



Did Zheng Chenggong Need a Drunk German's Help to Capture the Dutch Colony of Taiwan?

TONIO ANDRADE*

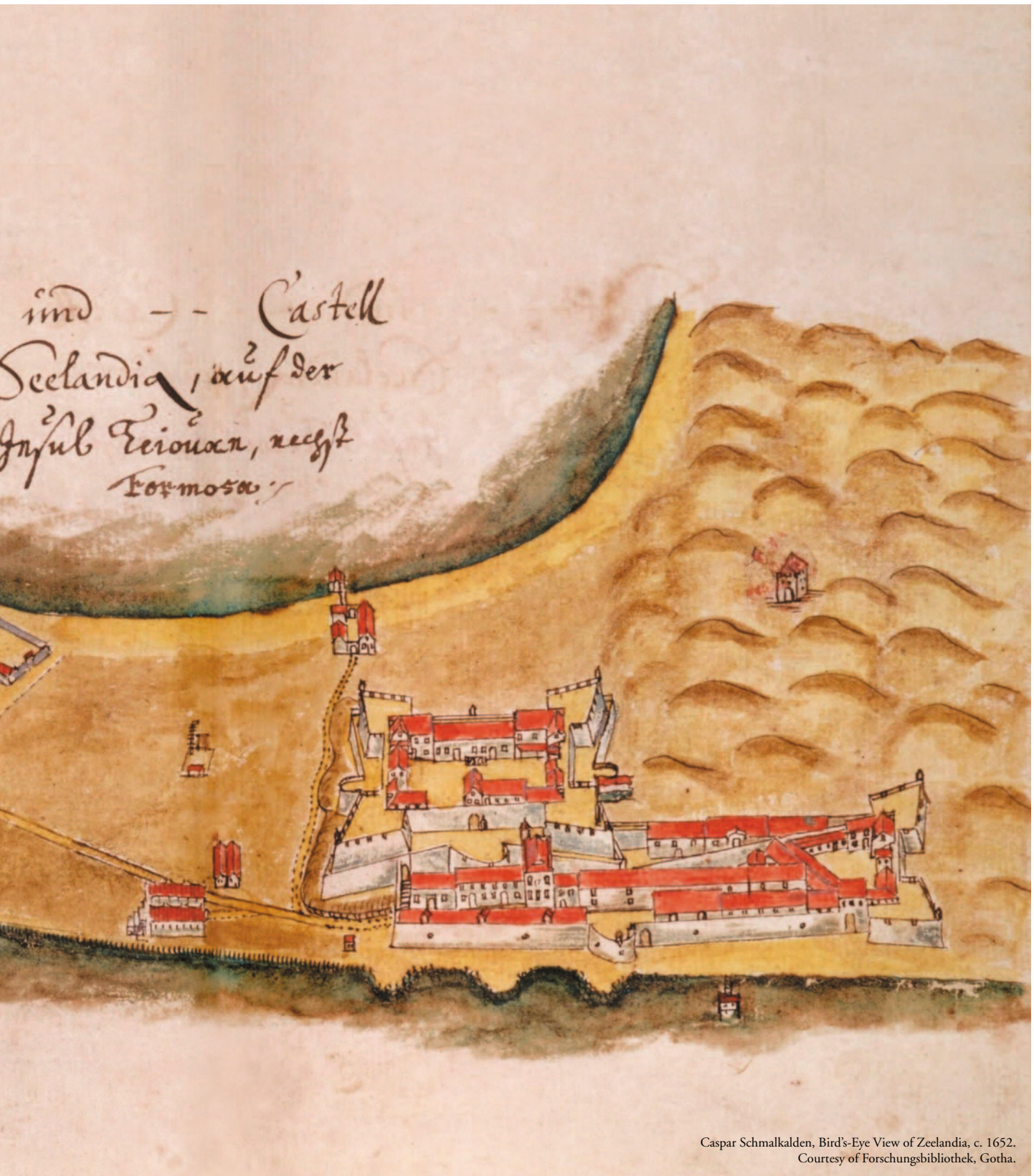
TAIWAN, 16 December 1661. Sergeant Hans Radij woke up from a drunken slumber, put his gun over his shoulder, and said to his roommate, “Put some hot water on. I’m going out for fresh meat.” He went downstairs, exited the fortress he was meant to be defending, and walked toward the beach, where the waves of the Taiwan Strait lapped up against the shore, but he did not stop to shoot seabirds. Instead, he kept walking toward the enemy camp. His Dutch comrades raised the alarm and sent riders out to catch him, but it was too late. He defected to the great warlord Zheng Chenggong 鄭成功 who had been trying to capture the fort for seven months.

This much of the story is clear enough. What happened next is more problematic. Historians have long believed that this drunken defector gave Zheng

* Associate Professor of Chinese and World History at Emory University, Atlanta. He is the author of *How Taiwan Became Chinese* (Columbia University Press, 2008), and articles in the journals *Journal of World History*, *Late Imperial China*, *Itinerario*, and *The Journal of Asian Studies*.

Professor Associado de História do Mundo e da China na Universidade de Emory, Atlanta. Publicou *How Taiwan Became Chinese* (Columbia University Press, 2008), e artigos nos *Journal of World History*, *Late Imperial China*, *Itinerario* e *The Journal of Asian Studies*.





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Chenggong vital intelligence about the powerful Dutch fortress known as Fort Zeelandia, telling him that its main weakness was a small hilltop redoubt that stood behind it and assuring him that once the redoubt fell the main fortress would be at his mercy. Until now, no one has questioned this belief, and we have taken for granted the proposition that Radij's advice led Zheng to undertake a new and more effective attack against the fortress, allowing the warlord to oust the Dutch East India Company from its valuable colony of Taiwan. This interpretation is found throughout the literature on Taiwanese history, from an early article by the great C. R. Boxer to more recent work by European, American, and Taiwanese scholars.¹ It is even in my own recently published book on Taiwan.² But is it really true? Did Zheng Chenggong, one of China's great military leaders, really need the help of a European to capture this fortress?³

It is an important question because it addresses a central issue of world history: Why did western Europeans, rather than other Eurasians, build the world's most powerful and far-flung maritime empires? One of the most fruitful answers to this question has been the military revolution paradigm, which suggests that during the period 1500-1750, although Europeans had no general technological lead over other Eurasians, they did hold a small but vital edge in military techniques: their cannon, their broadside sailing ships, and, most importantly, their fortresses gave them a clear advantage over non-Europeans, perhaps the only major technological or cultural advantage that they had until the age of industrialization.⁴ Indeed, according to Geoffrey Parker, the Western-style artillery fortress, with its slanted, earth-filled walls and jutting bastions, was a key engine of European expansion.⁵ The idea that Zheng Chenggong needed European help to capture the Dutch fortress fits nicely with this idea because if one of the greatest military leaders of East Asia needed European expertise to capture a Dutch artillery fortress, then it seems clear that the fortification techniques were a key underpinning of European colonialism.

This article suggests, however, that Radij's importance has been overrated. By making use of a deeper corpus of evidence than previous studies, I show that Zheng Chenggong and his commanders already knew the key bit of information that Radij supposedly revealed to them: to wit, that the hilltop redoubt behind Fort Zeelandia was the fort's Achilles heel. In fact,

Zheng and his advisers had known this fact from the beginning, long before any defector told them about it. They had also grasped other major weaknesses of the fortress early on, and their strategies for capturing it make a great deal of sense when examined in their context. Moreover, examining the siege in its entirety makes clear that previous accounts have not fully apprehended the fact that Fort Zeelandia was not Zheng's primary concern. The Dutch were bottled up quite well there and did not impede his activities. It was not until Zheng heard that the Dutch might receive help from a more fearsome adversary—the Qing forces against whom he had been fighting for years in China—that he decided to turn his full attention to Zeelandia. This alarming news arrived at Zheng's headquarters shortly after Radij did. Perhaps the defector helped Zheng construct effective siege works (indeed, he was spotted on one of the most important of them), but this study makes clear that his role in the conquest of Dutch Taiwan was smaller than historians have believed, and, more importantly, that Zheng Chenggong was a cannier and more effective besieger than has been suggested. He would have captured the fortress in any case, with or without the defector.

Does this mean that the artillery fortress has been overrated as an engine of European expansion, as scholars such as Jeremy Black have suggested?⁶ Not necessarily. As we shall see, although Zheng understood the *weaknesses* of Fort Zeelandia, he and his advisors did not at first fully grasp its strengths, particularly its capacity to project lethal crossfire. As the siege dragged on—nine months in all—Zheng and his men studied the fort and learned how to approach it. Their learning process is remarkably clear from the sources and suggests that although non-Europeans were capable of capturing an artillery fortress, doing so required considerable adaptation.

THE FORTRESS

Fort Zeelandia stood on a long spit of land that stretched out from southwestern Taiwan, in present-day Anping (Tainan County). As befitted the headquarters of the Dutch East India Company's second most valuable colony, it was an imposing edifice. Built in the 1620s and 1630s, its core was a rectangular structure of thick earthen works encased in brick, whose corners jutted out in large bastions. The whole thing crouched

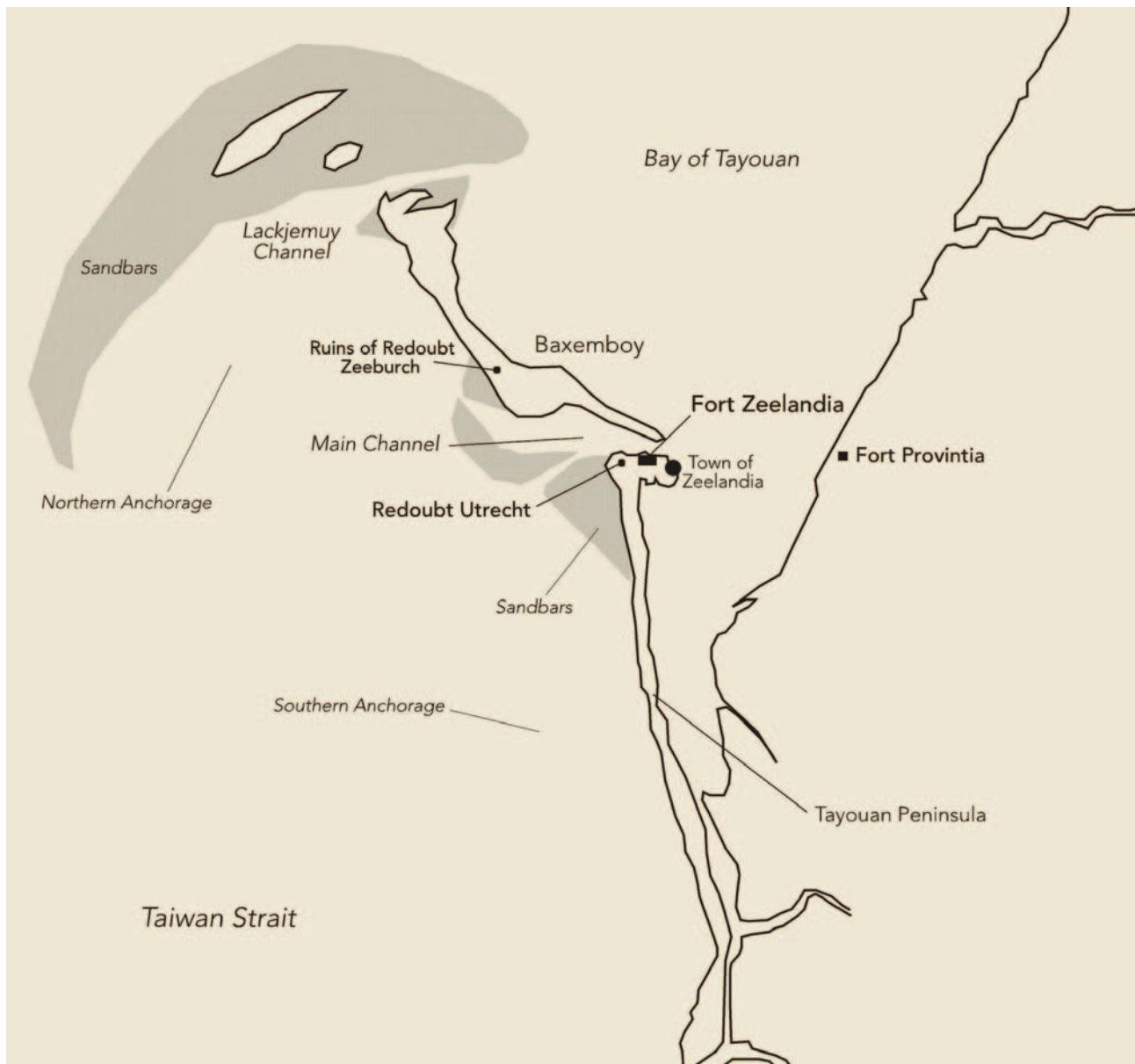
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atop an earthen foundation, known as the *barm*, rising imposingly above the surrounding area. Soon, a set of warehouses was attached, which were themselves surrounded by walls and bastions.

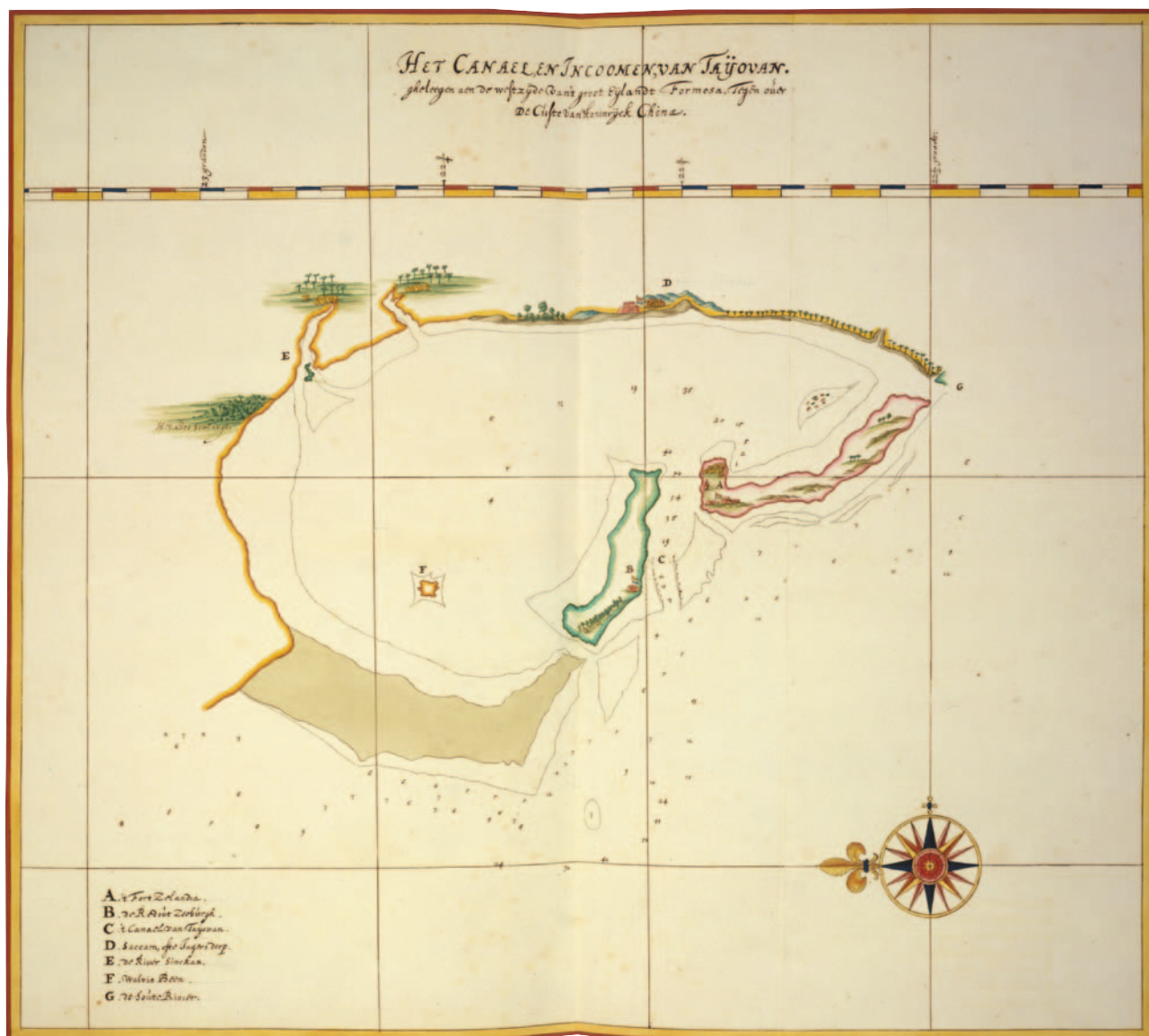
The fort was designed primarily to withstand an assault from two directions. On the one hand it faced “the town,” a city called Zeelandia that had started as a Chinese village and had grown to be a busy commercial centre. Two of the fort’s bastions projected toward the town with a commanding view of it, and the Dutch

kept an open plain between the town and the fortress so that their cannons had a clear shot against any would-be attackers.⁷ On the other hand, the fortress faced the sea, and here it was rather less effective. Although its strongest bastions were built on the beaches that lined the main channel into the Bay of Tayouan, their cannon could not command the whole channel. More importantly, there was another channel into the Bay of Tayouan, which lay north of the main channel, on the other side of an island called Baxemboy. This

Map of the Bay of Tayouan.



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“Het canael ende Incoomen van Tayouan,” from the *Atlas Blaeu van der Hem*. Courtesy of Österreichische Nationalbibliothek, Vienna.

northern channel was called Lackjemuy, and although it was much shallower than the main channel, it could be navigated by most Chinese vessels. The Dutch knew this, of course, and so they had built a redoubt on Baxemboy to help secure the entrance of the Lackjemuy Channel (this was known as the Redoubt Zeeburg, see Map of the Bay of Tayouan). In 1656, however, that redoubt was destroyed by “an extremely frightening storm” and was never rebuilt.⁸ So Fort Zeelandia on its own could not prevent ships from sailing through Lackjemuy and entering the Bay of Tayouan, which was the heart of its Taiwan colony. Dutch settlements on

the mainland of Taiwan were thus open and exposed to anyone who could enter the Lackjemuy Channel. This can be counted as a serious weakness, and the decision not to rebuild the redoubt on Baxemboy can be considered a strategic mistake.

The fortress was weak in another way. Both channels into the Bay of Tayouan—the main channel near the fortress and the shallower Lackjemuy Channel to the north—were too shallow for European ships. The west coast of Taiwan was a notoriously difficult place to navigate. Portuguese mariners gave Taiwan its name, Ilha Formosa, but preferred to admire it from

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afar, avoiding its shallow waters and shifting sandbars. At first, the Dutch themselves did not even want Taiwan because its west coast did not offer a good natural harbour suitable to their deep drawing ships. They settled on the Bay of Tayouan only reluctantly because they had no better options. Its waters were barely deep enough for fully laden—or even half-laden—Dutch ships. And as the years passed, silt accumulated, and slowly but surely the bay became shallower. The process continues today, and the bay itself no longer exists, which makes it difficult to understand the lay of the land in the 17th century, a difficulty exacerbated by a paucity of historical maps.

In any case, by the mid-1600s, most Dutch ships had trouble entering the Bay of Tayouan.⁹ Smaller ships, like yachts or fluit ships, could navigate the channel when conditions were favourable and, ideally, when not fully loaded, but it was considered safer for ships to anchor outside the bay, at a place called the Southern Anchorage (See Map of the Bay of Tayouan). Then a smaller vessel, called a *lootsboot*, would be sent through the channel to unload them, a tedious and time-consuming process. On days when the weather was windy or stormy, or on days in which tide flows were intense, even the *lootsboot* and its experienced pilot could not navigate the channel. Such days were remarkably frequent. Consider that in August, 1661, after the Dutch had been under siege for nearly four months, they spotted a relief fleet. So happy were they that even the sick (and there were many) leapt out of their beds in joy. But weather and tides were such that it was three weeks before they could even manage to bring the commander of the fleet ashore and begin unloading the reinforcements. Imagine living under siege for four months and then seeing ships arrive with fresh supplies but being unable to unload them or even to meet with their commander for nearly a month! More tragically, when the Dutch finally began ferrying its reinforcements from the ships to the fort, one of the transport vessels was smashed to bits by a wave and some of the soldiers were killed.¹⁰

The shallowness of the Channel and the Bay of Tayouan would prove to be a major weakness for the Dutch, the more so since Chinese junks could sail such shallows with ease, even over the so called “flats” [*drooghten*], which were lethal to Dutch ships. As one Dutch observer wrote, “it is amazing how the junks can sail so easily over the flats north and south of the

Channel without running aground. It is a discovery that is nearly impossible to believe.”¹¹ Thus, although Dutch ships were effective on the high seas, they were ill suited to the work of sailing close to land in western Taiwan, where junks held a significant advantage. Equally importantly, most junks seemed to have enjoyed an advantage—perhaps slight—in speed, or, at the very least, were no slower than the Dutch ships. Dutch ships that tried to capture junks sailing to or from Taiwan had remarkably little success. This meant that it would be difficult for the Dutch to prevent an invader from sending junks back and forth with impunity.

It was not until Zheng heard that the Dutch might receive help from a more fearsome adversary—the Qing forces against whom he had been fighting for years in China—that he decided to turn his full attention to Zeelandia.

What turned out to be the most important weakness was the fact that the fortress was built with its back to high dunes. If you visit its ruins today, in Tainan City, you might not pay attention to a hill of Chinese graves near a parking lot. If, however, you are ambitious enough to clamber to the top you will be rewarded by a view down upon the old fortress below, where black-haired tourists pose for photographs. Clearly, this hill, or one like it, would be precisely where you would want to put your cannons if you wanted to attack the fortress. Now if you, standing on top of this graveyard, look beneath your feet, between the closely placed graves, you will find old red bricks. It is easy to imagine that these bricks once belonged to the redoubt that the Dutch built to stand guard on this or a similar hill, to protect the large fortress below. This redoubt, known as the Redoubt Utrecht, was baptized in 1639, around the time that the main fortress was completed.¹² It is the one that the defector Radij supposedly called to Zheng's attention, and which Zheng in any case

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certainly destroyed with his cannon, allowing him to capture Fort Zeelandia. And it was probably Dutch sentinels in this redoubt who first spotted Zheng's invasion fleet early in the morning of 30 April 1661: hundreds of sails, heading directly toward Taiwan.¹³

THE COMBATANTS

Zheng's invasion force was huge. Aboard the hundreds of junks were at least 20,000 battle-hardened troops. They had spent years at war in China and now Zheng Chenggong was leading them to a new base of operations. It was a very risky move, arriving with this many troops to a place that had never before been under Chinese sovereignty. But the warlord knew a great deal about Taiwan, because his family had long had close ties to it. Indeed, his father had once worked for the Dutch East India Company as a translator when the company was just setting up its outpost on Taiwan in the early 1620s. He left his post to pursue a more lucrative vocation: piracy. The Dutch at first supported him in his pillage, giving him a license to plunder under their flag, so long as he attacked vessels patronizing the Portuguese or Spanish. But as his wealth and power waxed, they became suspicious of him. In 1628 Chinese officials offered him a high rank in the imperial bureaucracy in exchange for his help pacifying the coast, ridding it of pirates and (implicitly) keeping the Dutch in their place. In this way he got the best of both worlds. He wore the robes of an official but got to keep his fleets, which were now involved more in commerce than in plunder.

And what fleets they were! At their core were powerful hybrid vessels: large junks with rows of cannons that could be fired in the broadside manner, similar to European ships. A Chinese official reported that "his ships are built like those of foreign barbarians, tall and sturdy.... His cannons are very effective, shooting from a distance of ten *li* and smashing their targets."¹⁴ Dutch reports corroborate such accounts, noting that Zheng's fleet contained some 25 small junks and, more importantly, 30 large war junks, each of which was armed with up to 36 large cannons each.¹⁵ "Such an armada of beautiful, big, well-armed junks

Entrance to the Bay of Tayouan, from the *Atlas Blaeu van der Hem*.
Courtesy of Österreichische Nationalbibliothek, Vienna.

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... has never been seen before in China.”¹⁶ It is hard to imagine what his ships must have looked like, but we might turn to a fascinating image of a contemporary Japanese hybrid ship, which Peter Shapinsky has recently published.¹⁷

At first, the pirate-turned-mandarin tried to keep working with the Dutch, promising them access to the China trade, but the Dutch turned against him and, in a sneak attack, destroyed his powerful fleet at anchor. He immediately began building another, which, in 1633, he used to decisively defeat a Dutch fleet (which itself was allied with hundreds of Chinese pirates). Afterward, the Dutch felt they had little choice but to come to terms.¹⁸ Thereafter, Zheng Zhilong 郑芝龙 and the Dutch entered into an uneasy but relatively stable *modus vivendi*. The Dutch left his ships alone while he allowed trade between China and Dutch Taiwan. Both sides prospered. A steady stream of junks began arriving in Taiwan, bringing not just silks and porcelains for the Japan trade, but also goods designed to be consumed on Taiwan itself, such as supplies for the rapidly growing Chinese colony and salt, textiles, and iron for the aborigines. And Zheng Zhilong's maritime empire grew larger and larger, until by the early 1640s his flag flew over almost all Chinese ships trading in and out of Fujian Province, the primary focus of Chinese foreign trade during this period.

So long as Zheng Zhilong was in charge, it seemed that this *modus vivendi* would hold, but in 1646 he was tricked and taken captive by the leaders of a new power in China: the Great Qing Dynasty. The Qing—a.k.a. the Manchus—had taken over China's capital in 1644 and were now beginning to consolidate their control over the rest of the country. Zheng Zhilong had been supporting the old dynasty, and the Qing considered his maritime empire to be a dangerous and intractable power. Capturing its leader was meant to curtail its influence, but the gambit failed because Zheng Zhilong had a very gifted son, Zheng Chenggong, who gave up a promising career as a man of letters to take over his father's empire.

Zheng Chenggong retooled his father's organization, building a powerful army and launching a series of attacks against the Qing. To fund them, he bolstered his foreign trade, sending junks to ports throughout East and Southeast Asia. The Dutch, who resented the competition, responded by seizing his ships and confiscating their rich cargos. Thus, the fragile

understanding between the Zheng family empire and the Dutch East India Company collapsed.¹⁹ By the 1650s Zheng was already making plans to use Taiwan as a fallback position, in case things did not go well for him in China. In the meantime, he prepared to risk everything on a bold attack against the Qing in the great metropolis of Nanjing. He believed, with justification, that if he could capture Nanjing, which had once been China's capital, the people of China would feel that he had the will of heaven and would flock to his cause, turning the tide of war against the Qing. On 7 July 1659, after years of preparation, his fleet entered the Yangtze River, gateway to Nanjing. By the end of August, his troops had encircled it, but they did not immediately lay siege. Zheng apparently believed city officials' claims that they were ready to surrender, and he decided to wait to conclude parleys with them. It was a fatal mistake. Qing reinforcement armies arrived and launched a vigorous counterattack. Zheng's armies retreated in disarray back to their base, with Qing armies on their heels. In 1661, pressed on all sides, Zheng called his advisors together to tell them that he planned to undertake a new expedition: to Taiwan, from which they could continue their fight against the Qing.

THE FORTRESS AND ITS ENVIRONS

When Zheng discussed the invasion of Taiwan with his council, he said that “the red-haired barbarians who now control Taiwan have less than a thousand men in their fortress”²⁰ and that Zheng forces “could take Taiwan with our hands tied behind our backs.”²¹ The Dutch, on the other hand, were quite confident in their fortress. As early as 1652, they had considered the possibility that Zheng might invade Taiwan but felt he would be dissuaded from doing so by their powerful artillery fortress: “Zheng Chenggong knows well that the Fort on Tayouan is no cat to be approached without gloves.”²²

However, Zheng did not intend to face the fortress head on, at least not at first. He ordered his fleet to avoid the main channel to the Bay of Tayouan, which was controlled by Fort Zeelandia, and instead sail toward the more northerly entrance, the Lackjemuy Channel. It was a potentially dangerous manoeuvre because Lackjemuy was shallower and more difficult to navigate, but the tides were high that day. As Zheng's

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Johannes Vingboons, Bird's Eye View of Fort Zeelandia, 1635 (copied from a sketch by David de Solemne). Courtesy of Nationaal Archief, Hague.

chief chronicler put it, “On that day the water had risen several feet, so even our largest vessels had no difficulty—surely it was the silent aid of heaven’s wish.”²³ Perhaps if the Dutch had rebuilt the redoubt that had been destroyed by the extremely frightening storm, the fleet might have been stopped, or at least slowed, but there was nothing left of that fort but a pile of bricks. Moreover, the Dutch had only three ships available in Taiwan. The others had sailed away, under the mistaken belief that there was no threat of an invasion from China.²⁴ So the Dutch watched from Fort Zeelandia as Zheng’s 250 vessels filed into the bay and began landing troops on mainland Taiwan. Hundreds of Chinese settlers had already pledged their loyalty to him and were standing on the shores with wagons full of weapons that had been prepared in advance.²⁵

Unable to prevent Zheng from entering the Bay of Tayouan, the Dutch dispatched three expeditions to try to slow his progress. First, three Dutch ships engaged a flotilla of junks near Baxemboy. The Dutch ships were having the best of the encounter until a tremendous

explosion shook the air. The powder stores of the largest ship had ignited, destroying it and most of its crew. The other two Dutch ships eventually retreated. The second expedition consisted of a company of 240 Dutch musketeers, who landed on Baxemboy to march against a force of Chinese soldiers there. The captain who led the assault was an old Formosa-hand, who roused his men with a confident speech: “The Chinese could not bear the smell of powder and the roar of muskets and would flee during the first charge, as soon as a few of them had been shot down.”²⁶ He led his troops confidently toward a much larger force and shot three musketry volleys in succession, which felled a number of enemy soldiers. But the rest of the Chinese troops did not break formation. On the contrary, they let fly a “terrific hailstorm of arrows, so that the sky grew dark.”²⁷ They had also sent a detachment of troops to sneak behind the Dutch force. When the Dutch soldiers noticed that the Chinese were not fleeing as had been expected, they grew nervous. When they discovered that they had been surrounded, they panicked. Many

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dropped their weapons and tried to run or swim to safety only to be captured or mowed down.²⁸ Others managed to swim across the channel to Zeelandia.²⁹ A third land sortie also failed, again because of the size and discipline of Zheng's armies. These three failures convinced Dutch officials to give up on trying to reclaim mainland Taiwan and instead hunker down in Fort Zeelandia.

ZHENG'S FIRST ASSAULT AGAINST FORT ZEELANDIA

By 4 May 1661, four days after Zheng had arrived, his troops controlled mainland Taiwan and were beginning to surround Fort Zeelandia. He urged the Dutch to surrender, boasting of his victories on land and at sea. "All you have left," he wrote, "is that little fort, which is like a dead, rotten tree that cannot stand on its own."³⁰ The commander of the fortress, Governor Frederik Coyet, refused to surrender but engaged in a series of parleys, during which Zheng made more threats: "You people are very famous for playing artfully with artillery, but you've never faced so many cannons before. I have brought many hundred of them here, which I have readied for use against you."³¹ From the fortress the Dutch watched as Zheng's troops placed cannons between abandoned houses in the town of Zeelandia, across the open plain from the fort. It seemed clear, however, that Zheng had fewer cannons than he pretended. The Dutch were also encouraged by reports from the Dutch captives that Zheng was sending to Zeelandia to persuade the Dutch to surrender, one of whom said that Zheng "would like nothing better than for us to send a force of our people against an equal sized force of his soldiers to fight it out on the battlefield, which he would prefer to storming."³²

The Dutch were rather more concerned, however, by evidence that Zheng understood one of the fort's key weaknesses: the redoubt. According to a senior Dutch official who had been taken captive by Zheng in early May, and who had been sent by Zheng to persuade Coyet to surrender Fort Zeelandia, Zheng intended to capture the redoubt. As a result of this intelligence, the redoubt's commander, a Scotsman named James Hamilton, was ordered to "keep a good watch and remain alert, because Zheng has indicated that he intends to capture the redoubt."³³ Zheng did not, however, put in place batteries and cannon to

bombard the redoubt. Rather, he seems to have been planning to batter the door in, as he usually did in sieges in China. Commander Hamilton was therefore ordered to strengthen the redoubt's door: "The soldiers began securing [*toemaken*] the door of the redoubt Utrecht, so that the enemy could not attack it with fire or attempt to batter it down."³⁴ Evidence that Zheng had his eye on the redoubt recurs throughout Dutch sources written during the first three weeks of May, 1661.³⁵ When the attack finally came, however, Zheng's soldiers never got close enough actually to try battering any doors.

At the crack of dawn on 25 May, Zheng's cannon abruptly let fly a fierce barrage aimed at the fort. "The enemy," wrote a Dutch official, "got off 40 shots before we were even ready to fight back, but when we were finally ready to answer, we lacked neither bravery nor courage, for we shot back just as fast."³⁶ Zheng's cannon bored more than 250 cannon holes into the fort but did no serious damage. More ominously, Zheng's commanders did not think their positions out well. Their cannon placements were unprotected, and when Zheng's troops massed together to prepare to storm the walls, they exposed themselves to the fort's deadly cannon fire. Frederik Coyet later wrote that he took advantage of this situation to deliver a stinging defeat to Zheng, saying that he ordered his gunners to have patience and hold their fire:

All the cannons were then arranged in such a position that their respective shots would cross one another, and were charged with powder, musket-bullets, and large iron nails. The musketeers took up their places along the outskirts of the balustrades; and when at length a suitable opportunity arose, the word of command was given to fire on the unprotected Chinese from above, below, and all sides, simultaneously. This order was so well executed that, with the first charge, nearly the whole field was strewn with dead and wounded; the enemy being thus taught the lesson not to expose themselves so readily.³⁷

Coyet of course had an interest in portraying himself as a great commander, so we should perhaps take this description with some caution, especially since Zeelandia's daily record book (the *dagregister*) does not portray this battle in quite the same way. Whereas Coyet portrays it as a storm, an assault on the fort, the *dagregister* portrays it as less grandiose, with

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the Chinese soldiers shot at from the fort while they were still assembling for a possible storm, and other Dutch records corroborate this idea, such as one that says, “Instead of their storming the fortress, they were themselves stormed in the town by the besieged.”³⁸

Storm or not, this episode speaks to one of the great advantages of the artillery fortress: its ability to project lethal crossfire. To revisit Coyet's words, the Dutch took care to set up their artillery in such a way that “their respective shots would *cross one another*.”³⁹ Then, when the time was right, they fired “on the unprotected Chinese from above, below, *and all sides*, simultaneously.”⁴⁰ Zheng's men appear to have been unprepared for such crossfire. Certainly they had had plenty of experience with sieges during their wars in China, and the walls of Zeelandia themselves were likely unimpressive to them, since the cities of China were surrounded by walls so massive that they were impervious to heavy artillery. As Geoffrey Parker notes, these walls withstood even industrial era European cannons, as in 1841, when a 74-gun British warship bombarded a fort near Canton to no effect because the fort's walls were constructed in such a way “as to render them almost impervious to the efforts of horizontal fire, even from the 32-pounders.”⁴¹ Chinese walls could be tremendously thick, sometimes ten or more meters. So besiegers of Chinese fortifications, unable to bombard walls with artillery, had to find other ways through them. As Parker notes, Chinese “sieges were usually decided by mass assaults, mining, or blockades rather than by bombardment.”⁴² An even more important way to get through walls was by way of their doors, either by treachery (secret agents planted within) or by battery. The latter appears to have been Zheng's usual method. According to a Dutch soldier who had been a prisoner of Zheng and had accompanied the warlord on campaign for eight months, Zheng generally used his best troops (*geharnaste soldaten*) not for storming, “but almost always for ramming doors open.”⁴³

Chinese sources corroborate this view. In the many campaigns that Zheng undertook in China, drawn out sieges were rare. Usually the defenders surrendered after short sieges, receiving official appointments in Zheng's organization. This was because most of Zheng's sieges were against walled cities, whose inhabitants preferred living under a new government to dying. Consider the dreary example of Zheng's siege of the city of Zhangzhou, in 1652. Its garrison held out for

six months before Zheng Chenggong was finally driven away, but the cost was great. Within the city, “there were fathers who ate sons, elder brothers who ate younger brothers, women who ate their husbands, even ladies who gathered together and killed their male sons to share their meat. People ate everything: rats, sparrows, tree roots, tree leaves, duckweed, and leather.... 70 to 80% of the inhabitants of the city died.”⁴⁴ After the siege, tens of thousands of skeletons were cremated and buried outside the city.

Thus, based on his experiences in China, Zheng probably expected that the Dutch would give over their fortress rapidly after a strong show of force. After all, they had given over their smaller fortress with no fight. Indeed, according to a “freely given” testimony of a Chinese prisoner, Zheng bombarded the fort on 25 May simply “in order simply to fill [the Dutch] with awe, in the hope that they would then offer up the fortress.”⁴⁵ The attack occurred during negotiations between the Dutch and Zheng, so it is quite possible that Zheng did intend this assault more as a scare tactic than as a concerted attempt to capture the fort, a point corroborated by the most reliable Chinese source: Zheng's court proceedings for the day of 22 May, just three days before the “storm,” which note that “Because Taiwan's isolated fortress had no prospect of aid, and because attacking it would inevitably bring death and injury, the prince [Zheng Chenggong] decided to simply blockade it and await its surrender.”⁴⁶ Thus, this passage, written two days before Zheng opened fire, suggests that the warlord's basic policy would be blockade rather than active siege. This “storm” was thus probably not a serious effort to capture the fort but an attempt to precipitate surrender by a show of force.

Nonetheless, Zheng and his commanders learned an important lesson. They were not used to fortifications that could project artillery and musketry fire so effectively, because Chinese fortifications generally did not have protruding castles or bastions, or the outworks such as demi-lunes that graced European style fortresses. Zheng's troops had not realized how exposed they were to the fort's artillery and musket placements, and the defenders took full advantage and blasted them ruthlessly. A prisoner in mainland Taiwan saw the Chinese soldiers who had been killed and wounded in the battle and recorded in his diary that “so many hurt and wounded Chinese were brought [from Zeelandia] that all the houses and

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spaces were filled, and our five surgeons were so busy binding wounds that they scarcely had time to eat.”⁴⁷ As many as 1000 Chinese troops were killed and 800 wounded.⁴⁸ In Fort Zeelandia, the Dutch relished their victory. But they also realized that Zheng and his men were not likely to make such a mistake again: “We trust that the enemy will never again dare to expose himself so boldly, because ... the welcome he received ... has served as a rather painful lesson for him.”⁴⁹ The process of adaptation began with blood.

BLOCKADE

Having failed either to capture Zeelandia or to force its surrender, Zheng tightened his blockade. His men dug trenches and built batteries with a goal of harrying the Dutch and preventing them from venturing out. Zheng was confident his blockade would succeed, because he was certain that the Dutch would be unable to send for reinforcements from their headquarters in Batavia (present-day Jakarta, Indonesia). Throughout maritime Asia, ships sailed with the winds in predictable patterns. In East Asia, ships sailed south when the winds came from the north and they sailed north when the winds came from the south. Zheng had timed his invasion carefully so that he arrived just as the winds began blowing from the south. He believed that the Dutch would not be able to call for help from their superiors in Batavia, far to the south, because it would be impossible to sail against the monsoons. He taunted Governor Coyet in a letter, saying that he could not expect any reinforcements because Batavia would surely be unaware of the situation. “You are hoping to procrastinate until the arrival of your ships, which ... will be simply ships filled with merchandise that would seek their own death.”⁴⁹

Yet a Dutch ship *did* manage to reach Batavia. A small yacht called the *Maria* followed an unorthodox route, navigating via the Philippines against the winds and arriving in Batavia two days after the company's standard fleet had left for Taiwan. Officials in Batavia scrambled and assembled a succour fleet as fast as they could, which arrived in Taiwan on 12 August. According to the usually staid Zeelandia journals, when the fleet was sighted, “even the sick and crippled

in the hospital leapt for joy.”⁵⁰ Zheng was unsettled by the arrival of such a large fleet, particularly because he was having severe problems keeping his troops fed and was worried that the Dutch would blockade Taiwan, preventing rice junks from arriving there and bringing necessary victuals.⁵¹

The Dutch received advice from Chinese defectors, who advised them to blockade Zheng rather than waste their efforts on an attack. As one of them said, “bringing the ships into the Bay of Taiwan is not a good idea, and that it would be better to use the ships to impede Chinese shipping from China,”⁵² Fortunately for Zheng, the Dutch ignored this advice and decided to use their newly arrived ships to launch an assault against his artillery positions in the town of Zeelandia. They unloaded their ships and brought them into the Bay of Taiwan. Perhaps the Dutch imagined they could replicate the results of their cannon victory of 25 May, but things worked out very differently. Zheng's positions were much better protected than before. Equally importantly, the water in the bay was found to be even shallower than expected. The ships could not take up their intended positions. Their cannonballs flew far over their targets, some of them hitting Fort Zeelandia itself. Most important of all, Zheng's cannons, re-aimed toward the Dutch ships, proved devastatingly accurate: “It is incredible that the enemy in his batteries is able to handle his cannon so effectively: according to our sailors, they put our own soldiers to shame.”⁵³ It was a disaster. The Dutch lost two large ships, three smaller ones, and 128 men and the next day awoke to find that “the batteries that we destroyed yesterday with our cannon have been rebuilt by the enemy stronger than before.”⁵⁴

Although the Dutch tried thereafter to switch to a policy of blockade, they had lost men and ships, and, equally importantly, they did not pursue the policy effectively. By the late summer of 1661, when the Dutch succour ships had arrived, Zheng's troops were in terrible shape, with as many as half of them incapacitated because of dearth and disease. But because the Dutch did not mount an effective blockade, Zheng received new rice supplies from mainland China just in time to refortify his army. If the Dutch had accepted the advice of Chinese defectors from the beginning rather than wagering their strength on a foolish assault, they might possibly have mounted an effective blockade. Zheng's troops might have starved and mutinied,

Caeuw's defence fleet engaging Coxinga in battle.
In G. C. Molewijk (ed.), *'t Verwaeloode Formosa* (Zutphen: Walburg Press, 1991).

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or Zheng might have decided to return to China, a course that many of his advisors felt he should follow, including his own son.⁵⁵

Instead, Zheng's troops, revictualled, began to find new ways to test the fortress. As before, they focused on the redoubt, again, long before a defector alerted them to its importance. This time, however, they took more care to build proper batteries so that they would not be exposed to Dutch cannon fire. On 29 September, their cannons in place, they began an intense bombardment of the redoubt, "as though," notes a Dutch source, "they intended to blast it to the ground."⁵⁶ The Dutch tried to shoot back, "but quite soon we found that the redoubt was rendered powerless, because the enemy knew how to aim so well that none of our men dared to venture out upon it, such that during a half hour of enemy firing only one shot issued from the redoubt."⁵⁷ This new attack on the redoubt was made by Zheng's own personal order. A Chinese defector told the Dutch that Zheng had instructed his troops where to place their artillery positions and told them to "shoot the redoubt constantly."⁵⁸ The plan was that "once the redoubt had fallen they would then put a battery there so that they could better threaten Fort Zeelandia."⁵⁹ This intelligence was independently confirmed by a Chinese man who was spying on behalf of the Dutch.⁶⁰

We can judge how well Zheng had learned the bloody lessons of the first assault by the care he took to prepare effective counter-fortifications this time: a set of batteries near the redoubt whose cannons, firing from protected positions, might have a hope of destroying its walls.⁶¹ But the Dutch were equally capable of building new fortifications, and they responded to Zheng's new efforts by building a new outwork of their own to the side of the redoubt. This new outwork seems to have vexed Zheng enough that he and his men began probing other weaknesses of the fort, because a Chinese who defected soon thereafter informed the Dutch that Zheng "decided that there was nothing to be done against the redoubt" and had determined to focus his efforts elsewhere.⁶²

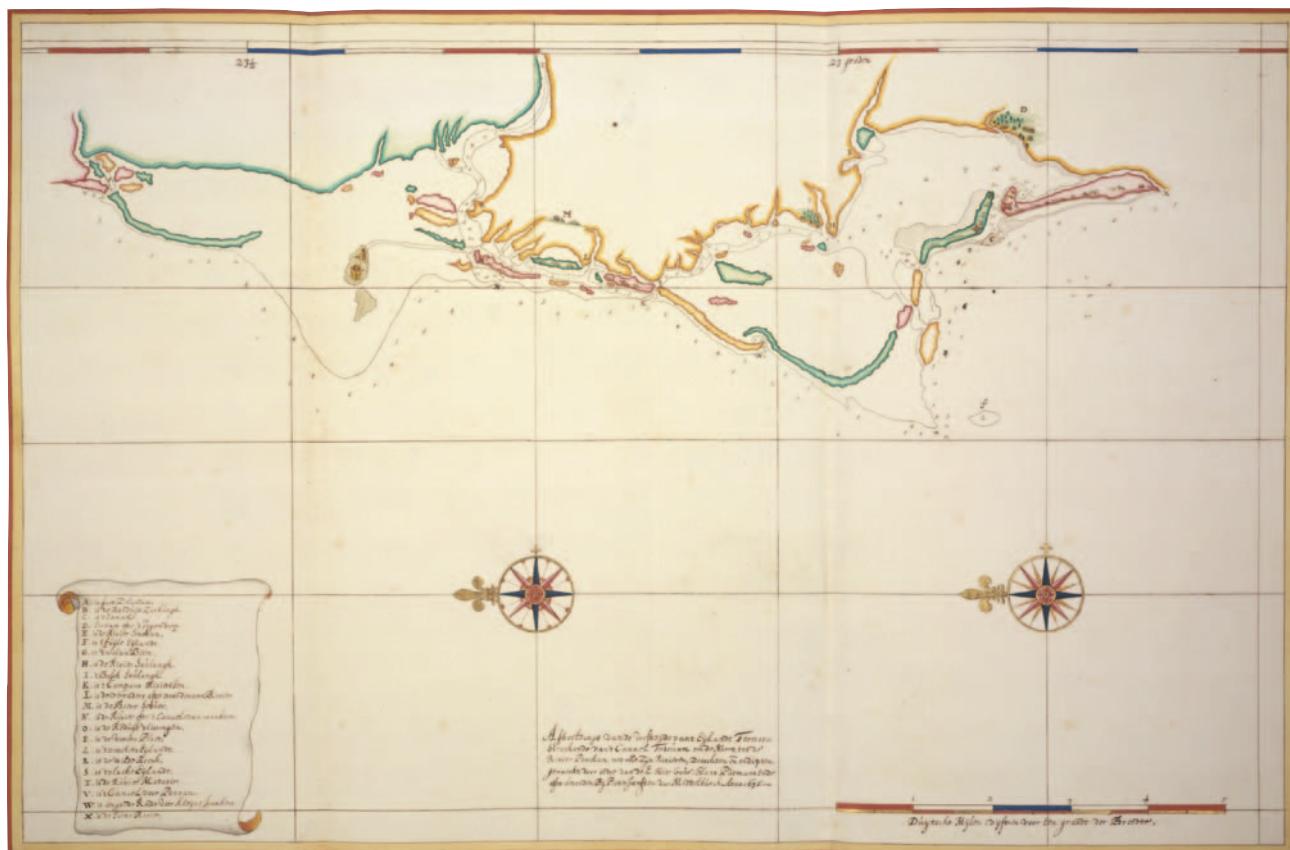
This time Zheng focused on the island of Baxemboy, which lay just across from Fort Zeelandia on the other side of the main channel that led to the Bay of Tayouan. His men had been considering this move for some time. Early in the

summer of 1661, weeks after the first bloody assault against Zeelandia, some of his high officials had stood on Baxemboy and peered at the fortress, one of them through a telescope, trying to descry its weaknesses.⁶³ They, or perhaps others, returned a week later, standing in the rain and "staring at this fortress, talking with great animation to each other, gesturing excitedly with their hands and drawing figures in the sand."⁶⁴ Dutch officials surmised that these men perhaps understood that the waterfront side of the fortress was the weakest, because it had much less artillery than the other side.⁶⁵ The Dutch were worried that if an attack were launched from Baxemboy they would have to move artillery from the other side of the fortress, leaving it vulnerable to an attack from the town. This is precisely what a Chinese defector confirmed, saying that once the Dutch had moved their cannon to the waterfront side, Zheng intended to launch an assault from the town.⁶⁶

The new batteries Zheng constructed on Baxemboy were extremely extensive and well-constructed. He had clearly learned a great deal since his first, disastrous attack. Indeed, we can see a clear progression in his ability to build siege works. During his first attack, the "storm" of 25 May 1661, his cannon positions and assault troops were exposed to deadly cannon and musket fire. During his second attempt to take the redoubt, in September of 1661, he took care to build proper batteries, and although they failed in their objective because the Dutch built a new outwork of their own, they were at least successful in protecting their gunners. Now, on Baxemboy, Zheng took care to build a truly effective and powerful battery. Indeed, the warlord himself went to oversee construction, planting his blue and white-striped command tent near the ruins of the old Dutch redoubt that had once guarded the island.⁶⁷ Once these batteries were complete and the cannons were in place (among them two huge bronze guns that were apparently objects of worship among Zheng's men)⁶⁸ he inspected them himself.⁶⁹ He had reason to be pleased. Although they could not do much damage to the fortress itself, the many large cannon were well protected and enabled Zheng to contest the company's control of the main channel into the Bay of Tayouan, making it harder for the Dutch to receive replies from outside.⁷⁰ This became viscerally clear to a Dutchman who was overseeing the loading of fresh firewood for



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Pieter Janszoon van Middelburch, The Bay of Tayouan, from the *Atlas Blaeu van der Hem*. Courtesy of Österreichische Nationalbibliothek, Vienna.

Zeelandia. A cannonball from Baxemboy struck him where it counts, “taking away most of the flesh in that region, including one testicle, but without hitting the legs themselves.”⁷¹ Zheng’s new positions at Baxemboy could also provide cover for the warlord’s navy, which could now enter the Dutch channel with impunity.⁷² Soon Zheng was able to block the channel altogether, making it impossible for the Dutch to sail in or out.⁷³ This was a serious problem for the Dutch, and in response they began building a new battery of their own near the entrance to the channel. It seems to have done the trick, because Dutch boats were once again able to use the channel, although not with such ease as before.⁷⁴

THE DEFECTION

By this point, in the late summer and early winter of 1661, the Dutch and Zheng Chenggong were in a stalemate. First, Zheng had built a battery near the redoubt, after which the Dutch built a new one of

their own, forcing him to withdraw. Then he had built the extensive batteries on Baxemboy, and, again, the Dutch responded by building a new demi-lune, rendering Zheng’s batteries less effective. Then Hans Radij awoke from his alcoholic slumber, shouldered his musket, and walked down the beach past the seabirds to the enemy camp.

Frederik Coyet, the governor of Taiwan, had no doubt about the significance of Radij’s defection:

[Radij] directed Zheng Chenggong’s attention to the Network and the Redoubt Utrecht. The former stood so low that, from the redoubt, one could watch the soldiers inside. Hence, if the Chinese captured Redoubt Utrecht and took possession of the hill, not a single soul in the Network could protect himself, or even remain in it.... [A]nd having once gained possession, the Chinese could certainly fortify and conceal themselves therein, and get close to the walls of the upper castle; in which case they would be safe from the firing of both cannons and muskets.

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These and many other suggestions were given to heathen Zheng Chenggong by this God-dishonouring and traitorous man; suggestions which brought death to so many Christians, and ruin to the territory of his masters.⁷⁵

The passage comes from Coyet's book, *The Abandoned Formosa*, which was written with one clear goal: to defend himself against accusations that he had been responsible for the loss of Formosa to Zheng Chenggong. After surrendering the fortress in 1662, Coyet was unjustly scapegoated for the humiliating loss of the valuable colony.⁷⁶ He was tried, found guilty, and imprisoned until his relatives arranged for his release, accomplished by the personal intercession of the Prince of Orange. Coyet is clearly trying to shift the blame to others, and clearly many others do deserve the blame, especially the company's highest leadership. By suggesting that Zheng Chenggong needed this alcoholic defector to tell him about the redoubt, Coyet stretched the truth, because, as we have seen, Zheng grasped the importance of the redoubt long before Radij's defection, having tried on two occasions to capture it, and the warlord had even made clear that he realized that once the redoubt had been destroyed and his own guns placed on its rubble he would then have Fort Zeelandia at his mercy. Zheng clearly did not need a defector to tell him how important the redoubt was.

But Radij was the highest-ranking defector Zheng had received, and was also, as Coyet put it, a man of experience who "had been in various European wars." Moreover, not long after his defection, Zheng did indeed attack the redoubt with remarkable efficacy. Indeed, Radij himself was spotted in one of the powerful new batteries Zheng began constructing against the redoubt. It is, therefore, understandable that Coyet and others might suspect that Radij himself was the reason for Zheng's new concerted attempt to capture the redoubt.

Indeed, it is certainly possible that Radij might have spurred Zheng to action just by corroborating what the warlord already suspected, but according to an important Dutch source, Zheng had another reason to suddenly undertake a new and more vigorous attempt to capture Zeelandia. A Dutch surveyor named Philip Meij was captured by Zheng in May 1661 and spent all nine months of the siege working for the warlord. He provides a unique perspective on Zheng's

camp, for he had various sources of information and recorded his experiences in a delightful diary, which has recently been translated into Chinese and published.⁷⁷ According to Meij, Zheng had been planning to wait until April of 1662 to launch a final attack on the fort, intending first to send his army to attack a fractious aboriginal kingdom in northern Taiwan.⁷⁸ Zheng changed his mind, however, and decided to launch his final assault in January 1662. Why? Not because of Radij's advice but because the warlord received bad news from China, where his organization was still fighting against the Qing. A Dutch emissary had been received by the Qing and had concluded with them a treaty of friendship and cooperation. According to Zheng's intelligence, the Qing had promised 7,000 men to help the Dutch drive Zheng from Taiwan. This news spurred Zheng to call a two-day meeting of his generals and advisors. Immediately afterward, preparations got underway.

We have seen how Zheng had gradually improved his ability to build siege works, but the batteries he began building in December 1661 were the best-prepared and thought-out siege works that he had yet built. They were also placed in better locations, not just on the town side of the fortress, but also to the west, near the seashore, on the dunes. There is no doubt that Zheng received help from European defectors in building them, including Radij.⁷⁹ These new siege works were also armed with many more cannon than Zheng had previously had on Taiwan, including 43 large pieces that had recently arrived from China and which Zheng's father, Zheng Zhilong, had apparently had made years before in Macao.⁸⁰

The Dutch noted with alarm that all of these new works had one clear goal: "All of the shooting ports in the batteries are oriented directly toward the redoubt."⁸¹ There was little Coyet and his men could do. They considered trying to slow the enemy's progress by shooting from the fortress or launching a land assault, but they decided not to because they were short on gunpowder and men. They did try attacking the enemy's new western batteries on the dunes from the sea (not the bay, but the sea), but found it impossible.⁸² They therefore prepared for the assault and transferred all the women (but one who insisted on staying) and children to the ships, sent four months of food and supplies to the redoubt, and waited, watching as "the enemy swarmed around their new fortifications like ants."⁸³

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Early on the morning of 25 January, Zheng's gunners let loose from all positions at once—from the dunes, from the town, and from war junks, which, covered by his batteries on Baxemboy, ventured right underneath the fort's walls and could not be driven away. It was a remarkably intense bombardment. As a Dutch source notes, "among the enemy's fire-spewers were pieces that shot 30-pound iron balls."⁸⁴ The redoubt was hit so effectively that "in the first half an hour all of its walls [borstweren] above were so damaged that the garrison could not even fire back at the enemy."⁸⁵ Scholar Jiang Shusheng 江树生 has estimated that Zheng's thirty-odd cannon fired around 2500 shots that day—an "earthshaking rate". "Although by today's technological standards, shooting 2500 shots in one day is not difficult, by the technological standards of three hundred years ago, Zheng's ability to fire 2500 shots in one day cannot but leave one astonished at his army's technological prowess."⁸⁶

An hour and a half after the bombardment began, the redoubt's roof caved in. Zheng's troops tried to storm the walls, but the garrison fought them off with hand grenades, stinkpots, and lances, after which the cannons let fly again, leaving the redoubt so damaged that "it is no longer possible for men to stay inside it."⁸⁷ A master carpenter (*baes timmerman*) braved the barrage to inspect the redoubt but found that "there is no way to repair it, because everything is in pieces, including the pillar and the main support beam."⁸⁸ There was nothing left to do but abandon the redoubt. The Dutch did leave a surprise for its new owners: a two-hour fuse burning toward the main powder stores in the cellar, whose doors were closed and nailed shut.⁸⁹ An hour later, a few enemy soldiers entered the redoubt and, finding it empty, set off flares to signal to the cannons to stop firing.⁹⁰ An hour or so later, the fuse reached its powder, and the redoubt ended its existence with an earth-shaking explosion. The blast took the lives of some fifty Chinese troops inside. Zheng himself was apparently quite near at the time.⁹¹ All that was left when the smoke cleared were a few pieces of the wall.⁹²

The following morning the Dutch saw that the enemy had built a battery on the ruins of the redoubt, which was thus aimed at the weakest walls of the main fortress. Coyet and his advisors attempted to persuade workers to go strengthen the walls but were met with indifference. Even promises of extra alcohol had no

effect. Dutch soldiers were, it was said, stunned that the redoubt, with its 10-foot thick walls, had so easily succumbed, and they had little hope that the fortress itself could withstand Zheng's cannon. Dutch officials considered launching one final desperate attack to dislodge the besiegers, but they found that they had only 800 soldiers available.⁹³ Thus, on 27 January 1661, two days after Zheng launched his final attack, Frederik Coyet sent a messenger with a white flag to deliver a letter to Zheng Chenggong.

CONCLUSIONS

Thus ended the Siege of Zeelandia. Zheng had managed to capture the powerful artillery fortress of Zeelandia by focusing on the redoubt that stood above it. The defector Hans Radij's role in this victory was smaller than historians have presumed, since the great warlord understood the fortress's weakness long before any defector told him about it. Moreover, the final battle, in which Zheng focused so effectively on the redoubt, making a major commitment to its capture, was likely brought on, again, not by Radij's defection, but by concerns that the Qing were preparing to ally with the Dutch. Before the Dutch-Qing alliance, there had been no particular haste. But when Zheng learned that a truly formidable enemy might soon arrive—the Qing armies that had defeated him in mainland China—he realized that it was time to act.

What does the Siege of Zeelandia tell us about the military balance between the West and the rest? Does it support Geoffrey Parker's argument that the artillery fortress was a key technology of European colonialism? Or does it rather corroborate those who would argue against that position, such as Jeremy Black, who, discussing how the Persians conquered a Portuguese artillery fortress at Hormuz in 1622, quips that the Persians "evidently had not read some of the literature on military revolution and did not know that European artillery forces were supposed to prevail with some sort of technological superiority over non-Europeans."⁹⁴ Although the Persians had the help of six English ships in the battle, and the fortress itself lacked proper artillery (points Black does not mention here but does make elsewhere),⁹⁵ Black's argument still bears consideration, especially since a few years later an emerging power called the Omani Sultanate began capturing a string of Portuguese fortresses in

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the Persian Gulf area, including the powerful artillery fortress of Muscat (1650). Clearly, Black is right to suggest that the artillery fortress was no guarantee of colonial supremacy. A critic might easily point out that Hormuz, Muscat and the other artillery fortresses that fell around this period to non-Europeans (most importantly Mombasa and Bassein) are not the best cases to adduce, because they had all belonged to the Portuguese, and the Portuguese Empire was the Sick Man of maritime Asia during this period, attacked on all sides and wracked by difficulties at home. In this context the victories of the Persians and Omanis appear less impressive.

The Dutch East India Company, however, was no declining power circa 1661. It was at the top of its game, and the Dutch colony of Taiwan was one of its crown jewels, its largest colony and one of its most lucrative. In general, the Siege of Zeelandia supports Black's point that non-European powers were capable of mounting effective sieges of European artillery fortresses. Zheng grasped the fort's weaknesses early on, both the weakness of the redoubt and the weakness on the waterfront side. Zheng was a cannier besieger than has previously been appreciated, so we can expect that other non-European commanders might have found it easier to capture artillery fortresses than we might have expected.

But when Geoffrey Parker argued for the artillery fortress as an engine of European expansion, he did not deny that it could be taken by non-European forces. Rather, his primary point was that an artillery fortress enabled a small garrison to hold out against a much larger force for a very long time. Zheng's army was one of the largest and most experienced in East Asia, and his invading forces numbered at least 20,000. Yet a pile of mud and bricks, artfully arranged and bristling with cannon, enabled a garrison of only a thousand men—many of them sick or drunk or both—to stop this force in its tracks for nine months.⁹⁶ Zheng eventually learned how to overcome an artillery fortress, but it cost him time and blood. His first lesson was the most painful, as he realized the fortress's capacity for crossfire. Thereafter, he and his generals worked hard to understand Fort Zeelandia, and each subsequent attempt to attack it was more effective. The batteries and siege works that

Zheng set up in the weeks before the last assault were the most effective of all, particularly the demi-lune he built below the redoubt. Radij and other defectors clearly played a role in this process of adaptation—part of a long tradition of using Western advice that Zheng inherited from his father.⁹⁷ Just as importantly, the 30-pound “fire-spewers” that proved so damaging to Dutch walls were likely made by Portuguese in Macao under the direction of his own father.⁹⁸

Such cross-cultural fertilization should not surprise us. Peter Shapinsky has written insightfully about hybrid maritime cultures in Japan during the “early modern” period, discussing how Japanese captains hired Chinese navigators, consulted Western-style portolan charts, and commanded hybrid Chinese-European-Japanese vessels.⁹⁹ We find similar processes of hybridization throughout the maritime world. Nor did the borrowing go just one way, from Europeans to Asians. To be sure, Europeans were, as Zheng put it himself, “famous for playing artfully with cannons,” and European gunners, founders, and engineers were highly sought after. But Europeans also borrowed continually from the peoples they met in their travels. The Dutch colony of Taiwan was itself a key example. It was a Dutch colonial government based on a Chinese trading organization grafted onto a Chinese agricultural colony surrounded by a Sino-Dutch-aboriginal pidgin society.¹⁰⁰ The maritime world was—and still is—a hybrid one.

Zheng's hybrid forces eventually captured the Dutch fortress, but it was not a simple process. Indeed, I believe that if the Dutch had adopted a better strategy they might even have defeated Zheng Chenggong. What if they had followed the advice of Chinese defectors and used their relief fleet to cordon off the Bay of Tayouan instead of wasting it on a foolish attack? An effective blockade might have prevented Zheng from receiving rice from China, and his troops, who were sick and starving, might have mutinied. Zheng might have been forced to accede to the wishes of his relatives and advisors and abandon Taiwan to return to China. If so, the history of Taiwan, China, and, indeed, the world would have turned out very differently. In any case, the artillery fortress deserves its place in the spotlight. **RC**

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NOTES

- 1 As we shall see, the idea was first propagated by the Dutch governor Frederik Coyet, who commanded Fort Zeelandia during its siege and who published a book on the fall of Taiwan when he returned to Europe: Frederik Coyet, *'t Verwaerloosde Formosa, of waerachtig verhaal, hoedanigh door verwaerloosinge der Nederlanders in Oost-Indien, het Eylant Formosa, van den Chinesen Mandorijn, ende Zeeroover Coxinja, overrompelt, vermeestert, ende ontweldicht is geworden*, edited by G. C. Molewijk (Zutphen: Walburg Pers, 1991 [originally published in 1675]). An English translation is available in Inez de Beauclair, ed., *Neglected Formosa: A Translation from the Dutch of Frederic Coyet's 't Verwaerloosde Formosa* (San Francisco: Chinese Materials Center, Inc., 1975). Coyet's emphasis on Radij's role was then accepted by historians, perhaps most importantly in the wonderful article by C. R. Boxer, "The Siege of Fort Zeelandia and the Capture of Formosa from the Dutch, 1661-1662." *Transactions and Proceedings of the Japan Society of London* 27 (1927): 16-47. See also Leonard Blussé, *Tribuut aan China: vier eeuwen Nederlands-Chinese betrekkingen* (Amsterdam: Otto Cramwinckel, 1989), p. 69; Yang Yanjie 杨彦杰, *Heju shidai Taiwan shi* 荷据时代台湾史 (Taipei: Lianjing 联经 Press, 2000), pp. 290-291; Leonard Blussé, Nathalie Everts, W. E. Milde, and Yung-ho Ts'ao, eds. *De Dagregisters van het Kasteel Zeelandia, Taiwan, 1629-1662* [The Journals of Zeelandia Castle, Taiwan, 1629-1662], Four Vols. (The Hague: Instituut voor Nederlandse Geschiedenis, 1995-), Vol. 4, p. 614, footnote 78; Jiang Shusheng 江树生, *Zheng Chenggong he Helanren zai Taiwan de zui hou yi zhan ji huang wen di he* 郑成功和荷兰人在台湾的最后一战及换文缔和 (Taipei: Han Sheng Zazhi She 汉声杂志社, 2003), p. 30; and my own book, Tonio Andrade, *How Taiwan Became Chinese: Dutch, Spanish, and Han Colonization in the Seventeenth Century* (New York: Columbia University Press, 2008) (Chinese edition: 欧阳泰 (Tonio Andrade), *Fu'ermosha ruhe bian cheng Taiwan fu* 福尔摩沙如何变成台湾府, Yuanliu Publishing Company 远流出版公司和 Ts'ao Yung Ho Foundation for Culture and Education 曹永和文教基金会, Taipei, Taiwan, 2007), chapter 11, available online at <http://www.gutenberg-e.org/andrade.html>. The idea of Hans Radij as being responsible for Zheng's capture of Zeelandia has also found its way into the literature on comparative military history. See, for example, Jeremy Black, *War and the World: Military Power and the Fate of Continents* (New Haven: Yale University Press, 1998), p. 83.
- 2 Andrade, *How Taiwan Became Chinese*, chapter 11.
- 3 I refer to Radij as a drunk advisedly. This chilly December day was by no means the only time he indulged in drink. See Jiang Shusheng, ed. and trans. *Mei shi ri ji: Helan tudi celiangshi kan Zheng Chenggong* 梅氏日记：荷兰土地测量师看郑成功 (Taipei: Han Sheng Zazhi She Gufen Youxian Gongsi 汉声杂志社股份有限公司, 2003), rear p. 56, in which we see a drunken Radij boasting and blustering about his "king" Zheng Chenggong.
- 4 The core work of the military revolution paradigm is Geoffrey Parker, *The Military Revolution: Military Innovation and the Rise of the West, 1500-1800* (Cambridge: Cambridge University Press, 1995). Parker discusses the antecedents to his formulations in Geoffrey Parker, "The Artillery Fortress as an Engine of European Overseas Expansion, 1480-1750," in James Tracy, ed., *City Walls: The Urban Enceinte in Global Perspective* (Cambridge: Cambridge University Press, 2000), 386-416, esp. pp. 386-387. This seminal article has been reprinted in Geoffrey Parker, *Success is Never Final: Empire, War, and Faith in Early Modern Europe* (New York: Basic Books, 2002).
- 5 Geoffrey Parker, "The Artillery Fortress as an Engine of Expansion."
- 6 Jeremy Black, "The Western Encounter with Islam," *Orbis* 48 (1) [2004]: 19-28, p. 23.
- 7 It is possible that a third bastion was added later on this side, but it is difficult to tell from Dutch maps and drawings of the fortress, which tend to date from the 1630s and 1640s.
- 8 Zeelandia Dagregisters, Vol. 4 A: 285-286.
- 9 The main channel ranged from around 8 or 9 feet deep at times of low tide to 12 or 13 feet deep at high tide.
- 10 Zeelandia Dagregisters, Vol. 4, D: 771.
- 11 Zeelandia Dagregisters, Vol. 4, E: 641.
- 12 Zeelandia Dagregisters, Vol. 1, L: 737.
- 13 There has been some confusion about the actual day of arrival of Zheng's fleet, due to what appears to be an incorrect date in Coyet's book. See Lynn Struve, *The Southern Ming, 1644-1662* (New Haven: Yale University Press, 1984), p. 254, note 83. The *Dagregister* is in agreement with Yang Ying 杨英's account, leaving Coyet as the only outlier, so it is safe to rely on the date 30 April 1661.
- 14 *Zheng shi shi liao chu bian* 郑氏史料初编, Taiwan Wenxian Congkan 台湾文献丛刊 no. 157 (1962), 1-2. The distance ten *li* is equivalent to about three kilometers and is thus a considerable exaggeration.
- 15 Leonard Blussé et al., eds., *De Dagregisters van het Kasteel Zeelandia, Taiwan, 1629-1662*, 4 vols. (The Hague: Instituut voor Nederlandse Geschiedenis, 1986-2001), Vol. 1, F: 16.
- 16 Governor Hans Putmans to Governor-General Hendrik Brouwer, letter, 30 September 1633, VOC 1113: 776-787, esp. 777.
- 17 Peter D. Shapinsky, "Polyvocal Portolans: Nautical Charts and Hybrid Maritime Cultures in Early Modern East Asia," *Early Modern Japan*, 2006, pp. 4-26.
- 18 For more on this episode see Tonio Andrade, "The Company's Chinese Pirates: How the Dutch East India Company Tried to Lead a Coalition of Pirates to War Against China, 1621-1662," *Journal of World History*, 15(4) [2004]: 415-444.
- 19 For more on relations between Zheng and the company in the 1650s, see Andrade, *How Taiwan Became Chinese*, chapter 10. For the story of how the Dutch tried to negotiate with Zheng see Tonio Andrade, "Chinese under European Rule: The Case of Sino-Dutch Mediator He Bin," *Late Imperial China*, 28(1) [2007]: 1-32.
- 20 Yang Ying, *Cong zheng shi lu* 从征实录. Taiwan Wenxian Congkan, no. 32 [1958], pp. 184-185.
- 21 Yang Ying, *Cong zheng shi lu*, pp. 184-185.
- 22 *Generale Missiven*, 1633-1655, Reyniersz, Maetsuyker, Hartzinck, Cunaeus, Caesar, and Steur VII, 24 December 1652, p. 612.
- 23 Yang Ying, in Lynn Struve, *Voices from the Ming-Qing Cataclysm: China in Tigers' Jaws* (New Haven: Yale University Press, 1993), p. 211.
- 24 The previous year, company employees in Taiwan had warned their superiors that Zheng would be invading, and the superiors had sent a large fleet to succor Taiwan just in case. Zheng did not invade that year, and so leaders in Batavia believed that he would not do so at all, and were thus willing to leave Taiwan with fewer ships than the situation warranted. For more on the events in 1660 and early 1661, see Andrade, *How Taiwan Became Chinese*, ch. 11.
- 25 On Chinese settlers' pledges to Zheng see Zeelandia Dagregisters, Vol. 4, D: 555. On the wagons filled with weapons see *Zeelandia Dagregisters*, Vol. 4, D: 765-768.
- 26 Coyet, *Verwaerloosde Formosa*, p. 104.
- 27 Coyet, *Verwaerloosde Formosa*, p. 105.
- 28 Yang Ying also provides an account of this battle. Struve, *Voices from the Ming Ch'ing Cataclysm*, p. 218.
- 29 Coyet, *Verwaerloosde Formosa*, pp. 104-105.
- 30 *Zeelandia Dagregisters*, Vol. 4, D: 528-529.
- 31 Translation of letter from Koxinga to Frederick Coyet, 10 May 1661, *Zeelandia Dagregisters*, Vol. 4, D: 563.
- 32 *Zeelandia Dagregisters*, Vol. 4, D: 602.

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- 33 Zeelandia Dagregisters, Vol. 4, D: 548.
- 34 Zeelandia Dagregisters, Vol. 4, D: 555.
- 35 On 20 May, for example, a Chinese defector said that “there were rumors among them that the redoubt would be attacked first.” Zeelandia Dagregisters, Vol. 4, D: 585. This poor fellow was suspected of being less than straightforward on several points of his long testimony and later died under torture (Zeelandia Dagregisters, Vol. 4, D: 586), but other sources corroborate his point about the redoubt. See for example Zeelandia Dagregisters, Vol. 4, D: 592.
- 36 Zeelandia Dagregisters, Vol. 4, D: 605.
- 37 Coyet, *Verwaerloosde Formosa*, in Lynn Struve, *Voices from the Ming-Qing Cataclysm: China in Tigers’ Jaws*, p. 227. I have changed “pieces” to “cannon” for the sake of reader comprehension.
- 38 Jiang Shusheng, ed., *Mei shi ri ji*, rear p. 27.
- 39 Coyet, *Verwaerloosde Formosa*, in Lynn Struve, *Voices from the Ming-Qing Cataclysm: China in Tigers’ Jaws*, p. 227. My italics.
- 40 Ibid., my italics.
- 41 Cited in Geoffrey Parker, *The Military Revolution: Military Innovation and the Rise of the West*, p. 143.
- 42 Ibid., p. 144.
- 43 Zeelandia Dagregisters, Vol. 4, D: 539.
- 44 Peng Sunyi 彭孙贻, *Jing Hai Zhi* 靖海志, Taiwan Wenxian Congkan, no. 35, p. 27.
- 45 Zeelandia Dagregisters, Vol. 4, D: 618.
- 46 Yang Ying, *Cong zheng shi lu*. Taiwan Wenxian Congkan no. 32 [1958], p. 188.
- 47 Jiang Shusheng, *Mei shi ri ji*, rear p. 27.
- 48 Jiang Shusheng, *Mei shi ri ji*, rear p. 27.
- 49 Zeelandia Dagregisters, Vol. 4, D: 612.
- 50 Zeelandia Dagregisters, Vol. 4, D: 672.
- 51 Zeelandia Dagregisters, Vol. 4, D: 726.
- 52 Zeelandia Dagregisters, Vol. 4, D: 736.
- 53 Zeelandia Dagregisters, Vol. 4, D: 775.
- 54 Zeelandia Dagregisters, Vol. 4, D: 784.
- 55 Zeelandia Dagregisters, Vol. 4, D: 785.
- 56 Zeelandia Dagregisters, Vol. 4, E: 702.
- 57 Zeelandia Dagregisters, Vol. 4, D: 793.
- 58 Zeelandia Dagregisters, Vol. 4, D: 793.
- 59 Zeelandia Dagregisters, Vol. 4, D: 794.
- 60 Zeelandia Dagregisters, Vol. 4, D: 795.
- 61 Zeelandia Dagregisters, Vol. 4, D: 797.
- 62 Zeelandia Dagregisters, Vol. 4, D: 794.
- 63 Zeelandia Dagregisters, Vol. 4, D: 804.
- 64 Zeelandia Dagregisters, Vol. 4, D: 657.
- 65 Zeelandia Dagregisters, Vol. 4 D: 668.
- 66 Zeelandia Dagregisters, Vol. 4, D: 668.
- 67 Zeelandia Dagregisters, Vol. 4, D: 810.
- 68 Zeelandia Dagregisters, Vol. 4, E: 625.
- 69 Zeelandia Dagregisters, Vol. 4, D: 756.
- 70 Zeelandia Dagregisters, Vol. 4, E: 639.
- 71 Zeelandia Dagregisters, Vol. 4, E: 638.
- 72 Zeelandia Dagregisters, Vol. 4, E: 715.
- 73 Zeelandia Dagregisters, Vol. 4, E: 639. See also E: 665.
- 74 Zeelandia Dagregisters, Vol. 4, E: 667-669.
- 75 Zeelandia Dagregisters, Vol. 4, E: 667-669.
- 76 de Beauclair, ed., *Neglected Formosa*, p. 80. I have made a few small changes to the translation.
- 77 See the wonderful M.A. thesis of Jan-Josef Beerens, “Formosa Verwaarloosd: Frederick Coyet een zondebok” (M.A. Thesis, Leiden University Department of History, 1988).
- 78 Jiang Shusheng, *Mei shi ri ji*. For those who do not read Chinese, the translator includes a transcription of the original Dutch.
- 79 Ibid., rear p. 51.
- 80 Zeelandia Dagregisters, Vol. 4, E: 721. Check resolutions having to do with this: VOC 1238, 600-602.
- 81 Jiang Shusheng, *Mei shi ri ji*, rear p. 52.
- 82 Zeelandia Dagregisters, Vol. 4, E: 720. For more details on the siegeworks, see Jiang Shusheng, *Zheng Chenggong he Helanren zai Taiwan de zui hou yi zhan ji*, pp. 35-41.
- 83 Zeelandia Dagregisters, Vol. 4, E: 721.
- 84 Zeelandia Dagregisters, Vol. 4, E: 725.
- 85 Zeelandia Dagregisters, Vol. 4, E: 726.
- 86 Zeelandia Dagregisters, Vol. 4, E: 734.
- 87 Jiang Shusheng, *Zheng Chenggong he Helanren zai Taiwan de zui hou yi zhan ji*, p. 42. Military historian John Stapleton feels that this rate of fire, although unlikely, is within the realm of possibility. Personal communication 21 April 2008.
- 88 Zeelandia Dagregisters, Vol. 4, E: 732-3.
- 89 Zeelandia Dagregisters, Vol. 4, E: 733.
- 90 Zeelandia Dagregisters, Vol. 4, E: 733.
- 91 Zeelandia Dagregisters, Vol. 4, E: 733.
- 92 Zeelandia Dagregisters, Vol. 4, E: 734.
- 93 Zeelandia Dagregisters, Vol. 4, E: 733.
- 94 Zeelandia Dagregisters, Vol. 4, E: 736.
- 95 Jeremy Black, “The Western Encounter with Islam,” *Orbis* 48 (1) [2004]: 19-28, p. 23.
- 96 Jeremy Black, *War and the World: Military Power and the Fate of Continents*, p. 69.
- 97 At the time of Zheng’s arrival in April of 1661 the Dutch garrison in Fort Zeelandia numbered 1140 troops.
- 98 Peter D. Shapinsky, “Polyvocal Portolans: Nautical Charts and Hybrid Maritime Cultures in Early Modern East Asia,” *Early Modern Japan*, 2006, pp. 4-26.
- 99 Jiang Shusheng, *Mei shi ri ji*, rear p. 52.
- 100 Peter D. Shapinsky, “Polyvocal Portolans: Nautical Charts and Hybrid Maritime Cultures in Early Modern East Asia,” *Early Modern Japan*, 2006, pp. 4-26.
- 101 See for example the work of Han Jiabao 韩家宝, who believes that Taiwan is best viewed as a “plural society,” (an interpretation advanced by his mentor Ts’ao Yung-ho 曹永和). See Han Jiabao, *Helan shidai Taiwan de jingji tudi yu shuiwu* 荷兰时代台湾的经济土地与税务 (Taipei: Bozhongzhe Wenhua 播种者文化, 2002). My own book, *How Taiwan Became Chinese*, advances a similar perspective.