 ff., and Bork/Nørby, *Åbent hav* (see n. 18).

<sup>27</sup> The Royal Danish Navy (see n. 16), p. 3.

The task of keeping an eye on the Baltic was done overtly by the navy's frigates, corvettes, minelayers and other surface vessels and covertly by the navy's submarines. To this end, the Royal Dockyard began the construction of three new submarines in 1954. By then, it had been 12 years since the shipyard had built a submarine and much know-how had been lost. It therefore took more than six years from the laying of the keel until the first unit of what would be known as the Delfinen class was commissioned.

### 7. Initial Danish Defense Planning. FOD NEMOI and Burden-Sharing

In 1959, the Danish Navy drew up the first comprehensive plan for the defense of Denmark and the Baltic Approaches in case the Cold War turned hot. The plan, labelled »Flag Officer Denmark – Naval Emergency Operation Instructions« (FOD NEMOI), clearly stated what the tasks of the Danish forces in the Baltic were: to protect the minelayers and, once the minefields had been laid, locate and sink the enemy's troop transports and landing crafts<sup>28</sup>.

The short distance from Denmark's border to East Germany made a surprise attack not unlikely. This is why one of the main aims of the Royal Danish Navy throughout the Cold War was to have as many ships deployed or ready for deployment as possible. In case of a surprise attack, every Danish naval officer had in advance been given the order to fight, even if it proved impossible to ask for new orders from Naval High Command in Copenhagen. A dishonourable surrender like the one seen on April 9<sup>th</sup>, 1940 had to be avoided at all costs<sup>29</sup>. This was legalized in March 1952, when King Frederik IX signed »The Royal Operational Order« (Den Kongelige Forholdsordre), which stated that if Denmark was attacked, the armed forces were not expected to wait for an order to defend the country. Instead they were to take up fighting as soon as possible and, in case this was not possible, the forces were to make sure that no ships, tanks, planes or other military equipment fell into enemy hands in useable condition<sup>30</sup>.

As the numbers previously mentioned show, NATO was heavily outnumbered in the Baltic Sea. NATO expected, however, that the Danish and West German ships could, through superior equipment and training, keep the Warsaw Pact navies from reaching the Danish or West German coast<sup>31</sup>.

<sup>28</sup> For the German role in these plans and the naval defense of the Baltic Sea see: Peter Monte, *Die Rolle der Marine der Bundesrepublik Deutschland in der Verteidigungsplanung für Mittel- und Nordeuropa von den 50er Jahren bis zur Wende 1989/90*. In: *Deutsche Marinen im Wandel. Vom Symbol nationaler Einheit zum Instrument internationaler Sicherheit*. Im Auftrag des MGFA hrsg. von Werner Rahn, München 2005 (= *Beiträge zur Militärgeschichte*, 63), S. 565–598.

<sup>29</sup> Nørby, *Aldrig mere en 9. april!* (see n. 3), and *Bork/Nørby, Åbent hav* (see n. 18).

<sup>30</sup> *Borck/Nørby, Søheltenes Skibe* (see n. 18), p. 300.

<sup>31</sup> Nørby/Schön, *Fregatterne Peder Skram* (see n. 20), pp. 24 ff.; Monte, *Die Rolle der Marine* (see n. 28), pp. 576–580.

Even though the United States and Great Britain had given the Danish armed forces a lot of new equipment during the 1950s, the governments in Washington and London were still not satisfied with their condition and did not believe Denmark would be able to withstand an attack from the Warsaw Pact forces in the Baltic Region. This estimate was primarily based on the fact that in the 1950s the Soviet fleet in the Baltic grew substantially. By June 1960 it included six cruisers, 34 destroyers, 102 submarines, 92 anti-submarine vessels, 132 minesweepers, approx. 200 motor torpedo boats and about 36 landing crafts. The Warsaw Pact furthermore had at its disposal the Polish fleet, which included two destroyers, eight submarines, 21 minesweepers and 20 motor torpedo boats, and the East German fleet, which had two frigates, fifteen motor torpedo boats and some other fighting vessels<sup>32</sup>. Most of these ships would be directed against the Danish and West German forces in the Baltic Sea if war came. Accordingly, NATO forces in the area were heavily outnumbered, and the expected continued Soviet build-up further worsened NATO's odds.

Against this backdrop, the Pentagon tried to persuade the Danish government to increase its defense budget. Their efforts were quite unsuccessful until Washington offered a deal to Copenhagen that included US funding of 50 percent of the new ships. The agreement was signed on May 8<sup>th</sup>, 1959 and included a plan for building 23 new vessels: two frigates, four minelayers, one submarine, six motor torpedo boats, eight seaward defense crafts and four minesweepers. In 1961, two minelayers were added to the deal, raising the total number of new ships to 25<sup>33</sup>. Almost half of the ships were paid for by the US government and were therefore US ships, but sailing under Danish naval insignia and with Danish crews. As a part of the contracts, the Danish government had to promise to keep the ships under command, and when the new modern ships were commissioned, the Royal Danish Navy had to retire a number of old and outdated ships, thereby going for a more up-to-date and homogeneous naval force<sup>34</sup>. The deal added up to 300 million DKK, which was about 1/3 of the annual Danish defense budget of 845 million DKK. A part of the agreement stipulated that the Danish amount had to be »new« money and not just taken from the already existing naval budget<sup>35</sup>. It was part of the policy of the late Eisenhower administration to urge its allies to more burden-sharing.

The ships were designed by the Navy Material Command, but again the task of building such a large number of ships within such a short period of time proved too much for the Royal Dockyard and most of the ships were built at civilian Danish shipyards.

<sup>32</sup> Nørby/Schøn, *Fregatterne Peder Skram* (see n. 20), pp. 21 ff.

<sup>33</sup> In addition to the 25 new ships, the Navy also received two small US-built tankers (1945) and ten small landing crafts (LCU – Landing Craft Utility). The tankers served the Navy until 2000, but the landing crafts proved difficult to repair and were returned to the US Navy in 1967. Olsen/Storgaard, *Flådens skibe og fartøjer 1945–1995* (see n. 17).

<sup>34</sup> When the Navy had to decide the main armament for the two frigates, the chosen gun was not the newest model on the market. Along with the Cost-Sharing agreement the US Navy offered to sell Denmark four 5-inch (127 mm) guns, model 1934, for just 5 % of the original price. Such an offer could not be rejected even though the guns meant that the frigates became heavier and required a larger crew than originally planned. Bjerg, *Flåde og teknik* (see n. 8) p. 116.

<sup>35</sup> *Dansk Sikkerhedspolitik* (see n. 14), pp. 441 ff.

Among the new ships were the two frigates Peder Skram and Herluf Trolle. Built at the shipyard at Helsingør, these ships were equipped with the so-called »Combined Diesel Or Gas«-machinery (CODOG). That kind of machinery had not previously been used in such large vessels, but the Danes made it work, and during the first years of the ships' »life« in the Royal Danish Navy, a large number of ship designers and naval officers from all over NATO wanted to visit the ships and see for themselves how the Danes had managed this feat.

In addition to the 25 new ships, the Pentagon also offered two Fletcher class destroyers to Denmark, but the Danish Naval Command politely refused this offer. Officially because the destroyers were too big for the shallow Danish waters, but it is highly probable that the ships with their 329 man crews were viewed as too expensive to operate for the small country in the western Baltic Sea. The West German Navy, received six of these ships and used them until the early 1980s<sup>36</sup>.

## 8. It is all over now.

### The End of the Mutual Defense Assistance Program

In 1962, the US government decided to offer Denmark another 375 million DKK worth of arms in the form of 1½ squadron (25 one-seated and four two-seated) of F-104 Starfighter. The offer was linked to additional Danish spending of the similar amount. The Danish government accepted this offer and chose to spend the money on new torpedoes, mines, two submarines and four motor torpedo boats for the navy. For the motor torpedo boats the navy chose a British design (»Vosper«) and they were commissioned in 1965.

When the navy had to decide on a design for the two new (coastal) submarines, it had to determine whether or not to build another two submarines of the Delfinen class or to choose a new and more up-to-date design. After some consideration, the administration decided to go with the German designed U-Boot Typ 205. The two submarines were built under license at the Royal Dockyard in Copenhagen. The project however ran into a number of problems and the two subs were not commissioned until 1970<sup>37</sup>. Only the year before Denmark had signed a contract with Sweden for their new, vastly improved and very successful torpedo TP-61, and during the following years the Royal Danish Navy participated in the development of an improved version of this torpedo<sup>38</sup>.

Meanwhile Copenhagen had hoped that Washington would continue to support the Danish defense efforts, but the 1962-offer turned out to be the last foreign financial assistance. From this year on until today, the Danish government had to rely on its own fiscal revenues to finance its defense. Within the period between 1950 and

<sup>36</sup> Nørby/Schøn, *Fregatterne Peder Skram* (see n. 20), p. 18.

<sup>37</sup> Søren Nørby, *Narhvalen og Nordkaperen. Narhvalen-klassen. De sidste danskbyggede ubåde*, København 2013.

<sup>38</sup> Kaj T. Madsen, *Danske torpedoer 1868–2008*, Statens Forsvarshistoriske Museum, København 2008.

1965, the Danish Armed Forces received military assistance worth 4.5 billion DKK (price level 1966) from its NATO allies. The army and air force received approximately two billion DKK each and the Navy half a billion.

Among the weapons given to the army were four Nike »Hercules« SAM (surface-to-air missile) batteries, four »Honest John« SSM (surface-to-surface missile) batteries, approximately 350 tanks, 360 artillery pieces, 400 anti-aircraft guns, 6500 vehicles, 60 000 rifles and machine guns plus uniforms, communication equipment and various other equipment for the troops. The Navy first leased a number of British warships and then received first one depot ship, two minelayers, four corvettes, six motor torpedo boats and eight mine sweepers, followed some years later by one frigate, four minelayers, nine motor torpedo boats, two small tankers, ten minesweepers and four seaward defense crafts from the United States. Last but not least the Royal Danish Air Force, established in 1950, received five squadrons of F-84 »Thunderjet« fighter bombers, three squadrons of F-86 »Sabre« fighters, three squadrons of F-100 »Super Sabre« fighters and one and half a squadron of F-104 »Starfighter« interceptor aircraft plus access to training facilities in the United States and Canada.

Altogether it is worth noting that the tax money the Danish government spent on procuring new equipment for its armed forces fell from on average 268 million DKK per year in the period when Denmark received arms from the United States and other allies to 154 million DKK per year on average within the ten years after the end of the Mutual Defense Assistance Program<sup>39</sup>. In spite of that, the question of how the military should be organized had broad political support throughout most of the 20th century. Most of the parties in the Danish Parliament endorsed the defense agreements, which were made every four years – only fringe parties like the Danish Communist Party did not participate<sup>40</sup>.

The end of the Mutual Defense Assistance Program meant, however, that the Danish government had to re-negotiate the defense agreement of 1960. It stated that the Royal Danish Navy was to comprise eight large ships, 18 motor torpedo boats, six submarines, eight minelayers, twelve minesweepers, nine seaward defense craft plus a number of »ships for special purposes« (e.g. tankers, the royal yacht and surveying vessels). To reach these goals, the government increased the defense budget, but not enough to fully compensate for the discontinuation of the American assistance<sup>41</sup>.

Along with the assistance from the United States, Denmark received several funds through NATO for building various army, navy and air Force bases in Denmark. NATO paid 50 percent of the construction costs and this made it possible for the Royal Danish Navy to enlarge the two small naval bases at Korsør and Frederikshavn, which the occupying Germans had constructed during the war, into two well-run naval bases. The two bases were completed during the first years of the 1960s. From

<sup>39</sup> Ved forenede kræfter. Forsvarets øverste militære ledelse. Ed. by Forsvarskommandoen, Vedbæk 2000, pp. 113 ff.

<sup>40</sup> Nørby/Schøn, Fregatterne Peder Skram (see n. 20).

<sup>41</sup> O.H. Eggers, Våbenhjælp og forsvarets materielinvesteringsbudget. In: Militært Tidsskrift, 1981, pp. 163–173.

then on until the end of the Cold War, Denmark had three naval bases – the main base in the harbor of Copenhagen being the third – and a large number of small depots spread around various Danish harbors. In case of war, Korsør and Frederikshavn would have been operationally important bases, where reinforcements from Britain could be brought ashore and West German naval units could put in and get supplies<sup>42</sup>.

### 9. On our own. New Ships and New Weapons for the Royal Danish Navy in the 1970s

Looking back at history from today's perspective, it seems like almost all Danish politicians simply forgot that the weapons Denmark received during the 1950s and 1960s would not last forever. When it became clear in the 1970s that the Royal Danish Navy would soon need to replace a large number of ships, the responsible politicians were quite reluctant to allocate the required funds<sup>43</sup>. It took a great deal of persuasion by military high command before Danish parliament agreed to finance new fighting ships. During this period, the number of ships operated by the Navy kept dropping, and even though the new ships kept becoming more and more technically capable, that alone could not make up for the drop in the number of ships. Finally a large shipbuilding program was approved by parliament in 1972. The plan included three corvettes, eight – later increased to ten – missile torpedo boats, one ocean patrol vessel and two minelayers plus new missiles and electronic equipment for all the major naval units<sup>44</sup>.

A little anecdote along the way: During the debate leading up to the new defense agreement, the parties on the left had actively worked towards a solution where all the Navy's larger warships (the two frigates of the Peder Skram class and the four corvettes of the Triton class) should be decommissioned. It was the belief of the left politicians that these ships were too big for Danish waters, too expensive to operate and too easy to sink<sup>45</sup>. The latter argument was not completely false, since e.g. the frigates with their two 127 mm and four 40 mm guns were not fully capable of engaging fast and low-flying jet planes and missiles. Major technological developments in the late 1970s changed this situation. Due to the acquisition of the »Harpoon« SSM and the »Sea Sparrow« SAM, the Royal Danish Navy entered the age of rockets. Both represented a quantum leap and even though the number of procured »Harpoon« missiles remained so low that not until the mid-1980s all ships received a full load, the long-range fighting capability of the Danish naval forces was elevated to a totally new level.

<sup>42</sup> Nørby/Schøn, *Fregatterne Peder Skram* (see n. 21), p. 21 ff.; F. Hansen and U. Luckow, *Korsør og flåden, Korsør 2005; Flådestation Frederikshavn 1962–1987, Frederikshavn 1987*.

<sup>43</sup> By 1969 the Danish Navy consisted of 2 frigates, 4 corvettes, 16 motor torpedo boats, 4 submarines, 8 minelayers, 12 minesweepers, 9 seaward defense crafts plus a number of »ships for special purposes«. Olsen/Storgaard, *Flådens skibe og fartøjer 1945–1995* (see n. 17).

<sup>44</sup> Borck/Nørby, *Søheltenes Skibe* (see n. 18), pp. 29–42.

<sup>45</sup> Nørby/Schøn, *Fregatterne Peder Skram* (see n. 20), pp. 81 ff.

Almost at the same time ten new torpedo-missile boats of the Willemoes class and three corvettes of the Niels Juel class were procured. Both classes were tailored to operations in the Baltic Sea, heavily armed with a 76 mm Oto Melare and up to eight »Harpoon« missiles. The Willemoes class also had four long-range 533 mm torpedoes, while the corvettes had eight »Sea Sparrow«-missiles. Working close together with the two frigates in the Danish Task Group 420.5 these ships would have given the Warsaw Pact a »warm welcome« if they had tried to land troops in Denmark or Northwestern Germany.

The genesis of the three corvettes of the Niels Juel class is quite curious. When parliament provided the needed funds for the three new ships – which were to replace the four corvettes of the Triton class, built in Italy during the 1950s –, the politicians did not only decide on the amount of money available, they also determined the maximum size and displacement of the ships. They wanted to procure »half a frigate«, and since the frigates of the Peder Skram class had a displacement of about 2600 tons, the maximum displacement for the new corvettes had to be not more than 1300 tons. And since the crew of the frigates numbered 180 men, the corvettes had to have a maximum of 90. These restraints made the design of the corvettes very difficult but with help from the Scottish firm Yarrow Admiralty Research Division (YARD), the Naval Material Command managed to design three small, but well-built ships which were to serve the navy for the next 30 years<sup>46</sup>.

In the last years of the 1960s, a government commission reviewed »The Royal Dockyard«, which had been the main shipyard for the Royal Danish Navy since the 16<sup>th</sup> century. The commission's conclusion was that the shipyard was too uneconomic and in 1970 the last ship – the submarine »Nordkaperen« – was launched. From then on the shipyard only made repairs and all new ships for the Navy had to be built at civilian Danish shipyards<sup>47</sup>. Luckily, back then Denmark had a number of civilian shipyards capable of handling the task of building naval vessels. The ten motor torpedo boats of the Willemoes class were thus built at Frederikshavn Værft A/S, while the three corvettes were built at Aalborg Værft A/S. Designing the ships also proved too big a task for the navy alone, and the Naval Material Command ended up partnering with the German Lürssen Werft on the design of the Willemoes class (inspired by the Swedish Spica class) and with the Scottish firm YARD on the design of the corvettes.

With the new missile torpedo boats, the Royal Danish Navy entered the electronic age. As the first units of the naval forces, the Willemoes class were equipped with the so-called DEPLO (Danish Electronic Plotting System), which made it possible for the ships to communicate their radar images to each other. The DEPLO was based on a Swedish system, but used mainly civilian technology and was therefore a lot cheaper than the NATO-system »Link 11« which the West German Navy used, among others. The low price made it possible for the navy to equip all of the large surface vessels with this system, but at the same time the missing interface for com-

<sup>46</sup> Søren Nørby [et al.], *Fra Kold Krig til Internationalt Engagement. Søværnets korvetter af Niels Juel-klassen 1979–2009* (in preparation. Expected release date 2015).

<sup>47</sup> The shipyard was completely closed in 1993. For more information see: Sven Thostrup, *København før og nu – og aldrig*, Bd 8: *Holmen og Orlogsværftet*, København 1989.

munication with the Link 11-system became a problem when operating with other NATO countries. It would have been very unfortunate in case of war<sup>48</sup>.

At the same time as the new motor torpedo boats and corvettes were being commissioned into the fleet, the two frigates of the Peder Skram class were going through a mid-life update, where the forward 127 mm turret was replaced with an 8-canister »Harpoon« launcher and an 8-canister »Sea Sparrow« launcher was placed on the aft deck. When the frigates were designed in the early 1960s, the designers knew that the ships were to be equipped with anti-air missiles, but the Royal Danish Navy had yet to decide on what missile to purchase, so in the end the aft deck was left empty, and even though Denmark was one of the early members of the NATO Sea Sparrow Missile System Project (joined in 1968), the missiles were not acquired until the mid-1970s. In the end a few Danish companies, e.g. Terma in Lystrup, managed to become partners with the US based armaments manufacturer Raytheon and manufacture parts for the missile system<sup>49</sup>. Finally, the »Sea Sparrow« was declared operative in the Royal Danish Navy on October, 24<sup>th</sup> 1979, when the corvette »Niels Juel« completed a successful blast test<sup>50</sup>.

The navy made its first experiments with surface-to-surface missiles during the 1950s, when it tested if a French-made anti-tank missile could be used at sea. The attempts failed and were dropped. The topic returned to the agenda when the Royal Danish Navy noticed in the late 1960s how missile-carrying Soviet units of the Osa and Komar classes started operating in the Baltic Sea. Any doubt about the future of missile warfare was removed when Egyptian missile boats sank the Israeli destroyer »Eilat« in 1967 and the development for a NATO surface-to-surface missile subsequently accelerated.

The Royal Danish Navy looked at the Norwegian »Penguin« missile and the French »Exocet« before, in 1975, choosing the US-made »Harpoon«, which was then the state-of-the-art missile in the (western) world. The »Harpoon« was declared operative in the Navy on December 2<sup>nd</sup>, 1977, when the frigate »Herluf Trolle« completed a successful blast test<sup>51</sup>.

## 10. Modernizing the Royal Danish Navy. STANAVFORLANT and the Standard Flex

When the frigate »Peder Skram« for the first time joined NATO's Standing Naval Force Atlantic (STANAVFORLANT) in 1970, it marked an entry onto a new stage

<sup>48</sup> Bjerg, Flåde og teknik (see n. 8), pp. 144 ff.

<sup>49</sup> See e.g. TERMA 1949–1999. 50 år med teknologi og visioner, Lystrup 1999.

<sup>50</sup> Thiede, Dansk Søartilleri (see n. 19), pp. 733–735.

<sup>51</sup> *Ibid.*, pp. 737–741. On the 6th of September 1982 the frigate Peder Skram accidentally launched a fully armed »Harpoon«-missile while operating north-east of Sjælland. The missile went on a course which brought it over land near an area filled with summer cottages, and here it hit a tree and detonated. Nobody was injured, but a large number of summer cottages were damaged. The subsequent inquiry showed that the missile had been launched due to a technical failure and the American firm McDonnell Douglas ended up paying a »good-will« compensation to the Danish Navy.

for the Royal Danish Navy. Participating in this multi-national force raised the demands on the ships, crews and officers and the friendly – but fierce – competition between the ships had a clear spill-over effect on the other Danish naval vessels back home in Danish waters.

At the same time as the frigates were showing the Danish flag as part of STANAVFORLANT, Danish submarines were operating covertly in the Baltic Sea, collecting valuable information about the Warsaw Pact – information which was shared with the rest of the NATO partners and consequently gave the alliance highly useful information about how the naval forces of the Warsaw Pact operated and with which kinds of ships and weapons.

In the early years of the 1980s it became obvious that 22 of the Danish naval units – six motor torpedo boats, eight minesweepers and the same number of seaward defense crafts – were soon to be obsolete and/or worn out. If all the ships were to be replaced, it would necessitate a 70 percent increase of the naval budget, which was absolutely unrealistic<sup>52</sup>. To solve this problem, Naval Material Command came up with the idea of building a class of multi-purpose ships, capable of operating as minesweeper one day and as torpedo boat the next. Weapons and equipment were placed in containers and could be changed in a matter of hours. This led to the development of the Standard Flex 300 class of which 14 ships were built between 1985 and 1996<sup>53</sup>.

### 11. The 1980s. The Culmination of the Royal Danish Navy's Fighting Power

During the first years of the 1980s, the Royal Danish Navy reached the height of its fighting power in the 20th century. The fleet was organized in five squadrons: The Frigate Squadron (Fregateskadren) consisted of two frigates of the Peder Skram class, three corvettes of the Niels Juel class and eight seaward defense craft of the Daphne class. The Fast Patrol Boat Squadron (Torpedobådseskadren) consisted of six boats of the Søløven class and ten boats of the Willemoes class. To support the Fast Patrol Boats during their operations, the Fast Patrol Boat Squadron worked from a so-called »Mobile Base« (MOBA) which provided the boats with operational tactical information, obtained by mobile radars. The mobile base had a logistic element plus a repair element able to carry out minor repairs such as replacing a turbine. The Submarine Squadron (Ubådseskadren) consisted of three submarines of the Delfinen class and two submarines of the Narhvalen class. The Mine-warfare Squadron (Mineskibeseskadren) consisted of four minelayers of the Falster class, two minelayers of the Lindormen class and six Sund class coastal minesweepers. The Fishery Protection Squadron (Inspektionsskibeseskadren) consisted of four fishery protection ships of the Hvidbjørnen class, one of the very similar Beskytteren class

<sup>52</sup> Bjerg, Flåde og teknik (see n. 8), p. 151.

<sup>53</sup> The »300« was supposed to signal the ships' designated displacement of 300 tons. Hans Harboe-Hansen, Standard FLEX 300. The True Multi-role Ship, Frederikshavn 1992.

and three patrol cutters. Furthermore the fleet included nine Inshore Patrol Cutters of the Barsø class, two oilers of the Rimfaxe class, four torpedo transport crafts, five Harbor Patrol-Crafts and the Royal Yacht Dannebrog. The Royal Danish Navy had received its first helicopters – eight »Alouette III« – in 1962. The helicopters proved a valuable asset especially for the ships operating around Greenland and the Faroese islands. During the first years of the 1980s the Alouette's were replaced by eight British Westland »Lynx« multi-purpose helicopter with greater speed and range. With their radar, the »Lynx« were able to serve as scouts for the navy and improve the target acquisition of the »Harpoon«-missiles. This development was supported by the already existing coast defence units, with two fortresses – one a Langeland and one at Stevns –, a number of coastal radar stations and visual look-out posts<sup>54</sup>.

The peacetime personnel strength was roughly 8500 men, including approximately 2500 civilians. In case of an emergency, 13 500 men and women would have been called up to reinforce the navy and to ensure that all the ships could be manned and deployed. Most of the weapons of the Royal Danish Navy were high-quality missiles, guns and torpedoes and an up-to-date electronic system tied all the ships into one fighting task force.

This situation, however, did not last long. The left parties in the Danish Parliament had for many years fought against the two frigates of the Peder Skram class and in 1986 they finally accomplished their goal of forcing an early retirement of the two ships. The decommissioning ceremony was held on January 4<sup>th</sup>, 1988 and the two ships were mothballed until June 1990, when they both were removed from the navy's list. »Herluf Trolle« was sold for scrap, while the »Peder Skram« was saved and became a quite popular tourist attraction in Copenhagen<sup>55</sup>.

In 1989, the Berlin Wall fell, and the Cold War ended without a shot being fired. Just a year later the Danish Navy saw one of its corvettes deployed to the Persian Gulf as part of the UN-operation against Iraq. Nobody could have imagined this just a few years before, but today it is customary for the Royal Danish Navy to protect Danish interests globally – from the Arctic to Africa.

## 12. Conclusion

When the Cold War started in the late 1940s, the Danish Armed Forces were still in the process of rebuilding following the German occupation between 1940 and 1945. When the war ended Danish armed forces were virtually non-existent and after the liberation the Danish state had almost no money for new equipment for armed forces.

In this respect the Cold War was good news for the Royal Danish Army and Navy. Had first the United Kingdom and later on the United States not seen the advantage of a re-armed Denmark working as a guardian of the western Baltic Sea, the rebuilding of the Danish Armed Forces after the end of World War Two would have

<sup>54</sup> The Royal Danish Navy (see n. 16), pp. 3 ff.

<sup>55</sup> For more information on the Peder Skram see: <http://www.pederskram.dk/> (December 12, 2014).

taken even longer than it eventually did. The Danish government used this circumstance actively when it lobbied the US government for help even before Denmark had officially signed the NATO-agreement in 1949.

Throughout the Cold War, the government in Copenhagen felt that it could only use a very limited amount of money on military equipment. This was both due to the somewhat grotesque notion that too many weapons in Denmark would make it more likely that Denmark would be attacked (sic!) and to a policy that focused more on building a modern well-fare state than on the threat from the east.

When the help from especially the United States and Great Britain ended during the 1960s, the Danish Armed Forces had to make do on their own – and they did: but for less money. The ships designed and constructed by the Navy Material Command, the Royal Dockyard and the civilian Danish shipyards, which gradually took over the job of building the ships for the navy, were all well-built ships, capable to fulfill the tasks they were designed for. But the number of ships did not meet the requirements of NATO, with the consequence of Denmark being one of the »Achilles heels« of the alliance.

The number of ships remained low and one could argue that it was not until the introduction of the »Harpoon« and »Sea Sparrow« missile systems in the late 1970s that the Royal Danish navy became fully capable of defending the Baltic Approaches. Acquiring these modern missiles was a break from tradition, since the Navy had until then always waited for new equipment to be thoroughly tested by others before procuring it. The missiles and other new electronic equipment, however, made it likely that the Royal Danish Navy, together with the West German Navy, would have been able to stop an amphibious invasion of Denmark and/or West Germany.

Luckily this never happened and when the Berlin Wall came down in 1989, the Royal Danish Navy had a number of small but highly versatile naval vessels at its disposal, designed for the task of defending Denmark and the Baltic Approaches. Since then, however, most of the ships have been replaced with new and larger ships, capable of operating both in Danish waters and around the globe. Consequently, the Royal Danish Navy is no longer a small defensive coastal fleet, but operates globally from the Arctic to the waters around Africa.

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