θαλαττα! θαλαττα! –The sea! The sea!
The Royal Netherlands Naval College and the Art of Seamanship

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Abstract

The Royal Netherlands Navy operates on, above and below the surface of the sea. What does this mean for the naval officer? First of all, he operates in an inherently dangerous environment. The sea itself, as well as life and work on board, harbours many dangers. Secondly, it is impossible for the crew to leave the ship during periods at sea, which can last up to about eight weeks. The ship forms a close and self-reliant community. In other words, the crew have to sail the ship safely, together. Basic naval or nautical training at the Royal Netherlands Naval College in Den Helder is oriented towards this. After a short historical survey of the basic naval training of the aspirant naval officer or midshipman of the Seaman Branch over the past few centuries, the present-day organization of basic naval training within the curriculum of the College and the various tools employed in it will be described.

Introduction*

During the so-called march of the Ten Thousand (401-399 BC), following the battle of Cunaxa, Xenophon conducted the Greek troops safely through the interior of Asia Minor to the Black Sea and subsequently to Pergamum. On seeing the Black Sea his men shouted deliriously θαλαττα! θαλαττα! 'The sea! The sea!'[1] For them it meant the end of months of hardships.

The Royal Navy operates on, above and below the surface of the sea. What does this mean for the naval officer? First of all, he operates in an inherently dangerous environment. The sea itself, as well as life and work on board, harbours many dangers. Secondly, it is impossible for the crew to leave the ship during periods at sea, which can last up to about eight weeks. The ship's is a close and self-reliant community. In other words, the crew have to sail the ship safely, together. Basic naval or nautical training at the Koninklijk Instituut voor de Marine (KIM), known internationally as the Royal Netherlands Naval College (RNLNC) at Den Helder is oriented towards this.

First of all, the environment – the ship and the elements of water and wind – must be explored. The ship itself forms a threat, loaded as it is with missiles, torpedoes, shells and large quantities of flammable and explosive substances. The work on deck is dangerous, too – helicopter operations, replenishing at sea and maintenance – and it may result in people getting injured or going overboard. The Officer of the Watch on the bridge is responsible for this safe conduct of the ship and its crew.

Besides, the sea is an inherently dangerous environment for man. Even when the circumstances are favourable the ship may ground, be holed or sink, and in fine weather a person may fall overboard and drown. There is always the possibility of a collision. Normal circumstances, up 6 or 7 on the Beaufort scale, fog, harbour dangers and require the expertise known as seamanship. The danger increases in bad weather. The transfer of wind energy to the water causes waves, and the quantity of energy stored in them can be fierce enough to damage or even sink the ship (Bedet, 1976). To carry out an operation effectively in a storm, with regard to safety as well as result, requires a good deal of seamanship. If, on top of that, the propulsion or steerage conks out in bad weather the ship and its crew are in great danger. So, what is it like to operate in this (potentially dangerous) environment?[2]

In order to function independently as Officer of the Watch, the midshipman has to be trained to sail the ship safely, being aware of the risks of collision, running aground, storm damage and loss and injury of his or her personnel. He/she has to know how to navigate: Where am I; Where do I want to go and how do I get there safely; What are the risks and how do I determine them? During basic naval training the theory of navigation has to be applied and in order to do this the student has to know about the procedures on the bridge.

Furthermore, in the education attention can be paid to the social environment of life aboard a ship: what is it like to be working and living together with people you have not chosen in a relatively small space for longer periods of time? There is no way you can avoid each other. Besides, the platform (the ship) is constantly moving, which makes you feel tired sooner. The job has to be done together, even if there is an incompatibility of characters. Hence, the well-known sailor's dictum: a ship is as seaworthy as its crew.

Apart from a limited theoretical element, basic naval training particularly involves maritime practice and the art of seamanship itself: the ability to sail safely. To this end the RNLNC employs several tools. Navigation and manoeuvring the ship can be learned in the full mission bridge simulator. In addition, the College has several training vessels at its disposal. During the three-year initial training two longer periods at sea in the

The *Van Kinsbergen*, 1999. Courtesy of the Head of Nautical Training RNLNC.

operational fleet are scheduled, traditionally called the *bootjesreis* (Initial Sea Time) and the *kruisreis* (Sea Time). During the first major practical training period, the Practische Bedrijfsintroductie (Practical Introduction to the Navy) basic nautical training is completed with the *zeewachtstandaard–A* (Bridge Watchkeeping Certificate –A): the initial (military) navigation ticket, with which the young officer proves he is able to sail the ship safely under normal circumstances.[3]

After a short historical survey of the basic naval training of the aspirant naval officer or midshipman of the Seaman Branch over the past few centuries, the present-day organization of basic naval training within the curriculum of the RNLNC and the various learning tools employed in it will be described.

The forerunners of the RNLNC.[4]

Throughout the centuries there has always been a tension between the practical and theoretical aspects of the education of the naval officer. On the one hand, sailing a ship is an art in which experience and skill in handling the ship and attention for safety have always played an important role. It is a routine that is only mastered through frequent practice. On the other hand, sailing safely involves a thorough technical know-how and insight: Where am I and how is the ship behaving? What can I expect from the ship and the systems and do they perform as they should? Basic naval training is mainly concerned with the former: the art of sailing a ship.

Up until 1829, the year the RNLNC was founded, naval officers were mainly trained aboard operational vessels. The midshipman acquired practical experience under several commanders. This on-board training was not bound by hard and fast rules. Thus, the duration of the training was not fixed and up until about 1750 no requirements were set for the theoretical knowledge of the officers-to-be. There were, however, all sorts of private teachers in the ports, who, for a fee, would enrich the practical skills of the (aspirant) officer with the theoretical knowledge of navigation. In fact, they were miniature nautical colleges.[5] Whether or not the aspirant officers were also taught naval tactics by these private tutors is unclear. It is a fact, however, that Cornelis Douwes, mathematician, examiner at the Amsterdam Admiralty Board, and founder of the Algemeen Zeemans-College (General Nautical College) in 1749, possessed a copy of one of the earliest Dutch naval tactical works, the *Grondbeginselen der Zee-Tacticq* (*Principles of Naval Tactics*), by Jan Hendrik van Kinsbergen. Moreover, several naval officers and, in particular S. Geerts, Commodore and Teacher at the Amsterdam Admiralty Board, had ordered 56 copies of the same work. (Kinsbergen, 1782: part 1; Prud'homme van Reine, 1990: 177-184). By the end of the 18th century the education of midshipmen consisted of a mixture of practice and theory.

After the Fourth Anglo-Dutch War (1780-1784), which had ended far from successfully for the Dutch Republic, Guillelmus Titsingh brought about the establishment of the Kweekschool voor de Zeevaart (Nautical College) in Amsterdam, funded by the Vaderlandsch Fonds ter Aanmoediging van 's Lands Zeedienst (the National Fund for the Promotion of Sea Service) in 1785. Its objective was the training of young sailors. It was a nautical college with a boarding school system. Out of philanthropic considerations the training was free of charge. The College did not offer a specific midshipmen's education, but a general nautical cadre training, not directed at any one type of shipping or function on board.

The education consisted of a theoretical part ashore and a practical training on board. In the inner court of the College there was a scale model of a fully-rigged frigate, which was used for lessons in boarding a ship, hoisting, reefing, stowing and trimming the sails. Apart from that there were two practical training periods aboard operational ships. The duration of these training trips was not bound by rules. Some trainees would be on cabin duty to the West Indies or the Mediterranean and back, others would go to the Dutch East Indies as apprentice mates. Yet again, others were commissioned as midshipmen on a man-of-war and made their re-appearance at the school only years later. On completion of his voyage the student was to report at the school and present a journal and a certificate signed by the Commanding Officer. Now would follow a period of further education, after which he would be sent to sea again for a voyage of his own choice, usually in the rank of second or third mate. After this second trip the education was rounded off, its complete duration – theory and practice - lying anywhere between four and eight years.[6]

After 1795, during the Napoleonic era, the basic naval training of the midshipmen came under great pressure. Because of the hegemony enjoyed by the Royal Navy few Dutch ships ventured to sea. In order to give the midshipmen some nautical training, though, two brigs, relatively fast ships with two square rigged masts, were purchased, 'intended to serve as practice school for the cadets', as aspirant naval officers were then called. The *Vlieg* and the *Arent* were armed with six guns and had a crew of one Commander, two Lieutenants, a Boatswain, a Helmsman, a Surgeon, a Cook, six Sailors and 27 cadets. The age of the cadets varied between 12 and 30. The trips of these instruction vessels were limited to the coastal waters and the Zuyderzee. On 1 November 1799 the two brigs were decommissioned again. This first experiment in nautical training in a group had not been a success, one reason being the great difference in age between the midshipmen.

The private nautical education ashore had not been very popular among naval officers, who considered it to be too theoretical and too little practice-oriented. For this reason the Cadetten-Instituut voor de Marine der Bataafse Republiek (Cadets' College for

the Navy of the Batavian Republic) aboard the frigate *Euridice* was established in 1803. The ship lay at Hellevoetsluis. For the first time in its history the Dutch navy had its own training college. The instigator of this initiative, Junior Captain C.J. Wolterbeek, was appointed as the commander of the ship and the College. Supplementary Captain J.F.L. Schröder (1774-1845) held the position of Director of Studies. Nowadays the RNLNC has also a Vlagofficier KIM –VOKIM (Flag Officer Naval Officers' Training) and a Dean who bears the final responsibility for the faculty. The nautical-military subjects, including navigation, were given by (petty) officers. Civilian lecturers taught the general subjects, such as mathematics, science, geography, history and three modern languages (Dutch, English and French).

It was the intention to undertake training voyages with the *Euridice*. After all, in 1802 a treaty between France and Great Britain had been signed in the Peace of Amiens. But only a year later war broke out again and this forced the training vessel to stay in port. Several cadets were sent to warships in the Texel Roads, so that they could at least experience some active service. In the middle of May 1805 the *Euridice* was designated as a troop ship for the Dutch East Indies. The midshipmen's education was transferred to the former plague house at Feyenoord, Rotterdam.

The memory of the *Euridice* was kept alive in the form of a large instruction model of a ship that was used to teach the workings of the rigging (sails, spars and lines) to the cadets. The brigs *Zeemeeuw* and *Haay* were assigned to the college as training trips.

The derelict premises at Feyenoord were vacated after only three years. In 1809 several old Dutch East India Company warehouses at Enkhuizen were taken over. Simultaneously with this move it was decided that from then on only midshipmen from the Enkhuizen Cadets' College could be commissioned as naval officers.

The curriculum hardly changed. From their fourteenth birthday the cadets were required to spend six months annually on a training vessel. In order to limit the large flood of candidates, a school fee of *f* 300 was introduced. On top of that there were the expenses for equipment, books and other educational tools. In comparison with the fleet training and the College in Amsterdam, the Cadets' College was an expensive education.

The annexation of the Kingdom of Holland into the French Empire meant the end of an independent Dutch navy. With the various colleges closed, only a few midshipmen continued their education at Brest at the École Maritime Impérial or at Toulon aboard the training vessel *Duquesne*.

With the restoration of the Kingdom of the Netherlands in 1813/14 the Royal Netherlands Navy was founded. Fleet training was re-established and in 1816 several midshipmen were admitted to the Artillery and Engineer school at Delft. The training for the Seaman Branch took three years, after which the midshipmen were stationed at a man-of-war in order to gain practical experience. In the parade ground the rigging of

a three-master was constructed and two cannons on a ship's gun carriage were added to the practice battery. The brig *Havik* was made available as instruction vessel, and behind the school, in the Vestgracht, the heavy gun schooner *Kapitein van Brakel* lay moored as training vessel. For training at sea the midshipmen were appopinted to operational ships that made trips to the Baltic, amongst other faraway places.

By Royal Decree of 29 May 1826 the Royal Netherlands Military Academy (KMA) was established in the Castle of Breda. On 12 December 1827 King William I decided to found the Royal Netherlands Naval College and it was accommodated in the storehouses of the former naval docks at Medemblik. In contrast to Delft or Breda, the instruction ships could be moored directly in front of the college.

The Royal Netherlands Naval College (RNLNC)[7]

Until 1869, when the Hoofdgebouw (Main Building) was constructed, the RNLNC led a nomadic existence. Below, a short survey is presented of the various locations, followed by a brief reflection on the different educational visions over the years.

From Medemblik via Breda to Willemsoord

The RNLNC was first established at the former Rijkswerf (State Wharf) at Medemblik. On 1 June 1829 the education started. On this occasion H. Beijerman, professor of naval history, geography, morality and literature, delivered a speech, 'Over het hoog belang, dat Nederland thans nog heeft bij eene welingerigte Marine' (On the great importance at present of a well-equipped Navy for the Netherlands).(MacLean, 1976: 18-30).

The memoirs of M.H. Jansen, who was billeted there from 1831 until 1833, give a good insight into the fortunes of the RNLNC during the Medemblik years. He roundly condemned it, saying that there was no instruction vessel, although there was the cutter *Ever*, with which the senior year made a summer trip across the Zuyderzee and ventured as far as the Nieuwdiep near Den Helder. The arrival of *Urania* in 1834 meant quite an improvement, as now the young lads could learn the ropes, at least according to Jansen. (Honoré Naber, 1925: 60, 66, 70, 77)

At the end of the 1840s the education at Medemblik was discontinued. First of all, the climate was deemed too unhealthy, as the death rate was much higher than in other places. It was too humid there, too. Only Zeeland was thought to be unhealthier. A second argument for closing the college was money. In these years, as so often, governmental policy was dominated by 'economizing by simplification'. The King decided to move the education to Breda and the RNLMA was renamed Royal Navy and Army Academy. The first midshipmen arrived on 5 September 1850.

A rigged mast was erected in the Academy grounds, and in the Spaniards' Gate several sloops were moored, which allowed the midshipmen to row on the moats of the castle. Practical artillery training was given with the help of an imitation ship's battery, whereas nautical training was given on the Zuyderzee aboard the brig *Zeehond*.

Within the Navy, Breda was never very popular, as this 'Navy on the moors' was too remote from the 'element on which one was to spend one's life'. Besides, discipline was felt to be too strict. One of the former commanders of the midshipmen company at the RNLMA, the later Vice-Admiral F.A.A. Gregory, wrote years later:

> It has always been irksome to me, how little freedom was given to the young men and how they were checked at every turn, in a way that I have never been able to accept. In their daily so-called spare time, what little of it they had, no opportunity was granted them to move really freely or to enjoy themselves.

On 25 April 1857 it was decided that there would be another Royal Netherlands Naval College, this time at Willemsoord in Den Helder. On 1 October 1857 the last midshipmen left Breda.

At Willemsoord the midshipmen were accommodated aboard a guard ship. The lectures were given ashore, first in the large hall of the Commandantengebouw, called the Palace, and later in the so-called study halls at the Rijkswerf. Only in 1869 did the College acquire an accommodation that it could truly call its own, and where it has been to this day.

Educational vision

As mentioned above, there has been some creative conflict throughout the centuries between the theoretical education and the more practice-oriented training of the naval officer. Based on identical arguments, the education was made more theoretical (academic), or alternatively, more practice-oriented, with a greater emphasis on the craftsmanship of the naval officer. This tension has existed from the very foundation of the RNLNC. Jansen again:

> Pilaar and Heinsbergen were opposed to each other. The former wanted to instruct thoroughly what the midshipmen had to know on board; the latter merely wanted them to develop their thoughts in order to be able to learn later what the midshipmen needed on board... It is true, neither Heinsbergen nor Pilaar attained his objective, for Pilaar did not succeed in teaching what midshipmen needed on board, and Heinsbergen did not succeed in inspiring a zest for work, so that it appeared that there was a discrepancy either way.[8]

In short, it comes down to Pilaar wanting a more practice-oriented training, geared

to performance aboard a ship. Heinsbergen advocated a more theoretical education, at a higher level of abstraction, teaching the midshipmen skills that would not only serve them well aboard the ships, but also in their later careers. It is a discussion that has been going on at the RNLNC and in the Navy to this day.

By the end of the 19th century teaching had become too much of a priority at the RNLNC, according to an anonymous observer. There were 33 subjects, not counting practical skills such as shooting, sailing, fencing, arm-to-arm combat, etc. There were eight hours of lectures daily during the summer, and seven in winter. Besides, there were two hours a day set aside for self-study. An anonymous observer commented, 'It is precisely in the great quantity of science that midshipmen have to absorb, that the main failure of the education lies'. In his view, especially the exact subjects, such as mechanics, analytical mechanics, differential and integral calculus and astronomy could be cut down, so that more time for self-study would become available. In his view, there should be more attention for liberal arts subjects as well. Only at a later stage in one's career should there be more opportunities to arrive at scientific profundity. On top of that there should be more and better qualified lecturers. As it was, the Commander of the College also held the post of director of studies. (Anonymous, 1890-91: 121-126)

But he had more criticism on the educational programme of the RNLNC. Thus, more attention should be paid to learning about torpedoes, electrical engineering and naval tactics. All this criticism eventually led to the establishment of a Naval Staff College in The Hague, shortly after World War I. (Gerritse, 1990: 108-119; Dam van Isselt, 1928)

After World War II a development in a non-academic direction could be discerned, with a greater focus on practice. The reason for this was a decrease in enthusiasm for the College as a result of an economic revival with a shrinking labour market, and the loss of most of the naval tasks in the East Indies after the independence of Indonesia in 1948. In the mid-1950s there was an urgent appeal in the *Marineblad* for 'as few formulae as possible' during the training. The RNLNC leadership was given the task to develop a curriculum with less mathematics for the aspirant seaman officers and more practical lessons for the technical branches. Towards the end of the 1950s, however, again a change of direction became necessary.9

Drastic technological developments were forthcoming for the next generations of naval vessels: navigation (with electronic positioning), propulsion (from steam to gas turbines), means of communication and electronic warfare, advanced armament (e.g. guided weapons) and a continued automation of weapon and command systems. A growing need for scientifically educated naval officers emerged. All this made Defence Minister P. de Jong, a former submariner, decide in late 1962 to expand the three-year training period of the RNLNC with a practical training period and a academic continuation course. From now on the total duration of the education would be five years: an

initial three-year education at the RNLNC, followed by a Practical Introduction to the Navy (PBI) just short of a year, and finally an academic continuation course in Den Helder or at another location. The Navy leadership was somewhat concerned, though, that the more liberal academic education of their officers might endanger their military prowess. That is why a clear division between the military and the academic pillars of the education was created.

Over the last forty years this arrangement has not been changed. Its dichotomy, however, laid the foundation for constant infighting: the new naval officer as an academically formed military manager, who somehow has to reconcile conflicting norms and values. The debate focussed on the question of primacy: a military profession with an academic education, or an academic profession in a military organization? Now the emphasis would be more on practical training, academic education would come later. In the course of the 1960s the more academic education gained prominence, but it never came to a naval university.[10]

With a formal scientific system lacking, the RNLNC embarked on a sort of *de facto* scientific system by concluding contracts with several universities. Apart from that, the professional education with a view to the practical functioning of the officer came into the picture again from the mid-1980s onwards. Training, educating and supplying sufficient numbers of qualified officers for the operational units became the RNLNC's objective. An important facet in bringing the education closer to naval practice was the operational training through periods at sea, like the PBI in the fourth year. Its primary objective was an increase in practical experience and a better distribution over the total period. Thus, the traditional *bootjesreis* (Initial Sea Time) was reintroduced for the most junior cadets at the end of their first year. The *kruisreis* (Sea Time) for the second-year students – abolished for all but the Seaman Branch – was re-introduced for all disciplines, and the Marines got a lot of practical training. The eight-month PBI became a truly operational function for all branches. The officers for the Seaman Branch were required to obtain their Bridge Watchkeeping Certificate–A. Broadly speaking, this arangement whereby military discipline and academic thinking are merged, is still used today.

Midshipmen taking a sight during the *bootjesreis* in 1961. Courtesy of the photo archive of the RNLNC.

The *Zeefakkel* in the 1970s.
Courtesy of the photo archive of the RNLNC.

In the new millennium, however, the RNLNC finds itself on the eve of major changes. To begin with the college has to amalgamate with the IDL (Netherlands Defence College) and the RNLMA into one Faculteit Militaire Wetenschappen (FMW - Faculty of Military Sciences), a difficult process. Besides, the MOD has decided to follow the example of civilian universities in opting for a recognized, so-called accredited, academic Bachelor and Master education, BaMa for short. This encompasses an academic education, in which there will be a distinction between the academic curriculum, subject to civilian norms, and a military professional training. The RNLNC, or rather the FMW, will be obliged to offer a three-year programme, the content of which will be assessed by an independent institution for its academic level. Because of its practical nature, the art of seamanship will largely be excluded from this, with the possible exception of the writing of a report on the practical training during, for instance, the PBI. It will result in the College offering a four-year education, roughly one year of which will be devoted to the practical, non-academic education, including basic naval training. On completion of this initial education, the midshipmen will obtain the recognized degree of Bachelor of Arts (BA) or Bachelor of Science (BSc), depending on the course: technical sciences, management or military sciences.

It is the FMW's intention to submit a request for accreditation of a three-year scientific Bachelor by the end of 2004. How basic naval training for the aspirant seaman officers will be realized, is still unclear at the moment. What is certain is that the RNLNC will want to hold on to a distribution of basic naval training over the years, as has always been the case. The argument for this position is twofold: on the one hand, it is all about relating theory and practice, on the other, there is the motivational aspect for the student.

Seamanship

In the introduction it was already stated that sailing a ship is an art. Prior to the foundation of the RNLNC in 1829 the midshipmen learned this skill in practice. Nautical expertise was acquired on the job. Until that moment the seaman officers were not trained on training vessels (see Table 1). This changed with the *Urania* in 1834, when nautical training became a permanent factor in the education at the RNLNC. Over the years the officer who had not received basic naval training was phased out from the Royal Netherlands Navy. On 1 August 1872 the last seaman officer to have followed the old fleet training, without any practical sailing training, left the Navy. The Seaman Branch now consisted exclusively of men who had acquired experience on a sailing training vessel during their education. (Alphen, 2000a: 219)

Table 1: Naval Officers trained on a sailing training vessel, 1801-1862

Year	Total number of Naval Officers	Trained on a sailing training vessel	
	No	No	%
1801	334	24	7
1817	286	96	33
1832	323	112	35
1847	339	232	69
1862	359	342	95

Source: Alphen,2000a: 219.

In the early 20th century nautical training was as follows. The midshipmen admitted to the third year made a two-month sea trip aboard the sailing training vessel *Urania*. The two junior years were allowed to join during the last two weeks of the trip. Part of the third-year sailing programme also took place aboard the instruction vessel *Ever*. Next to a sailing training vessel, the RNLNC had had this decommissioned gunboat, with which the manoeuvring of a mechanically propelled ship could be practised, at its disposal since 1894. After their final exams in April the last-year students subsequently made a longer voyage of three to four months aboard one of the bigger ships, known as the *bootjesreis*. Finally, they received a commission as Ensign First Class. (Dikkers, 1998: 20)

Nautical instructional tools

As mentioned above, the RNLNC momentarily possesses three unique instructional tools to support nautical training: a sailing training vessel, an instruction vessel and a

full mission bridge simulator. They will briefly be discussed below. Subsequently, the present curriculum for the Seaman Branch at the RNLNC, which obviously differs from the other branches, will be described.

A. Sailing training vessels

Thanks to Marc van Alphen's research the use of the sailing training vessels of the Dutch navy is well-documented, as presented in Table 2. (Alphen, 1999a: 1, 4-9; 1999b; 2000a: 215-230; 2000b: 153-174) From 1834 onwards the Royal Netherlands Navy had possessed a sailing training vessel, with an obvious preference for the name Urania. However, at the beginning of the 20th century the heads of the College were of the opinion that a mechanically propelled training vessel would be sufficient to give the students nautical training and in 1912 the sailing instruction vessel was scrapped. During their summer leave the midshipmen were given a sloop to sail with. Apart from that, the rowing and sailing club possessed several dinghies. For Sea Time a schooner would occasionally be rented from the pilot service.

The driving force behind the re-commissioning of a sailing training vessel as part of the nautical training was the lecturer of Seamanship and Shipbuilding J.H. Coolhaas. Many from within and outside the College agreed with him that sailing was more character building than using steam ships or motor vessels. It would bring the midshipman in closer contact with the sea and it enabled him to get a good feel for the power of sea and wind, creating an awareness of the dangers. He/she would develop an intuitive

The *Urania* after her refit in the 1950s. Courtesy of the photo archive of the RNLNC.

Table 2: Sail training vessels used by the Royal Netherlands Navy, 1789-2004

No.	Name	Type	Launched	In use as training vessel
1.	*Arend*	Brig	1798	1798-1799
2.	*Vlieg*	Brig	1788	1798-1799
3.	*Euridice*	Frigate	1802	1803-1805
4.	*Zeemeeuw*	Brig	1800	1806
5.	*Haay*	Brig	1800	1807-1809
6.	*Irene*	Brig	1807	1810-1812
7.	*Havik*	Brig	1807	1817
8.	*Kapitein van Brakel*	Schooner	1803	1818-1828
9.	*Ever*	Cutter	?	1831-1832?
10	*Urania*	Corvette	1832	1834-1850, 1857-1867
11.	*Zeehond*	Brig	1850	1851-1856
12.	*Astrea*	Corvette	1832	1867-1888
13.	*Urania*	Corvette	1867	1868-1908
14.	*Ternate*	Brig	1849	1888-1893
15.	*Aruba*	Schooner	1873	1894-1907
16.	*Argus*	Schooner	1882	1905-1907
17.	*Urania*	Cutter	1873	1910-1911
18.	*Astrea*	Cutter	1880	1911-1912
19.	*Nr. 3*	*Schokker* (pilot ship)	1878	1923-1927
20.	*Willemsoord*	Schooner	1889	1925-1926
21.	*Willemsoord*	Schooner	1915	1927
22.	*Urania*	Yacht	1941	
23.	*Urania*	Yacht	1928	1938-1939, 1948-2000
24.	*Stad Amsterdam*	Clipper	1999	2000-present
25.	*Urania*	Yacht	2004	

Source: Alphen, 2000a: 218

Numbers 3, 8, 12, 14, and 15 never sailed with groups of midshipmen, but only served as moored instruction vessels. Number 10 was renamed *Astrea,* and began a new life as number 12, as a stationary instruction ship. The vessels under numbers 17 up to and including 22 were taken over or borrowed from the pilot service. Number 22 was the *Urania* built in Surabaya. Because of the Japanese invasion this so-called 'Indonesian' *Urania* never sailed with midshipmen. Because number 23 is currently being rebuilt, midshipmen temporarily use number 24. Number 25 will be the rebuilt version of 23.

sense of safety at sea. Moreover, putting him aboard a (small) sailing vessel was supposed to reveal sooner whether a person would be unsuitable for the tough life of a sailor, with regard to such qualities as stamina in physically harsh circumstances and seasickness, and a realization of the necessity of leadership and working with hard and fast procedures. (Bakker, 1978) However tough the circumstances, a ship must be sailed.

There were, however, no funds to even have a small yacht built, let alone a training vessel in full sail. The offer of a retired naval officer B. Nierstrasz to sell his private yacht *Tromp* for *f* 30,000 guilders, proved to be the solution. The *Tromp* had been built at Haarlem by order of Nierstrasz in 1928 according to a German design. The ship attracted attention for her length of 24 metres, the beautiful shape of the hull, auxiliary engine and the American gaff rig, allowing her to be sailed with a relatively small crew. The navy purchased her in 1937 and the following year she was commissioned as *Urania*, with Coolhaas as her first commander. In May the ship made her first voyage with midshipmen.

Unfortunately, the *Urania* served only briefly as a training vessel. Because of the outbreak of World War II there were no calls at ports abroad. After the capitulation in May 1940 the ship was sent to Germany where she served as a training ship for the Kriegsmarine in Flensburg. In 1946 the *Urania* was discovered demasted at a wharf at Svendborg (Denmark). Only in 1948 was the fully restored yacht re-commissioned as a training vessel for the RNLNC.

Sailing with midshipmen, in races and otherwise, was the main function of the *Urania*. The ship accommodated a crew of seventeen, twelve of whom were trainees. Over the past decades the *Urania* has sailed with thousands of aspirant naval officers, with an average annual mileage of 6,000 nautical miles. The interior as well as the exterior appearance of the ship has undergone drastic changes over time. In the 1950s the Bermuda ketch rig replaced the gaff rigging. Later the cabin, a part of the ship below the waterline, and the deck were replaced.

In 2000 she was declared unfit by labour and shipping inspectors. The bunks, for instance, had become too short, with the increasing height of the midshipmen, and there were no facilities for female crew. Besides, corrosion had thinned the skin. At the end of 2001 it was decided to rebuild the ship. In fact, a new ship, closely modelled on the *Urania,* has been designed and built, that meets all the (inter-)national legal regulations for seagoing vessels. The original capacity of seventeen berths is retained, while the ship can be sailed by a minimum crew of six. In the spring of 2004 the RNLNC will again possess a state-of-the-art sailing training vessel.[11]

B. Mechanically propelled instruction vessels

After the transition of the sailing ship to the mechanically propelled ship, the sail training vessel was not adequate anymore for practising the skill of manoeuvring a ship. After all, a propelled ship sails and behaves differently from a sailing ship. It was for this reason that in 1894 the former gunboat *Ever* was commissioned at the College. This type of gunboat, nicknamed 'flat-iron', was originally armed with a heavy gun and served as defence of the sea inlets. After she had been stripped of her armament, the *Ever* became an instruction vessel and she was used extensively for the *bootjesreizen* on the Zuyderzee. Up to and including 1914 this type of ship was used as training vessel, after which the skills of navigating and manoeuvring were acquired aboard the operational ships, for instance during the *kruisreis*. (Bosscher, 2000: 32)

The relative peace and quiet of your own training vessel usually provides a better climate than the often-hectic activities on the bridge of an operational ship. Nevertheless, it was not until 1964 that the RNLNC would again possess its own training vessels: the ancient *Hobein* and the *Hendrik Karssen*. (Borselen, 2000: 79) The bulk of nautical training over the past twenty-five years has taken place on the *Zeefakkel*. This was no mean thing, as the small ship was notorious for her yawing. With their sympathetic

Table 3: Mechanically Propelled Training Vessels, 1894-2003

No.	Name	Type	Launched	In use as instruction vessel
1.	*Ever*	Gunboat	1873	1894-1922
2.	*Gier*	Gunboat	1875	1907-1910
3.	*Das*	Gunboat	1876	1909-1914
4.	*Havik*	Gunboat	1874	1910-1914
5.	*Hobein*	Patrol boat	1948	1964-1972
6.	*Hendrik Karssen*	Communication vessel	1948	1964-1972
7.	*Zeefakkel*	Survey vessel	1951	1974-1998
8.	*Bulgia*	Patrol Boat	1954	1986-1995
9.	*L 9520*	Attack landing craft	1964	1988-1991
10.	*Van Kinsbergen*	Instruction vessel	1999	1999-present

Source: *Marine Jaarboekjes*. With thanks to W. Aerts

understanding the small permanent crews of these vessels welcomed the groups of midshipmen, and under their guidance the young people were able to develop their nautical skills. In 1999 the *Zeefakkel* was decommmisoned and replaced by the specially-designed 41.5 metre *Van Kinsbergen*. For the first time in its history the RNLNC possessed a purpose-built training vessel, with an instruction room containing four chart tables supplied with every conceivable navigation instrument. (Kok, 2000: 45-49)

The bridge simulator, 2003.
Courtesy of B. Dienaar.

C. The bridge simulator

In the early nineties the curriculum for Bridge Watchkeeping Certificate–A increasingly became a problem, in particular because of a shortage of training opportunities aboard ships. Following the example of many other nautical colleges, the RNLNC introduced the Haverkamp full bridge simulator in 1994, named after nautical expert P. Haverkamp.

The purchase of the bridge simulator was intended to increase the output of the limited time available for seamanship. After all, ships cannot generate 'on call' the circumstances necessary for realizing the training objectives. Apart from that, it proved to be impossible to plan more practice hours within the available training time. So an increased output was the answer. Not only the simulator, but also a right mixture of simulation and actual practice has to contribute to the quality of the practical training.

Several characteristics of naval vessels have been developed for the simulator and various virtual ports (e.g. Den Helder) can be generated. For the purpose of assessing student performance, assessment forms have been developed by the staff. Meanwhile, the simulator has become popular with the Royal Navy Tactical School and the Fleet itself, and also foreign navies use it for training purposes. (Extra et al., 2000: 122)

The present curriculum[12]

The objective of basic naval training is clear. During PBI the Seaman Branch student has to obtain his Bridge Watchkeeping Certificate–A, which allows him to sail the ship independently and safely under normal circumstances as Officer of the Watch. This excludes such eventualities as heavy weather, manoeuvres at sea and mooring the ship and leaving harbour. But making a harbour approach is a normal circumstance, and in order to do it successfully the student must be familiar with the ship and the elements of wind and water. He also has to be able to be away from home for a long time

and to be the right sort of person to function in a small community aboard a ship. On top of that he has to be able to sail the ship safely.

Table 4 gives an overview of the nautical subjects that are presently incorporated in the curriculum, apart from purely theoretical subjects in navigation and ship hydrodynamics. PBI included, this comes down to the midshipmen of the Seaman Branch spending almost an entire year out of their first four years of education on nautical training, approximately 140 days of which are so-called sea days.

The practical periods of general nautical training comprise a first introduction to the water: rowing and sailing in sloops. Nautical Sciences–1 is in fact the preparation for the *bootjesreis*: a first introduction to sailing proper. In the bridge simulator and aboard the *Van Kinsbergen* the most important basic principles are practised. During class the

Table 4: Survey of Nautical Courses for the Seaman Branch, 2003 (In Hours)

Year	Description	Sailing	Lectures	Bridge simulator	Total
First year					
	Practical period general nautical training–1	8			8
	Nautical sciences–1	32	40	20	92
	Bootjesreis (Initial Sea Time)	200			200
					300
Second year					
	Practical period general nautical training–2	4			4
	Manoeuvring–1	8	30	4	42
	Practical period nautical sciences–2	8	20	8	36
	Passage planning for *kruisreis*		8	4	12
	Kruisreis (Sea Time)	240			24
					334
Third year					
	Practical period general nautical training–3	4			4
	Practical period nautical sciences–3	28	24	28	80
	Bridge Watch Keeping Certificate–A		40		40
					124
Fourth year					
	Practical Introduction to the Navy (PBI)*	360		4	364
Total		892	162	68	1,122

Source: *Studiegids KIM, 2002-2003*

*The minimum legal requirement is 45 sea days.

preparation for the trips in the *Van Kinsbergen* takes place, e.g. handling the various navigation instruments. On the trips the midshipmen take turns as Officer of the Watch, they apply navigational theory and two 24-hour trips are carried out, one aboard the *Van Kinsbergen* and one aboard the *Urania*.

By tradition the *bootjesreis* takes place at the end of the first year, just before summer leave. Its objective is to introduce the midshipmen to the core activity of the Royal Netherlands Navy, sailing. Besides, the midshipmen have to show they can be away from their homeport for several weeks and possess a knowledge of and insight into relevant work and living conditions aboard. (Oosterhuis, 1996; Duindam, 2001)

The *bootjesreis* usually consists of two parts. The first takes place onboard *Urania*. This relatively small ship was chosen because she exposes the midshipmen to the elements in an intensive way, as the distance from the deck to the waterline is only small. As the *Urania* is currently under reconstruction, a week's sailing period aboard the clipper *Stad Amsterdam*, a replica of a nineteenth century freighter, has been scheduled the past few years. Many consider this ship less suitable as the distance to the water is too great and also because the direct effects of steering and ship behaviour underway are less easy to feel. (Oord, 2000: 24-25; Sprang, 2001: 17-18; Kok, 2002: 7-8) In 2004 the *Urania* will be available once more.

The *bootjesreis* is also a first introduction to the organization. The midshipmen are stationed on one of the operational ships, where they have to fulfil general ship duties, such as administrative tasks.

Nautical training in the second year is dominated by the *kruisreis*. In Manoeuvring–1 the principles of manoeuvring a ship are taught, and the theory is followed by a session in the bridge simulator and a day's manoeuvring aboard the *Van Kinsbergen*. The Practical Nautical Training Period–2 mainly takes place in the bridge simulator and the instruction vessel. In three four-hour sessions sailing in the proximity of a traffic separation zone (the 'highways' of the sea) by day and night, and sailing in narrow channels, is practised in the simulator. One day is used to prepare a trip on the *Van Kinsbergen*. On this eight-hour period of sailing, and a 48 hour-trip a large number of exercises are carried out. In the Passage Planing for Sea Time an assessment is made as to whether the students have all the nautical knowledge and skills from the first two years at hand. This is tested in the bridge simulator and in an exam.

The Sea Time for the midshipman of the Seaman Branch is a monitored sailing period of six weeks aboard a small ship, such as a minehunter or the hydrographic survey ships. He is trained to carry out the duties of the Officer of the Watch, and on top of that he has to learn how to sail and manoeuvre this type of vessel. Afterwards the student is expected to possess the basic practical and social skills to function as a naval officer in an operational unit. Moreover, he is expected to have the routine skills to be safely on

watch on the bridge under normal circumstances. The midshipmen of other branches are stationed on the large ships, where they perform activities related to their particular branch. (Oosterhuis, 1998)

Nautical training in the third year is a preparation for PBI. Now the emphasis lies on the so-called passage planning, during which all sorts of data are collected about the area in which the ship will sail, such as current, shallows and other dangers, sunrise and sunset, etc., and the course is plotted. All this is done in the Practical Nautical Training Period–3. The students are expected to be able to apply the nautical knowledge at the level of Bridge Watchkeeping Certificate–A, which is tested in the bridge simulator and the *Van Kinsbergen*.

During PBI the practical part follows aboard one of the operational ships. In order to be submitted for the Bridge Watchkeeping Certificate–A the student, who by now has the rank of Sub-lieutenant, has to have at least 45 sea days under his belt. When the commander of the ship is of the opinion that the student meets the norm, a four-hour exam in the bridge simulator takes place. When he passes, the VOKIM recommends the Sub-lieutenant for certification by Admiral NL Fleet, which completes his nautical training at the RNLNC. Later, during his operational appointment after the RNLNC, the Bridge Watchkeeping Certificate–B will follow, which qualifies the young officer to sail the ship independently as Officer of the Watch under all circumstances.

Conclusion

Nautical training at the RNLNC is broadly directed at three aspects. First, the midshipmen must get to know the ship and the elements at sea. Secondly, the aspirant officers must be trained to sail the ship safely. Thirdly, they have to be able to function in a small community far from home. Since the foundation of the RNLNC in 1829 the nautical training of midshipmen has held pride of place in the education of the aspirant seaman officer. In this process sail training vessels, instruction vessels and, more recently, a bridge simulator have been indispensable tools.

As long as the kingdom of the Netherlands has a Navy, there will be the necessity to prepare and train future naval officers for this sometimes-hostile environment.

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Notes

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1 Xenophon, *Anabasis*, book IX, section 24.

2 Interview held on 25 April 2002 with Commander W.V.E. Veldhoven, Head of Nautical Training RNLNC, 1999-2002.

3 Bridge Watchkeeping Certificate-B, which certifies the Officer of the Watch has is able to navigate the ship safely under all circumstances, and the tactical deployment of the ship in times of war, are not included in the curriculum of the RNLNC. (Wouters, 1995)

4 Unless otherwise stated this section is based on Alphen (1996).

5 A recent introduction to some of these lecturers is presented by Mörzer Bruyns (2001).

6 The Sea School has gone over into the Higher Nautical School in Amsterdam. Nowadays, the institute forms part of the Hogeschool van Amsterdam as the Amsterdam Maritime Academy. (Acda et al., 1985; http://www.imt.hva.nl/mo

7 Unless otherwise indicated, this section is derived from Bosscher (2000). For the education of the RNLNC at Medemblik, see: MacLean (1976).

8 J.C. Pilaar was a lecturer of nautical science. Professor Heinsbergen taught mathematics and according to Jansen, 'the resigned soul of the badly harmonizing body.' (Honoré Naber, 1925: 54, 55 and 70).

9 The present and following paragraphs are based on Borselen (2000: 55-127).

10 Legislation regulating the scientific education (WWOK, for short) was to give scientific recognition to defence education. In spite of several Bills to that effect, it never came to this.

11 Staff requirement 13.074, re-construction of HMS *Urania*, 6 December 2001.

12 This section is based on the *Studiegids KIM, 2002-2003* [*Study guide RNLNC, 2002-2003*]. For a more general survey of nautical training at the RNLNC, see: Wouters (1995).