linking Southeast Asia to the outside world led to India. But starting around 1000, the entire region reoriented so that it could supply China, the subject of the next chapter.

CHAPTER EIGHT The Most Globalized Place on Earth

The Chinese had more extensive trade ties to foreign countries than any other people in the world in 1000. China exported high-end ceramics and other manufactured items halfway across the globe to its customers in the Middle East, Africa, India, and Southeast Asia, and suppliers in those coun-

tries supplied goods for Chinese consumers. China's international contacts were so extensive that they affected people at all social levels—not just the residents of Chinese port cities but also those living deep in the hinterland. The Chinese weren't experiencing a preparatory phase for globalization. They lived in a globalized world, pure and simple. And that world reached maturity during the three hundred years of the Song dynasty (960–1276).

Some of the goods the Chinese purchased in large quantities are familiar. Pearls and cat's eye gemstones served as jewelry or decorations for clothing. Craftsmen transformed ivory tusks and rhinoceros horns into beautiful objects for display in homes. Coconut and jackfruit were tropical fruits that couldn't be grown in China, and along with black pepper, cloves, nutmeg, and cardamom, they added flavor to cooked dishes. The one manufactured good that the Chinese imported in large quantities was woven rattan mats from the southern tip of Malaysia, near modern Singapore.

The most common import from Southeast Asia was aloeswood. Aloeswood was harvested from the Aquilaria tree that grew all along the coast of mainland Southeast Asia and on the islands of Indonesia. When invaded by a certain mold, the tree produces a fragrant resin, and wood from affected trees also gives off a pleasant odor. The Chinese placed chips of aloeswood in metal holders; when lit, they burned slowly, imparting a fragrance to the air. Many recipes for perfume began with a large quantity of aloeswood because it blended so well with other fragrances.

In the period before the consumption of aromatics exploded, their use was limited to the top echelons of society. We obtain a glimpse of this elite consumption in *The Tale of Genji*, a novel written around the year 1000 by Lady Murasaki, a court woman who lived in Kyoto, then the capital of Japan.

Born to a low-ranking aristocratic family, probably in the early 970s, Lady Murasaki was married in her mid-twenties, at a slightly late age, as a secondary wife to a much older man. After she gave birth to one daughter, her husband died, widowing her in her early thirties, and she lived for another decade or so. Like Shakespeare, Lady Murasaki was a much better writer than anything in her biography would suggest she should have been. *The Tale of Genji* isn't the world's first novel—certain writings in Greek and Latin lay claim to that title—but we can call it the world's earliest psychological novel because the author describes the feelings of multiple characters in such exquisite detail.

The Tale of Genji depicts a hermetically sealed world of courtiers living in

and around the Kyoto Imperial Palace in a space of just 10 square miles (26 sq km). Lady Murasaki set her novel in the early 900s, about a century before she was writing. Her *Tale* recounts the friendships, amorous adventures, and eventual death of Genji, the son of an emperor who has removed him from the line of succession so that Genji can never become the monarch.

Most relevant to our story, the lead characters in the novel—the imperial family, the regent's family, and high-ranking aristocrats—devoted considerable attention to aromatics, making their own blends, which they used to impart unusual fragrances to their clothing and to scent the air. These aromatics originated in the Islamic world and Southeast Asia and were transshipped via Song dynasty China to the port of Fukuoka (then called Hakata), Japan's gateway to the outside world.

In this rarefied world, the mark of a gentleman was his own distinctive scent. Genji's friends—and his many lovers—knew him by his odor, which was so powerful that it lingered long after he left the room. Making perfume wasn't a task for servants: Genji spent hours grinding spices and different woods together until he obtained the perfect combination.

The women also perfumed their clothing. They remained inside their houses and gardens almost all the time, except for rare outings to temple fairs. As in Japan today, even the rich lived in simple houses with no tables or chairs. Everyone sat and slept on tatami mats.

At one point, when Genji was planning a lavish birthday party for his daughter, the Akashi Princess, he decided to hold a contest for the best fragrance. After gathering multiple boxes and jars to serve as suitably elegant containers, he began to work on his own blends. Judging some samples of fragrant wood newly arrived from China to be slightly inferior, he combined them with older, higher-quality aromatics. (One of the novel's recurring themes is the longing for the past.) His recipe mixed cloves with aloeswood because aloeswood made the perfect base for a blend. Once the mixture was ready, he buried a batch near a stream to intensify the fragrance.

Most of the birthday party guests submitted perfumes linked to a specific season: a fragrance smelling of plum blossoms evoked spring, while Genji's blend was autumnal. Each person's individual scent, the product of their own odor and whatever blend they used to steam their clothing, would have varied with the season. One court woman opted instead to make a blend so strong that it could be detected from a hundred paces away. When the time came to judge, Genji's half-brother Sochinomiya didn't choose a winner but

praised the different blends, conveying a deep connoisseurship of the multiple scents that these palace dwellers encountered daily.

Lady Murasaki's novel provides an unusual level of detail about the place of aromatics in the lives of the Japanese imperial family, and the Chinese emperor and aristocrats at court would also have recognized each other by their personal scent. Because many of the fragrance-bearing substances were wood or resins, the Chinese and the Japanese did not use liquid perfume or lotion that often. They preferred to use the wood or resin in its natural state, often burning mixtures of them to impart fragrance to the air. They steamed their clothing in the smoke of different woods, attached sachet bags containing fragrance to their clothing, and bathed in scented water. They also filled their houses with furniture and storage containers made from fragrant woods.

Aromatics enjoyed great popularity because the Chinese devoted enormous energy to changing the way that things smelled and tasted. People didn't bathe often, and it was difficult to clean silk clothing. The poor had so few clothes, usually made of ramie, hemp, and other bast fibers, that washing them wasn't practical.

Aromatics were much more important in the world of 1000 than they are nowadays, when the primary use of scented candles and incense is to perfume the air. Not many of us do that very often (the primary consumers of incense sticks today are temple goers in East Asia). In the year 1000 the superwealthy —the imperial families of Japan and China—consumed huge quantities of aromatics. And by far the largest market for them was in China.

The Chinese language had a single catchall term for "aromatics"(*xiang*), which included fragrant tree gums, scented woods and tree resins, and perfume preservatives such as musk and ambergris. Some had only one function: musk, the dried gland of Tibetan musk deer, and ambergris, a grayish substance contained in whale intestines, intensified fragrances and made them last longer. Similarly, frankincense and myrrh, both tree resins from the Arabian Peninsula, gave off a strong fragrance when burned. Others were more versatile: sandalwood, from India or Java, could be used to make furniture or boxes, to alter a perfume's scent, and to flavor food and medicine.

China's extensive trade with the Indian Ocean region began well before the year 1000. The first goods the Chinese imported in the first and second centuries AD were largely decorative items such as Sri Lankan pearls, elephant ivory, and colorful bird feathers like those from the bright blue kingfisher. Only the emperor and his wealthiest courtiers could afford those. The

demand for fragrant woods, tree resins, and incense arose after 500, signaling a shift from court-centered demand for rare commodities to a broader consumer base.

China had many thriving port cities, but its main hub of trade was Guangzhou, sometimes called Canton, which lies just north of Hong Kong on China's southeast coast. Ships set off from Guangzhou moving southward along the coast of Vietnam and through the Malacca Strait. They traveled west from there, reaching India's west coast, and proceeded to the Arabian Peninsula. Once they passed Oman, they unloaded their cargo at the Persian Gulf ports of Siraf, in modern Iran, or Basra, in modern Iraq. The Persian Gulf–China maritime route, with the additional leg to East Africa, had taken shape by the 700s and 800s. At this time most of the ships moving along this route originated in the Arabian Peninsula, India, or Southeast Asia (ships of Chinese design assumed a major role after 1000).

Merchant ships carried Chinese ceramics to East Africa, and, as was often true when new pathways opened up, information about northeast Africa reached China early on. Duan Chengshi, who died in 863, knew enough about the Berbera coast east of modern Djibouti to sketch the slave trade there: "The people of this country capture and sell their own countrymen to foreign merchants at prices many times higher than they would obtain at home."He added that the region also exported elephant tusks and the perfume intensifier ambergris. Some fictional tales set in the port of Guangzhou tell of dark-skinned slaves from Southeast Asia or Africa, who were skilled swimmers and credited with magical powers.

At the time that Duan was writing, the predecessor dynasty to the Song, the Tang dynasty (618–907), appointed a maritime trade superintendent to collect customs duties in Guangzhou, but the dynasty never created a state monopoly on imported goods. Tang trade policy consisted of inspecting foreign ships when they arrived; trade court officials, often eunuchs, selected what they wanted for the court (one Arab observer reports they took 30 percent of each ship's cargo) and allowed the traders to sell the remaining goods.

After the Tang dynasty ended in 907, China broke up into different regions, each with its own ruler. The trade between China and Southeast Asia paused around this time, when the attacks on Muslims by the Huang Chao rebels prompted many foreign merchants to leave Guangzhou.

Most of the ships traveling between the Islamic world, Southeast Asia, and China before 1000 were either dhows or lashed-lug vessels made in South-

east Asia. One lashed-lug vessel, which sank off the Indonesian port of Intan, offers a precious snapshot of China's trade with Southeast Asia when the trade began to revive in the early tenth century. Traveling from Belitung island to northwest Java, this Indonesian-made ship carried a large quantity of valuable metals—including gold coins, 145 Chinese lead coins (some bearing dates of 918), tin currency made in the Malay Peninsula, metal Buddhist figurines (to be melted down to make coins), tin and bronze ingots, and finally roughly 400 pounds (190 kg) of silver.

The quantity of silver from the Intan wreck was enormous, almost the entire annual production from one of China's most productive mines. Inscriptions on the silver ingots provide a crucial clue about their purpose: the tax office of a regional ruler issued them, most likely for the purchase of Southeast Asian aromatics.

A second ship sank off the coast of Java near the modern town of Cirebon sometime around 970. This lashed-lug ship measured some 100 feet (30 m) long, and it carried an astonishingly large load of 600,000 ceramics (almost all Chinese). The capacity of the Cirebon ship has been estimated at between 200 and 270 tons (225–300 metric tons). Assuming that such ships traveled between China and Indonesia multiple times a year, we can see how extensive commerce between the two regions was even before 1000.

As the trade between China and Southeast Asia recovered, Chinese boatbuilding technology began to improve, and Chinese-built sailing ships took on a more important role in the maritime trade. A key breakthrough occurred around 1000, when Chinese metallurgists learned to anneal iron wire and to make magnetic needles; floating such a needle on water created a shipboard compass that allowed Chinese mariners to find magnetic north. Other navigational instruments, such as the astrolabe, used all over the Islamic world, required clear skies, but the compass worked in all types of weather, giving Chinese navigators a huge advantage.

Chinese boatbuilders also used metal nails to attach wooden planks together, and their ships had separate compartments for passengers and for cargo. Bulkheads and watertight compartments increased buoyancy and made Chinese ships better able to survive storms. If the ship sprang a leak, it affected just one section—not the entire craft, as was the case for either dhows or lashed-lug vessels.

The famous world traveler Ibn Battuta (who observed 600 slave girls crossing the Sahara) praised the advantages of Chinese ships. On a dhow, all the

passengers gathered together on the deck, while on a Chinese ship they could occupy compartments separated by wooden walls. Ibn Battuta loved the genuine privacy they offered. At one point he insisted on shifting his possessions from a larger ship to a smaller Chinese one so that he could enjoy the company of several concubines traveling with him.

As Chinese ships assumed a more important role in maritime shipping around 960, when the Song dynasty was founded, the emperor continued to receive tribute missions from surrounding countries. The tribute system, which had been in existence for over 1,000 years, provided a framework for China's neighbors to send gifts, usually local products, to the Chinese emperors and for emperors to reciprocate with gifts, often silk textiles, in return.

Early in the dynasty, the Song dispatched officials to the countries of Southeast Asia to recruit tribute missions. Song envoys armed with fill-in-the-blank forms recorded the name of the ruler, his country, and the expected gifts. Because the ruling dynasty used the tribute system to gain prestige, in many instances, the gifts the Chinese emperor bestowed were worth more than those presented by the tributaries. This is why so many foreign merchants posed as tribute bearers when they arrived in China. Regulations required Chinese trade officials to reject impostors, but some merchants, especially those from unfamiliar places, managed to evade detection.

Song regulations from the 970s specify that envoys who brought tribute were entitled to visit the Song capital at Kaifeng so that they could present their gifts to the emperor in person. The same regulations stipulated that merchants who engaged in ordinary trade should remain in the port where they landed. During the 1030s, the tribute voyages came to a temporary halt. After that year, although it hosted the occasional tribute mission, the Song government shifted primarily to taxing foreign goods.

The scale of the maritime commerce prompted the Song dynasty to break with the fiscal practices of earlier dynasties and to tax international trade aggressively. The new tax system of the dynasty was complex but ingenious. The officials who created it, like all those who design taxes, sought the highest revenues possible.

Each port had a top trade official, called the Superintendent of Maritime Trade, who supervised all foreign merchants coming to his port and issued licenses to Chinese merchants leaving his jurisdiction to sail to foreign lands. The superintendent was responsible for collecting the new taxes and forwarding them to the imperial government in the northern city of Kaifeng.

Guangzhou was such an active trade port that in 971 the Song dynasty appointed the first superintendent to serve there. Unlike the Tang authorities, who had named only one trade superintendent, also in Guangzhou, the Song government named other superintendents in the southern ports of Hangzhou and Ningbo in the next twenty years, a sign of how important the revenues from international commerce were to the new dynasty.

The dynasty's tax officials established three new taxes. First, after a ship arrived in port, trade officials boarded the vessel so that they could estimate the overall value of the cargo. They confiscated a portion, usually between 10 and 20 percent of the cargo's value. Direct confiscation allowed officials to obtain the items the central government—effectively the emperor and his household—required.

Trade officials collected a second tax on "fine goods,"or high-value imports such as pearls, large elephant tusks, and ambergris, by buying them at an artificial rate lower than prevailing market prices. This regulation effectively granted the government a monopoly on all fine goods, and Song dynasty trade officials established markets for these goods all over the empire. Many of these goods went to wholesalers, but individuals could also make small-scale purchases.

The third tax was on "coarse goods,"or the bulk goods, often larger blocks of fragrant wood, which constituted the remainder of the cargo. Once the foreign merchants had paid the tax on the coarse goods, they were granted permission to sell them direct to Chinese purchasers, and they sometimes conducted sales at dockside.

As one might expect, the rates changed often, and merchants protested when the direct requisitions were too high or the rates paid for the fine goods too low. Sometimes the traders won: in 995, the government backed down and told trade officials to stop buying goods at artificially low prices or selling at excessively high rates. Much like today, such unfair trade practices could and did destroy international merchants'incentive to trade. At one point when the cash-strapped government raised the direct confiscation to 40 percent, far higher than the usual 10 or 20 percent rate, foreign merchants simply stopped coming to Chinese ports.

The war with the Liao dynasty in 1004 ended with the 1005 Treaty of Chanyuan. Although it called for the careful patrolling of the border trade between the Liao and Song dynasties, in reality the border between the two states was permeable. Horses, whose sale the Liao forbade, made it to Song

territory, and some salt, books, maps, weapons, and coins traveled north to the Liao realm in spite of a Song dynasty government order banning their export.

The Song banned the export of coins to the Liao territory because bronze coins with a high copper content remained the primary currency used within the Song realm, and finance officials feared their loss would damage the economy. Chinese coins were round with a square hole that allowed them to be strung together—originally in bunches of 1,000, later, in the high 700s—so they could be counted more easily. Coins had disadvantages: heavy, they were difficult to transport across great distances, and copper supplies couldn't always keep up with demand.

Because the copper shortage was particularly acute in the northwestern province of Sichuan, in the 980s the government issued iron coins, which were even heavier than bronze ones. It took one and a half pounds of iron coins to purchase a pound of salt. Following a rebellion in 993–994 triggered by economic difficulties, local merchants took the revolutionary step of replacing iron coins with promissory notes written on paper. Concerned about possible abuses, local officials limited the right to issue paper notes to just sixteen particularly credit-worthy merchants. But when some of those merchants defaulted, local officials began to issue paper money in 1024. That was the world's first paper money, but since it circulated only in the region of Sichuan, its impact was limited.

During the decades that officials in Sichuan were experimenting with paper money, the Liao and the Song signed the Treaty of Chanyuan. The resulting border controls drastically limited Song dynasty trade with the north. But because the army needed horses (the Chinese never succeeded in raising horses as fast and powerful as those from Asia's grasslands), they purchased many horses from different kingdoms to the northwest. Horses were the most important overland import over the course of the Song dynasty.

Chinese merchants sent ever-greater numbers of ships to the south and the west, to Southeast Asia, India, the Middle East, and East Africa, where no hostile enemy prevented trade. The Chinese profited greatly from the export of high-grade textiles and high-fired ceramics. Metal exports were important, too, whether in the form of unprocessed cylinders and ingots or processed goods such as iron cauldrons, woks, and mirrors. The steady flow of revenue from exports financed the flourishing aromatics trade.

The metropolis of Quanzhou in particular profited from that trade. On

China's southeast coast, just opposite Taiwan, Quanzhou was home to many non-Chinese residents. South Indians financed a Buddhist temple in the 980s. The main mosque in Quanzhou, the Mosque of the Prophet's Companions, was first built in 1009 or 1010. Over 200 gravestones with Arabic inscriptions have surfaced in Quanzhou, far more than in any other Chinese city before 1500, and the Arabic-speaking Muslims of Quanzhou formed China's largest foreign community at the time.

This level of contact, with outsiders and locals living side by side, was unusual for a Chinese city, so much so as to trigger comment by officials. In the neighborhood for international merchants in the south of the city, "there were two types of foreigners, dark and light,"one observer noted, pointing to the diverse origins of the city's merchant community.

Quanzhou had become a major international port by 1000. Government regulations stipulated that all goods coming into China had to go through a port with a designated Superintendent of Maritime Trade, but Quanzhou prospered because compliance wasn't total (it never was in the premodern world, just as it isn't today). Before Quanzhou was named a trade superintendency, smuggling was rife. One observer noted "The sea-going merchant vessels return each year in groups of twenty ships carrying various goods and forbidden goods in quantities as great as mountains."Finally in 1087 the government named the first Superintendent of Maritime Trade for the port of Quanzhou.

From this point on, Guangzhou and Quanzhou were the two most important Chinese ports, and they received ships coming from Southeast Asia and beyond. A third port, Ningbo, grew in importance because it was the primary port for vessels headed for Japan and Korea. Although Song China and Japan didn't have a formal relationship that allowed them to exchange tribute, ships frequently sailed between the Chinese port of Ningbo and the Japanese trade office based in the port of Fukuoka, the only market officially open to foreign merchants. Ships coming from the Liao realm north of Song China also landed at Fukuoka.

Writing in 1117, Zhu Yu, the son of a trade official in Guangzhou, provides many vivid descriptions of port life. To prevent smuggling, government officials posted lookouts along a 200-mile (320 km) stretch of the coast approaching Guangzhou to spot any arriving ships. Zhu Yu explains how the ships navigated. Knowing the outline of the coast, they could determine their course at night from the stars and during the day from the sun's shadow.

They also used a long string with a hook at the end of it to test the mud from the sea bottom because skilled mariners could determine their location from its odor and consistency. And, when visibility was poor, they could consult a compass.

The high penalties—smugglers of even the smallest amount of goods risked having all their goods confiscated—were meant to discourage smuggling. Just as Song laws directed, the Superintendent of Maritime Trade confiscated one tenth of the cargo and then categorized the remaining cargo into fine and coarse goods.

Zhu Yu is the only writer in the Song dynasty who mentions slaves brought from other countries. He explains that some were originally crewmen captured by pirates and that they possessed an unusual skill: "the foreign slaves are good at swimming; they enter the water without closing their eyes."The slaves knew how to fix leaks in ships by using "wadding to repair the ship's exterior."

The slaves had difficulty adjusting to Chinese ways. Since they were accustomed to eating raw food, cooked food gave them such severe diarrhea that some died. Zhu Yu tells us the slaves "are black as ink. Their lips are red, and their teeth are white. Their hair is curly as well as yellow."Yellow? This word in Chinese can indicate the color of aging hair, but it is also possible that the slaves suffered from a nutritional disorder called kwashiorkor, which is caused by a severe lack of protein. Sometimes those who eat only raw foods suffer from this disorder, which can leave their hair rust-colored.

Those slaves who adapted to Chinese food eventually learned to comprehend spoken Chinese commands, but none ever mastered the language themselves. Zhu's understanding of cultural adjustment mirrored that of his contemporaries: viewing cuisine as a crucial element of Chinese identity, they had difficulty believing that anyone who had not eaten Chinese food since birth could ever learn to speak the language properly.

Zhu's detailed account of the foreign slaves is puzzling. If the Chinese were importing large numbers of slaves, surely someone else would have mentioned them. Perhaps the slaves he described were the personal slaves of expat Islamic merchants living in Guangzhou.

The Chinese didn't need to import slaves. They had their own massive labor supply. The sources give no hint of a labor shortage. Recall that China's population boomed during the Song, exceeding 100 million at the time

Zhu was writing.

Zhu Yu also helps us to understand the dramatic increase in the consumption of aromatics: the Chinese used them to make foods and drinks. "The custom today is when guests arrive to drink tea and when they leave to drink soup,"Zhu Yu explains. "Containing medicinal ingredients and a little sweetener and fragrance, the soup can be warm or cool. The use of sweet herbs is the custom throughout the empire."

Those at the top of society continued to use aromatics in refined ways. One official was particularly fond of burning incense: "every day that he was in his office, he would get up and before starting work would light two incense burners and place his official robes on top of them. On leaving the house, he would gather up his sleeves. When he sat down, he would loosen his sleeves, emitting an intense fragrance that filled the entire room."This practice spread among Chinese officials.

Sometimes the wealthy consumed enormous quantities of aromatics on a single occasion. During the reign of Emperor Huizong, between 1100 and 1126, the imperial family switched from unscented candles to candles that contained a chunk of aloeswood or camphor along with a piece of ambergris to intensify the fragrance. At the palace the scented candles were "lined up in two rows, each several hundred candles long, which lit up the room very brightly and emitted a dense cloud of fragrance. If you looked for anything comparable in the empire, you'd never find it."The tale has a wistful quality as the writer is looking back on an extravagant period at court that came to a sudden end in 1126.

That was the year of an invasion by a confederation of northern peoples headed by the Jurchen—originally a people subject to the Kitan Liao. The Jurchen lived in northeast China near the modern border with North Korea. Just as the Kitan leader Abaoji created a powerful tribal confederation by winning the allegiance of different peoples around 900, the Jurchen leader Aguda did precisely the same after 1100 and founded the Jin dynasty in 1115.

At first the Song allied with the Jurchen Jin in the hope of defeating the Kitan Liao and recovering the territory that they had ceded to them in the Treaty of Chanyuan. But as soon as the Jurchen had vanquished the Liao, they turned on the Song. Conquering all of China north of the Huai River in 1127, including the Song capital Kaifeng, the Jurchen forces captured both the former emperor Huizong and the ruling emperor Qinzong. As the Song empire collapsed, the Jurchen victors forced the two former emperors, along

with many of their wives and courtiers, on a long and humiliating march to the north, where both men eventually died.

The loss of the north further encouraged Chinese trade with Southeast Asia. The new emperor, Gaozong, gained his position because he was one of the few Song dynasty princes the Jurchen did not capture. He established a capital in the southern city of Hangzhou, itself already an important trade entrepôt. (Chinese historians refer to the second half of the Song dynasty as the Southern Song because the capital was located in the south.) Hangzhou —about 100 miles (160 km) southwest of modern-day Shanghai—was the only coastal port ever to serve as the Chinese empire's capital, showing the importance of maritime trade to the Song dynasty.

Initially, it wasn't clear whether Emperor Gaozong or the dynasty would survive. Wartime made it difficult to collect taxes, especially agrarian taxes, traditionally the main source of revenue for Chinese dynasties. Emperor Gaozong realized that taxing foreign trade offered a solution to the budget shortfall. He noted, "The profits from overseas trade are the greatest. If the trade is handled in the right way, the profit can easily reach millions of coins. Isn't the revenue from trade better than taking it from the people? I should pay more attention to overseas trade so that I can bring some slight relief to the people."It was remarkable for the Chinese emperor to notice how heavily the burden of agrarian taxes fell on his subjects and even more remarkable for him to attempt to lighten their burden by taxing international trade.

Indeed, the proportion of government revenue from taxes on international trade peaked at 20 percent in the years just after 1127, when the Song was particularly desperate for tax revenues. Eventually, when the dynasty regained its footing and reestablished its agrarian base, the tax on international trade returned to about 5 percent of overall revenue, the level where it had been before the fall of the north.

The situation stabilized in 1141 when Emperor Gaozong signed a treaty with the Jin dynasty that set Song payments to the Jurchen at an even higher level than those they had given to the Liao dynasty: 250,000 ounces of silver and 250,000 bolts of silk, both paid annually. The treaty with the Jin dynasty wasn't as successful in keeping the peace as the Treaty of Chanyuan with the Liao dynasty had been. Still, although each side periodically attacked the other, neither side managed to shift the border between North and South China.

Despite the loss of the North and the high annual payments paid to the

Jurchen, the residents of South China enjoyed nearly two centuries of unequaled prosperity as the Chinese continued to import ever larger quantities of aromatics from Southeast Asia.

Emperor Gaozong appreciated aromatics so much that he developed his own brand of incense to give to favored courtiers. Archeologists have recovered one square of incense inscribed with four Chinese characters in his calligraphy saying "may the country flourish and antiquity be restored." Each square had a small hole drilled into an upper corner so that his officials could hang it on their belts. The imperial recipe? Of course, aloeswood was the main ingredient, with flower petals and camphor from Borneo for fragrance and musk to intensify the odor.

Ingenious Chinese merchants developed new ways to increase sales of aromatics. Street vendors experimented with adding multiple fragrances to enhance the taste of snacks and sold both lotus root and water flavored with aloeswood. Enterprising stall owners steamed stalks of raw sugarcane in the smoke of musk, the costly aromatic made from the glands of Tibetan deer. Even the poorest consumers could afford a taste of these delicacies at market stands.

The use of frankincense was particularly widespread. The central government stored the imported aromatic in warehouses. In 1175, realizing that they had too great a supply on hand, officials set prices artificially high and required purchasers to buy large quantities, triggering a rebellion in central China on the border of modern Hunan and Guizhou provinces.

Frankincense, along with other imported aromatics like cloves and putchuck, appear in medical prescriptions for the first time in the tenth and eleventh centuries, and in the twelfth and thirteenth centuries more and more druggists prescribed myrrh, borax, and black pepper. Most Chinese prescriptions consisted of different herbs and aromatics ground into a fine powder that patients boiled in water to make a medicinal tea. Before the year 1000 the only imported good regularly appearing in prescriptions was ginseng from Korea, but prescriptions after 1000 regularly call for multiple imported components.

Aromatics weren't just luxury products for the most well-to-do. People from all walks of life bought snacks at markets and visited healers to obtain medicines made from various imported aromatics. In 1076 the government established the first public pharmacy in the world. The main branch was in the Kaifeng capital, and later on branch pharmacies opened throughout

the empire. One department of the pharmaceutical government agency purchased the ingredients for prescriptions and packaged different ingredients, while the other ran the drugstores that sold directly to the populace.

Incense makers also blended imported fragrances. Of 300 recipes contained in the thirteenth-century book *Mr. Chen's Guide to Incense*, 66 percent called for sandalwood, 61 percent for musk, 47 percent for aloeswood, 43 percent for camphor, 37 percent for cloves, and 13 percent for frankincense. Making their first appearance around 1300, incense sticks were another sign of the use of incense by the poor, who could more easily afford a single stick containing far less incense than an entire cake.

As the consumption of aromatics spread throughout society, the rich, as they so often do, developed even more extravagant ways to display their wealth. In the winter, the wealthy partitioned off "warming rooms,"or spaces that could be heated individually. One man built three warming rooms made entirely from aloeswood. He ordered specially carved benches with holes in them. With incense coils lit under them, the fragrance permeated the rooms. He used the same technique on a boat built entirely from Chinese cedar. The well-to-do in Song dynasty China lived comfortably indeed.

As the aromatics trade boomed, many people made fortunes: Chinese and foreign merchants living in Quanzhou and Guangzhou as well as Chinese officials who managed the sales of fine and coarse goods. The wealthy financed entire ships, and men and women with less money could purchase shares. If a voyage succeeded, all stood to make a handsome profit.

The aromatics trade was so lucrative that it attracted the less-wealthy members of the imperial family. Sometime after 1100, the imperial clan—all the emperor's male descendants and their families—had become too numerous to live in the capital of Kaifeng. The revenues from a single city couldn't cover the cost of the generous stipends paid to each male. Accordingly, the imperial family broke into three different branches, one of which stayed in Kaifeng.

After the fall of the North in 1127, the Kaifeng branch moved to the new capital in Hangzhou, while the two other branches looked for cities sufficiently prosperous to support them. The western branch, which had about 200 people, chose Fuzhou, a port in northern Fujian province, while the southern branch, with some 400 members, opted to move farther south down the coast to Quanzhou, where they became deeply involved in the aromatics trade.

Already on its way to becoming the most important port in China, Quanzhou surpassed Guangzhou sometime around 1200. The city's population of one million in 1080 reached 1.25 million by the 1240s, putting it on a par with Baghdad and slightly smaller than the two capitals of the Song dynasty Kaifeng (960 – 1126) and Hangzhou (1127 – 1276), whose populations were each around 1.5 million.

The prosperity of Quanzhou and other nearby ports spilled over to the entire province of Fujian, enabling the province's residents to shift away from subsistence farming so that they could produce goods for commercial markets. Like the residents of Southeast Asia who harvested aromatics for the Chinese, the people in Fujian adjusted to the challenges of living in a globalized economy. They stopped growing their own food. They discovered that they could make more money if they cultivated cash crops like lychees, sugarcane, and glutinous rice, or if they grew local textile fibers like ramie and hemp. They came to purchase food for their families at local markets with the money they earned. Many gave up agriculture altogether. Some worked in silver, copper, iron, and lead mines. Some fished. And some made salt by diverting ocean water into pans and letting it evaporate.

The ceramics industry absorbed the largest share of the labor force. Entrepreneurs built dragon kilns that stretched over 300 feet (100 m) up the sides of hills. Producing between 10,000 and 30,000 vessels in a single firing, such kilns employed hundreds, if not thousands, of laborers. Attaining the highest temperatures anywhere in the world, these kilns produced shiny, easy-to-clean ceramics treasured in Africa, the Middle East, India, and Southeast Asia. We don't think of these kilns as industrial simply because they didn't use steam or electric power (they burned wood or charcoal), but these enterprises were just as large and complex as the first factories of the Industrial Revolution. Fully 7.5 percent of Fujian's population of five million —some 375,000 people—were involved in making export ceramics in the twelfth and thirteenth centuries.

A shift in Song monetary policy had a dramatic effect on its international trade partners. When Song government officials first issued paper notes in 1024, they had limited their use to the province of Sichuan, but in 1170 the Song government established a permanent system of paper notes backed by silver. Overnight, cumbersome bronze coins fell out of use, and merchants seized the opportunity to export huge quantities of coins to Japan. The main goods the Japanese exported to China were lumber, sulfur, mercury, and

gold, all raw materials.

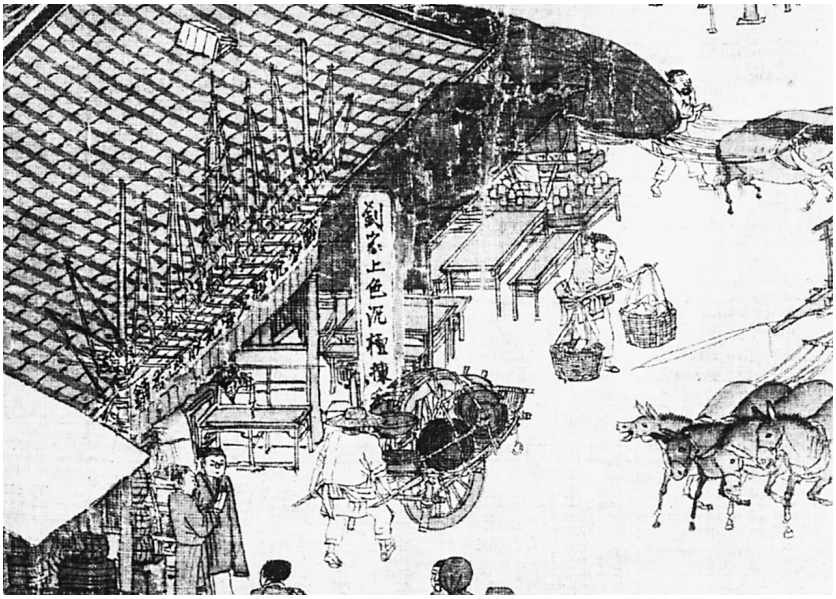
At first the Japanese government banned the Chinese coins but then changed policy in 1226 and allowed their use, and by 1270 Chinese bronze coins became the de facto currency throughout the Japanese Archipelago. Chinese coins also circulated widely in Java during the twelfth and thirteenth centuries, and the Javanese minted copies of Chinese coins. The use of Chinese coins in Japan and Java shows how deeply integrated the economies of East and Southeast Asia had become.

The people living along China's southeast coast were the most deeply affected by globalization because so many major ports were located there, but globalization reached those living in the interior as well. One coastal market in Shaoxing offered "jades, white silks, pearls, rhinoceros horns, renowned perfumes and precious medicines, silk damasks, and goods made of lacquer and of rattan,"an impressively wide range of goods that we'd expect from vendors in a seaport not too far from modern Shanghai. But at one market deep in the interior, some 1,000 miles (1,600 km) to the west, in Chengdu, Sichuan, consumers could buy "mica and frankincense the color of sparkling crystal, aloeswood and sandalwood wafting their fragrant scents."The availability of goods from abroad wasn't quite at the level of today's Ikea—the markets didn't meet every day and the prices of most imported goods were high—but it was closer than you might imagine.

In 1225, Zhao Rukuo, a member of the imperial clan and the Superintendent of Maritime Trade in Quanzhou, wrote a book about China's foreign trade entitled *Record of Various Foreign Peoples*. He drew on both historical records and his conversations with people living in Quanzhou. Superintendent Zhao displayed deep knowledge of China's longtime trading partners like Korea, Japan, and Vietnam as well as much more distant places like Sicily, Somalia, and Tanzania.

Earlier trade superintendents must have also spoken with foreign merchants, as we know from government regulations specifying how often officials should host dinners for visiting merchants, but we don't know what they learned. Walking around modern Quanzhou, you can see many places where Superintendent Zhao might have interviewed foreign merchants. Multiple small canals still crisscross the city, and one leads right up to the former trade superintendent's office, now a local Daoist temple. The main street where

foreign merchants lived is but a short walk away.



Cultural Relics Press, China

This detail from a scroll depicting a Chinese city shows a furniture store that specializes in imported woods. The sign announces "The Liu Family's Top-Quality Aloeswood, Sandalwood, and Frankincense."

Superintendent Zhao's book has two sections. Following earlier geographic writings, the first part gives a capsule history of fifty-three places and their products. The second section was completely new. Proceeding commodity by commodity, it identifies the different countries that produced the item, and explains variations in quality. As the quantities of goods coming into China from Southeast Asia increased, traders realized that they had to distinguish between higher- and lower-quality goods, and the difference often lay in determining where a certain good came from. These traders were Zhao's target audience. As trade superintendent, he spent long hours talking to foreign merchants and boiled their testimony down to tell his audience what they wanted to learn.

China enjoyed a large trade surplus, Superintendent Zhao revealed. While exporting the world's highest quality textiles, ceramics, and metal goods, China imported a narrower range of products—foreign woods, resins, and spices, most from Southeast Asia, some from the Middle East. Superintendent Zhao's book focused on the maritime trade, so he does not mention the continuing overland imports of horses, so desperately needed by the army, from the northwest.

The imports of aromatics were extremely important because all social levels consumed them. They imparted pleasant fragrances to people's bodies, clothing, and air in rooms. They were also a crucial ingredient in drinks, snacks, and foods. Because so many medical prescriptions included them, they were a necessity for many people.

Superintendent Zhao's book gives much more than commercial information. Consider his poignant description of the capture of slaves on Madagascar: "In the West there is an island in the sea with many wild men with bodies as black as lacquer and frizzy hair. They are tricked by offers of food and captured. They are traded as slaves to the Arabian countries, where they fetch a high price. They work as gatekeepers. People say that they do not miss their kin."The final comment would have surprised Chinese readers with their strong family system: we can almost hear Zhao wondering whether this was actually possible.

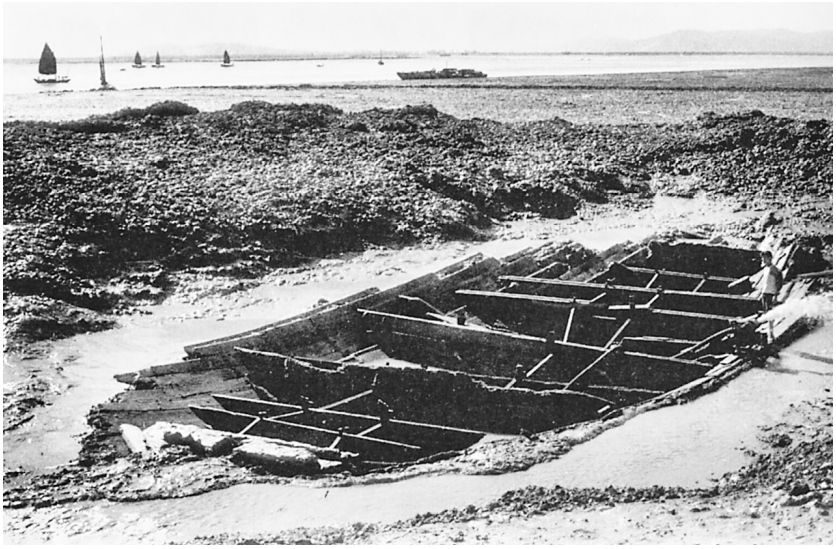
Superintendent Zhao's account of elephant hunting is even more detailed: "People don't dare get close to the elephants. Hunters use bows of extraordinary strength and shoot poisoned arrows. When hit by an arrow the elephant runs away, but before he's gone one or two miles, the poison takes effect and the animal dies. The hunters follow him, remove the tusks from his carcass, and bury them in the ground."Once they have ten or more tusks, they sell them to Arab merchants who transport them to Srivijaya, Superintendent Zhao explains. The best elephant tusks from the Arabs are three times as large and whiter than those from Southeast Asia, which tend to have a reddish tint. Zhao doesn't realize that the superior tusks are from Africa. Because Arab merchants dominated the lucrative ivory trade, he thinks they sourced the high-quality tusks in their native land.

Foreign trade was so important during the Song that math textbooks covered the topic. One word problem, from 1247, asks the reader to determine the shares due to four partners who invested in a ship that sailed to Southeast Asia and back. "Assume that there is a sea-going junk which has been to the customs station and cleared of its obligations. Apart from the goods to be paid to the owner of the ship there remain 5,088 Chinese ounces [over 400 pounds or 188 kg] of aloeswood, 10,430 bundles of black pepper, each weighing 40 catties [52.5 pounds or 23.8 kg], and 212 pairs of elephant tusks."The choice of aloeswood, black pepper, and elephant tusks—all important commodities in the trade with Southeast Asia—is apt.

The problem goes on to explain that Partners A, B, C, and D borrowed

different amounts from each other, which adds to the challenge. You can solve the problem only with matrices, which shows that the Chinese were using linear algebra by this time.

A ship that sank just outside Quanzhou in the 1270s offers a real-life example of what a ship's cargo financed by multiple partners would have looked like. Measuring 79.4 feet (24.2 m) long by 30 feet (9.15 m) wide, the ship was recovered by archeologists who excavated 5,300 pounds (2,400 kg) of aromatic woods including aloeswood and sandalwood; five quarts (4.75 l) of black pepper; ambergris from Somalia; 6.3 grams (.22 oz) of frankincense; and 8.8 pounds (4 kg) of mercury. All the items in the cargo were important goods in the Southeast Asian trade with China, and the dominance of aromatics is just as we'd expect. The ship was also carrying some Chinese coins, the latest of which was dated 1271, so it sank in that year or not too long afterward.



The Chinese-language 1987 site report about the Quanzhou shipwreck.

Unlike craft made elsewhere, Chinese boats had watertight compart-ments, a technological breakthrough in boatbuilding. This innovation restricted the damage from leaks to just one section of a boat.

Divided into thirteen separate wooden compartments, the ship was clearly manufactured in China; the workmen carved a constellation of seven small holes and one large one—perhaps a depiction of the Big Dipper—at the two ends of the keel, or main beam running along the bottom of the ship. These carvings were a traditional Chinese means of seeking divine protection. Archeologists found evidence of boat repairs using the lashed-lug technique, a sign

that the ship had traveled to Southeast Asia and back.

The ship also contained ninety-six wooden labels giving the names of individuals, shops, places, and commodities. Tied to different crates, these allowed investors, the crew, and the captain to identify which goods belonged to which owner. One quarter of the tags bore an unusual label: "southern family," which puzzled everyone until a local historian realized that the term referred to the southern branch of the imperial clan, the primary investors in the vessel.

It seems most likely that the ship departed Quanzhou in the early 1270s when the port was still under the rule of the Southern Song dynasty. The trade superintendent at the time was a powerful man of Arab descent named Pu Shougeng. His ancestors had moved from Guangzhou to Quanzhou sometime around 1200, and he became the Quanzhou trade superintendent about 1266. Assuming office during the dynasty's protracted collapse, Pu concurrently served as pacification commissioner, a position that gave him command of a small army, which he could supplement with the militias controlled by locally powerful families.

The Mongols, who had already gained control of North China, launched intermittent raids on South China with their navy. After they captured the Song capital of Hangzhou in 1276, the last Song emperor, a small boy, fled to Quanzhou, where the Mongol navy attacked and dealt the final blow to the Song dynasty.

Anticipating a Mongol victory, Trade Superintendent Pu switched his allegiance, probably in 1277, when he killed some of the imperial clansmen residing in the city.

It seems likely that the ill-starred ship returned to Quanzhou with all of its cargo around this time. Unearthed in a shallow bay near Quanzhou, the ship sank with its hull undamaged and no sign that anyone on board had died or that the ship had sprung a leak. Someone did remove the mast and all the wood above the surface of the water, presumably to sell it or use as fuel. Because it contained so much of its original valuable cargo, it's possible that it was deliberately scuttled—because the ship captain realized that the Mongols had overthrown the Song imperial family? For whatever reason, those who sank the ship never came back to retrieve the goods, and, like the buried hoards of silver coins in Eastern Europe, the ship lay untouched until archeologists found it.

Killing the last boy-emperor of the Song in 1279, the Mongols conquered all of China. They took over as the successor to the Song dynasty and ruled China as the Yuan dynasty. Trade with Southeast Asia continued to flourish under Mongol rule. Marco Polo claimed to have visited Quanzhou in the 1280s or 1290s, and his account contains echoes of reliable information. He calls Quanzhou "Zaiton," an Arabic name meaning "city of olives." "The total amount of traffic in gems and other merchandise entering and leaving this port is a marvel to behold.···I assure you that for one spice ship that goes to Alexandria or elsewhere to pick up pepper for export to Christendom, Zaiton is visited by a hundred. For you must know that it is one of the two ports in the world with the biggest flow of merchandise." The other was the former Song capital of Hangzhou.

Polo reports that all ships entering the harbor pay "10 percent duty on all their wares, including gems and pearls, that is to say a tithe on everything." This is the same one-tenth customs duty that Song officials initiated at the start of their dynasty in 960. "Payment for the hire of ships, that is for freight, is reckoned at the rate of 30 percent on small wares, 44 percent on pepper, and 40 percent on aloeswood and sandalwood and all bulky wares." The percentages are all plausible, but Polo makes a crucial mistake: these aren't shipping charges but the varying taxes levied on fine and coarse goods. The Mongols collected the same three taxes on foreign ships as had Song dynasty officials. After paying these taxes, Polo explains, the merchants "make such a profit that they ask nothing better than to return with another cargo."

Polo commits other errors. He mentions "beautiful" and "cheap" porcelain that acquires its "sheen" from being buried in the ground "for thirty or forty years," because he doesn't understand kiln technology. The Muslim traveler Ibn Battuta also reported that the Chinese buried ceramics underground when he visited the Muslim quarter of Quanzhou before returning home to Morocco. Few people outside China understood how such high-quality ceramics were made.

Chinese trade with Southeast Asia continued to boom under Mongol rule, as we can see from a list included in a Guangzhou gazetteer of sixty-nine different foreign products, forty from Southeast Asia, traded in 1300. The nine most costly were ivory, rhinoceros horn, crane crests, pearls, coral, a greenish mineral (perhaps a type of jade), kingfisher feathers, and turtle and tortoise shells. The depth and range of the list makes perfect sense for the

most heavily frequented sea route in use before the arrival of the Europeans in the 1500s.

As information about foreign countries traveled alongside goods, the Chinese learned more about Southeast Asian geography. The Guangzhou gazetteer's author divided the waters of the South China Sea into the Small Western Ocean (the section of the South China Sea near the Malay Peninsula), the Small Eastern Ocean (the Sea of Sulu east of Borneo), and the Large Eastern Ocean (the Java Sea), and explained which countries were located near each body of water.

As knowledgeable as Chinese mariners were about the geography of Southeast Asia, India, the Arabian Peninsula, and Africa, they didn't venture east of the Philippines into the Pacific because they believed that the world ended there. As Superintendent Zhao explained in 1225, "still farther east [of Java] is where the Ultimate Drain empties. People don't live beyond this point."

The Ultimate Drain was the name of the place where the Chinese thought all the ocean's waters flowed back into the earth. The Chinese wrote about the Ultimate Drain as early as the third century BC, when the great Chinese philosophical text Zhuangzi explains: "Of all the waters of the world, none is as great as the sea. Ten thousand streams flow into it—I have never heard of a time when they stopped—and yet it is never full. The water leaks away at the Ultimate Drain—I have never heard of a time when it didn't—and yet the sea is never empty."

Superintendent Zhao quotes a long passage from a late-twelfth-century book that locates the legendary drain in a specific place: "On the southwest quadrant of the Southern Sea, there is a big ocean called the Vietnam Sea. Three currents meet there."The source continues: "Boats coming from the south always encounter the confluence of these three currents."It seems likely that the author was referring to the start of the Kuroshio Current, which was somewhere slightly to the west of Luzon, between Taiwan and the Philippines.

The risks to mariners who traveled so far were great: "If they catch a gust of wind, they can be saved. If they are becalmed, there is the danger that the boat cannot escape and will break apart where the three currents meet.⋯That is the place where the Ultimate Drain pours into the Nine Underworlds."The location of the Ultimate Drain was far to the east, beyond anywhere that the Chinese reader would have known about.

The Chinese fear of the Ultimate Drain parallels the Roman idea of the Torrid Zone that Portuguese navigators gradually disproved as they made their way down the west coast of Africa. Contrary to what the ancient Roman geographer Ptolemy had written, they found no region so hot that humans couldn't survive. Unlike the Portuguese navigators, Song observers continued to believe in the dangers of the Ultimate Drain; perhaps that is why the Chinese didn't sail past the Philippines farther into the Pacific until after European mariners had pioneered the route.

The Chinese aromatics trade with Southeast Asia continued to increase after the end of Mongol rule. After the founding of the Ming dynasty in 1368, a single tribute shipment to the court was so large that it comprised eighty tons of tropical goods, primarily pepper and sappanwood.

China's most extensive ocean voyages occurred between 1405 and 1433 when the Ming dynasty sponsored seven voyages led by Admiral Zheng He. An imperial fleet of 317 ships carrying 28,000 men went from China to Southeast Asia, then India, and on to Iraq. Some of the ships broke away from the main fleet and went as far as Mombasa on the east coast of Africa. We know this because both written and archeological evidence of these voyages survives in the form of Chinese coins found overseas, Chinese historical records, and—most convincing of all—Chinese-language inscriptions carved onto stone tablets in Sri Lanka and Calicut, India.

Admiral Zheng's largest ships were 200 feet (61 m) long, dwarfing Christopher Columbus's ships, probably a mere 100 feet (30 m) long (surprisingly, we don't know the precise dimensions of Columbus's ships). While Admiral Zheng's full fleet had 317 ships, Columbus traveled with only 3.

Admiral Zheng's ships went through the Malacca Strait along the coast of the Arabian Peninsula and India, covering 8,000 miles (13,000 km). If they crossed the Indian Ocean directly, the route was only 6,500 miles (10,500 km). If you add the 4,700-mile (6,500 km) leg from Basra, in Iraq, to Sofala, Mozambique, on the east coast of Africa, the length of the trip is even more noteworthy, especially given that Columbus traveled only some 4,400 miles (7,000 km) on his first voyage.

In short, Zheng He's voyages were on a much larger scale than Columbus' s. And the goal of the voyages? To proclaim the power of the third emperor of the Ming dynasty.

The size of the Chinese fleet, and the extent of government sponsorship,

may have been new in the 1400s, but the route wasn't. Zheng He was on the Persian Gulf–China sea corridor. Zheng He's men weren't exploring; they were traveling on familiar routes around Southeast Asia and across the Indian Ocean to India, Arabia, and Africa that Chinese ships had been sailing since 1000.

The government-sponsored voyages ended in 1433, but private traders continued to ply these waters in the following centuries. The economy of the entire Indian Ocean region was fully commercially integrated before the European voyages of discovery in the 1500s, and it was afterward, too. Starting in the mid-1400s, the Portuguese concentrated on exporting gold from Africa to Europe. But once they gained control of the Spice Islands in 1520, they realized that there was far more money to be made there than in Africa. Of course there was. Since 1000 Chinese rulers, merchants, and middlemen had all prospered by tapping that very source of wealth.

Epilogue

And so our tour of the world comes to an end. We've followed the pathways first opened in 1000 and observed their impact over the next 500 years. After 1500 a new chapter—a European chapter—of world history begins. For more than 400 years, Europeans relied on more advanced weaponry to move into preexisting trade pathways whenever possible and to create new ones when not.

In 1497 Vasco da Gama traveled south along the West African coast and rounded the Cape of Good Hope. At the time of his voyage, the Portuguese already realized that it was life-threatening for them to go into the interior of Africa, because, as nonnatives, they had no resistance to malaria. Whenever a group of Portuguese ventured inland from the coast, the casualties were enormous. It made much more sense for the Europeans to establish coastal ports where they could rest, stock up on supplies, and purchase whatever goods they needed—primarily slaves and gold—from the interior. In this first phase of imperialism, the Portuguese empire resembled a necklace consisting of beads—the ports of Cape Town, Mombasa, and Mogadishu, among others—strung along the African coastline.

That's why El Mina—the early trading fort on the coast of Ghana—was an important test case. It demonstrated the feasibility of conducting trade from a coastal base to which Portuguese ships could sail directly, obtain the goods they desired, and return home. After the Portuguese established El Mina, African entrepreneurs moved existing trade routes in the interior to the coast

so that traders could deliver gold and slaves to the Atlantic ports. This wasn't the first time that Africans changed their trade routes: when, around 1000, Sijilmasa replaced Zuwila as a key node of trade in North Africa, the major trans-Saharan gold and slave trade route also shifted west.

After da Gama rounded the Cape of Good Hope, he was no longer pioneering a new maritime route. He joined the much frequented Persian Gulf–China maritime route connecting East African port cities with Indian Ocean ports. Once on that route, it was easy to find a pilot to guide his four ships across the Indian Ocean to the port of Calicut, famed for its spices. The name of the pilot who joined da Gama at Malindi was Malemo Cana (possibly Canaca), and the two sources who mention him say that he was a Moor who could speak some Italian.

The route connecting China with Africa was the longest and most heavily traveled sea route before 1492, and aromatics were the most important commodity carried on it. After 1492, traffic on the transatlantic route from Europe to the Americas and the transpacific route from the Americas to the Philippines surpassed the Persian Gulf – China route, but some trade still continued along it.

As they constructed their empire in the Americas, the Spanish took over the Aztec capital of Tenochtitlan and established Mexico City as their capital. Columbus recognized the sophistication of the existing American trade network when, in 1502, he encountered the enormous canoe carrying high-quality textiles, obsidian knives, copper bells, and wooden swords, which all circulated between the Yucatan Peninsula and the Caribbean.

Columbus had no way of knowing about the indigenous trade routes connecting the Maya north to the American Southwest and the Mississippi River Valley and south to Panama and the Andes, but the Spaniards who followed him to the Americas took full advantage of those preexisting pathways to build new empires in Mexico and Peru.

In 1519, when Cortés arrived in Mexico, he befriended an Aztec noblewoman named Malinché who had been captured by the Maya. Fluent in both Mayan and the Nahuatl language of the Aztecs, she helped Cortés negotiate alliances with different tribes seeking to overthrow the Aztecs. With her help, the Spanish were able to conquer the Aztec capital in just two years. Farther south, the Inca empire turned out to be as vulnerable as the Aztecs, but for a different reason—Pizarro, approaching by sea from Panama, arrived in the middle of a succession dispute about who would become the

next leader of the Inca—and was able to capitalize on the disarray to establish control.

None of the Spanish—certainly not Columbus—realized it, but they were all carrying deadly germs to which the Amerindians had no immunity. The long period of isolation after the first prehistoric settlers arrived left the indigenous peoples of the Americas deeply vulnerable to European diseases such as smallpox, the flu, and even the common cold.

Because no census data survives, historians don't agree on the population of the Americas in 1492—estimates range from a low of 10 million to a high of 100 million. Our first more reliable information comes in 1568 from a Spanish census. Only some 2 million Amerindians in the agrarian heartlands of Mexico and Peru survived the massive outbreaks of disease brought by the Europeans. (Perhaps an additional million in remote areas were also able to make it). These mass deaths paved the way for European colonists.

In the 1600s, Britain, the Netherlands, and France replaced the Spanish and the Portuguese as the main European powers, and their countrymen settled North America. Locals taught the Europeans many survival skills that contributed to their success in these radically different environments. Remember: the Vikings withdrew from northeastern Canada around 1000 and from Greenland after 1400 because they found the environment too harsh.

Squanto (his full name was Tisquantum) made it possible for the Pilgrims to make it through the first winter at Plymouth. Less well known, though, is that prior to the arrival of the Pilgrims, Squanto had been kidnapped in 1614 by an English explorer who brought him to Europe and sold him as a slave in Spain. Squanto managed to escape and return to the region of Cape Cod. When the pilgrims encountered him, he could already speak English.

Da Gama's pilot Malemo Cana. Malinché. Squanto. These intermediaries are all major figures in recent historical accounts of European expansion, but we don't always fully grasp their significance. Yes, they helped Europeans learn about and ultimately gain control of their home societies. But more was going on than that. They offered access to the system of pathways and trade networks constructed entirely by the indigenous peoples long before the arrival of the Europeans. These intermediaries allowed the Europeans to plug into those local networks, and to do so quickly.

Europeans reached some places in the world much later than others. When James Cook arrived in the South Seas in the late 1700s, he realized the impor-

tance of the priest Tupaia's knowledge of traditional Polynesian navigation and geography. Together, the two men made a map of the region, a crucial aid that enabled Cook to find his way to the many islands spread all over the Pacific. Cook's voyages launched the settlement of Australia and New Zealand by the British.

Imagine, for a moment, a world in which the European voyages of the 1490s and the resulting settlement of many continents never occurred. What would that world have been like? Surely the tempo of world trade would have continued to increase. Already in 1225, the Chinese trade official Zhao Rukuo listed forty-one different products sold in the Mediterranean, East Africa, India, and Southeast Asia, all markets for China's exports.

Sa'di, a Persian observer writing some thirty years later, in 1255, described meeting a merchant on the island of Kish in the Persian Gulf. A wealthy man, the trader possessed 150 camels and 40 slaves and servants. After boasting all night long of his travels and acquaintances in foreign lands, he admitted that he still wanted to take one more business trip. He would start in the Fars region of modern Iran: "I want to take sulfur from Fars to China, for I hear it commands a tremendous price there. From there I will take Chinese goblets to Anatolia, Anatolian silks to India, Indian steel to Aleppo, Aleppan crystal to the Yemen, and Yemeni swords to Fars."

This was quite an itinerary: Iran to China to the Anatolian region of modern Turkey to India to Syria to Yemen and then back to Iran. The merchant's plan entailed buying a certain good in one place, selling it in the next town, and using the proceeds to finance the onward leg of his journey. It doesn't seem that he actually made the trip, but he knew about all these distant places and their products, and the lengthy trip he proposed was entirely feasible.

As the merchant's proposed route shows, the trade pathways across the Middle East continued to evolve even after the Abbasid empire broke apart and independent rulers took over different regions. Scholars and poets traveled on these pathways in search of patronage from different rulers, and male and female students studying at madrasas used them as well. Millions of slaves imported from Africa, Eastern Europe, and Central Asia were also forced to move along these routes to the main markets at Cairo, Baghdad, and other major cities.

Without Columbus's and da Gama's voyages and subsequent European settlements, we can assume that the circles of trade would have opened ever wider as merchants discovered yet more goods made in one location and de-

sired by consumers in another. It was really only a matter of time before existing trade networks in Afro-Eurasia and the Americas would have reconnected with one another. The Vikings had already crossed the North Atlantic briefly in 1000, and their subsequent logging trips indicate their ability to return anytime they liked. Just as the Chinese hunger for sea slugs prompted their fishermen to continue moving south until they arrived in Australia sometime around 1500, the persistent Chinese desire for aromatics would've pushed mariners to conquer their fear of the Ultimate Drain and voyage past the Philippines farther into the Pacific.

But the European voyages actually did occur, and Europeans settled both the Americas and Australia. Historians traditionally distinguish between the first wave of European settlement around the world after 1500 and a second wave, powered by the innovations of the Industrial Revolution, that allowed the Europeans to go farther inland and establish greater control. The steamship provided faster and more reliable transportation than the sailing ship, and the first European steamships crossed the Atlantic in the 1820s and 1830s. The placement of cannon on their decks transformed those steamships into gunboats, which enabled the British navy to win the Crimean War and two Opium Wars with China. In 1857, another invention, the telegraph, allowed the British to put down a mass mutiny in India by informing British officers where troops were most needed.

The British were able to transport their troops by railroad, the most important technological innovation of the 1800s. Trains moved troops anywhere the European powers had laid tracks. The discovery that daily doses of quinine prevented malaria came in the 1850s. These technological innovations underpinned a new wave of colonization, not just along the coast, but deep into the interior of Africa in the late 1800s.

As powerful as they were, the Europeans didn't colonize the entire planet. One of the largest places to escape was China, which the European powers divided into different economic spheres, each under the control of a different country, while maintaining the fiction of continued rule by the Qing dynasty.

Historians have puzzled over why the Industrial Revolution occurred in England but not in China, which had an advanced economy much earlier than England. Without using either steam power or electricity, the Chinese had achieved manufacturing on a large scale. Some of the largest enterprises, such as the giant dragon kilns that produced thousands of pottery vessels in a single firing, dated back to 1000. Consumer demand for those ceramics and

Chinese silks powered Chinese economic growth for centuries.

A key difference between England and China was that China had no labor shortage. With a surplus population, China needed machines that used less cotton, not less labor, to produce a bolt of cloth. And such machines do not exist.

China and Britain were at comparable levels of economic development before the Industrial Revolution. Only after 1800 did Britain's economy take off and leave China behind. The Industrial Revolution ushered in more than a century during which Europe drove the world economy.

When did the age of European dominance come to an end? Perhaps in 1945 with the close of World War II, when America emerged so much wealthier than Great Britain, Germany, or France. Or perhaps in the early 1960s, when the former colonies of Great Britain, France, and Germany gained independence. One could even make the case for 1973–1974, when OPEC implemented its first oil embargo. In any event, it's certainly over now.

What can the world of 1000 teach us about globalization? Obviously, our current world differs in myriad ways. Among the most striking differences: the world is much more crowded now than it was then. It now has a population nearing 8 billion, while in 1000, 250 million people enjoyed plenty of elbow room.

People today know a great deal about the peoples on earth, even those residing in distant parts of the globe, whereas in 1000 they were encountering them for the first time.

We live in a world filled with all kinds of sophisticated machines, while our ancestors lived with hardly any mechanization. The differences between the most high-tech nations and the least high-tech are huge and grow daily, while in the past the most technologically sophisticated countries had only a slight edge.

If you strip away all the gadgets and technology, people remain very much themselves. And as our ancestors responded to the changing world in 1000 in a variety of ways, we have to study what they did so that we can better tackle the future that lies before us.

The strategies that worked in the past should still succeed today. The scholars who did their best to learn about all the countries of the globe helped to prepare their countrymen for their first encounters with people from those other places. The inventors who came up with innovative products and the

merchants who brought them to emerging markets opened up new pathways and contributed to economic prosperity in their homelands.

Globalization in 1000 brought benefits, but it also produced winners and losers as it does today. In 879 the Huang Chao rebels targeted foreign merchants living in Guangzhou, then China's largest port. In 996 the residents of Cairo rioted against the expat merchants from Amalfi, Italy. And in 1181 the residents of Constantinople murdered thousands of Italian merchants in the Massacre of the Latins. In each instance, the root causes were the same. The locals resented the wealth of the foreign expats and believed that the outsiders had profited at their expense.

Despite these protests, many seized the new opportunities offered by increased contact. The Chinese excelled at manufacturing paper, silks, and ceramics, which they sold throughout Eurasia. Merchants supplying China found new aromatics in Southeast Asia that replaced the more expensive myrrh and frankincense of the Arabian Peninsula.

Trade provided a continuing incentive to catch up. The potters of the Islamic world may never have matched the high temperatures of Chinese kilns that produced such shiny porcelains, but they never stopped trying. Middle Eastern lusterware ceramics found buyers at home and in Africa, allowing those potters to retain some of their market share.

Those who successfully adapted to change didn't always possess sophisticated technology. The Thule were able to move all the way from Alaska to eastern Canada and then to Greenland because of their superior ability to hunt seals—even in winter. This skill set allowed the Thule to displace the Norse settlers, who were less able to adapt to the harsh conditions and retreated back to Iceland.

The Thule provide a valuable reminder: those who ultimately succeed aren't always the people living in the richest, highest-tech countries. The inhabitants of the most advanced lands have certain advantages; it has to be easier to stay ahead when you begin ahead. But close attention to one's environment and the willingness to wait for the right moment can reap dividends as well.

The most important lesson we can learn from our forebears is how best to react to the unfamiliar. Some Vikings killed the indigenous people sleeping under canoes without even checking to see if they were dangerous. On other continents, those who encountered strangers took their time, greeted

strangers patiently, and traded their belongings for whatever goods their new acquaintances offered. Some of the most successful learned new languages and forged trading relationships across huge distances. True, globalization didn't benefit everyone who experienced it. But those who remained open to the unfamiliar did much better than those who rejected anything new. That was true in the year 1000, and it's just as true today.

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As was standard practice throughout the Islamic world, the cartographer al-Idrisi put the south at the top when he made his atlas in 1154. With the source of the Nile shown as three dots connected to a mountain, Africa appears above the Mediterranean. If you turn the map upside down, you can make out Europe on the left and Asia on the right. Islamic geographers knew more about the world in 1000 than anyone else.