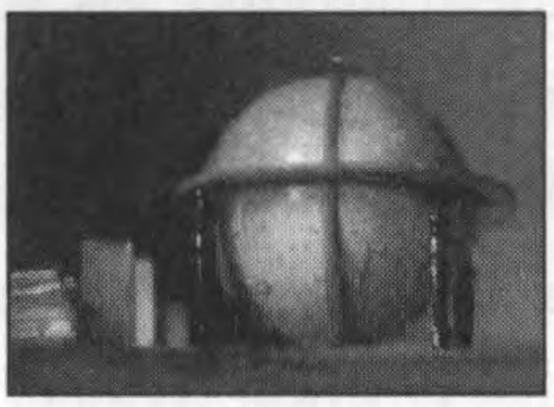
4

Geography Lessons



There is one painting by Vermeer, *The Geographer* (see plate 4), that requires little effort to locate signs of the wider world that was enveloping and invading Delft. The painting opens conventionally on the artist's studio, the same closed space we expect to find in a Vermeer painting where bright windows again have been painted at an angle so oblique that their panes transmit no image of what lies in the street outside. This time, however, the room is cluttered with objects that gesture exuberantly to a broader world. The drama that Vermeer sets on his stage is not about the engagements of love, the theme in the two preceding paintings, or about the drive for moral perfection, which will animate another painting that we will soon examine. It is about a different drive altogether, the desire to understand the world: not the world of domestic interiors, or even of Delft, but the expansive lands into which traders and travelers were going and from which they were bringing back wondrous things and amazing new information. The things engaged the eye, but the information engaged the mind, and the great minds of Vermeer's generation were absorbing it all and learning to see the world in fresh ways. They were making new measurements, proposing new theories, and building new models on scales that stretched macroscopically as far as the entire globe and microscopically into the mysterious depths that were beginning to be revealed in a drop of rain or a mite of dust.

This is what *The Geographer* is about. It is no surprise, then, that it evokes in the viewer a mood different from those of Vermeer's other

paintings. He has characteristically constructed the canvas around a figure who is absorbed in his own doings and is not posing for the viewer. Still, the sense of intimacy of the other paintings isn't there. We are drawn to the geographer as he pauses to cogitate, just as we are drawn to the young woman who reads her letter, but we don't really enter onto a deeper plane of reflection. Perhaps with *The Geographer* (and its companion painting, *The Astronomer*) Vermeer intended to move into new subject matter but hadn't quite figured out how to make the intellectual drama an emotional experience for the viewer. The passion to know the world by mapping it was not quite as compelling for viewers, or the artist, as the passion to know another person through love. Perhaps the paintings were commissioned by a buyer who fancied owning images of the new thirst for scientific knowledge, which left Vermeer feeling undermotiviated. Indeed, perhaps they were commissioned by the man who posed for them, by best guess the Delft draper, surveyor, and polymath, Antonie van Leeuwenhoek.

Leeuwenhoek's surname was his address: "at the corner by Lion's Gate," which was the next gate to the right of the pair of gates shown in *View of Delft*. He is best known for the experiments he conducted with lenses, for which he is credited today as the father of microbiology. No documentary evidence directly links Vermeer and Leeuwenhoek, yet the circumstantial evidence that they were friends is strong. The fact that the two men were born in the same month, lived in the same part of town, and had friends in common might not be enough to convince the skeptical. But Leeuwenhoek played a key role after Vermeer's death. Vermeer died when his business as a painter and art dealer was at a low ebb. His widow, Catharina, had to file for bankruptcy two months later, and when she did, the town aldermen appointed Leeuwenhoek to administer the estate. Judging from a later portrait, the man who has pushed back the Turkish carpet on the table and bends over a map with a set of surveyor's dividers in his hand is Leeuwenhoek. Even if he weren't, Leeuwenhoek was just the sort of person the painting lionizes.

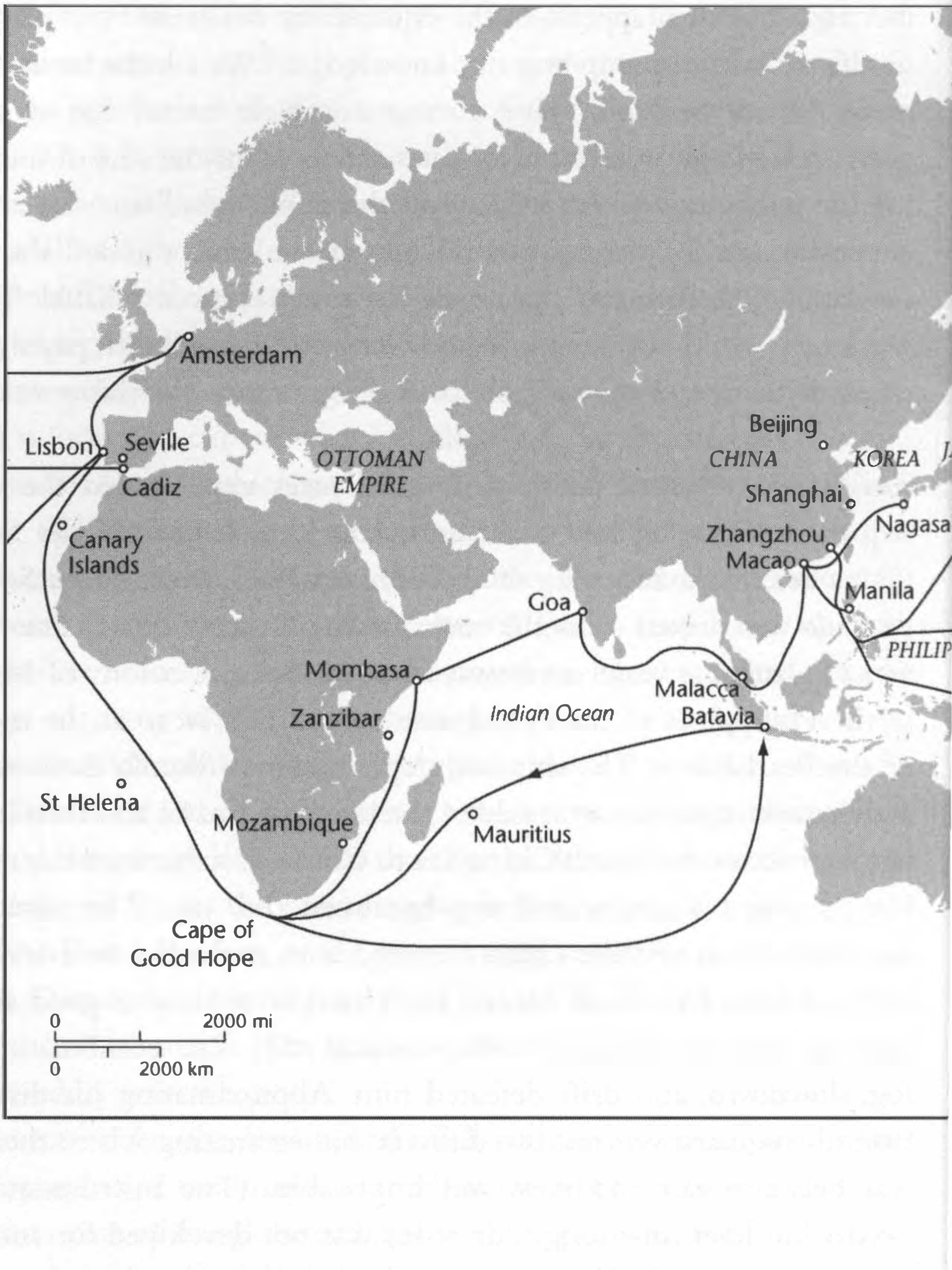
The signs of the wider world are everywhere. The document that the geographer has spread out before him is indecipherable, but it is clearly a map. A sea chart on vellum is loosely rolled to his right under the window. Two rolled-up charts lie on the floor behind him. A sea chart of the coasts of Europe—the subject becomes apparent when you realize that the top of the map points west, not north—hangs on the back wall. The original of this sea chart has not been found, but it is similar to one produced by Willem Blaeu, the commercial map publisher in Amsterdam who printed the map on the back wall of *Officer and Laughing Girl*, among many others. A terrestrial globe literally caps the entire painting. This is the 1618 edition of a globe published by Hendrick Hondius in 1600.

Vermeer includes just enough detail on the Hondius globe to show that it is turned to expose what Hondius calls the Orientalus Oceanus, the Eastern Ocean, which we know today as the Indian Ocean. Navigating this ocean was a great challenge for Dutch navigators in the opening years of the seventeenth century. The Portuguese route to Southeast Asia ran around the Cape of Good Hope and up past Madagascar, following the arc of the coastline. This route had the advantage of many landfalls, but it was hampered by unfavorable currents and winds and was under Portuguese control, however unevenly defended. In 1610, a Dutch mariner discovered another route. This involved dropping down from the cape to 40 degrees southern latitude and picking up the prevailing westerlies, which, combined with the West Wind Current, could speed a ship across the bottom of the Indian Ocean, then veering north to Java on the southeast trades, bypassing India entirely. The route to the Spice Islands was thereby shortened by several months.

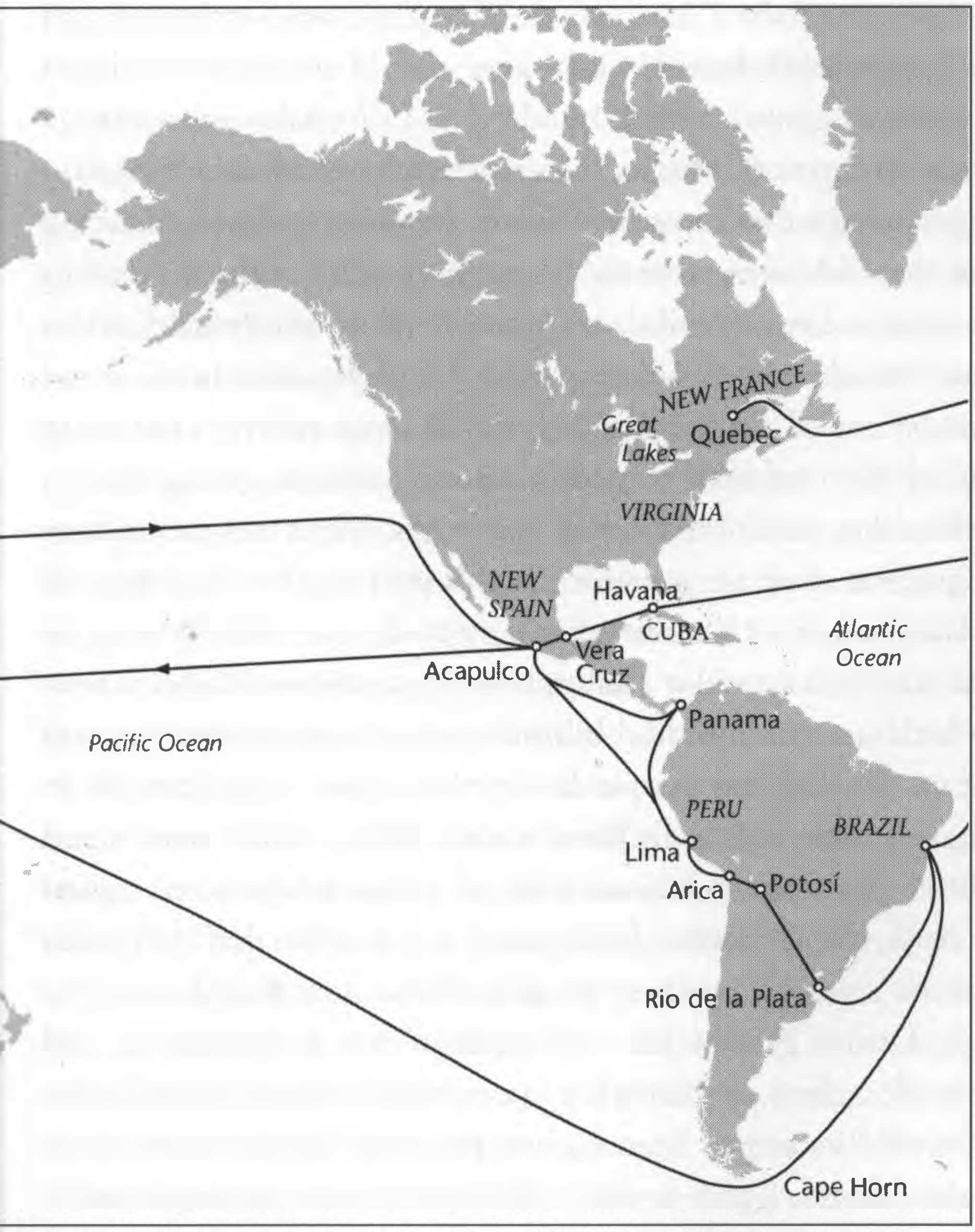
The cartouche (the ornamental scroll with an inscription that many a cartographer of the time used to fill in the empty areas of a map) on the lower part of the globe is illegible in the painting, but can be read on a surviving copy of this globe. In it Hondius has printed in his defense a brief explanation as to why this globe differs from the version

he published in 1600. "Since very frequent expeditions are started every day to all parts of the world, by which their positions are clearly seen and reported, I trust that it will not appear strange to anyone if this description differs very much from others previously published by us." Hondius then appeals to the enthusiastic amateurs who played a significant role in compiling this knowledge. "We ask the benevolent reader that, if he should have a more complete knowledge of some place, he willingly communicate the same to us for the sake of increasing the public good." An increase in the public good was also an increase in sales, of course, but no one at the time minded the one overlapping the other if that made the product more reliable. There was a new world out there, and knowledge of it was worth paying for, especially as one of the tangible costs of ignorance was shipwreck.

The Spanish Jesuit Adriano de las Cortes experienced the consequence of having less than "complete knowledge" of the South China Sea on the morning of 16 February 1625, when *Nossa Senhora da Guía* was driven onto the rocks of the Chinese coast. The *Guía* was a Portuguese vessel on its way from the Spanish colony of Manila in the Philippines to the Portuguese colony of Macao at the mouth of the Pearl River. The ship had departed from Manila three weeks earlier, tacking up the west side of the island of Luzon and then heading west across the South China Sea to China. On the third day crossing the open water, a cold fog becalmed the ship. The navigator should have carried the charts he needed to make the well-traveled crossing from Manila to Macao, but charts were only as good as the bearings he could take from the sun and stars. The combination of fog, slowdown, and drift defeated him. Approximating his distance from the equator was not too difficult, but estimating where the ship was between east and west was impossible. (The instrumentation needed to determine longitude at sea was not developed for another century and a half.) The wind came back up two days later, but then it whipped into a gale so fierce that it blew the ship even farther off



GLOBAL TRADE ROUTES IN



HE SEVENTEENTH CENTURY

its course. The *Guía*'s pilot had no way to reckon their position and could do nothing but wait until land came into sight and try to figure out their location from the profile of the shoreline.

Two hours before dawn on 16 February, the gale unexpectedly drove the ship onto the China coast. The place was uncharted and unknown to those on board. Only later would the survivors learn that they had run aground three hundred and fifty kilometers northeast of their destination, Macao. The water where the ship broke up was shallow enough that most of the over two hundred people taking passage on the *Guía* were able to get to shore. Only fifteen failed to make it: several sailors, several slaves (one of whom was female), a few Tagals from Manila, two Spaniards, and a young Japanese boy.

The inhabitants of a nearby fishing village came down to the shore to stare at the host of foreign people coming ashore, giving them a wide berth as they scrambled out of the waves. Most may never have seen foreigners at close range before, as this spot on this coast was off the two main sea-lanes handling foreign trade, one from Macao to Japan, and the other to the Philippines from Moon Harbor (now Amoy), which lay two hundred kilometers in the opposite direction from Macao. The fishing people living along this coast were aware that foreigners were sailing in these waters. They would have heard about the Portuguese in Macao (official Chinese discourse called them the Aoyi, the Macanese Foreigners) and known that they were unlikely to be attacked by these people. Those they feared were the Wokou, or Dwarf Pirates (the colloquial term for Japanese), and the terrible Hongmao, or Red Hairs (a recently coined name for the Dutch). Dwarf Pirates had been raiding the coast for a century in reaction to the Chinese government's 1525 ban on maritime trade with Japan. They were feared for their skill as swordsmen. Local people still told the story of a dozen sword-wielding Japanese who managed to kill three hundred Chinese militiamen sent against them. The Red Hairs excited an even greater fear. The Dutch had been preying along this coast only in the last two or three years but they had quickly established a reputation for being violent and dangerous. The Chinese

name for these people tells us what most struck Chinese when they saw Dutchmen. Among Chinese, black is the normal color for hair. As Portuguese tended also to be dark haired, they were considered simply ugly rather than bizarre. The same could not be said for the Dutch, whose blond and reddish hair was a shock to Chinese eyes. Anyone with hair this color was a Red Hair, and therefore Dutch, and therefore dangerous.

Red Hairs, Dwarf Pirates, and Macanese Foreigners were not all that came ashore. Scattered among them were another category altogether: Heigui, or Black Ghosts. These were the African slaves who worked as servants of the Portuguese and who were ubiquitous in the European colonies in East Asia. Truly unlike any person the Chinese had ever seen, they were feared above the rest.

The sight of these foreigners stalled the villagers only briefly. Their eyes quickly turned to the chests and barrels floating ashore with the survivors. They began hauling the flotsam up the beach and scavenging through the cargo. Soon enough the local militia arrived carrying swords and arquebuses. Their duty was to keep the survivors at the site where they came ashore until a military commander showed up to take charge. They too were interested in picking up whatever might have washed ashore from the shipwreck. As the scavengers had beaten them to the cargo, the militiamen turned on the sodden survivors, frisking some and strip-searching others for the silver and jewels they suspected must be hidden on them. The survivors were at first too exhausted and frightened to do anything but comply, though a few quietly resisted. Before the militiamen had a chance to find much, the survivors gathered together and began to walk inland.

Fearing they would be punished for failing to control the crowd, the militiamen began to throw stones and jab their spears to make them understand that they should remain on the beach. Still the crowd of two hundred foreigners pressed forward. The Chinese arquebusiers opened fire. One hit his target, a Dwarf Pirate, though the gunpowder charge was so weak that the ball simply buried itself in the man's clothing without doing any damage. The militia's swords

were more effective. A Portuguese sailor named Francesco was stabbed and then beheaded. He was the first of the survivors to die at the hands of their captors. Then a Macanese by the name of Miguel Xuarez was speared. A priest took Xuarez in his arms, but militiamen hauled him away and decapitated him.

A military officer finally arrived on horseback with a small retinue. Benito Barbosa, captain of the *Guía*, hurried toward the officer to appeal for mercy for his passengers and crew, but the officer brandished his sword in a show of intimidation and ordered his attendants to slice a piece off Barbosa's ear, marking him as a prisoner. There would be no negotiation; only surrender.

Then the shakedown began in earnest. Militiamen freely moved among the shipwrecked survivors, searching them and grabbing whatever they could find. Some had managed to come ashore with a little of their wealth, and most surrendered it when accosted—but not everyone. Ismaël, an Indian Muslim merchant from Goa, had already removed an outer garment and folded it into a parcel. The parcel attracted the suspicious notice of a militiaman. Ismaël refused to hand it over, and in the tug of war that ensued, the bundle slipped from his grip. Out fell six or seven silver pesos. Furious at being resisted, the militiaman ended the tussle by cutting off Ismaël's head. Budo, another Indian merchant from Goa, got caught in a similar struggle. One of the militiamen guessed correctly that Budo had hidden something in his mouth. When the militiamen tried to force his mouth open, Budo spat two rings on the ground and then kicked them into the sand to make them disappear. The disappointed militiaman feigned indifference, but ten minutes later, slipped up behind Budo and lopped off his head, carrying it aloft as a trophy.

Others perished for reasons besides holding back their wealth. A man named Suconsaba and a Franciscan layman born near Goa had sustained injuries during the shipwreck and were near death by the time they made it ashore. According to Adriano de las Cortes, the Spanish Jesuit who wrote a memoir of the wreck of the *Guía*, "several of us suspected that they weren't yet dead when the Chinese

sliced off both their heads." Masmamut Ganpti, who may have been a slave of the ship's owner, Gonçalo Ferreira, made it ashore without incident but got into trouble defending his master against militiamen who tried to take his clothes. The Chinese responded by grabbing him, chopping off his hands and feet as punishment for attacking them, then cutting off his head. Ganpti, whom Las Cortes describes as "a Moorish sailor" and "a brave Black," died "for no reason and without having given the Chinese the least pretext." Another of Ferreira's attendants suffered the same fate, not for challenging the militiamen but for being too weak to keep up when the Chinese later force marched the survivors inland.

The list of those drowned and murdered that morning consists of people identified as Moors, Blacks, Goans, South Asian Muslims, Macanese, Portuguese, Spaniards, slaves, Tagals, and Japanese.[1] The casualty list is in effect a short summary of the *Guía*'s remarkably diverse passenger list. Ninety-one on board were Portuguese. Some of them were born in Macao or lived and worked there, while others hailed from Portuguese colonies scattered around the globe, from the Canary Islands to Goa and Macao. The only other Europeans on board were six Spaniards. A mutual agreement between Spain and Portugal restricted the ships of one from carrying the nationals of the other, but this agreement was ignored as the need arose, especially when the people involved were priests or Catholic laymen on mission business, as all six were. One of the six had come from as far away as Mexico.

The Europeans made up slightly less than half the passenger list. The next largest group on the ship were sixty-nine Japanese—the Dwarf Pirates. The Portuguese in Macao hired Japanese in significant numbers to handle their business dealings with the Chinese. They could write Chinese characters and therefore do a better job of communicating the details of a business arrangement than the Portuguese. Their physical features also meant that Japanese were able to move more freely among Chinese than Europeans were. They even sometimes slipped into the interior, avoiding detection as Portuguese never

could. Las Cortes knew one of the Japanese, a Catholic priest named Miguel Matsuda. It was he who was miraculously saved when his clothing stopped an arquebus ball. Banished by the Japanese government to the Philippines in 1614 for converting to Christianity, Matsuda trained with Jesuit missionaries in Manila to become a priest. Now he was on his way to Macao with the plan of returning to Nagasaki on a Portuguese ship and infiltrating his way back into Japan to spread Christian teachings. It was a dangerous mission, and would end in Japan with Matsuda's capture and execution.

Next most numerous, after the Japanese and the Europeans, were the group to which Ismaël and Budo belonged: thirty-four Muslim merchants from the Portuguese colony of Goa in India, two of whom were traveling with their wives. Finally, Las Cortes mentions in passing "Indians from around Manila" (Tagals), Moors, Blacks, and Jews, without giving numbers for these people.

The extraordinary cross section of humanity on the *Guía*'s passenger list reveals who was moving through the network of trade that Portuguese shipping sustained. Had Las Cortes not taken the trouble to write an account of the shipwreck, and had his manuscript not been preserved in the British Library, we would not know of the extraordinary mix of people traveling on the *Guía*. The ship's owner and captain were Portuguese, but their passengers were a remarkably international crowd, from as far east as Mexico to as far west as the Canary Islands. Las Cortes's memoir thus reveals that the majority of people on what we would identify as a "Portuguese ship" weren't Portuguese at all, but people from literally everywhere on the globe. The *Guía* was not exceptional, for other records reveal the same thing. The last successful Portuguese trade vessel to Japan, which sailed in 1638, consisted of ninety Portuguese and a hundred and fifty "half-castes, Negroes, and colored people," to quote from another such record. European ships may have dominated the sea-lanes of the seventeenth century, but Europeans were only ever in a minority on board.

The villagers on shore were amazed by the microcosm of people from all over the globe, who gathered out of the waves. From the villagers' reactions, Las Cortes supposed that they "had never before seen foreigners or people from other nations." He guessed that "none of them had ever gone to other countries, and most had never even left their homes." The two worlds that encountered each other on the beach that February morning existed at opposite ends of the range of global experience available in the seventeenth century: at one pole, those who had lived their lives entirely within their own cultural boundaries; at the other, those who crossed those boundaries on a daily basis and mixed constantly with peoples of different origins, skin colors, languages, and habits.

As we have no record of how these villagers reacted to the sight of Europeans, we can only fill in the gap with descriptions from other contexts. This is one Chinese writer's impression of Spanish merchants visiting Macao: "They have long bodies and high noses, with cat's eyes and beaked mouths, curly hair and red whiskers. They love doing business. When making a trade they just hold up several fingers [to show the price], and even if the deal runs to thousands of ounces of silver they do not bother with a contract. In every undertaking they point to heaven as their surety, and they never renege. Their clothes are elegant and clean." This author then does his best to assimilate these Europeans to a history with which he is familiar. As these men were from what Chinese called the Great West (Europe), which lay beyond the Little West (India), they must be linked to India in some way. The writer may have picked up some snippets of Christian beliefs, for he goes on to suggest that the Spaniards must originally have been Buddhists, but that they had lost their identity and in religious matters now had access only to corrupt doctrines.

If the white men were a curiosity, black men were a shock. "Our Blacks especially intrigued them," writes Las Cortes. "They never stopped being amazed to see that when they washed themselves, they did not become whiter." (Las Cortes traveled with a black servant.

Are his own prejudices showing through?) Chinese at the time had several terms to name such people. As all foreigners could be called "ghost" (*gui*), they were simply Black Ghosts. They were also called Kunlun Slaves, using a term coined a thousand years earlier for dark-skinned foreigners from India, which was a land that lay beyond the Kunlun Mountains at the southwestern limit of China. Li Rihua, the collector from Jiaxing who recognized the glass earrings his dealer was trying to pass off as ancient Chinese wares, lived on the Yangtze Delta well to the north and had never seen a black, but he notes in his diary that they were called *luting* (a term for which the etymology is lost), and that they swam so well that fishermen used them to lure real fish into their nets. Every fishing family in south China owns one, Li was told.

The Chinese geographer Wang Shixing provides a slightly more reliable description. He pictures black men in Macao as having "bodies like lacquer. The only parts left white are their eyes." He gives them a fearsome reputation. "If a slave's master ordered him to cut his own throat, then he would do it without thinking whether he should or not. It is in their nature to be deadly with knives. If the master goes out and orders his slave to protect his door, then even if flood or fire should overwhelm him, he will not budge. Should someone give the door the merest push, the slave will kill him, regardless of whether or not theft is involved." Wang also mentions their underwater prowess, echoing Li Rihua. "They are good at diving," he writes, "and can retrieve things from the water when a rope is tied around their waists." The final thing he records about them is their high price. "It takes fifty or sixty ounces of silver to buy one," a price calculated to amaze his readers, since that sum could buy fifteen head of oxen.

Wang includes this information in his encyclopedic survey of Chinese geography to document the variety of places and people that can be found within China's borders, which includes Macao. Li Rihua includes his data for a different purpose: to illustrate his conviction

An engraving of a "black ghost," in the terminology of the time, dressed as a Portuguese servant in Macao, from Cai Ruxian's *Illustrated Account of the Eastern Foreigners* of 1586. Cai enjoyed the high post of provincial administration commissioner of Guangdong. This may be the earliest Chinese representation of an African.

that "within heaven and earth strange things appear from time to time; that the number of things in creation is not fixed from the start." Li grasped that he lived in a time when traditional categories of knowledge did not exhaust everything that existed in the world and new categories might be needed to make sense of the novelties coming into the ken of seventeenth-century Chinese. Unfortunately, even comically, much of this knowledge was hearsay. Li's description of Dutchmen—"they have red hair and black faces, and the soles of their feet are over two feet long"—presents an omnibus stereotype

of a foreigner rather than information that could be called useful knowledge.

THE FIRST DAYS OF CAPTIVITY were grueling. The military officer was in no mood to be lenient. He was also unwilling to keep them in his own custody any longer than he had to in case his superiors found fault with his procedures, so he marched them off to Jinghai Garrison, one of a series of walled military posts along this stretch of the coast. The garrison commander examined them, but having no interpreter he learned very little. He too judged that it was safer to assume the worst than to later be found to have been carelessly lenient, so he dismissed their claim that they were innocent traders and treated them as the pirates he assumed they were. He in turn sent them up the ladder of command to the officials in the Chaozhou prefectural seat, who put them, and the Jinghai commander, through several days of close questioning. Again there was no interpreter, though after several days officials in Chaozhou were able to locate a Chinese who had worked in Macao and knew enough Portuguese to do basic translation. To everyone's surprise, the man recognized one of the Macao merchants, the Portuguese-born António Viegas, who had sold him cloves several years earlier. Then an officer came forward who had worked as a cobbler in Manila and knew enough Spanish to translate for the Spaniards. (Las Cortes was surprised that he wasn't too embarrassed to admit his profession, as Spaniards regarded shoe repair as a demeaning trade and would deny having such a disreputable past if they could.) The cobbler-turned-officer was a sympathetic soul, who intervened discreetly on the foreigners' behalf to better their situation. Chaozhou officials also found a man who had worked among the Chinese merchants in Nagasaki and had married a Japanese woman, who was able to translate for the *Guía*'s Japanese passengers.

The Jinghai commander laid out his charge of piracy before his superiors in Chaozhou. He claimed that the foreigners had started the fighting, attacking the militia like pirates and resisting arrest for an entire day. They had also carried silver ashore and buried it for future

use. Being of so many different nationalities, they could not be on legitimate business but had to be a gang of desperadoes who had banded together to plunder. Two or three of them were blond, indisputable evidence that there were Red Hairs among them. Finally, no one could deny that the band included a large number of Japanese, who were absolutely forbidden to come ashore. The circumstantial evidence was that these were pirates, and that the commander had brilliantly apprehended them before they could do any damage.

The prefectural officials then wanted to hear from the survivors, particularly on the matter of the hidden silver. When asked whether any Chinese had taken any silver from him, a Portuguese priest named Luis de Ángulo stated that the militiaman who captured him had taken the fifty pesos he was carrying in his clothes. As soon as this came out and was translated, all the Jinghai soldiers present threw themselves on their knees and violently protested that none of them had done any such thing, as stealing a captive's property in the line of duty was a serious offense. At this point, all the interpreters asked to withdraw. They knew what the Jinghai soldiers would do to them if any more of the truth were to come out. It was enough to make the officials suspicious of the commander's story, and as other stories of theft surfaced in subsequent questioning, their suspicions grew. Now the investigation was turned in the other direction, and it was the Jinghai commander who was under scrutiny.

In any matter concerning foreigners, no final judgment could be reached at the prefectural level. The case had to be referred to the provincial authorities in Canton before any decision was made about releasing Las Cortes and the others to Macao. The process would end up taking a year.

ANXIETY ABOUT SEABORNE FOREIGNERS WAS not restricted to fishermen or officials charged with protecting that coast against smugglers and pirates. Lu Zhaolong, a native of Xiangshan, the county in which Macao was located, was a highly educated member of the Cantonese gentry who rose through the ranks of the bureaucracy during the

1620s to a secretarial posting in the central government. There is no reason to suppose that the story of the wreck of the *Guía* reached him, though this being an international incident, a report would have had to be sent to the court. Regardless, Lu kept abreast of what was going on in his home county, if only to keep an eye on the interests of his family and friends.

The presence of so many foreigners along the coast troubled Lu. So too did the far greater number of Chinese who were more than content to truck and barter with these pirates, especially with the Red Hairs. The Chinese in fact knew little about these people. The first account of a country called "Helan" (Holland) to appear in the Veritable Records, the daily court diary, appears in an entry from the summer of 1623. Although the report concedes that "their intention does not go beyond desiring Chinese commodities," court officials were anxiously aware of the Red Hairs as yet another uncontrollable presence along the coast. Some, such as Lu Zhaolong, wanted all the foreigners gone, not just the Red Hairs.

In June 1630, five years after the wreck of the *Guía*, Lu Zhaolong sent up the first of a series of four memorials, or policy recommendations, to Emperor Chongzhen. At this time the court was embroiled in a foreign policy controversy over where the real danger lay: south or north. Who was the greater threat to the regime: the European and Japanese traders on the south coast, or the Mongolian and Tungusic warriors on the northern border? This was a recurring conundrum for Chinese policy makers, and the answer determined the direction in which military resources should flow. Recent developments on both borders were forcing the question. The northern foreigners, who would soon adopt the ethnic name of Manchu, had taken most of the land beyond the Great Wall and were even now raiding across it at will. The Red Hairs, Macanese Foreigners, and Dwarf Pirates were disturbing the southeast coast. There was no Great Wall of China along the shore, behind which the military forces of the Ming dynasty could hunker down and hold a defensive position. There was only the open coast. Much of that coast was inhospitable to large ships, yet

there were island anchorages enough where ships from the Great Western Ocean could make deals with Chinese merchants and thumb their noses at foreign trade regulations.

Lu Zhaolong was sure that the greater threat to China lay in the south rather than in the north. As a supervising censor assigned to oversee the operations of the Ministry of Rites, the arm of the Ming government charged with handling relations with foreigners, he was in a position to know what was going on there. And this ministry, over the 1620s, had regularly shown itself willing to find accommodation with the Portuguese in Macao and their Jesuit missionaries. Lu was alarmed. In the first of his four memorials to Emperor Chongzhen, Lu warned him against having anything to do with the foreigners in Macao.

"Your official was born and grew up in Xiangshan county and knows the real intentions of the Macanese Foreigners," Lu told his emperor. "By nature they are aggressive and violent, and their minds are inscrutable." He recalls that the first contacts were limited to trading in the lee of offshore islands, then notes that the Portuguese were able to get a toehold at Macao. "Initially they only put up tents and camped there, but over time they constructed buildings and walled Green Island, and after that they erected gun towers and stout ramparts so that they could defend themselves inside." With them came a motley collection of foreigners. As far as Lu was concerned, this was proof that the Portuguese were utterly indifferent to China's strict laws about who was allowed to enter China, on what terms, and how they should conduct themselves when they did. In particular, by allowing Japanese onto Chinese soil without first obtaining Chinese permission, the Portuguese demonstrated their utter indifference to Chinese laws.

"There are times when they embark on their foreign ships and force their way into the interior," Lu reminded the emperor. "To sustain their immoral intentions, they resist government troops, pillage our people, kidnap our children, and buy up saltpetre, lead, and iron," all of which were proscribed for export as military materiel. Even worse was the behavior this provoked among ordinary Chinese.

"Criminal types from Fujian Province go in large numbers to feed on Macao. Those who are induced to make a living there cannot be fewer than twenty or thirty thousand. The bandits of Guangdong Province rely on them to cause trouble, in numbers beyond counting." The key issue was not culture but criminality, especially on the Chinese side.

Two years before Lu Zhaolong addressed his emperor on this matter, the newly enthroned emperor had sided with the faction that feared the Manchus more than the Europeans, and had agreed to invite a team of Portuguese gunners to travel from Macao to Beijing to improve artillery defenses on China's northern border. But the other faction had been strong enough to stall the delegation in Nanjing. Even if a northern invasion was imminent, they argued, was hiring foreign mercenaries the solution to strengthening the underdefended border? Had Chinese not originally invented cannon? Why were Chinese munitions not adequate to the purpose? (Las Cortes in his memoir is scathing about the quality of Chinese firearms.) "How could it be that only after foreigners teach us are we able to display our military might?" Lu later asked. More to the point, did danger on one border justify exposing China to danger on another?

Many officials at court supported the idea of taking advantage of European ballistics to help China defend its borders. The most spectacular evidence of the superiority of European gunnery occurred in Macao in 1622. In June of that year, a fleet of VOC ships descended on Macao in the hope of grabbing this lucrative trading station from the hands of the Portuguese and taking over the China trade. The assault might well have succeeded, had the Jesuit mathematician Giacomo Rho not been doing the geometry calculations for one of the gunners defending the town. The gunner Rho was working with managed to score a direct hit on the cache of gunpowder kegs that the Dutch attackers had brought ashore with them. Perhaps Rho's shot had as much luck as aim in it, but that didn't matter. Rho was honored ever after for his mathematical prowess for saving Portuguese Macao from the Dutch.

Some Chinese officials took from this victory the complacent lesson that foreigners fought each other and China had only to manipulate them against each other, in this case by allowing the Portuguese to trade but barring the Dutch from doing so. "We don't spend a penny," declared Governor General Dai Zhuo in Canton, "and yet by employing the strategy of using foreigners to attack foreigners, our power extends even beyond the seas."

Lu Zhaolong did not agree that China should look to foreigners for a solution. Employing Portuguese gunners signified weakness, not strength. Others at court took a more aggressive view. For them, Rho's victory proved that China had to acquire better technology to defend itself. The Chongzhen emperor thought so too, and had already sent an edict giving the go-ahead to the Portuguese artillery team even before Lu sent in his first memorial.[2]

Gonçalo Teixeira Correa led the delegation of four gunners, two interpreters, plus two dozen Indian and African servants. One of the translators was Chinese, and the other was the senior Jesuit priest João Rodrigues, who had for years headed the mission to Japan. Rodrigues was already known to Chinese officials in the south, and not trusted. In Canton, Judge Yan Junyan, a friend of Lu Zhaolong, regarded Rodrigues as a meddler in China's internal affairs. He suspected that the old Jesuit was more than just an interpreter, but he had to respect orders from Beijing and allow him to pass through Canton.

Despite the imperial authorization that the delegation should approach Beijing, officials who shared Lu Zhaolong's opinion put up resistance at every turn. The team got stalled at Nanjing, just as the previous delegation had. Officials would not permit them to proceed farther without explicit confirmation from the emperor that they should do so. Rodrigues claimed in a report home that they were waiting for a favorable wind to carry them up the Grand Canal, but he was trying to save face all round. At long last, on 14 February 1630, the imperial edict arrived: proceed to the capital with all haste. Manchu raiding parties had been spotted moving in the vicinity of the capital. The services of the foreigners were needed.

Sixty-five kilometers south of the capital, a band of Manchu raiders crossed the Portuguese gunners' path. It was a chance encounter, but a piece of incredible good luck for the faction that advocated the use of European technology. The gunners retreated to the city of Zhuozhou nearby and mounted eight of their cannon on the city wall. The cannon fire did no real damage, but the effect was enough to persuade the Manchus to depart. No real battle ensued, and no real victory was earned. Still, it was all the supporters of the expedition at court needed to sweep aside the objections of opponents such as Lu Zhaolong.

Once Teixeira and Rodrigues were in the capital, they realized that their party was too small to make much difference in a full campaign against the Manchus. Four gunners stood little chance of turning the military tide against the Manchus, who were superbly commanded and had rapid deployment capacity, to say nothing of capable Chinese gunners working on their side. The Portuguese decided to capitalize on the sudden boost to their reputation by proposing that another three hundred mounted soldiers be recruited from Macao. Perhaps, and this seems very likely, they were put up to it by the vice-minister of war. The vice-minister was Xu Guangqi, who happened to be the very official who spearheaded the first request for military support back in 1620. He wrote to the throne on 2 March 1630 explaining that European cannon were cast more adeptly and from better metal than Chinese cannon. They used more volatile gunpowder, and better sighting gave them greater accuracy. After much deliberation, the emperor asked the ministry of rites to submit a concrete proposal concerning these arrangements. In the intervening time, the vice-minister of war was transferred to the post of vice-minister of rites. From that position, Xu submitted a formal proposal to the emperor on 5 June to send Rodrigues back to Macao to place an order for more cannon, recruit more gunners, and bring the lot up to Beijing to stiffen the Ming border forces. The same month, no less a figure than Giacomo Rho, the Jesuit mathematician who saved Macao, arrived in the capital at the invitation of the same vice-minister.

The Jesuits knew Xu Guangqi better by his baptismal name. Xu

Guangqi was Paolo Xu, the highest-ranking court official ever to convert to Christianity. Like Lu Zhaolong, Paolo Xu was from a coastal family, but from much farther up the coast—Shanghai, where seaborne threats came from Japan rather than Europe. The peace of Shanghai had not been disturbed by either Macanese Foreigners or Red Hairs. It was too far north of the coastal zone in which they traded. Still, through a series of encounters orchestrated by chance—yet spurred by Xu's powerful curiosity—this Shanghai native came to know many Europeans in the course of his life. The Europeans he knew, however, were neither Macanese merchants nor Dutch pirates. They were Jesuit missionaries from all over Europe, and they brought with them knowledge that Xu recognized could have enormous value for China.

Jesuits had been entering China from Macao for less than a decade when Xu, struggling to make his way up the examination ladder, met one of them in a southern provincial town in 1595. He had a second encounter five years later with Matteo Ricci, the brilliant Italian Jesuit who led the Jesuit mission in China until his death in 1610. In the course of his third encounter in 1603, Xu received baptism and took the Christian name of Paolo. Xu became a close associate of the Jesuits, particularly of the scholarly Ricci, with whom he collaborated on a range of religious and scholarly projects designed to show the value of the new knowledge that the missionaries brought from Europe. Few Chinese converted to Christianity; their traditions of ritual and belief taught them to be dubious about adopting a faith that required them to renounce prior rites and beliefs. Xu was not troubled by the commitment this new religious knowledge demanded. He figured that Christianity was just as much a part of the larger European system of knowledge as metallurgy, ballistics, hydraulics, and geometry, and these were the subjects he was eager to learn and adapt to China's use. He saw no reason to accept some branches of what came to be called Western Learning and reject others.

Lu Zhaolong regarded Paolo Xu, correctly enough, as his chief adversary in the debate over the use of European technology in China.

The only way to bring the emperor around to his view was to erode Xu's considerable authority. The minor Portuguese victory at Zhuozhou made his task that much harder. He had to proceed carefully. Lu's main argument was national security. "Inviting the distant foreigners will not only pose a risk to the interior, but it will give them a chance to detect our weaknesses and become familiar with our conditions, and so laugh at our Heavenly dynasty for lacking defenders." The only way China could keep foreigners in proper awe of China was to hold them at a distance. The sight of three hundred mercenaries—"people of a different sort, galloping their horses, brandishing their swords, and letting arrows fly from their bows inside the imperial capital"—was too disturbing to allow. Putting China's sovereignty in their hands was a crazy gamble. Besides, the cost of transporting and feeding such a horde was too high. For the same price, the government could afford to cast hundreds of cannon.

In the end, Lu Zhaolong rested his appeal on ad hominem attacks on Paolo Xu by targeting the point where Xu was most vulnerable, his Christianity. "The Macanese Foreigners all practice the teachings of the Lord of Heaven," he complained in the final section of his first communication with the emperor on this matter. "Its doctrines are so abstruse that they easily delude the age and confuse the people," and he gave instances of Christian cults that had appeared in several places in China. The charge went beyond concerns about how badly three hundred Portuguese soldiers might act. There lay a much deeper anxiety about foreigners infecting the core beliefs of Chinese culture. Lu even quietly suggested that a foreign religion might sway Chinese minds against the dynasty's authority. Millenarian Buddhist sects had recently been active in the capital region, on one occasion inciting an uprising inside the city. Might not secret Christian congregations get up to the same thing? Even worse, Chinese Christians would have secret connections to the foreigners, which meant secret connections to Macao, and who knew what such connections might bring? "I know nothing about there being such a thing in the world as the teachings of the Lord of Heaven," Lu declared, wanting to know why the em-

peror would listen to someone such as Xu who preferred them over the writings of Confucius. "How is it that he is so resourceful and keen in doing everything he can to guarantee the preservation of the Macanese Foreigners and plan for their long-term prospects?"

Xu's Christianity was not his only weak spot. His tie with Macao was another. Anxiety about what the foreigners got up to in Macao runs *like* a red thread through *all* Chinese complaints about Europeans in this period. This was the anxiety that lay behind the persecution of Christianity in Nanjing in 1616, when a very different vice-minister of rites, Shen Que, expelled two missionaries. Alfonso Vagnone and Álvaro Semedo were transported back to Macao in—to quote an English rendering of Semedo's later account—"very narrow cages of wood (such as are used in that Country to transport persons condemned to death, from one place to another) with Iron Chaines about their necks, and Manacles on their Wrists, with their haire hanging down long, and their Gownes accoutred in an odde fashion, as a signe of a strange and Barbarous people." Says Semedo, writing about himself and Vagnone in the third person, "In this manner were the fathers carried with an inexpressible noise, which the Ministers made with their ratling of Fetters and Chaines. Before them were carried three tablets, written on with great letters, declaring the Kings Sentence, and forbidding all men to have any commerce or conversation with them. In this equipage they went out of Nankim." For thirty days they were transported in these cages southward to Canton and from there dispatched to Macao with severe warnings to return to Europe and never come back.

Paolo Xu had been the lone voice defending these two Jesuits back in 1616, though even then he had warned another missionary that the Jesuits should take care to hide their contacts with Macao. "All of China is scared of the Portuguese," he stressed, and Macao was the place on which they focused their anxieties. Hostile officials regarded it not as an innocent trading post, but as a base from which the Portuguese were running a network of agents inside China to foment religious disturbances, smuggling, and espionage. The missionaries

were seen as its spies. This is why Shen Que charged Semedo and Vagnone with being "the cat's paw of the Franks." A report from the Nanjing Ministry of Rites concurred. Macao was the base from and to which the Jesuits traveled, the port that provided them with passage anywhere in the world, and the funnel through which the ministry understood Vagnone received the 600 ounces of silver annually to distribute among the missions in China (the ministry later revised that number down to 120 ounces). Macao was not just a base for foreign trade, notes a report by the Nanjing Censorate three months later, but the base for Portuguese infringements on Chinese sovereignty: "their religion makes Macao its nest." The Jesuits eventually grasped the liability of their relationship with Macao, though they could never do without the colony. It was essential to their entire operation in China, and to give it up was to forego the organizational and financial support that kept the mission going.

Paolo Xu insisted on drawing a distinction between the Red Hairs and the Macanese Foreigners, exactly as his Jesuit friends would have instructed him to do. The Macanese Foreigners supported their mission and provided them with the base from which it was possible to send missionaries into China. If the Dutch took Macao from the Portuguese, the Jesuit mission in China would come to an end. Their friends and enemies had to be Paolo Xu's friends and enemies. Lu Zhaolong was not persuaded that any foreigners could be trusted, Portuguese or Dutch. "Rites official Xu has collected arguments he has heard and turned them into a memorial that chatters on for hundreds of words," Lu complained, "the gist of which is to argue that the Red Hairs and the Macanese Foreigners be distinguished, the one as obedient and the others as refractory." Xu needed to make this distinction in order to protect his connections with the Jesuits against the charge that there was no difference between Portuguese priests and Dutch pirates. Lu would have none of it.

The Jesuits well understood how vital their connection to Macao was to the success of their mission. In 1633, a year after João Rodrigues returned to Macao from his stint with the gunners, he sent a

letter to the head of his Society in Europe.[3] In the letter he underlines the need to protect the colony and its reputation, "for on this depends the trade so vital for His Majesty's Two Indies [the East Indies and the West Indies—the latter meaning the Portuguese possessions in what is now Brazil] and also the mission to convert China, Japan, Cochinchina, Tonkin, and other countries to our holy religion." Macao was the financial and strategic heart of the Jesuit enterprise in the East. Rodrigues's language uncannily echoes the language of a statement issued by the Nanjing Ministry of Rites. "This city of Macao is the narrow entrance through which subjects and all the necessary supplies for Masses and temporal upkeep enter these countries." Had Rodrigues's letter fallen into Lu Zhaolong's hands, it would have bolstered his suspicions about Macao being a beachhead of foreign penetration into China. So too, had he learned that both the priests transported out of China in a cage in 1617 were back inside in the 1630s, defying Chinese laws and converting people to their suspect creed, his worst fears about Macao's threat to the authority of the dynasty would have been confirmed.

Macao's position as the financial clearinghouse for the Jesuit mission into China was the very reason why Las Cortes, the Jesuit chronicler of the wreck of the *Guía*, was on his way from Manila to Macao when the ship went down. In his memoir, he says only that he had business to transact in Macao and reveals nothing further. When he finally got to Macao, he transacted it with none other than João Rodrigues. What their business involved, Las Cortes does not say, but within two months he was on the next ship back to Manila.

On his return voyage, Las Cortes had the misfortune once again to sail through a storm. In a convoy of five ships that crossed the South China Sea together, only four reached Manila. In his memoir, Las Cortes expresses great concern for the loss of that ship's cargo, which he notes included Chinese silks purchased in Macao for three hundred thousand pesos. Sumptuous brocades and feather-light gauzes in a dazzling array of colors, these fabrics were of a sort that no European could weave or buy anywhere else, but Las Cortes was not interested

in the beauty of the silks. He was interested in what they were worth. "If one took account of what it would have fetched once it was sold in Manila," he writes of the lost cargo, "one would without doubt have to add two hundred thousand pesos, which drives the loss up to half a million pesos." Being the last substantive entry in his account of his yearlong adventure in China, the calculation draws attention to itself. The lost cargo may reveal Las Cortes's own purpose in going to Macao: to buy Chinese silks that the Jesuits could then sell for a profit in Manila, generating proceeds that would fund their mission in the Philippines. Perhaps this also tells us that he was bringing a load of silver to buy such silks when he crossed to Macao on the *Guía*. If the missing silk was Jesuit property, Las Cortes's mission to Macao was a severe loss in both directions.

THE CONSEQUENCES OF SAILING OFF course and getting stranded on the China coast were just as huge for the people on board the *Guía* as for the owners of the cargo in the hold. An entire year passed before passengers and crew received a final judgment at Canton. The deliberation was handled by the provincial surveillance commissioner, whose position combined the responsibilities of chief prosecutor and provincial governor. Las Cortes does not record the commissioner's name, but it was probably Pan Runmin.

Pan Runmin had just stepped into the post of surveillance commissioner in 1625. Within a few months he would leave for a promotion elsewhere, but he was likely still in Canton when the case of the *Guía* came up. Little is known of Pan, other than that he was from Guizhou Province, deep in China's southwest interior, a tribal region where few ever got the education needed to become an official and the only foreigners were the tribespeople living in the mountains. Las Cortes may have been the first European Pan ever dealt with. The Jesuit sensed that Pan was intrigued by the foreigners and observant of details. Indeed, he seemed more interested in learning about the foreigners than in prosecuting the case.

Pan began his examination by scrutinizing the shipwrecked, even

to the point of examining the soles of the barefooted to check whether they had been force marched. It was soon abundantly clear to him that the foreigners had suffered at the hands of his officers. He called the commander from Jinghai and put him through questioning. The commander stuck to the story he had told in Chaozhou: these were Red Hairs and Dwarf Pirates, not the innocent merchants from Manila and Macao they claimed to be, and his men had apprehended them accordingly. Some may have suffered injuries, but their injuries occurred on the day they were shipwrecked, before they came into his custody. He was not responsible for their condition. The commander urged the commissioner to focus on the main issue, which was that the shipwrecked were foreigners, including Japanese, who had entered the country illegally.

According to Las Cortes's account of their day in court, Commissioner Pan wanted to know whether any cargo came ashore with the foreigners. If so, that property would be treated as contraband, and any Chinese who handled such goods would be guilty of smuggling. (As Lu Zhaolong's friend, Judge Yan noted in a case involving illegal trade between Cantonese soldiers and Dutch traders, "Those on board [foreign ships] are not permitted to bring goods ashore and those on shore are not permitted to go on the boats and receive goods.") The Jinghai commander insisted that the survivors came ashore with nothing but what they were wearing. The *Guía* carried no silver, he insisted, and no one under his charge had taken a thing from the foreigners. Pan had enough judicial experience to know this was probably nonsense, but he lacked evidence to the contrary and had to give up trying to extract the truth from his subordinates.

Commissioner Pan then turned to Las Cortes. He posed a series of carefully phrased questions designed to pry out the truth. Trusting Las Cortes over his own officers, Pan soon determined that these people had indeed been maltreated, that the ship was carrying a cargo of silver, that its owners had been prevented from recovering it, and that some of it had been salvaged later. Pan expected as much, but knowing that the commander would not present any evidence that silver had been taken,

he could do nothing. He then turned to the decapitations, the evidence for which—the severed heads of Ganpti and the others—was sitting in a row of baskets in the courtroom.

"Did you see anyone from Jinghai kill the people whose heads have been presented before this court?"

"In truth," declared Las Cortes, "we saw them decapitate seven of our people, but cannot say whether they cut off their heads while they were still living or after they had already died, whether from drowning or exposure or the injuries they suffered during the shipwreck."

Commissioner Pan was trying to get at the issue of whether any of the foreigners had died at Chinese hands, but Las Cortes chose to prevaricate. He suspected that nothing would be achieved by filing accusations of murder—other than delaying their departure. Pan seems to have understood Las Cortes's testimony for what it was: an agreement to compromise in order to close the case and allow everyone to go home. Having only the mute evidence of the heads, he dismissed the charge of murder with the platitude, "The dead cannot be brought back to life by us."

The problem of the missing silver had to be handled in the same way. Foreign ships were known to carry as much as ten thousand ounces (taels) of silver, as Judge Yan notes in another case, yet not a single ounce was reported lost or gained by either side. Pan had to dismiss the matter. "As for the silver the ship was carrying," he declares in his final judgment, "let it be deemed lost at sea, as nothing about its recovery can be determined." Pan also declined to order compensation be paid for the foreigners' losses, adding the observation that "it does not seem likely that so small a number of Europeans could have been in possession of any great quantity of silver." The observation assumed that the silver used in trade was in the possession of individuals, not of corporations. This was either an odd prevarication, an excuse for doing nothing, or a sign of Pan's lack of knowledge regarding foreign commerce.

Was Commissioner Pan duped? I think not. From Las Cortes's

account, he seemed to know exactly what was going on, and even more clearly to understand the limits of his powers to prosecute when no evidence had been brought forward from a crime scene three hundred and fifty kilometers away. He had to close the proceedings with the finding that the shipwrecked had arrived in China by misadventure, not by intention, that they were not engaged in piracy, and that they should be allowed to return to Macao. All charges were dismissed.

VERMEER'S CALM GEOGRAPHER IS A world away, physically and intellectually, from the arguments in Pan's courtroom. He is not a coastal villager threatened by pirates; nor need he fear the ocean, as his compatriots controlled it anyway; nor does he have an interest in the profits VOC merchants are making by traveling overseas. What interests him is the information they are bringing back: information he will collect, analyze, and synthesize into sea charts and maps, which the merchants can then take back into the wider world that is now better understood. And if that useful knowledge fails, then new knowledge will be collected and incorporated. The geographer's task in the seventeenth century was to engage actively in this endless loop of feedback and correction. This is exactly what Hondius had requested in the cartouche on the curve of the globe we see over the geographer's head. Would those embarking on the "very frequent expeditions" going "every day to all parts of the world" please report their positions back to him, so that he can produce a new edition that will improve upon the one that stands before them?

Through this sort of feedback mechanism (which involved a lot of heavy borrowing if not outright plagiarism from the work of others), European cartographers were constantly revising their maps during the seventeenth century. New knowledge replaced old, and then was replaced in turn by newer, and hopefully better, information. The process was not always perfect: many maps of North America showed a transcontinental channel well after the time when there was any hope that one would be found. Still, the cumulative effect was correction

and elaboration, so that gradually the map of the world was filled in.

A few blank spaces tenaciously resisted this knowledge-gathering process—the African interior, the middle of the Pacific Ocean, the northern end of North America, the two poles—and explorers duly rose to the challenge of filling them in, often simply for the sake of doing it and not because anyone needed this knowledge. What merchants needed was precise information about the routes on which their ships traveled so as to lower the chance of shipwreck and increase the speed at which ships could go and return—and thereby increase the rate at which their capital turned over. This is not the story that Vermeer's *Geographer* tells, however. Leeuwenhoek poses as a man of science, not a man of business. Yet without scholars like him who devoted their energies to the accumulation of useful knowledge, the merchants would not have had their maps. The two impulses—knowledge and acquisition—worked together.

Chinese geographers were in a different situation. There was no feedback mechanism in operation and little impetus to alter what was already laid down. Even if knowledge of regions beyond their borders could have been acquired from coastal mariners, Chinese scholars tended not to take a great interest in it. An exception was the geographer Zhang Xie, who made a point of talking to mariners who had sailed into the waters of Southeast Asia when compiling his *Investigations of the Eastern and Western Oceans*. As he states in his introductory notes, "all the places recorded in this book are places merchant ships have gone." Zhang was scathing toward authors who write history by simply repeating ancient facts and dismissing recent developments. Such people perpetuate ignorance rather than produce knowledge. His goal was instead to record information on recent developments, including the Red Foreigners, because of the effect they were currently having on maritime commerce.

The book had no appreciable impact among those who actually traveled, however; but nor, to be fair, would any of Zhang's readers have thought it should. The material in the book, as the invited contributor of a preface writes, "was selected to provide material for historians of

another day," not for mariners and merchants in Zhang's day, the very folk from whom Zhang gathered his materials. His book was not for this readership, but for other curious scholars such as himself who had no expectation of ever going abroad and simply wanted to know more about the lands beyond their shores. Zhang Xie knew that Chinese should now expect ships like the *Guía* to show up at China's edges, but it was not an idea that more traditionally minded readers would have known how to deal with.

Matteo Ricci, Paolo Xu's Jesuit collaborator and the senior missionary in China until his death in 1610, eagerly shared European knowledge of the natural world, as he assumed this would impress the Chinese and help him prove the truth of Christianity. What clearer form had he to present new geographical knowledge than maps? European world maps by this time came in several forms, and Ricci copied and revised examples of them, adding place names and explanations in Chinese in the hope of engaging the intellectual attention of the scholars he met. Chinese viewers in the late Ming liked maps. Commercial wall maps were not as popular as they were in Holland, but they existed and were hung. Seeing these European maps, Chinese viewers were unsure of what to do with the information they provided, for the simple reason that most lacked an experiential basis from which to interact with Ricci's images.

Paolo Xu delighted in Ricci's maps, as he was persuaded by the theory of a round earth and believed that maps could communicate this idea more forcefully than a written explanation. Ricci's European world maps were taken up by other scholars as well, for they made it into the two great encyclopedias of the era, the *Compendium of Pictures and Writings* and the *Assembled Pictures of the Three Realms* (the three realms being heaven, earth, and humanity). The compiler of the first was delighted to note that these new maps meant "you don't have to leave your house and yet you can have complete knowledge of the world." Yet the step from inside the house to outside the house did not happen. The publication of these maps in popular encyclopedias could have started a feedback loop, inspiring Chinese readers to

go out, maps in hand, to test this knowledge. But it didn't. These maps were not subsequently refined and developed for other publications, as they were in Europe, nor did they dislodge the traditional cosmology. The problem was simply that almost no Chinese mariners had the opportunity to test and develop this knowledge. No Chinese merchant was circumnavigating the earth and finding it round. The only people bringing this information from the wider world were foreigners, who were not always to be trusted. Nor, accordingly, was there anyone like Vermeer's geographer who wanted, or was able, to incorporate endless data from the outside world, constantly revising the body of useful knowledge that someone actually needed.

For Europeans, the outside world was entering their lives in the forms of ideas and objects, some of which we see in the room Vermeer has painted. For most Chinese, the outside world remained outside. It may have infiltrated the mind of Paolo Xu; even Commissioner Pan sensed there was something to learn from the people whom the outside world had thrown into his custody. But if the Jinghai commander and Lu Zhaolong had their say, and they did, outside was where this world should stay.