Chapter 1 – Devil's Island

Figure 1: (left) The Scheldte-Maas-Rhine delta, with the Island of Dordrecht encircled. Figure 2: (right) The Island of Dordrecht with Devil's Island, Krabbepolder and the Dordrecht port encircled. Figure 3: Devil's Island encircled

The primary interest of this study is in practices, in what people do, in how they do it. Understanding what is happening is not always possible through the present, the world does not wait for the ethnographer before things happen. To account for the present inevitably binds the ethnographer to events of the past, many of which remain. Something similar has been described by Jens Wietschorke as the "epis-

temologischen Verklammerung von Geschichte und Gegenwart." (2010: 199) Elsewhere he explains that if

> die Geschichte als eine „vergangene Gegenwart" gelten kann, dann kann auch die Gegenwart als eine „noch nicht vergangene Geschichte" gelesen werden. So sind historische Perspektivierungen und Epistemologien auch in der gegenwartsethnographisch orientierten Europäischen Ethnologie zentral. Als wissensgeschichtlichen Grund dafür könnte man an dieser Stelle auf das spezifische Interesse der alten Volkskunde am „Leben in überlieferten Ordnungen" verweisen. (Wietschorke 2012)

Here Wietschorke reverts to the idea of "life in handed-down orders" which in a way captures what I saw when I observed operators and skippers at work. Shipping is an old line of work, control room work less so, but apparently new lines of work are often a continuation of work with similar goals, carried out by different means. Moreover, control room work is embedded in a nautical life—through career paths, systems of meaning, converging goals, socio-material practices—that has been handed down for a long time. Moreover, despite their reputation for being at the cutting edge of technology, control rooms themselves are not so new.

When we spoke, the operators in the Dordrecht control room seemed particularly interested in the historical explanation of the name of the place where their control room is located: Devil's Island—although it is actually a peninsula. As I struggled to gain structural access to the control room to conduct participant observation, I took it upon myself to find out where this name came from.

This chapter is the first of two in which I took Sven Lindqvist's adage "dig where you stand" (1979) to heart. Even though it wasn't my own story, taking my cue from the actors in my field and digging in their story was a way of participating in the field, of standing there too, in a particular, handed-down order. Furthermore, as my grandmother was born in Dordrecht, part of a family that has lived there for generations, I sometimes felt like I was reading newspaper articles that my ancestors might have read, describing events—the first bridge over the Oude Maas, the digging of the new seaport, a big fire on Devil's Island—that they might have noticed as they happened and that affected their lives. Along the way I found out that one of my ancestors had been a skipper, but settled in Dordrecht when the waters he sailed were empoldered.

We start in the recent past, discussing in section 1.1 the field experiences in 2015 that led me to delve into the past of the Dordrecht control room and, in particular, the peninsula on which it stands. Throughout this chapter, which spans several centuries, I will return to the events that took place while I was in the field. How the island (and later the peninsula) came into existence in the first place, long before it was called Devil's Island, is the focus of section 1.2. Local history and the loca-

tion of the Dordrecht control room are linked to the emergence of waterway infrastructure, the development of amphibious culture and the ideal of 'modern' water. It brings erosion and sedimentation to the fore and tells us that water also transports soil—and that rivers are living entities. This is not only relevant to the history of Devil's Island, but also contributes to a fundamental understanding of navigation on the river: skippers need to be aware of the process of erosion and sedimentation if they are to keep their hulls off the riverbed. In 1.3 an attempt is made to trace the history of the name of the peninsula. How I communicated this hypothesis in the field is reported in section 1.4, as I assumed that the operators would be particularly interested in my findings. Taken together, these three sections show 1) how infrastructure is also a handed-down order, 2) that topographical references need to be enrolled before they can be handed down, and 3) what happens when the ethnographer takes an active role in this process. In order to explain why a control room was built there, the need for mediated control is first discussed in section 1.5. Apart from the emergence of (infrastructural) control rooms in the twentieth century, this requires a look at developments in inland navigation: the unification of the Rhine as a trading area and the changes that shipping has undergone since industrialisation. The development of the Dordrecht control room, from its conception in the late 1960s to its commissioning in 1982, is dealt with in section 1.6. Here the local history of the Dordrecht control room is reconstructed: why, how and when was it built? At this stage, the reader is in a position to understand these events through the prism of the infrastructural, media and amphibious history that has taken shape in the previous sections.

What emerges is a situated, sociomaterial history of Rijkswaterstaat, how it became the flagship of the modern state's capacity for intervention, and how "the rise of the environmental movement, the democratisation of Dutch society and, from the 1980s, the rise of neoliberal politico-economic ideology" forced it to change course (van den Brink 2010: 79). The Dordrecht control room, the island on which it stands and its name bring together the different strands of this history.

1.1. "Will you decipher the name?"

The first time I heard about inland waterway control rooms, Dutch or otherwise, was in early 2015, when operators argued on a news programme on the Dutch public broadcaster NOS that they could no longer guarantee safety on the river due to budget cuts. I had written a master's thesis on the history of military control rooms and their proliferation in popular culture and popular media practice, and was working on a manuscript about 20th-century control rooms, including traffic control rooms, but had never heard of these control rooms. I found articles online, in regional print media and nautical journals that often mentioned a particular Rijkswaterstaat con-

trol room, the one in Dordrecht. That was where I wanted to go, I decided. But I could not find out how to get in touch with the control room. As a non-waterway user, I had never been to a control room in Dordrecht until that news broadcast, when I felt addressed as a Dutch citizen and a resident of river country. When I was a child, we used to go kayaking in the Linge (dammed since the 14th century), which also made for muddy swimming, but we were always told that most rivers were far too dangerous. Rivers are usually an obstacle to be crossed by bridge, sometimes by ferry. After a few phone calls, I made an appointment with Peter, a "business manager" in the shipping department of Rijkswaterstaat, the Dutch infrastructure agency. We met in the offices below the control room to talk for an hour, and then he took me up to the control room itself.

At Dordrecht station I rented a bicycle and rode towards the river, the name of which I did not know at the time. There I turned west, followed the river and soon the control room with its dark reflecting windows was in sight. The Google-mapped bike route took me through a commercial area, over the dam—with seagoing ships loading scrap metal on my left and the agency's patrol vessels moored at a jetty on my right—and onto the island, where the remote-controlled gate was open. As I parked my bike, I noticed that most of the other bikes were also rented, usually a sign of commuters. There was a camera at the entrance, with an intercom below, but the doors opened before I could ring. At reception, my ID was registered by the only woman I saw there that day. When Peter arrived, he asked her if there were "any flex offices available?" (Field note 8.6.15) She did not know, so we wandered through the corridors, peering into rooms with no outside windows, until we found one that was unoccupied and not too large.

Routinely, Peter introduced the nautical branch of the agency, its organisational structure and vision (motto: "safe and fast"), and the "conventional", "ingrained" shipping culture they had to deal with (Interview 8.6.15). He advocated centralising the ten regional inland navigation control rooms and centralising the remote control of the 230 locks and moveable bridges. He admitted that this was a consequence of budget cuts, but claimed that they were aimed at achieving an "efficiency effect" (ibid.). The introduction of transponders on vessels so that locations could be plotted outside the radar coverage of the control room—a key component of centralisation—had been laborious. Skippers feared for their privacy as their location would be known at all times, and the Agency caved in to their demand that it should not be used to enforce laws limiting consecutive time at the helm. The technology is called AIS; I was to learn all about it later. Afterwards, on the train home, I wrote of the interview that I had "remained neutral during the interview, not wanting to mention that the televised controversy as a result of budget cuts, part of the post-2008 austerity culture, was my main interest" (ibid.).

The control room was shielded by a reinforced glass door, a clunky radar screen was on display in the stairwell, large pictures of the control room hung on the walls.

Peter had a chip, but it was not working, so we had to ring the bell. A uniformed man opened the door and greeted Peter as if it were a chance meeting with an old acquaintance, as did the other operators once we were in the control room. It turned out that Peter had once been their manager. They immediately started talking about their shift, saying it was pretty quiet. Peter interrupted the conversation to introduce me, emphasising the Dutch university I was working for at the time. The operator with the most stripes on his shoulders, Jan, found the Dordrecht control room an urgent topic for research because, as he put it: "Austerity has left us understaffed." (Field note 8.6.15) The slump that inland navigation had experienced as a result of the 2008 crisis was over, traffic had increased, but where congestion on the roads is a publicly recognised sign of economic growth, their growing workload went unnoticed, Jan explained. For the hour I was there, the operators were mostly venting their frustrations, rather than giving me the tour of the control room I was expecting. Peter seemed uncomfortable, quietly but visibly disagreeing.

What I got from how they conducted their work was through how they felt impeded doing so. Afterwards I studied the pictures I had taken and made additional notes, trying to work out which instrument measured what, which acronym belonged to which interface. There were four consoles manned, with a fifth as a backup. The territory they were coordinating was divided into two parts, called sectors, each dealing with an intersection, each with several horizontally linked monitors displaying a detailed radar image provided by a network of antennas. Each sector had its own marine VHF radio frequency. These two consoles were the most intensive workstations. Of the other two, one was used to process information requests from the shipping industry and manage emergencies, and the other was the IVS station. This was where ships called in with their cargo and destination information, which was registered in the Information and Tracking-system Shipping (IVS). The last two consoles were relatively quiet places to relax after an intense radar session. Operators rotated every two hours, but the IVS console was often manned by temps who lacked the training for the radar consoles and the authority to deal with emergencies. So a radar session often lasted four hours, which stretched their ability to take in information and stay focused, Jan said. He was at the information console when Peter and I visited; the two operators at the radar sectors were largely left alone—I could not document what their sequence of actions looked like. During our interview, Peter had described Dordrecht as the busiest inland waterway sector in the world. Jan's assessment was that the budget cuts had made them "go through the floor" (Field note 8.6.15). Peter and his colleagues had come up with a new logic to justify this. It was 'corridor management', which he had told me about beforehand, where traffic is tracked along an entire route and predicted when which ship will be where (Interview 8.6.15).

Later, as Peter and I descended the stairs, he felt the need to correct something I had not made much of at the time. In the control room, Jan had said, not without

pride, that "everyone sitting here has sailed" and that this was the norm, a prerequisite for working there (Field note 8.6.15). According to Peter, "people who have not sailed can be good operators" and considered it a local norm—it was certainly not policy (ibid.).

I wrote above that on my very first visit the operators asked me to solve the mystery of the name of the island on which the control room stands, but I find nothing of this in my notes and records. Yet that was how I had always remembered it. The first record I found of this question being raised was in the field note of a meeting with the two control room managers of the Dordrecht control room, almost a year later. In response to my interest in the history of the control room, one of them, who said he had lost count of the years he had worked for the agency, asked: "So you are going to decipher the name of Devil's Island?" At the time, I was trying to get extended access to the control room, as I was still determined to research only the Dordrecht control room. Access was always granted on a one-off basis, and I was regularly told 'now is not a good time, try again later'. So, although I made no explicit promise to come up with a historical explanation for the name, I started researching in the hope of one day coming up with an answer. In the meantime, I found that operators in several control rooms were interested in the history of their work, and provided me with snippets of information and a topic of conversation. In general, operators are both in awe and suspicious of anyone with a university degree. Add to this their suspicion of researchers who had previously come in and measured their work intensity on behalf of management and reached conclusions that were damaging to the operators, and it is easy to see why gaining trust was quite a challenge. I always emphasised my independence and tried to demonstrate my willingness to listen and take advice, which later led to me boarding ships on their recommendation. At the same time, my independence seemed to frighten management. They knew that once they let me in, they had lost control. Occasionally I could use management's reluctance to gain the operators' trust, but I needed something else on which to build a lasting relationship with both parties.

Another reason for taking the assignment was that I expected to learn a great deal about the local rivers, and perhaps gain a better understanding of the behaviour of the vessels and the terrain of the operators. This knowledge could also legitimise my presence.

1.2. The island takes shape

The shape of the island is such that it looks at least partly man-made, so I pursued two lines of enquiry: 1) how did the island come to be, and 2) how did it get its current name? The first research I did was motivated by the second question. I looked at old maps digitised by the Dordrecht Regional Archive to see when the name first

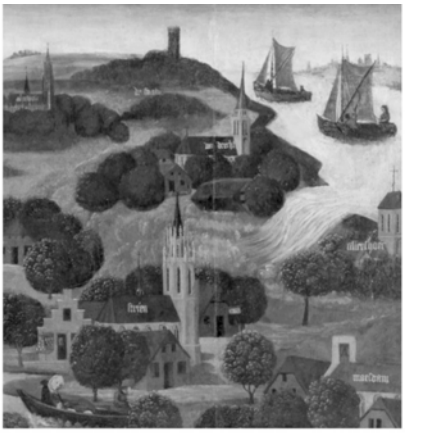
appeared. This was confusing because the lay of the land changed a lot over the centuries. I had trouble finding the spot on the map where the island was supposed to be, and when I thought I had found it, it was never called Devil's Island. So I had to concentrate on the land before I could concentrate on the name.

During my fieldwork, both in the control rooms and on the ships, I used a digital, high-resolution waterway map of the Netherlands that included Antwerp and the German Rhine all the way to the Ruhr. I annotated this map with the references used by operators and skippers over VHF radio, many of which I had never seen on the maps used in the field. As we sailed, I kept track of where we were, so I did not have to keep asking or walk up to the skipper's monitors. This map greatly improved my knowledge of the waterways and their immediate surroundings, but for the Dordrecht area I realised that the historical maps formed the basis of my topographical knowledge. Conversely, after all this field experience, I am now able to read the historical maps better.

The land that later became Devil's Island first appeared after a series of floods between 1421 and 1424, known as the Elizabeth's Floods. What was known as the Grote Waard was largely lost and Dordrecht, the region's main city, became an island in the river Merwede. These two sentences are not as simple as they seem.

In the first, 'land' can be misunderstood as binary to water (cf. Derman 2011; Schmitt 2015), but it was both. For water to carry sediment, it needs a current; when this slows below a certain threshold, sediment falls to the bottom. This can happen when water flows in opposite directions, down from the river and up from the sea. Dordrecht seems to have been such a place. Once sedimentation has started somewhere, it often continues because the water flows more slowly in shallower areas, allowing more sedimentation. After 1421, a complex interplay of currents, sediments and tides created a mudflat south of Dordrecht that gradually ceased to be submerged at the average high tide. The faster flowing water caused erosion around the mudflat, deepening the creeks. The dryer mudflat reaches a point where pollen, both in the sediment and carried by the wind, becomes trapped and the mudflat solidifies. A mudflat that is only occasionally flooded is called a gors in Dutch, the former name of Devil's Island is Krabbegors. The land seems to be named after the water, as I found an earlier mention of the creek the Krabbe next to an unnamed piece of land. At first, the first map I found that showed this (Figure 4) puzzled me because it was drawn so rudimentarily compared to other parts of the map. It was only after reading an interdisciplinary publication by archaeologists, historians, biologists and geologists that I knew what landscape imagery to conjure up, one that I knew from childhood holidays on the Wadden Islands in the north of the Netherlands (cf. Cleveringa et al. 2004; Leenders 2004).

Figure 4: (top left) The Island of Dordrecht in the early 16th century, with the city in the north and mudflats in the south-west. Figure 5: (bottom left) The city of Dordrecht surrounded by water, as represented after the 1421–24 floods. Figure 6: Fragment of a panel made for the local church about 80 years after the floods, depicting the broken dyke in Wieldrecht, south of Dordrecht, in 1421.



The second sentence could be read as the sea reclaiming the land, as nature intervening. But even then it was difficult to distinguish between nature and culture as agents of change. The term polder is easily used indiscriminately for any low-lying land that exists by the grace of the surrounding dikes, but it refers to reclaimed land that was previously a lake or sea. The Grote Waard was not created out of nothing, it was land that had previously emerged and was diked to keep it dry (cf. Leenders 2004). This was moorland that was harvested for fuel. In addition, ditches were dug for drainage, which caused the land to sink. As a result, the Grote Waard became deeper and deeper, which meant that the pressure on the dikes came only from the water side (cf. Cleveringa et al. 2004). Hot summers may have preceded the flood, further weakening the peat dikes—it is only since the collapse of a peat dyke in the Dutch town of Wilnis in 2003 that it is fully understood how peat dikes keep water out by retaining water themselves (ibid.). Due to armed conflicts in the region between the local nobility, funds for substantial improvement of the dikes were limited and the economic need to win turf prevailed (ibid.). Some maps show the city of

Dordrecht after the Elizabethan flood as an island (Figure 5), whereas previously it was shown as the northern part of several land patches. The idea that land was lost instantly fits in with the idea of the Flood as a dramatic event. This is how it has been handed down, 'flood' in the singular, with dramatic numbers of victims—only in the 1970s was this number considerably reduced (cf. Gottschalk 1971–1977). In fact, the country was not permanently inundated, but was abandoned after two later floods (cf. Cleveringa et al. 2004). First, a storm surge breached the dike at Wieldrecht (Figure 6), flooding the land with seawater from the west, but the surge receded and much of the land survived. Later, the river dikes in the east broke twice, and the bleak prospects for the land became clear. The diversion of rivers by dams and the restriction of their paths by dikes had resulted in more water than there was room for. The land south of Dordrecht was therefore deemed unsustainable and the dikes were no longer repaired.

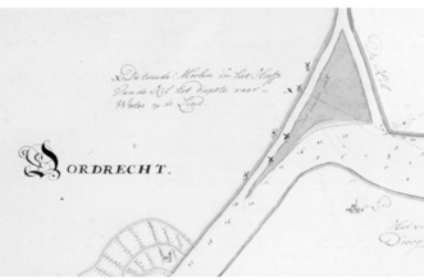
It is likely, however, that the loss of land was part of a cycle, so that the loss of land, like the gain of land, was a temporary phenomenon. Eventually the water would come, but it would reshape the land, recreate it and provide new opportunities, such as salt production (cf. Leenders 2004). The danger is to project the modern concept of water as contained and separate from land (cf. Linton 2010; Morita 2016) onto pre-modern practices. However, the understanding of flooding as part of a cycle around which life is organised, which was still present at the time of the Elizabethan floods (cf. Leenders 2004), seems to have gradually lost ground in favour of flooding as a calculated but nonetheless undesirable eventuality.

The attempt to keep water and land separate was part of the effort to turn water into infrastructure (cf. Brand 2011) and thus nature into infrastructure (cf. Carse 2012). This was manifested, for example, in the construction of locks where previously there had been dams, adding transport as a function of waterways to drainage (cf. Brand 2011: 133). In the 13th and 14th centuries, cities in the north-western part of the Netherlands flourished, both benefiting from and initiating new north-south routes over water (cf. 135, 9). This threatened the importance of Dordrecht. The relative size and economic importance of Dordrecht was increasingly dependent on east-west traffic, on this axis it was "an international gateway", as "it performed a function in (…) trade between the interior of Europe and England and France" (143). Cities in Holland competed on the basis of infrastructure, and Brand divides them into roughly two camps: those who sought to improve their situation through infrastructural interventions—mainly locks and canals—and those who opposed these projects of their competitors and regularly prevented their realisation. Dordrecht belonged to the latter—it feared being bypassed and losing its (semi-)natural advantageous position as a critical passage point to the west, towards the sea, to the east, towards the Rhine, and possibly to the south, towards Antwerp.

Scholars have identified a shift from a disaster culture to a risk culture, but it is perhaps best understood as having long been an asynchronous, local practice (cf.

Bankoff 2013). The possibility of flooding was countered by established evacuation practices and infrastructure, such as churches built on higher ground (often artificially raised), sometimes with the explicit purpose of sheltering people and livestock during floods (cf. van Dam 2017). Even breached dikes did not completely lose their infrastructural function, as they allowed transport, which was essential for rescue operations (ibid.). Van Dam studied floods between 1675 and 1953 and refers to "the long [Dutch] tradition of cultural adaptation to floods" as "amphibious culture" (88).

Figure 7: (top left) The creeks and mudflats southwest of Dordrecht. Figure 8: (bottom left) Still creeks and mudflats, but on the western edge a waterway is dug out. Figure 9: (top right) The Nieuwe Vaart is dug, the island takes shape. Figure 10: (bottom right) The same waterway is called Mallegat here; map is upside down.



The landscape of mudflats and creeks west of Dordrecht, with the Krabbegors on its northern edge, shrank over the course of the 16th century as the island of

Dordrecht grew in size and more and more mudflats were diked. Although Dordrecht was structurally constrained by the infrastructural interventions of competing cities, it sought to improve its own access to the sea. The creeks on the western side (Figures 7 and 8) were dug out and joined together in the early 17th century to form a wide waterway called the Dordtsche Kil, which gave Dordrecht a better connection to the sea by bypassing the shallow mouth of the Maas to the west of Rotterdam (cf. Alkemade 1941: 240), and which still runs south-west of what is now Devil's Island. A Dutch word for a stream running through marshland is kil—so the name Dordtsche Kil, like Krabbegors, is a trace of a past landscape sedimented in toponomy. At first, the Kil was only connected to the Krabbe, which connected to the Oude Maas to the north. In 1656 the Nieuwe Vaart (Figure 9), later called the Mallegat (Figure 10), was dug eastwards from the northern tip of the Kil (cf. Alkemade: 237). This turned Krabbegors into an island, the outline of which can be seen on today's map, especially the sharp point of Devil's Island.

Devil's Island is the by-product of infrastructural interventions, of waterways built to improve Dordrecht's connection to the sea. For a long time, Rotterdam was dependent on Dordrecht for access to the sea because the mouth of the Maas, which flows through Rotterdam and provided the shortest route to the sea to the west, was becoming shallower. So ships from Rotterdam had to sail south-east to Dordrecht before they could sail west to the open sea. A shortcut to the south was built between 1827 and 1830 with the Voornse Kanaal, which had enormous capacity and prevented ships from having to sail east from Rotterdam to reach the North Sea (cf. Alkemade 1941: 241; Filarski 2014: 64). The construction of this and many other canals can be largely attributed to King Willem I, known as 'King Merchant', who had great ambitions to develop the Dutch economy through large-scale infrastructure projects, mainly canals (cf. Filarski 1995). This is when national interests begin to overtake local ones, so it was much more than a victory of Rotterdam over Dordrecht. Although Willem I found it difficult to delegate and was involved in great detail, another, rather young institute was heavily involved (cf. Filarski 2014: 72).

Rijkswaterstaat enters the scene

The French invasion of 1795, which overthrew the Republic of the Seven United Provinces and established the Batavian Republic, formed the basis for the creation of a centralised Dutch state in 1798, which broke with regional autonomy. This state assumed a new role by taking on more responsibilities, including for public works (cf. van den Brink 2010: 72), and created a central agency to manage them (cf. Lintsen 2002: 554), initially called the "Bureau voor den Waterstaat" (Bosch and Ham 1998: 34), now known as the Rijkswaterstaat. Regional interests hindered translocal mobility, as we have seen above, but also had a negative impact on safety. The effects of any intervention in a river were felt downstream, so that one region's

improvement was another region's danger (cf. Krause 2016). In 1810, Napoleon integrated Rijkswaterstaat into the Corps des Ponts des Chausées, a bastion of military engineers, from which Rijkswaterstaat adopted its military discipline and hierarchy (cf. Lintsen 1980: 59–65). The newly established republic allowed members of the middle class to gain influence, and the hegemony of the elite began to crumble (cf. Bosch and Ham: 31–2). Initially, Rijkswaterstaat's status was poor and its influence limited; its staff suffered from a lack of formal training, in contrast to the traditional Dutch military engineers, who tended to be members of the elite (cf. van den Brink: 73). The agency specialised in hydrology and its hydraulic engineers were allowed to hold an official title and wear uniforms; power and status grew steadily (ibid.). When French rule ended in 1815 and King Willem I came to power, Rijkswaterstaat remained and even gained in status—benefiting from the monarch's ambition and the economic tide. Training at the Royal Military Academy in Breda became compulsory and the "semi-military organisational model" was maintained (van den Brink: 74). The secession of Belgium in 1830 and the subsequent mobilisation meant that Rijkswaterstaat dramatically lost funds and influence (Lintsen 2002: 557).

It was not until 1848, when a civic elite came to power as a "democratic polity", that the tide turned for Rijkswaterstaat (van den Brink: 74). Formal education moved into the academic realm, away from military engineering, and employees of Rijkswaterstaat founded the Royal Institute of Engineers, signalling their professionalisation. These civil engineers undertook ambitious new projects that brought considerable prestige to Rijkswaterstaat: rivers were diverted and deepened, reducing flooding (cf. van den Brink: 75). Modernism first arrived as an ideology in the form of a strong belief in progress and the belief that nature could be shaped (cf. Heezik 2007: 87–8). Crucial to this was the standardisation of rivers, which gradually allowed the culture of risk to transcend the local. The rivers were too wide and shallow, which increased sedimentation and further reduced their capacity to transport water and enable navigation (cf. Bosch and Ham 1998: 115).

A prestige project of Rijkswaterstaat in the second half of the 19th century was the Nieuwe Waterweg (cf. Bosch and Ham 1998: 78). The aim was to provide the port of Rotterdam with direct access to the west. Until then, both the Voornse Kanaal and the Dordtsche Kil had to cross treacherous waters to reach the open sea. Construction began in 1865, and the canal was scheduled to be completed in 1869; digging continued until 1873 (cf. Filarski 1995: 119), but the desired depth of 6.5 metres at low tide was not reached until 1896 (cf. Bosch and Ham: 131–2). The idea of the engineer in charge, Caland, had been to excavate a first layer of the canal and manipulate the current until it was strong enough to erode the waterway to the desired depth (cf. ibid.). Steam power was used and further innovation in dredging technology was triggered (cf. ibid). In a circular causality, new waterways both enabled and were enabled by industrialisation.

In the course of the 19th century, the port of Dordrecht was overshadowed by the port of Rotterdam (cf. Alkemade 1941: 245–7). The Nieuwe Waterweg seemed to seal Dordrecht's fate as a seaport. Rotterdam, now in a different league, became the largest port in Europe by the end of the century (cf. Heezik 2007: 111). Dordrecht lobbied long and hard to improve its situation (cf. Alkemade 1941: 242). In the first phase, in the middle of the 19th century, Rijkswaterstaat's efforts to deepen the rivers were aimed at balancing the distribution of water among Dordrecht's rivers (cf. Heezik 2007: 112). In the late 19th century, river works intensified with a focus on mobility: the Mallegat and the Dordtsche Kil were deepened, widened and the latter straightened (cf. ibid.).

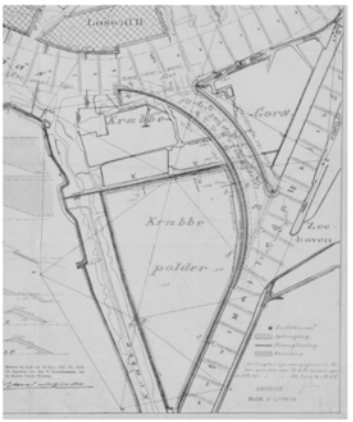
However, Dordrecht wanted further improvements, and in 1897 a government commission made an inventory of the possibilities for improving Dordrecht's connection to the sea, but nothing was done (cf. Alkemade 1941: 242). In 1912, amid widespread scepticism about whether the investment would ever pay off and complaints from Rotterdam, Dordrecht began construction of a seaport called Wilhelminahaven, located south of the Mallegat, opposite the Krabbegors (cf. ibid.). By the time it was completed in 1918, the government had formally recognised the importance of transforming Dordrecht into a seaport, and in 1925 a major project began (cf. Alkemade: 143). The Oude Maas was to be the main link to the sea via the Nieuwe Waterweg, which made the Krabbegors an obstacle. Sailing around it meant a series of difficult manoeuvres, including rounding the sharp north-eastern point of the island, so a channel was dug through it, now known as the Krabbegeul.

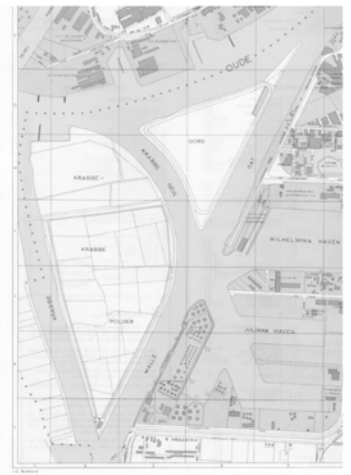
At some point, the Krabbe, which runs from the Kil to the north towards the Oude Maas, was dammed, giving the Krabbegors a land connection to the west (Figure 11). The southern part was turned into agricultural land (Figure 12) and the Krabbe was reopened in the early 1930s (cf. Dalen 1931–1933: 20). The curve of the Krabbegeul is so perfect that it reveals the drawing board as the origin of the landscape. However, only the second port to the south of the Wilhelminahaven—the Julianahaven, completed in 1958 (cf. Frijhoff et al. 2000: 396)—looks as if it really flows into the Krabbegeul (Figure 13).

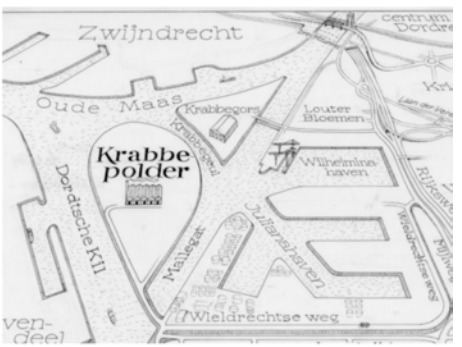
All that is missing are the two dams in the Mallegat, one connecting the island of Dordrecht to the Krabbegors and the other to the Krabbepolder (Figure 14). In 1970, a national newspaper reported that Rijkswaterstaat intended to convert the Krabbe into a waterway as part of efforts to improve the accessibility of Moerdijk (cf. N.R.C. 1970), an industrial area south of Dordrecht where Shell had set its sights on a large petrochemical complex. The Krabbegeul would no longer provide access to the Dordtsche Kil, but only to the port of Dordrecht. Therefore, the Mallegat would be dammed twice to create more space for ships to dock—the dredged sludge would be used to raise the "little peninsula" (ibid.). The (re)construction of a waterway and the raising of a peninsula are closely linked. The article also mentions that Dordrecht's

crossings are the busiest in Europe, with 600,000 ships a year, which prompted Rijkswaterstaat's intervention (ibid.).

Figure 11: (top left) Fragment of a 1927 Rijkswaterstaat map, with the Krabbegeul drawn into the map. A dike seems to connect the Krabbepolder with land to the west. Figure 12: (top right) Detail of an aerial photo showing ships lying in the new Wilhelminahaven, and with the agricultural use of the Krabbepolder clearly visible. Figure 13: (bottom left) Detail of map that shows the new sea port in the south, opposite of the Krabbegeul. Figure 14: (bottom right) The Mallegat is dammed twice; Devil's Island, though still called Krabbegors, has taken shape.







Devil's Island thus became a peninsula. In an internal Rijkswaterstaat letter from 1972, the peninsula is mentioned as a possible location for a "shipping supervision and information post"—it is referred to as "Duivelseiland" (Arrondissementsingenieur 1972) In a 1973 letter, the director of the Dordrecht district writes to his regional supervisor that "my predecessor at the time suggested building a new office building on Devil's Island" (Arrondissementsingenieur 1973). It seems that Rijkswaterstaat's had Devil's Island in its sights as soon as it started restructuring the junction south of Dordrecht.

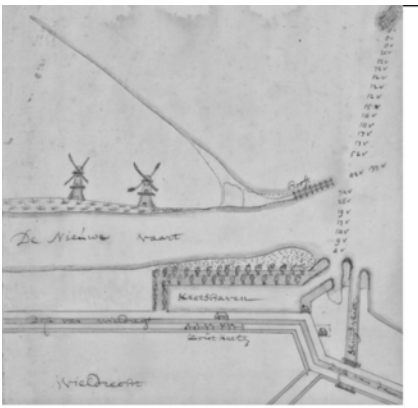
1.3. Enrolling a name

Now to the second question, the roots of the name. Remarkably, no map from the time before Rijkswaterstaat settled there mentions Devil's Island as such. After the Krabbegeul was dug, it was still called Krabbegors, although the apparently unused part on the western side of the Krabbegeul was also called Krabbegors (Figure 12). The hypothesis that the island was given a separate, new name because of its new official function does not hold up. It may be that Rijkswaterstaat consolidated the name after the 1970s, as we shall see, but Devil's Island was used as a name much earlier. There is clearly a discrepancy between use and records of use, as many names are never recorded although they are used for long periods.

Inland navigation uses many topographical references which are probably largely unknown to those not involved in inland navigation, even if they live along rivers, as they have no relevance to their everyday lives. Often they refer to things that have long disappeared: a patch of trees, a farm, a dockyard, a brickworks. Although unstable as an optical reference, they have been there long enough to become a reference, and more stable than the river itself. They are part of an effort "in which a provisional order is proposed", as Callon and Law put it (1982: 622). In the culture of navigation, in the *community of practice* of inland navigation (cf. Lave 1991), many topographical references—crucial for establishing a shared understanding of a position—are only passed on orally. Newcomers in the control room annotate their radar-layered nautical chart with these references, as they can customise and save how they like to arrange, scale and annotate their interface (Field note 17.8.18). On a ship, I witnessed a captain giving a sailor the helm for an hour and questioning him about topographical references—he had previously turned off all the labels on the map so that only shapes were visible, although many of the places he was asking the sailor about were not on the map anyway, as I later discovered (Field note 12.10.18). If the attempt to "impose order" is accepted, it is "enrolled" (Callon and Law 1982: 622). What follows is also a history of the enrolment of Devil's Island as a name.

Newspapers used the name as early as 1917, before the island was split in two by the Krabbegeul. A colleague of mine had suggested that the name might come from the diabolical shape of the island. Seen from Dordrecht, the Krabbegeul looks like a triangle with two horns. However, the name was used before it had this shape, before the Krabbegeul was excavated. Many of the topographical clues I found in the field are explained by (former) activities or buildings. If the skippers had started to use the name, what would have prompted them to do so?

Figure 15: (top left) The Nieuwe Vaart where it joins the Oude Maas with windmills on the Krabbegors. Figure 16: (top right) A fishery indicated on the Krabbegors along the Oude Maas. Figure 17: (bottom right) Aerial photograph indicating industry along the Mallegat. There are four cylindrical objects near the outermost point of the island, possibly the four oil tanks of Gips.



Maps from the 17th century show windmills on the northeastern tip of Krabbegor, when the Mallegat was still new enough to be called Nieuwe Vaart (Figure 15), and an early 20th century map shows a fishery on the northern flank of the island (Figure 16). Aerial photographs from around the same time show a strip of industry

along the Mallegat, warehouses and cranes (Figure 17). Newspaper articles mention a company called Gips, which produced sleepers, wooden beams laid across the railway tracks. The sleepers were treated with creosote, possibly oil tar, because on 26 April 1917 the Rotterdam newspaper Maasbode reported that two of these oil tanks on the Gips premises had caught fire the day before (Maasbode 1917). Several newspapers mentioned the incident, but the Maasbode was the most detailed. It used the name Devil's Island and added that this was in Dordrecht. A national newspaper felt compelled to explain in more detail that there had been a fire in Dordrecht "on the so-called Devil's Island, in the river Oude Maas, below this municipality." (Tribune 1917) In 1921, the "shipping news" section of a local Dordrecht newspaper mentions in staccato prose: "The German steamer 'Grimin', Captain Fisher, loaded with sleepers from Winclau, berth Devil's Island, wharf Gips" (Courant 1921). So the earliest mentions relate to the creosote practices on the island, which were generally not very healthy, and the oil fire must have produced thick black smoke. All very fitting for a Devil's Island, perhaps, but the 1917 Maasbode article uses it as a reference, not as an invention.

Other early mentions of the island match its sinister name. In 1922, the same local newspaper reported that the lifeless, "completely naked body of a fourteen-year-old boy", presumably from a nearby town, who had disappeared while swimming, was found "on the mudflats of the Krab (so-called Devil's Island)" (Courant 1922). Apparently the name of the island was still unstable enough to require the addition of 'so-called'. In this way, the local newspaper refers to a social practice, a reference known to its readers. Some names can be linked to an event and thus dated, such as when a place is named after a queen, like the Wilhelmina and Juliana docks on the other side of the Mallegat on the island of Dordrecht. These are places that were designed, inaugurated and then used. Other names were probably not invented overnight, but came to life as they were used.

In my research in the newspaper archives, including national but especially local ones, I found many references to another Devil's Island, the one known as Ile du Diable, the notorious French penal colony. From 1896, local newspapers in Dordrecht wrote frequently about the island, and in particular about the trials and tribulations of Alfred Dreyfus, a French military officer who was falsely accused of espionage and imprisoned in the penal complex in French Guiana. Émile Zola was deeply involved, publishing his open letter "J'Accuse…!" (1898), the master of early cinema George Melies made a series of docudramas about it (1899), there were publications across linguistic regions: it was an early international transmedial affair and made Devil's Island an international public concept, kept alive by the publication of memoirs by (alleged) former prisoners, novels, plays and films throughout the 20th century.

There are actually several Dutch Devil's Islands. One island off the coast of Jakarta was known as such during Dutch colonial rule. It had a shipyard and a prison and was used for quarantine and banishment (cf. Schaap 2002). In Amster-

dam, there is a neighbourhood built around 1897 on raised ground in the middle of unused, wet land on the outskirts of the city (cf. Kuyenhoven), which is said to be known for the stench of a candle factory and its rough inhabitants (cf. Loos). To the north, in the Veendam marshes, there was an island of the same name (cf. Brand de Boer and Jonkman 1990). In 1910, several newspapers, including one from Dordrecht, reported a fire in Veendam in a building "on the so-called Devil's Island, which housed families whose members often clashed" with each other (Courant 1910). It is mentioned that the neighbouring coal factory was spared (ibid).

All this makes it likely that many Devil's Islands, the one in Dordrecht and others, got their name at the end of the 19th, beginning of the 20th century, after Ile de Diable. Only the island off Jakarta seems to have had the name for much longer—it is mentioned in a travel report published in 1797 (cf. Stavorinus). So I thought that the places had in common that they were isolated, but often not out of sight of the mainland, rugged in vegetation, population and activity, often producing industrial haze and odour. Although I was approaching a plausible hypothesis, I was unsure if it was enough to report back to the control room in Dordrecht.

Then, at the end of October 2017, an operator in Dordrecht tweeted (Figure 18): "Today a publication in @ADdeDordtenaar about where the name #Devil's Island probably comes from. This is where our control room is located". I panicked a bit when I read it. Twitter had been a way of keeping up with what was happening in the field; through a Twitter list I had been keeping track of what the Rijkswaterstaat operators had made public over the past three years. These accounts are used to inform skippers about construction work or obstructions, but also to inform the general public about the work of the control rooms and the safety of the waterways. I wanted to get hold of a copy of the local newspaper, hoping that the allegation was false. But I was at home in Berlin and the article was not published online. I tried calling an aunt who lives in Dordrecht to ask if she could get me a copy of today's edition, but she did not answer. Then I remembered that a friend of mine had grown up there and I wrote to him. A relative of his got me a copy, he forwarded it and I waited anxiously for the post.

The article, a full tabloid-sized page, was written by a local historian, Jaap Bouman—I had come across his website before. Entitled "The sinister Devil's Island", it asked "Where does the name come from?" and followed a similar strategy to mine: first find out the history of the island, then the history of the name. The first part seemed pretty accurate, so as I read, I feared the conclusions of the second part. Bouman had found a witness whose father had leased a piece of land on the island. The father "told his (…) friends" at the local football club, at that time a centre of social life in Dordrecht and of which the father was a prominent member,

> about his holiday and weekend cottage on the Krabbegors. "It's just like Devil's Island over there". This caused much amusement among his (…) friends, who from then on talked about Devil's Island. (ibid.)

The crucial point is when this happened: "around 1930" (ibid.). However, the earliest mention I found in the newspaper archives dates from 1917, which was probably only a local oral tradition. Bouman assumes that the island was formed before it was named, but this does not seem to be the case: as detailed above, Krabbegors was called Devil's Island before the Krabbegeul was dug.

Later, when the newspaper put the article online, operator Rolph tweeted a link. Although I could refute the article, I could not really offer an equally clear alternative, just a hypothesis, so I decided I had nothing to tweet. On my next visit to the control room in Dordrecht, I saw the page hanging on a magnetic board, but made no mention of it.

1.4. Testing a hypothesis

Sharing the results of my work with the field was a tentative process. I was reluctant to interact with them online, partly because the intimacy of offline fieldwork in general and the control room in particular felt at odds with the publicness of Twitter.

Unlike most operators, Rolph was not a skipper before joining Rijkswaterstaat. He joined the agency directly after his training as a motor technician (Interview 26.2.18). His father also worked for Rijkswaterstaat (ibid.). Rolph first sailed on patrol vessels, which he still does occasionally, before becoming a control room operator. Another operator, an oldtimer, said that Rolph was something like their spokesman, referring to his Twitter activity (Interview 20.2.18). As will become clear later, many operators are more attached to the shipping culture than to Rijkswaterstaat, an order that is sometimes incompatible. Rolph may be a Rijkswaterstaat man first, but he is trusted enough by those who identify primarily as skippers to be their spokesman.

On his account, @VLW_Rolph, he maintains a professional persona. He sticks to the template set by Rijkswaterstaat's communications department, which is also visible in the homogenised handle: 'VLW' indicates his function as "verkeersleider", someone who directs traffic (the 'W' stands for 'water'). Rijkswaterstaat's Twitter handles are organised by function—there are also a few operators who have kept their account unofficial, emphasising in their bio that the tweets reflect personal opinions. The tweeting operators were aware that they were being monitored (Field note 17.10.16).

During my struggle to gain permanent access to the control rooms in general and the Dordrecht control room in particular, it became clear how sensitive Rijk-

swaterstaat staff are about public image and the possibility that I might publish the wrong things. While navigating the treacherous waters of field access, I was wary of revealing too much via Twitter, partly because I was still figuring out how to convince the gatekeepers. But Twitter was also a way to get in direct contact with the operators, albeit with the communications department watching our every move.

Another problem was that I am not an experienced tweeter. I joined Twitter hesitantly, having never been on a social media platform before, as a way to connect with fellow academics during the protests against the Dutch neoliberal university in 2015. The dominant use of Twitter in this community, especially after the protest movement died down, is self-promotion. I had kept my account to keep in touch with my former colleagues after moving to a German university, particularly because I valued the cross-departmental connections I had made. However, my social media socialisation, offline interaction "*verdinglicht*" online (Lukács in Paßmann 2018: 18), also hindered me in engaging too frivolously with operators on Twitter. My reflex was to stick to the pattern I knew, so I didn't follow or tweet to Rolph because I didn't really have time to talk to him in person. I had met Jaap, an operator in a Rotterdam control room run by the Rotterdam Port Authority, who was also professionally active on Twitter. Like Rolph, Jaap was a coach on the simulator training course for future operators. It was the Twitter algorithm that recommended Rolph's tweet about Bouman's article, as the display of the tweet on my timeline was accompanied by the text "VTS.Jaap likes this" (Figure 18).

Figure 18: Screenshot of tweet by operator Rolph with a photo of the newspaper article about Devil's Island.

Figure 19: Tweet by author, retweeted by operator Rolph. Depicted is an early drawing of buildings on Devil's Island made by Rijkswaterstaat itself from 1975.

In addition to being a spokesperson, a broadcaster, Rolph is also embedded in his community of practice formed by other tweeting operators and skippers. It was this element of his network that interested me most when I finally mentioned Rolph in a tweet of mine, having not yet met him. I tweeted what I had found in the archive about the early history of the Dordrecht control room (Figure 19). A month after Bouman published his theory, I shared various historical material to gain recognition and to thank the operators who had always helped me. The insecurity towards the field had diminished as I realised that I knew enough to have conversations about their work without them having to explain everything—in the control room I knew what was happening. When Rolph tweeted Bouman's article, I felt I had missed an opportunity to use the issue to gain what Lave calls "legitimate peripheral participation" (1991: 64). Reflecting on my position after Bouman's publication, I realised that I had found many other ways to achieve this, to the point where both skippers and operators were asking me if their line of work would be something for me. However, I wanted the tweet to be visible to all my followers, including my own academic community, so I did not address Rolph directly by putting his handle first, as this would have prevented the tweet from being visible to my followers. Also, as I thought it was good publicity material, I did not want to risk it being forgotten, which would have been the case if Rolph had ignored it.

I was grateful when Rolph accepted the 'gift' (cf. Paßmann 2018) and retweeted the early sketch of the Dordrecht control room.

Bouman had begun his article: "Devil's Island is part of a former island in the mouth of the Dordtsche Kil. There is not much to do there. It is best known for the traffic centre for (inland) shipping" (2017). Google Maps—the contemporary measure of geographical existence—names the island Krabbegors, but when searching for 'Duivelseiland Dordrecht' it displays its iconic red pin on the island, as if Devil's Island is a place on the Krabbegors. The caption of the pictures accompanying Bouman's article reads "Aerial view of the former Krabbegors". In this way, Bouman and the newspaper position 'Krabbegors' as a thing of the past, and mark a date for the birth of the new name in the only daily newspaper that Dordrecht has left. Who am I to argue against this particular enrollment? Or, to be more precise, is it necessary to correct his version, since even my attempt would ultimately contribute to the registration of the name anyway? Bouman seems to be solidifying the decades-long effort to register Duivelseiland as a site of Rijkswaterstaat. Rolph's echoing of Bouman's theory is part of the enrollment of the name among a heterogeneous public. The fact that he felt the need to add in his tweet that the control room is located on Devil's Island implies that he is not sure that everyone knows, that he is also addressing laymen, because every skipper I have met knows about Devil's Island in Dordrecht.

Later, in 2018, during the interviews with the operators, I reluctantly presented my hypothesis. These interviews were part of the oral history project I conducted on early control room practice, as described in the next chapter. But informally, whether on a ship or in the control room, conversations about the past were frequent: in retrospect, the oral history part of my research had begun before I registered it as such. Then, at the beginning of 2018, I started visiting operators at home—most of them are retired—and talking for hours while recording the conversation, discussing documents and photographs, both theirs and those I found in the state archive. No one was really convinced by my hypothesis. They accepted that the theory in the newspaper was no longer plausible, but for them my idea was fishy. One operator, a tall and gentle man called Jan, took my discrediting of the new hypothesis as an opportunity to dust off his own theory (Interview 20-2-18). For him, the dangerous currents and riptides around the island, as indicated by the name Mallegat, were the best explanation.

> I think it has to do with something nautical. It was, of course, when the Haringvliet [once an estuary of the Rhine-Meuse delta, south of Rotterdam, now a freshwater lake] was still open. Then there was a mad current here. (…) All these names: Mallegat, Vuilegat, I say, difficult to navigate, current from all sides, with the engine power they had back then, sailing and steam… (Interview 2.2.18)

When Jan started out as a skipper in the second half of the 1970s, the Mallegat had just been closed—the old-timers he sailed with must have known the currents around Devil's Island inside out.

Jan's reaction made me realise that it might never have really been a question for me to solve. At first I thought, perhaps arrogantly, that the question was being posed for me to give it an existence beyond the control room, or to integrate the operators' historiographical discourse into one beyond the isolation of the control room. Now I think that is silly. Paul Rabinow described ethnographic writing, apparently borrowing from Paul Ricoeur, as "the comprehension of the self by the detour of the other" (quoted in Geertz 1988: 92). While the skippers-turned-operators had a clear identity to fall back on, I too had found one: that of the *Besserwisser*. Now I know that my presence is legitimised not by giving answers, but by having a sustained conversation about the past.

Perhaps Bouman gave the operators a founding myth of Devil's Island. As Alasdair MacIntyre put it, a "myth is living or dead, not true or false" (1967: 435), although Schilbrack claims that "the life or death of a myth is bound up with its credibility" (2002: 9). But why should the ethnographer be the arbiter? It looks like I had approached the emic, that what is part of and alive in the field, as etic, that what could be explained objectively. As such, I had not heeded Latour's advice when following the actors, as then, "your task is no longer to impose some order, to limit the range of acceptable entities, to teach actors what they are" (2007: 12).

1.5. The need for mediated control

Surprisingly few texts on control rooms ask where they came from, what prompted their creation. Here I paint a broad historical picture in five steps: 1) the unification of the Rhine as a waterway and commercial space, which both preceded and was driven by industrialisation; 2) how the mechanisation of the fleet during industrialisation—after a long, uneven and hesitant start—increased the scale and speed of shipping, depopulating the docks and forcing skippers' families to live on board; 3) the increase in speed and scale led to the restoration of control through nautical media, which then enabled further growth; 4) centralised control brought considerable (sense of) agency and prestige to the state, not only in the military sphere, but also in infrastructure; 5) it was in infrastructure that the need to coordinate traffic led to the (architectural) creation of an overview, which then required nautical media to communicate this information to moving objects.

Unification of the Rhine

For a long time, the commercial regulation of Rhine trade took place locally. Since the Middle Ages, several cities, including Mainz, Cologne and Dordrecht, enforced the right of staple and the right of compulsory transfer (Spaulding 1999; Brand 2011). The former meant that any merchant had to offer the imported goods for sale on the local market first; the latter meant that the goods had to be transferred to a local ship for further transport—by the early 19th century one could pay a fee to avoid the former, but the latter was still enforced (Spaulding 1999: 4). In addition, there were thirty-two toll stations between the German-Dutch border and Strasbourg (Spaulding 2007: 8). For centures, the Binger Mäuseturm (which is still standing prominently on an island in the Rhine) was a toll station, though it probably also had a defensive function as it provided early warning of approaching ships (Will 1875: 212).

French hegemony in the late eighteenth and early nineteenth centuries undermined local power structures, as it had done in the Netherlands with the establishment of Rijkswaterstaat. The first international treaty to uniform the river was the Octroi of the Rhine, signed in 1804, which "dramatically reformed the previously anarchic Rhine tolls and established a truly innovative Franco-German joint administration covering the Rhine from Switzerland to the Dutch border." (Spaulding 1999: 6) The joint bureaucracy that administered the river standardised procedures, improved trade and began to structurally gather river data (cf. Spaulding 1999: 7; 2007: 18).

After French hegemony, the many Rhine states (in the absence of a unified German state) agreed to work together and in 1815 established a permanent Rhine authority called the Central Commission for Rhine Navigation (CCR) (cf. Spaulding 2007: 22). This did not completely end the commercial patchwork on the Rhine—the Netherlands continued to exploit the dependence of the German Rhine states for access to the sea (cf. Filarski 2014: 124), to the extent that partial land routes to Bremen and Hamburg were preferred, even for heavier goods such as wine (cf. Blanning 1983: 24). Under pressure of increasingly powerful Prussia, the Netherlands later caved in and the 1831 Treaty of Mainz included the entire Dutch Rhine delta, which was now free of Umschlagrecht, and with much less toll charged (cf. Filarski 2014: 124). The CCR was given the task of compiling an annual report on the state of Rhine trade (cf. Spaulding 2007: 22), and it became the only authority that could issue skipper's patents for sections of the river, based on experience in those particular waters (cf. Spaulding 2007: 17–8; Filarski 2014: 310). Both of these functions are still carried out by the CCR. The Treaty of Mannheim in 1868 abolished all charges for navigation on the Rhine and its tributaries, with fierce competition from the railways as a major motivation (cf. Filarski 1995: 126).

In the 19th century, the Rhine underwent dramatic changes. In its efforts to unify the Rhine as a trading area, the CCR also sought to improve mobility. As described

above, Rijkswaterstaat undertook major efforts to improve the Rhine and Meuse deltas in the second half of the 19th century. This was not only due to national pressure. During the first inspection in 1849 of the Dutch rivers in the Rhine Delta by the CCR, it criticised the Dutch state, and thus Rijkswaterstaat: "Der Hauptgrund des schlechten Zustandes des Fahrwassers in der Waal und Merwede liegt darin, dass die Niederländische Regierung beinahe nichts zur Verbesserung bisher getan hat." (quoted in Filarski 2014: 132)

It was extraordinary for a sovereign state to be criticised by an international body like that and be susceptible to it too. The success of the CCR is partly explained by the "dramatic expansion of print culture" in the first half of the nineteenth century, first by imagining such an international treaty and building support for it through the circulation of popular opinion, and later by using the new "avenues of communication" to reach "the various segments of the larger public touched by the actions of the CCR" (Spaulding 2018: 17).

Intervention into the river—canalisation and straightening, sections were shortened, currents subsided and deeper shipping lanes emerged—also served public health, as marshlands were drained. The 1817–1876 engineering of the Upper Rhine gave Gottfried Tulla saintly status as the architect of a modern miracle, dramatically shortening the river (cf. Bernhardt 2016). A narrower Rhine, but with a relatively wider navigation channel, was standardised at 230–250 metres in Germany (cf. Lagendijk 2016) and 360 metres in the Netherlands (cf. Nienhuis 2008).

Prussia had long complained about the state of the Dutch section of the Rhine (cf. Bosch and Ham 1998: 115). The Dutch could hide behind budgetary constraints, political instability and disagreements over technical solutions (ibid.). But with the CCR a radically different kind of representation emerged. It can be seen as an 'object-oriented' organisation, an attempt to deal with a common "matter of concern" (Latour 2004: 8–9). The CCR was a way of dealing with the paradox that Rhine policy for the Rhine states was always both local and foreign policy (cf. Spaulding 2007: 6). Rooted both in the unification of the German states through the rise of Prussia and in the subsequent industrialisation, the Rhine became a major German geopolitical issue (cf. Werber 2014).

Mechanisation of inland navigation

In 1824 and 1825, the shipping company NBSM (Nederlandse Stoomboot Maatschappij) made two attempts to navigate the two most dangerous sections of the Rhine by steamboat, one of which was the Bingerloch (cf. Filarski 2014: 85). Newspapers in the Rhine cities reported on the voyages, and the Prussian king boarded the ship that made the second attempt (ibid.). Soon other shipping companies emerged and passenger transport by steamboat was offered along the whole of the Rhine and

across Dutch waters, but the dramatically shorter journeys were not for everyone as tickets were expensive (cf. Filarski 2014: 86). So, despite the publicity, for many people the steamships did not change their lives very much. In the Netherlands, water transport had been the main mode of transport for centuries: it was the "most extensive and reliable network" (Nienhuis 2008: 110), cheaper and often faster than land alternatives (cf. Filarski 2014: 36–43), but still time-consuming, especially upstream, and dependent on horses for towing or wind for sailing. More than steamships, trains made a difference, but even this increase in speed and "shortened time horizons" was an "uneven and partial" experience (May and Thrift 2001: 7, 10). Moreover, waiting remained a key element of the shipping experience—as it still is today. In those days, waiting for a place in a lock, waiting for a new voyage to materialise, waiting for a ship to be unloaded, all took days, sometimes weeks.

After the experiments of 1824–1825, it took two decades for steam to have an impact on freight shipping. Steam tugboats, which had gained strength, were pulling a single file of cargo ships up stream: between 1843 and 1859 the amount of single steam ships remained steady, but the amount of ships pulled upstream went from 11.9 percent to 87.8 percent, as counted at the Dutch-German border (cf. Filarski 2014: 96). During the same period, the percentage of ships sailing independently downstream fell from 94 to 82.5 per cent (ibid).

After 1870, shipping to Germany changed: from small quantities of expensive colonial goods such as tobacco to bulk goods such as grain and ore (cf. Filarski 2014: 114). Subsequently, larger ships were built, international trade on the Rhine increased dramatically, and around 1890 Dutch industrialisation really took off (cf. 119). The loading capacity of the Dutch Rhine fleet almost doubled between 1852 and 1891 (cf. 142). In 1893 the economic tide turned and the Dutch skippers, who dominated the Rhine, suffered from overcapacity (cf. 116), the beginning of a cycle of boom-build-bust-overcapacity (cf. 171). This cycle continues to this day, as I have seen in the field. The collapse of freight rates at the end of the nineteenth century, partly as a result of the continuing liberalisation of the market, forced a further significant change in life on Western European rivers that would last for at least a century: most shipping families gave up their homes on land and boarded ships; wives could take on tasks on board, thus saving on personnel costs (cf. ibid.).

Industrialisation demanded and produced a greater flow of huge volumes of goods. The total tonnage transported registered at the Dutch-German border was 95,000 in 1820 and 30,090,000 in 1910, more than 300 times as much (cf. Filarski 2014: 117). Around 1900 it took 126 workers seven to eight days to unload 6000 tonnes of grain from a (sea) freighter (cf. Schot, Lintsen and Rip 1998: 14–6). With the advent of grain elevators at the beginning of the 20th century, 14 workers could unload the same volume in just two days. Grain was no longer transported in sacks, it had become liquid, homogenised (cf. Bowker 1995: 59–60). In 2016, I joined the *Liberty*, a 135-metre barge on the Mainz, carrying 4000 tonnes of grain destined for Rotter-

dam. The unloading was done in one morning by a crane operator, a sailor and the captain. The former did most of the work (Field note 27.11.16).

Managing distance and proximity

After 1850, mediated control was both a remedy for lost control and a driver to gain more control, both a backlash and an instigator. As scale increased, managing proximity became key.

The scale and speed of transport increased, not only of goods, but also of information. What shipping and railways did for goods, the telegraph did for information. Markets became more international and speculative, with investors dependent on the rapid communication of commodity and stock exchange prices (cf. Bowker 1995: 60; Flichy 1995: 48). Unified markets allowed mass production companies to grow to unprecedented sizes, creating new challenges (cf. Flichy 2006: 193). Organisation and security were at risk—James Beniger claims that an industrial revolution triggered a crisis of control, which was met by a control revolution (1989).

The scale and speed with which things changed during industrialisation led to a lack of control (cf. Beniger 1989). To be fair to Beniger, he defines revolution as a "restoration – although with increasing centralization—of the economic and political control that was lost at more local levels of society" (7). Reclaiming control is not just a matter of new technologies becoming available. The American railway company that JoAnne Yates researched "had virtually limitless access to the telegraph before the Civil War, but used it only to support existing unsystematic patterns of communication." (1989: 272) Serious train accidents brought railway companies to improve internal communication; in fact, complex organisations could no longer afford ad hoc management. The telegraph was essential for organising geographically dispersed action. At the same time, the use of the telegraph for managerial control needed advocacy. As in the Netherlands (cf. Ketelaar 2006: 87), "the single factor most immediately related to the emergence of communication as a managerial tool was the intervention of a strong manager championing the new theories." (Yates: 273)

Yates identifies how simultaneously tighter control was established downwards, with detailed descriptions in standard formats for coordinated action, while to account for the course of events, new "upward flows of communication drew data and analyses up the hierarchy to serve as the basis for managerial control of finances, facilities, materials, and processes." (xvii) To keep up with the new flows of information, new ways of presenting information and improved record keeping were needed. An example of the former is graphs, which require a new kind of literacy to counter the "overwhelming" amount of information at the top (85). In Europe many large companies came, slightly later, to the conclusion that "new organizational memory of rules, regulations, and reporting makes the organization less de-

pendent on individual memories." (Ketelaar 2006: 79) Gradually the latter became a genre used only for external communication; internally it was replaced by the memo. Yates writes that "the removal of traditional polite phases led to clarity and directness to the point of bluntness." (1989: 97) As a result, many companies "discovered the importance of countering the depersonalizing effects of the system with some communication mechanisms aimed at humanizing the workplace (…) thus defusing hostility", for example in-house magazines or meetings (274). Rijkswaterstaat, which employs around 10,000 people, also has a company magazine—now called *Kracht*, which translates as 'strength'.

Centralisation as prestige

The larger trend was to separate decision-making from action, which depends on media. The British navy is a good example. Shortly after John Fisher was promoted from Admiral to First Sea Lord in 1904, he reorganised the British fleet. As documented by Lambert (2005), the advent of wireless telegraphy was the key that enabled Fisher, in a sense a strong manager as Yates and Ketelaar found them, to abandon the delegated command structure, in which every commander-in-chief of a geographical region acted independently. Instead, Fisher centralised command in what soon became known as the War Room. He wrote in his diary of unprecedented agency:

> Neither Nelson nor St Vincent, when in command at sea with their noble fleets, could possibly possess the knowledge of the Admiralty octopus, with its antennae & tentacles feeling everywhere & concentrating knowledge in its brain. (quoted in Lambert 2005: 384)

The omniscient octopus had, a few months later, transformed itself into "a spider's web (…) to devour the German merchant marine and other war apparatus" (quoted in Lambert 2005: 384). More than eighty years later the head of the Dutch (non-military) nautical control rooms told a conference that the operator sat "ever more as a spider—as you know a very useful little animal—in a beautifully woven web. From the centre of his web he has the optimal information to be of service" (quoted in Halma 2004: 64–5).

It is productive to bring the military and the infrastructural control room into one perspective, for they are aligned and opposite. One is elite, the other more mundane, but both rely on the exclusivity of their perspective. Both have come to have a symbolic function in a regime of state accountability. But inland navigation control rooms, of which there are many, operate locally. As far back as the Crimean War (1853–1856), there are reports of complaints about the reach of the London-based high command via telegraph wires (cf. Sterling 2008: xxvi). As a captain, stationed

in Australia, wrote in 1887: "it is too bad that an Admiral can't move about his own station without permission from home—centralisation with a vengeance. It is a great pity, all owing to that tiresome telegraph" (quoted in Lambert 2005: 363). Today, in their remote control rooms, during night shifts, operators and their superiors are a world apart, but they also complain about the loss of autonomy and feel pressure from management. The latter—so the Rijkswaterstaat business manager quoted at the beginning of this chapter told me—had at one point plans to further uniform and delocalise control room practice and ultimately centralise them, going from eleven control rooms to just three (Interview 29.4.16).

Rotterdam—whose port was growing rapidly—probably built the first land-based radar chain, moving further inland to cover the entire port. The network was inaugurated in 1956 by Prince Bernhard, the husband of Queen Juliana. Bernhard was a military man and a macho, an image he carefully managed. The maritime control rooms were usually staffed by former naval personnel who had already become accustomed to marine VHF radio and radar (cf. Halma 2004: 18). For the nautical control rooms, the inauguration embodied a military-civilian crossover that generated much publicity (16). When I visited that control room in 2017, I saw an enlarged picture of Prince Bernhard behind the radar console hanging in the corridor. Inaugurations, Leo Coleman writes, show us the "fundamental relation between social, collective consciousness and political symbols, on the one hand, and the material organization of society on the other" (2014: 459). They are examples of "state imagination" (460). From the outset, the Rotterdam control rooms were also intended, as the planning commission of the time put it, "as an advertisement for this world-class port" (Halma 2004: 13).

Oversight and overview of traffic

The volume and speed of traffic in the twentieth century required oversight and coordination to allow these factors to increase. Oversight was achieved through mediation. The elevated position to create the overview is a first step, bringing architecture into the fold of media. The second step is to communicate the knowledge gained. Air traffic control (ATC) is perhaps the most prominent manifestation of this ambition, although there were practices with similar ambitions on the Rhine in the second half of the 19th century.

Several watchtowers along the German part of the Rhine were involved in traffic coordination (cf. Halma 2004: 280). The aforementioned Binger Mäuseturm was renovated in 1855–56 for this purpose:

> um durch (…) einer sogenannten Wahr-Schau-Station die Schiffer in Kenntnis zu setzen, ob dort ein Schiff auf der Berg- oder Thalfahrt begriffen sei, um dadurch

> jeder gefährlichen Begegnung im Bingerloch vorzubeugen (...). (Cremer 1857: 505)

Skipper Rob pointed it out as we passed it in his 135 metre barge, although he was unaware of its former nautical function (Field note 27.11.16). Flags were used to communicate the knowledge gained from the elevated position: different colours were used to indicate when an exceptional ship, tug convoy or raft was coming downstream, and when the river was free, upstream or downstream (cf. Halma 2004: 280).

ATC towers, like nautical control rooms, are local, territorially limited, manifestations of transnational movement (cf. Denicke 2012). Air traffic control is a response to traffic density, safety concerns (even escalation, such as mid-air collisions) and obstructive atmospheric conditions that emerged in the inter-war period of the 20th century. A first step, like in the Mäuseturm, was to signal to the person controlling the moving object what she or he could not grasp at a distance. One pioneer was Archie League, who in 1929 positioned himself in the middle of the runways at St Louis as a so-called flagman "to direct planes so that they would not collide" (FAA 2011). Around 1932, "[w]ith the advent of two-way radio telephone communication capability in aircraft, radio-equipped airport traffic control towers came into being to replace" flagmen like League (Gilbert 1973: 365). In the early days of air traffic control, there was also an unobstructed view outside; photographs of the time show League wrapped up warmly or under a large umbrella in the summer. However, electronic equipment could not be exposed to the elements. Like the Mouse Tower, the building itself was an important medium in early air traffic control. The idea was to create an elevated position at the critical point, with glass windows providing a panoramic view—these towers became iconic for airports.

Different infrastructure control rooms can be grouped according to the type of traffic they are trying to coordinate. Aviation became schedule-based traffic, like trains, where movement is predefined but still contingent enough to require central coordination. Inland waterways are rule-based traffic, with many independent participants, like road traffic—not united by larger corporate structures like railways and airlines. This is not to say that schedule-based traffic is not bound by rules (train drivers still have to obey a red sign), nor that rule-based traffic is not subject to schedules (docking in ports is planned in detail and port traffic is heavily influenced by shift changes of dock workers). In contrast to schedule-based traffic, rule-based traffic can organise itself to a certain extent, i.e. actors can follow the rules and the infrastructure they navigate is simple enough to allow a certain traffic flow.

1.6. A control room on Devil's Island

The dynamics in which the inland navigation control room in Dordrecht came into being are complex—different actors emphasise different aspects: It is clear that the plans for a control room were 1) rooted in local infrastructural complexities; 2) linked to the rise of large push boats, problems with towing columns and a general increase in traffic; 3) a result of a behavioural turnaround in Rijkswaterstaat's approach to infrastructure, also because 4) public and political support for large infrastructural interventions was declining; 5) encouraged by local politicians as a result of local safety concerns about the rise of tanker traffic; 7) a reaction to the rise of leisure culture and thus many more amateur skippers on the waterways; 8) a way to reduce costs.

Growing infrastructural complexity

From the second half of the 19th century, the various infrastructures—railways, telegraphs, roads, waterways—became increasingly intertwined. Rijkswaterstaat was often involved in this process, although not always from the beginning. Railway transport was initially a private enterprise, but compared to Belgium, for example, the Dutch railway network was rather limited, as the river landscape made construction financially and technically difficult (cf. Bosch and Ham 1998: 80). From 1860, Rijkswaterstaat was given responsibility for planning and supervising a major expansion of the railway network (78).

A proper telegraph network was also only established in 1852 when the state became involved (cf. de Jong and Stout 2007: 93–4), i.e. Rijkswaterstaat (cf. Bosch and Ham 1998: 78). Initially, this involvedthe conception and construction, and later in maintenance of a network that connected "the foremost cities, fortresses and ports." (Brink and Schell 1954: 436) Both telegraph and postal service infrastructure must have benefited considerably from the rail network, as was the case in the U.S.A (cf. Chandler 1977: 195; Beniger 1989: 17): the bridges made it easier to span cables across rivers and for distribution mail to be brought aboard. In 1927, Rijkswaterstaat was given the go-ahead to build a road network for motorised traffic, including twelve bridges over the major rivers (cf. Bosch and Ham 1998: 164). The resulting infrastructural landscape was one of many intersections.

In the 1970s, Rijkswaterstaat had started to layer them when it built two tunnels, one near Dordrecht under the Oude Maas and one further south, under the Dordtsche Kil. The large concrete sections were built elsewhere, then transported over the water and sunk into place—causing considerable disruption to traffic for several years. Another way of disentangling the infrastructure was to standardise the clearance height of bridges, as had been done on the Rhine, so that standard barges could pass. However, the Dordrecht bridge over the Oude Maas became a

bottleneck. From the second half of the 1960s, not only seagoing vessels but also the new, larger push boats were often too high and also needed a bridge opening (cf. Arrondissementsingenieur 1972: 1–2).

Pusher boats were the first to operate continuously to provide the German steel industry with a steady flow of iron ore. With the aid of radar, a key nautical medium, both night and fog were mastered. They were larger than any other ship and initially sailed without a front rudder, which meant that their track was even wider when drifting through bends (Email Filarski 28.10.19). Also, tow columns struggled with the congestion at the Dordrecht bridge and at the busy intersections, especially because it was harder for them to slow down, resulting in accidents (ibid.).

Openings were limited because the bridge was a vital node in the Dutch rail network, connecting north and south. As described above, Rijkswaterstaat reintroduced the Krabbe as a waterway (when it dug the Krabbegeul and dammed the Mallegat), which provided an alternative route for these ships. Not only would the construction of these waterways hinder traffic, but the route itself was "not so attractive", as it would take ships 1.5 to 2 hours longer (Arrondissementsingenieur 1972: 2). "Moreover, part of the Dordtsche Kil (…) should, as a result of strong current and intense traffic, be considered one of the most difficult passages" in the Netherlands (ibid.). The Moerdijk bridges along this route made things even more difficult. As an alternative, a local Rijkswaterstaat report concluded that this route would only work if a

> timely indication can be received concerning:
> a. The number of ships waiting at the railway bridge.
> (…)
> b. The available clearance on the Moerdijk Bridges.
> c. The available clearance on the Dordrecht railway bridge.
> d. The expected strength of the current on the Dordtsche Kil. (ibid.)

It was assumed that ships would need to be informed of local conditions prior to arrival (not unlike early air traffic control informing aircraft). The difficulty with the clearance height—the distance between the water surface and the bridge—is that it depends on the water level, which varies around Dordrecht not only because of the amount of water flowing downstream, but also because of the tides. A control room could provide this time-critical information.

Rijkswaterstaat in transition

In the 1950s and 1960s, Rijkswaterstaat had "reached new heights of power and expertise" (van den Brink 2010: 77) and was considered the "ruler of the delta" (Ham quoted in van den Brink 2010: 77). Rijkswaterstaat's response to the devastating

floods of 1953, the Delta Works, a large-scale system of dams and floodgates, brought it international fame. According to Van den Brink, this success "enabled the institutionalisation and hegemony of a technocratic system of meaning" (78). This was reversed in the 1970s, and the 1972 report quoted above seems to be an early example of this. It does not propose major interventions, but seeks to postpone them. Larger developments in the 1970s and 1980s—"the rise of the environmental movement, the democratisation of Dutch society and (…) the rise of neoliberal (…) ideology" (79)—made control rooms fit right in.

Ruud Filarski—an engineer who was a senior Rijkswaterstaat employee in the 1970s, directly advising the responsible minister and involved in major policy developments—said that at the time the agency "saw that the civil engineering solution was no longer working" (Interview 7.1.18). Its plan to rigorously redesign a dangerous section of the Waal (a Dutch continuation of the Rhine) was rejected because the people affected, also motivated by environmental concerns, no longer readily accepted Rijkswaterstaat's solution (cf. Filarski 2014: 320–323). The authority of the agency as sovereign experts had begun to crumble, and so other ways of legitimising action had to be found. In 1975 the Dutch parliament told them as much when it recognised the need of "a better alignment and consideration, both within waterway policies and in relation with other societal sectors" (quoted in Willems, Busscher, and Arts 2015).

Legitimacy was to a large extent a local matter. Filarski recalled that in the 1970s, mayors of towns near busy waterway intersections lobbied for the control rooms (see Interview 7.1.18). The public perception was that tankers carrying chemicals were "floating bombs" (Filarski 2014: 311)—a notion rooted in a fatal accident in the preceding years. Rijkswaterstaat documents from the time also mention this concern (cf. Benedenrivieren 1976). The island of Dordrecht, Zwijndrecht to the west and Barendrecht to the north were all suburbanising (cf. Brand 2012), surrounded by shipyards, ports and chemical factories. The Dordrecht control room was meant to serve not only the skippers, but also the people living nearby—in the 1980s, the local press became the platform for communicating this, much like Twitter is today.

In general, what the agency has built since the 1970s has been mainly 'dry' infrastructure, such as motorways. Locks are now obsolete, most of them built in the 1960s, and smaller canals have been designated as off-limits to the larger barges, rather than being widened. Gradually, the focus has shifted from the medium term to the short term, and budgets and attention for waterways have gradually declined (cf. Willems, Busscher and Arts 2015). With the rise of neoliberalism, the direction of policy took a behavioural turn, which is still regularly advocated by policy advisors I speak to. Instead of building, the focus shifted to the users of infrastructure. The aim was now to use the existing infrastructure more efficiently. This was also a budgetary issue as the economic tide turned in the 1970s. Efficiency and budget cuts operate in a circular causality, both can be cause and effect.

The 1972 report on the need for a control centre in Dordrecht stated that

> it can be put forward that a well-equipped guiding post makes it possible to use the waterway network more optimally, as a result the safety of shipping will be improved and unnecessary time loss prevented. Moreover, investments in waterways, which would be required without the presence of such a post, can perhaps be postponed for a few years. (Dordrecht 1972: 1)

In this way, the efficiency for the skippers is aligned with the efficiency for Rijkswaterstaat, since costly infrastructural interventions can be avoided and a smooth flow of traffic can be achieved with the same measure.

River masters at the frontier of changes

The behavioural turn that Rijkswaterstaat took with regards to waterways, was also a reaction to the rise of leisure culture. More and more people had the spare time and the financial means to buy a sailing or motor yacht, and during the summer months the waterways were crowded. Until then, the waterways had been used almost exclusively by professionals. In their meetings, the river engineers of Rijkswaterstaat expressed their concerns (cf. Sijbesma 1969). Since the mid-1960s, they had created a new position, the river master, who, with their patrol vessels, were the uniformed presence of Rijkswaterstaat on the water (cf. Stuulen 1965). They were expected to compete with the water police as primary waterway authority and for public recognition of officials ensuring safety, which the river masters readily did (cf. Stuulen 1967; Centen 1972).

The river masters were closely involved in the introduction and regulation of marine VHF radio and radar in the professional fleet (cf. Centen 1975). The minutes of a national meeting of river masters in 1973 describe how they foresaw that the construction of an additional lock near Nijmegen, just after the junction of the Waal and the Maas-Waal canal (a major shortcut on the Belgium-Germany route), would create 'a great demand for a permanent post to inform ships and for communication' with the existing lock, as there was limited space for ships to moor while waiting for an opening (cf.. Secretaris 1973). The same minutes mention that there would be "a permanent radar post" near Dordrecht, "which will be permanently staffed by a river master" (ibid.). Apparently the word in the organisation in 1973 was that a control room in Dordrecht was a sure thing, and that river masters were expected to staff it. A concrete proposal was made at the beginning of 1976 and approved by the competent minister at the end of that year (cf. Directeur-generaal van de Rijkswaterstaat 1976; Benedenrivieren 1976).

The new focus on cutting costs also affected the river masters: the idea was to use the control room to centrally direct the patrol vessels (Interview 7.1.18). This

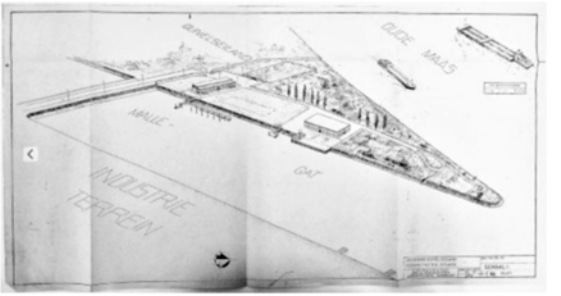
centralisation meant less patrolling and more directed manoeuvres, resulting in a significant reduction in the number of patrol vessels and crews, with consequent cost savings (ibid.). The idea was to have a mediated presence through radar and CCTV. In the hierarchy of Rijkswaterstaat, the operators were placed above the river masters. When Fisher had his War Room up and running, he did something similar: he changed strategy from patrols to manoeuvre, trading the autonomy of his fleet, which until then was busy to demonstrate its presence, for directed action, controlled from the top (cf. Lambert 2005).

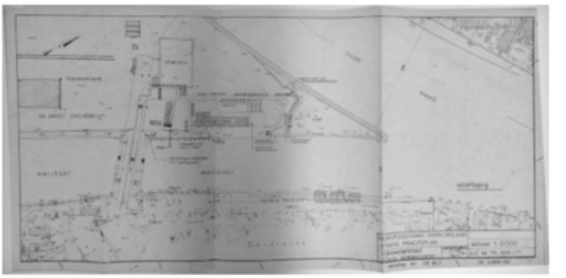
Conceptual development of the Dordrecht control room

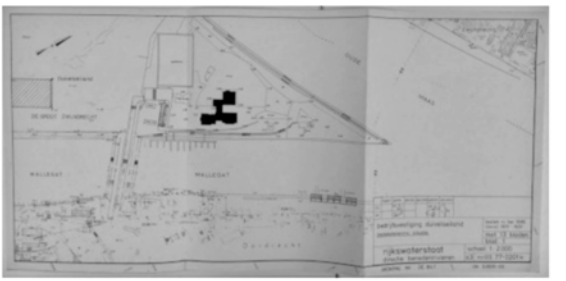
In the 1972 report, Devil's Island was suggested as a location because 1) it provided a view of the traffic approaching the railway bridge and the junction of the Oude Maas—Dordtsche Kil, 2) there was land available on which Rijkswaterstaat could build, 3) there were plans to house other departments there (cf. Arrondissementsingenieur 1972: 10–1). Above it was shown that it largely lay bare because Rijkswaterstaat had only just elevated it with the ground it dug out for the newly formed Krabbegeul. At one point the island is referred to as 'Krabbe Island', but otherwise Rijkswaterstaat's use of 'Devil's Island' is fairly consistent over the decades (ibid.). In the early 1970s, when the newly formed South Holland waterway district, was in dire need of new offices, both Rotterdam and Dordrecht came into consideration (cf. Directeur-generaal van de Rijkswaterstaat 1973). The mayors of both cities lobbied hard for the decision to be made in their favour (cf. Lee 1973; Thomassen 1974). Devil's Island was also considered as a location for the district offices, but the head of government buildings preferred the "vicinity of public transport and (…) an urban environment with shops and the like," Devil's Island was "way too much isolated and near an industrial zone." (Wuis 1974)

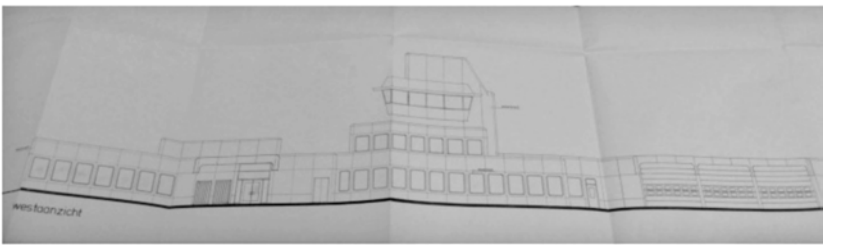
The progression of the drawings shows how the initially separate buildings became increasingly integrated. In a 1975 perspective drawing, the one I tweeted about, there are three buildings, one of which is a small tower for the control room to the east (Figure 20). In a 1979 map, the control room tower has moved north and the other two buildings have moved closer, one of them considerably larger (Figure 21). In both cases, the tower is directly on the water. In the final plans of 1979–1980, all the buildings are integrated, with a control room at the top on the second floor (Figure 22 and 23). This is not particularly high, but photographs of Devil's Island from the early 1980s show hardly a tree in sight—less than ten years before the land was raised when the Krabbegeul was dug. The accompanying documents make it clear that the plan from the outset was to involve other external departments: those who controlled water quality and needed laboratories, maintenance crews who replaced and repaired buoys and signs, river surveyors who sounded the riverbed, and the river masters with their patrol boats.

Figure 20: The 1975 perspective drawing of the building plans on Devil's Island. Figure 21: The 1979 layout of the plans for Devil's Island. Figure 22: The 1979–1980 definite layout of Devil's Island. Figure 23: Side view of the black shape in the previous figure.









A 1979 communiqué by the agency informed skippers that the "post is at service to shipping on the waterways around Dordrecht" (Hoofdingenieur-Direkteur 1979). It would deal—not yet 24 hours a day and without radar—with the observance of navigation rules and act as a "control post from which, in order to increase safety, navigation is assisted with information and advice, possibly with sailing instructions" (ibid.). A 1983 report defines the work: "[w]ith help of radar […] and TV […] traffic information is supplied to the waterway user and permanent surveillance of the traffic development takes place within the coverage area" (Zanten 1983: 1). The goals are "guarding and accommodating a swift and safe traffic development, in cooperation with the patrol boat" and "to contribute to preventing shipping accidents and reducing the harmful consequences for passengers and ships" (ibid.).

Establishment of a control room on Devil's Island

The control room was primarily aimed at the users of the waterways and was built in the knowledge that this public had diversified. At the same time, its very presence embodied a promise to another public: those who live near the waterways and are concerned about what passes by their houses day and night. To this end, every few years the local newspapers would report on a visit to the control room. One article brings together many of the issues discussed in this chapter.

In 1984, two years after work began on the island, a free regional weekly newspaper with a circulation of 1.2 million ran a major article on the Dordrecht control room. The Dordrecht control room was placed in the tradition of more established infrastructure control rooms: "the building looks a lot like a smaller version of the air traffic control tower at Schiphol" (Hemsbergen 1984), the largest airport in the Netherlands. The article was entitled "Cameras and radar guard shipping intersections", emphasising the technology rather than the operators (ibid). Nautical media are presented to a wide audience. Four photographs were included: one of the operator from behind, one of a radar sensor along a waterway, one of a radar screen and one of the journalist with the two managers in charge of the control room. The operators are not quoted, but the managers are. One of them says that "with this system, we increase the safety of shipping and the people living nearby" at "the busiest inland navigation junction in the Netherlands" (ibid.). He added that the patrol vessels "can now be used more efficiently" as they "no longer have to keep an eye on the crossings" (ibid.). By 1984, efficiency seems to be more than just an internal organisational logic. It was now also an argument for public legitimacy.

As for the registration of Devil's Island: the subtitle of the article is "Control room on Devil's Island informs sea and inland navigation". The first sentence hammers it home: "Day and night, the control room on Devil's Island in the Oude Maas keeps an eye on the shipping traffic around Dordrecht." (ibid.) While the origins of the name of the island-turned-peninsula are hard to pin down, it was only after Rijkswater-

staat solidified Devil's Island and started operating from there that records of the name became more frequent. Before that, the name Devil's Island was handed down informally.

However, it is also an order that I am handing down, which contributes to the enrollment of Devil's Island by recording its enrollment. Therefore, the enrollment cannot be a linear process, as I can revisit the past and thus introduce another feedback loop.

1.7. Conclusion

In this chapter, I have covered a history and how it is tied to the present, or how the present is deeply ingrained into questions asked of the past, which is a line I will continue to pursue in the next chapter. Here, it started with the history of the name, in which operators' and ethnographer's interests conflated. The search for the explanation of the name of a place was done in the context of the long Dutch history of give and take between water and land, which on the one hand defies the nature-culture opposition, but on the other hand, at least as an idea, relies on it. In practice, this meant that while the common narrative is, both reproduced about the Dutch and by the Dutch, that land was won, and water controlled, water and land actually shaped each other in a process where it is hard to tell what started what. Though rivers remained alive nevertheless, it is clear that human manipulation grew more successful.

Even then, the infrastructural history told here shows that the focus on the creation of land is insufficient to explain how Devil's Island came about. Though this did not happen as a singular event, but instead consisted of many incremental steps, it is clear that the island (first a mudflat, ultimately a peninsula), is a by-product of waterways. Because I reconstructed this process using (mainly) cartographic sources, I could only pick up this history from the oldest map I found. From this, we have learnt that what would later become Devil's Island was severed from land to create the Nieuwe Vaart, later called the Mallegat, and that it was cut in two when the Krabbegeul was dug and elevated with that soil. This story had, in the way it has been told here, four main protagonists. The 1) ethnographer picked up what he thought was a question 2) operators wanted him to solve, which led to 3) rivers being turned into waterways, into 4) infrastructure and thus 5) brought Rijkswaterstaat into play.

It turned out that in search for an explanation as to why it was called Devil's Island, its origins are less interesting than the history of its enrolment, in which Rijkswaterstaat played a large part. While I could not really convince operators of my hypothesis, it allowed me to foster ties, initially via Twitter and which eventually through conversations in the control room. The theme showed me how operators are

also in geographical references, are still engaged in shipping culture, in the tradition of handing down geographical orders, and integrating their control room in it.

The enrolment of the name Devil's Island is actually part of the Dordrecht control room history; it was the context in which it was enrolled. This history is grasped in two steps. First, in section 1.5, a history of mediated control and mobility is reconstructed. Five elements were key here: 1) the unification of the Rhine as a commercial zone and a stabilised waterway, from which in the late 19th century by 2) an increasingly mechanised fleet benefitted, but the creation of this infrastructure itself depended on mechanisation too; 3) with an increase in scale and speed that this enabled, control and thus safety became an organisational challenge, which was met with the centralisation of information through media; 4) this brought a new sense of agency and prestige exploited to increase organisational legitimacy, which is a recurring phenomenon, addressed in more detail in chapter three; 5) the new infrastructure control rooms that emerged made it possible to keep up with changes in mobilities as well as spur on the increase of scale and speed in traffic.

In a second step, the early history of the Rijkswaterstaat control room in Dordrecht—for which problem the was control room to be a solution?—is reconstructed. It turned out that there were a lot of reasons, of which I want to highlight four here: 1) ever larger and quicker ships sailing through the night, made possible by the introduction of radar in inland navigation; 2) local political pressure to oversee this trend, including the rise of tanker shipping; 3) Rijkswaterstaat's fading authority to initiate large infrastructural interventions and 4) the subsequent reduced funds. These are important because, in the case of the first reason, the first generation of operators came from those ships sailing night and day, where they learnt to use radar, central to the next chapter. The second reason is significant because the local pressure for permanent oversight is the basis for what in chapter three are the efforts by operators to be accountable locally through Twitter. The third reason marks the start of a new episode in infrastructure history, in which efficient use is prioritised over physical intervention. Thus, in the early 1980s, the investments in the Dordrecht control room and others marks a new field of action for Rijkswaterstaat. This trend was quickly solidified by the turning economic tide and the rise of neoliberalism, the fourth highlighted reason. What is particularly remarkable here is that despite its reputation to be on the frontier of technological developments, to be state of the art, control rooms were comparatively cheap, they were also a way to save money.

The 1976 proposal for the Dordrecht control room contains the oldest mention of the motto of the nautical division of Rijkswaterstaat that I could find (Benedenrivieren). The service-oriented "safe and swift", as still uttered in the field today, represents both a long held Rijkswaterstaat desire to advance the Netherlands economically while safeguarding it, dating from the mid-19th century, and a post-1970s pre-

occupation with efficiency amid a retreating government. One that believes it should provide the (safe) conditions for the increasingly revered market.

Rijkswaterstaat long "solicited admiration" as a "brainy" organisation, one mid-level manager with two decades of experience in the organisation said (Interview 29.4.16). In the 1990s, he was hired as part of the first generation of "surroundings managers" (ibid.). The large infrastructural interventions Rijkswaterstaat still undertook required patient integration of local publics in those projects from an early stage. Tellingly, one of the largest projects Rijkswaterstaat took on in recent years was called Room for the River, in which rivers were given back space in order to digest the larger volumes of water that come with climate change. For people living in the designated areas it was difficult to figure out a new sense of safety now that for them the modern land-water distinction was about to be abandoned (cf. van den Brink 2010, 186–9).

In the Dordrecht region in the 1970s the search for legitimacy resulted in an approach focussed on infrastructure use as observed and coordinated through media. As with all infrastructural and organisational control rooms, the Dordrecht control room was both a reaction to changes in scale, speed and infrastructural complexity, and as a facilitator of those very changes.