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BREAKING NEW GROUND

Dutch Dredging Pioneers

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In 1837 Gerrit Jan Michaëlis produced this drawing with the title 'A Contractor in High Spirits'. The man is having a drink and smoking a pipe in celebration of an apparently successful completion of a canal which is shown through the window and on the wall. There are two portraits in the room. According to the caption the person on the left is civil engineer Willem Christiaan Brade. He was responsible for various marine projects, for instance in the harbour of Den Helder. In 1837 he also founded the railway company Hollandsche IJzeren Spoorweg Maatschappij. One of his business associates was Louis Serrurier, whose name is probably the one under the portrait on the right.

1 'All rabble and riffraff'

Marine Contracting Until the Middle of the Nineteenth Century

BAD REPUTATION

When Jacob van Lennep, a student at Leiden University, and his friend Dirk van Hogendorp arrived in Bolsward and entered the local inn on the afternoon of 6 June 1823 they immediately realised what type of people they were dealing with: '(...) here we drank tea with four people whom we recognised immediately by their profane, common and vulgar conversation to be contractors.'¹ The evening produced more pleasant company for these affluent young travellers. A 'surveyor and engineer' staying in the same inn felt so bored that he was 'overjoyed to see us and banish his ennui for a while with us under the enjoyment of a few bottles.' This was accompanied by 'a most pleasurable and entertaining conversation.'

This description raises very low expectations for the manner in which marine contractors fulfilled their calling. Remarks from clients only reinforce that image. In 1809 a regional water board in the province of Friesland described marine contractors as 'out for their own advantage' and 'normally united in gangs or conspiracies.'² This was not a new sentiment. As early as the second half of the sixteenth century the hydraulic engineer Andries Vierlingh condemned the behaviour of contractors of dike reinforcement projects upon securing a contract. They 'dissipated so much in hard drink, whoring, gambling, dice and games that well-nigh a quarter of the disbursements their contract would procure them was squandered unprofitably before they even began the undertaking'³

In the olden days things would have been different, Vierlingh believed. At that time – most likely he is referring to the first half of the sixteenth century – marine contractors took pride in completing



Earliest illustration of a spoon bag in Roemer Visscher, *Sinnepoppen* (Amsterdam 1614). This instrument was a long stick used to drag a bag, pail, or net along the bottom. The Latin motto above the print means, 'Thus treasures can also be gained.' As commentary on the print the author wrote that when you find yourself suffering poverty, it is better to work as a dredger than to rest on your laurels: 'Since by dragging the dredging net, a man may also attain to a modest income. Hence shall no one remain oppressed by poverty excepting the lazy idler unwilling to work or employ his hands.'

high-quality work at the agreed price, but 'now all are rabble and riff-raff who arrive rather to conquer the mug of beer, the vat of beer and the noble Mr Meuselaer than to construct a dike.'⁴ Consequently, work often had to be offered for tenders multiple times in a row because a contractor would not honour his obligations: 'Those who accept the work are people of diverse kinds and from various quarters, one honouring the requirements completely, whilst another does so but half, and yet a third walks away, and hence one must again offer this work for which labourers had already been hired and to others who are sometimes just as unreliable, so that a single assignment must be tendered two or three times (...).'⁵

Admittedly, Van Lennep and Vierlingh are not unbiased sources. The latter was a notorious grumbler; in his *Tractaet van Dyckagie* not only contractors but also chairmen of regional water boards were mercilessly pilloried. The student Van Lennep enjoyed looking down his nose at working class persons he met on his journeys, unless he was blinded by their feminine beauty. There was undoubtedly chaff mixed in with the wheat among contractors but it is to be doubted that it was as common as their pronouncements suggest. Who were these contractors?

MARINE AND CIVIL CONTRACTORS

In former centuries, the term contractor (in Dutch: ‘aannemer’) referred to a private person performing contract work for a customer, varying from the building of a house to constructing a road, reinforcing a dike or digging a canal. Until well into the nineteenth century, marine contractors would also perform civil engineering work on land. After all, both types of work used the same tools: wheelbarrows, spades, and manpower. For a long time, therefore, dredging contractors did not represent a separate profession.

At the start of the nineteenth century dredging was a labour-intensive business, dominated by small entrepreneurs who worked in marine contracting but also performed more or less related work.⁶ In the 1850s, for instance, dredging contractor Arie van Hattum from Sliedrecht was also involved in the construction of a gas factory in Schiedam and a penitentiary in Goes. His later business associate Cornelis Blankevoort from Monnickendam combined marine contracting with carpentry and the running of a fish smokehouse-cum-barrel making workshop. In the 1860s, dredger Adriaan Volker from Sliedrecht procured additional income by collecting ashes and garbage in Dordrecht. He is unlikely to have performed that in person; he merely rented the right to do so. In those days it was apparently not yet possible to make a living from marine contracting, if only because dredging work and dike construction were usually restricted to the summer months.

The towns of Sliedrecht and Werkendam were centres of marine contracting. Many of the contractors located there would become founders of the dredging companies that were to gain international acclaim in the course of time. Arie van Hattum from Sliedrecht, for instance, was a co-founder of what later became Van Hattum en Blankevoort. In 1831 he was working close to home as contractor: a five-year contract for maintenance of ‘sills and osier dams’ in the Merwede and Lek rivers.⁷ As early as in 1837 Van Hattum was going abroad for building the lock at Lillo near Antwerp and between 1844 and 1851 he was involved in the reclamation of the Haarlemmermeer. Adriaan Volker, twenty years his junior and from the same home town, founded the eponymous company. From the 1850s onwards he gained expertise in dredging, first primarily in the immediately neighbouring

area and in the 1860s with large projects like the Voorne Channel and the Zuid-Beveland Channel.

Most contracting families from Werkendam and Sliedrecht had been active as cutters of willow withies in the Biesbosch delta. Willow wood or brushwood was indispensable in marine contracting projects (see Chapter 3 for more information). Some of these woodcutters advanced in their career to cutter foreman (head of a team of cutters), grove owner and willow wood trader. It was not a big step from selling brushwood faggots to contractors to becoming a contractor yourself. The men from the Biesbosch delta were thoroughly familiar with the water and the products of the region. Volker and Van Hattum also started in the willow groves in the delta, as did the Van Oord family from Werkendam. For instance, in 1834 the mayor of Werkendam awarded ‘the restoration of the erosion of the outer slope of the Sasdijk in Werkendam to the contractor J. van Oord (...)’.⁸ The man in question was Jan van Oord, or possibly his father Jacobus, who combined work in the willow groves with occasional work as a marine contractor.



Detail of a map of the regions Alblasserwaard and Vijfheerenlanden, showing the villages of Sliedrecht and Werkendam and, south of the Merwede River, the extensive Biesbosch delta. (Map by surveyor Abel de Vries, engraver Jacobus Keyser, 1738.)

In Werkendam a small elite of rich families had formed by about 1750, all connected to each other by marriage.⁹ They combined the cultivation of bulrushes, willow groves and reed beds with hoop making operations and contracting work and they often participated in the export of and trade in hoops and brushwood. The most influential among them – in particular a group of noted individuals connected to the Van Tienhoven family – were called ‘Grove Lords’ or ‘Grove Barons’. Until the early twentieth century they were very influential in the town, the church, and the regional water board. The Van Oord family, incidentally, was not a part of this group. The town of Sliedrecht had a similar elite of contractors and traders in willow wood, though it is not as well described here and the gap between them and the rest of the local population does not appear to have been as deep. There were many business and family connections with the families in Werkendam.

SOCIETIES AND PARTNERSHIPS

From the eighteenth century onwards it became common for dredging contractors to become members in a society (‘sociëteit’) or partnership (‘compagnieschap’). Such a group usually operated under the name of the most important partner, often referred to as the bookkeeper. This made the partner in question the legal representative of the company. He was also responsible for keeping the records. Each partner was jointly and severally liable. In practice this was the structure of the seventeenth-century partnership under maritime law (‘partenrederij’). This meant that multiple shareholders were made part-owners of a project – in the case of such a partnership under maritime law this was, of course, a ship – so that the risks were spread. One of the shareholders functioned as the bookkeeper. Characteristic of such joint ventures was their flexibility. Young and ambitious contractors could exit at any time and start their own company or enter into another partnership. Those leaving the partnership were initially bought out with money; later they were also paid with equipment.

How such a contractor partnership worked can be deduced from the records of a partnership located in Werkendam. The company came into existence in 1827 and stayed around into the early twentieth century.¹⁰ This society became popularly known as the ‘Golden Team’



Restoring dikes after a break was an occupation in which the Dutch had been experts for centuries. This painting by Matthias Withoos from 1676 is the only known portrayal from the seventeenth century of dike works. The image shows the Zuiderzee dike at Schardam. This dike broke during the All Saints' Flood of 1675 which flooded large parts of the Westfriesland region



in the north of the province of Holland. Around the breach are ships bringing brushwood, piles, fascine mattresses and dredging material. Some ships have pile-driving equipment and hundreds of labourers are at work. Also clearly visible is the strength of the current in the breach as it breaks through after a first attempt to close it.

because of its huge financial successes. The partners were almost all leading Grove Barons. The following family names were among them: Van Haaften, Van Tienhoven, Bos, Sigmond, Heuff, De Jongh, Seret, Bremken, Van Wijngaarden and Vermaes. They largely came from Sliedrecht, Werkendam and the surrounding region. They entered into smaller projects in their own capacity, making them each other's competitors. In larger projects they collaborated with one or more different partners, who did not necessarily have to be a member of the Golden Team. For instance, the combination of Volker en Bos was very successful in the last quarter of the nineteenth century. Adriaan Volker was not a member of the Golden Team, though he did work for them several times as a subcontractor. Pieter Adrianus (Janus) Bos, on the other hand, had been involved in the society from the outset (see his biography at the end of this chapter). For a considerable time the society even bore his name. The extensive joint venture grew into a complex organisation with complicated financial records, a large stock of joint-owned equipment and a professional approach.

Even if we admit that the men in the inn at Bolsward indeed used uncivilised language and that the men from Werkendam would probably have been completely incomprehensible to Jacob van Lennep, it is abundantly clear from the above that there is more to be said about contractors than merely that they were of dubious reputation. For instance, the involvement of dredging contractors in large national and even international projects suggests considerable expertise. What is more, their organisational power through partnerships would become the basis of the transition from a labour-intensive to a capital-intensive industry in the second half of the nineteenth century.

REGULATION BY THE PUBLIC WORKS & WATER MANAGEMENT AUTHORITY

It is possible that the surveyor-cum-engineer whom Van Lennep and his fellow student met that evening in the inn at Bolsward worked for the Bureau voor den Waterstaat (later renamed Rijkswaterstaat), the national Public Works & Water Management Authority, which was founded in 1798. The students got the impression that the man filled his days with nothing but 'walking and counting his steps'. But the work of a surveyor entailed a lot more. There were at least 2,600 people employed as surveyors in the Netherlands in the seventeenth

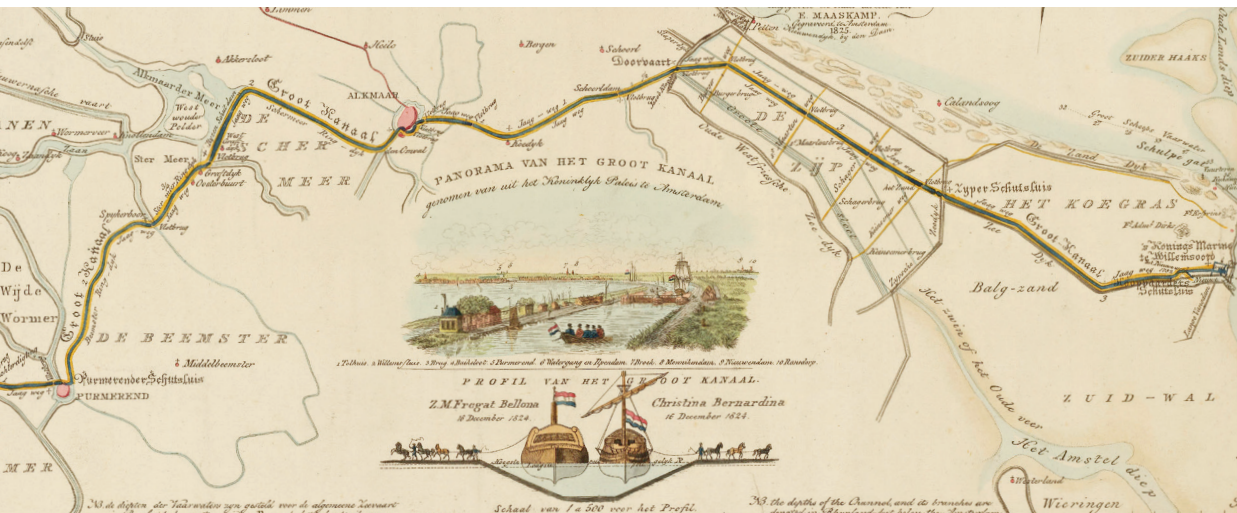
and eighteenth centuries and about three hundred of them had a university education. In addition, many surveyors had received instruction in maths at so-called 'Illustrious Schools' and other educational institutions. On account of their education surveyors were respected citizens, though it did not mean they were thought of as scholars. In



This portrait of surveyor Andries van der Wal with a Dutch Circle illustrates that surveyors were a familiar sight as early as the seventeenth century. A Dutch Circle was used to measure or calculate corners in open fields. The assistants of the surveyor, active in the background, were known as 'linemen'. In this example a village with a church tower on higher ground is used as measuring point. Many surveyors combined their work with another profession, such as notary public, schoolmaster or carpenter. (Oil painting by anonymous artist, ca. 1650-1674.)

1842 the education of hydraulic engineers was placed in the hands of the ‘Royal Academy for the Education of Civil Engineers’, an institute that would later become the Delft University of Technology.¹¹

At the start of the nineteenth century surveyors were in great demand because King William I, the ‘Merchant King’, launched many initiatives designed to increase the access to the country and thus stimulate trade.¹² The maintenance, regulation and construction of waterways formed an important part of his plans. The engineers who worked at the Water Management Authority supplied the technical design and the contractors were needed for the implementation. In the 1820s thousands of labourers were actively digging the great canals: the Willemsvaart (1819), the Zuid-Willemsvaart (1822-1826), the Groot Noordhollandsch Kanaal (1823-1824), the Keulse Vaart (1824-1826), the Ghent–Terneuzen Canal (1825-1827), the Voorne Channel (1827), the Dedemsvaart (1828-1840) and the Griftkanaal (now known as the Apeldoorns Kanaal, 1829-1865).



Map made after completion of the 80-kilometer long Groot Noordhollandsch Kanaal between Amsterdam and Den Helder (1825). The central image above shows the view from the canal starting at the Tolhuis in the direction of Purmerend. Below that is a cross-section of the canal, showing the ships *Bellona* and *Christina Bernardina* on their first passage through the canal on 16 December 1824. It was proudly emphasised that both ships could pass side by side.

The Water Management Authority did not give the contractors much leeway on these large-scale projects. Every one of them was opened up to public tenders based on very detailed specifications. This system of contracting work for a predetermined price had been known in the Netherlands since the fourteenth century. Until well into the nineteenth century invitations of tenders for such projects retained the character of a public sale in which smaller parts of a large project were auctioned off to tenderers. As contractors were usually not very solvent, clients considered the risk too great to award a contract in its entirety to a single tenderer. Whoever called out 'Mine!' first became a candidate for a particular component.¹³ If the required two deposits were sufficiently financially strong, the contract was normally awarded to the lowest bidder. From 1838 onwards the Water Management Authority started including strict General Requirements in their specifications, which limited contractors even more. Apparently, they were still seen as 'rabble and ruffraff' who could only be kept in check by means of the minutest regulations.

As a result of stiff competition and inflexible contracts, contractors were forced to tender low bids. Not seldom the bids were too low. During the reclamation of the Zuidplaspolder near Nieuwerkerk aan den IJssel in 1829 prices were so sharp that at first, no contractor was willing to stick his neck out: 'The result of the first invitation of tenders had been so disadvantageous to the contractors (...) that it caused an enormous scare so that the rare situation came to pass that in response to the specifications, such as they had been designed, not a single person among the innumerable crowd gathered there returned a tender form for the reclamation works, and thus the tender could not proceed.'¹⁴ In order to still make a little profit under such 'strong-arm contracts' many contractors took shortcuts regarding the quality of the work, the labour conditions and working hours. Naturally, this did not improve their reputation.

UNREST SURROUNDING THE GROOT NOORDHOLLANDSCH KANAAL

From the beginning of the nineteenth century 'Channel King' William I's large canal projects attracted labourers from all parts of the Netherlands and beyond. As steam power did not yet play a role, many people were needed for the work. Contractors or subcontractors hired

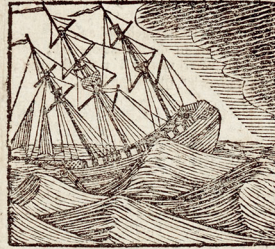
‘polder boys’ (navvies) who travelled in teams from one project to another under the supervision of a ‘pit boss’. Technical tools, such as human- or animal-powered ‘mud dredgers’ or ‘dipper dredgers’ did exist, but they were property of the national, provincial or local governments (the development of the equipment will be dealt with in Chapter 2).

Often these polder boys had a military background.¹⁵ Quite a few European young men had been involved in the Napoleonic Wars (1792-1815). Some came to the projects on their own and organised themselves later, while others came in groups from the same town. Work crews consisted of twelve to twenty men led by a pit boss who often took part in the labour as well but also functioned as an intermediary between the labourers and the contractor, which earned him a small bonus. Pit bosses often brought their whole families to the project and their wives would cook, wash and clean in the accommodations shared by the entire crew.

One of the canals dug by manual labour was the Groot Noordhollandsch Kanaal, which was completed in 1825. The Water Management Authority had described the terms of employment in great detail in the contract. For instance, the contractor was required to provide accommodation for his work crews. Otherwise hundreds of men would end up looking for their own accommodations individually and that might well lead to very undesirable circumstances. In addition to the living arrangements of the labourers the Water Management Authority also dictated specific amounts for daily wages. These varied from 1.30 guilders for ordinary labourers to 1.60 guilders for experienced brushwood and soil workers and from two guilders for ordinary dredgers to three guilders for experienced dredgers with their own barge. The pit boss was responsible for distributing the wages within his team.

In order for pit bosses to comply with the demands from the Water Management Authority, the contractors supplied them with wood for building a hut. Sometimes labourers were housed in farm stables. No requirements existed for the organisation or heating of the huts, hence they were not very comfortable: ‘A bench and a table, with the most necessary cooking utensils (...), a chest was the sanctuary of the pit boss. In the front of the hut planks marked off two berths for his family. (...) The rear part of the hut is separated by a plank and covered in straw. That is where the team sleeps, in two rows with their feet turned

In a poem of eight stanzas a certain A.C. Alebers described how he lost both his legs as a seventeen year-old working on the construction of the Noordhollandsch Kanaal in the harsh winter of 1823. (The image shows the frontispiece.) The cause was not an accident at work, but the extreme cold in the hut: 'Both my legs did quickly freeze / In a barren hut of straw.'



*Klagt op het verlies mijner beide beenen,
welke in de strenge Winter van het
jaar 1823, bij het arbeiden aan
het Noord-Hollandsche Kanaal,
tusſchen Amsterdam en den
Helder zijn bevrooren.*

door A. C. ALEBERS.

(Onder de Zinspreuk:)

*Zijt met dit deernis lot bewogen,
Want hij verdient uw mededogen.*

Vele menschen hoort men zingen,
Het meeste ijdel en niets waard,
Anderen, huppelen, danzen, springen,
Dien vreugd is voor mij niet op aard,

towards each other and their heads, resting on their satchels, against the side wall. (...) In the middle of the hut an ash pit in the earthen floor functions as the general heating place.¹⁶ In winter the work was stopped. Some men returned home, while others spent the winter in the hut under harsh conditions.

The huts together formed a kind of village community. Just as was usual at army encampments, the site was surrounded by merchants – ‘sutlers’ –, barbers and women who cooked for the men or offered them other services. The merchants sold food and liquor in their sutling huts. The weekly wages frequently ended up with the merchants, as payment for open bar bills.

The cohabitation of large groups of men combined with excessive use of alcohol naturally caused tensions. Add to that the bad labour conditions, and one need hardly wonder at the strikes and riots which were common among the polder boys from the beginning of the nineteenth century.¹⁷ In 1819 no fewer than 1,500 labourers working on the

reclamation of the Finsterwolderpolder put their tools down. Infantrymen restored the peace and arrested the ringleaders.

During the construction of the Groot Noordhollandsch Kanaal in 1823 a revolt took place, directed specifically against contractor Gerrit Huijskens. He had been born Gerd Hülscher in the German Duchy of Oldenburg but he had relocated to the Netherlands as a contractor. This former polder boy had few friends among his colleagues because he had accepted a part of the work well below the price; among the labourers his fiery character and low wages had created enemies. With workdays from four in the morning until seven at night Huijskens paid his ordinary labourers forty cents a day, as opposed to the 1.30 guilders prescribed by the Water Management Authority. This made the man from Oldenburg the prototypical contractor: he made a profit from the tight budgets drawn up by the Water Management Authority by exploiting his workers.

In May 1823 the polder boys lost their patience. Three hundred men in a certain state of inebriation made their way to Huijskens' hut in Akersloot. Huijskens barricaded himself with a few allies, managing to shoot and kill two attackers. However, the imbalance of power was too great and the conflict escalated to such an extent that the hated contractor was bludgeoned to death before the army could intervene. The men who were prosecuted as ringleaders included Dutchmen and foreigners. One of them was dike worker Jacobus Biesheuvel from Werkendam. He was acquitted but Tieleman van den Dungen from Gorinchem – also a dike worker – was one of three leaders punished with flogging and branding. The heavy penalties did not prevent several other riots surrounding the canal project in 1823 and 1824.

In subsequent years not much would change about the situation of the polder boys. In 1840, for instance, there were strikes during the reclamation works in the Haarlemmermeer. Arie van Hattum's labourers put their tools down for seven days in 1843 while working on a railway line.¹⁸

The murder of Huijskens was hot news. On 28 May 1823 Jacob van Lennep wrote on his departure from Amsterdam: 'While sailing we heard many reports of the murder of the contractor HUISKES which had been perpetrated one day earlier in the environs of Alkmaar. This man may well have been in the right in this instance, as we ascertained afterwards, yet he had employed underhanded methods to make him-

self both rich and hated, was stealing from the government and the men in his employ, from whom he kept back a large portion of their wages, and was so strongly convinced that he would never die a natural death that he always carried loaded pistols on him. There was no inn or tavern in North Holland where we did not hear about him.’¹⁹ In light of this event it is small wonder that Jacob and Dirk felt little sympathy for the contractors with whom they drank a cup of tea in Bolsward that following week.

WHAT WAS THE STATE OF MARINE CONTRACTING IN THE MIDDLE OF THE NINETEENTH CENTURY?

- *Over the centuries contractors had acquired a reputation of unreliability.*
- *The same small entrepreneurs performed work in both marine and civil contracting projects. Hydraulic engineering components were often of secondary importance and alternated with civil contracting projects, carpentry, willow cultivation, wood sale, etc.*
- *Marine contracting was a labour-intensive business, performed by means of wheelbarrows, spades and manpower.*
- *Werkendam and Sliedrecht were centres of marine contracting. Village and family connections kept the contracting families close.*
- *The willow groves in the Biesbosch wetlands provided the required products for hydraulic engineering. As a natural consequence, the cultivation of willows in the wetlands and marine contracting were closely connected.*
- *Organisation into societies and partnerships provided an excellent financial and organisational basis that allowed a portion of the dredging contractors to make a quick transition from labour-intensive to capital-intensive work.*
- *The large canal and river projects under contract from the Water Management Authority gave the marine contractors a lot of work and experience. Because of the bad reputation and low solvency of the contractors, the Water Management Authority provided very strict specifications and regulations.*