

## Celestial Empire: Stasis and Retreat

Now England is paying homage.  
My Ancestors' merit and virtue must have reached their distant shores.  
Though their tribute is commonplace, my heart approves sincerely.  
Curios and the boasted ingenuity of their devices I prize not.  
Though what they bring is meager, yet,  
In my kindness to men from afar I make generous return,  
Wanting to preserve my good health and power.

—Poem by the Qienlong emperor on  
the occasion of the Macartney embassy (1793)

Those sixteenth-century Europeans who sailed into the Indian Ocean and made their way to China met an unaccustomed shock of alien condescension. The Celestial Empire—the name tells everything—saw itself as the world's premier political entity: first in size and population, first in age and experience, untouchable in its cultural achievement and sense of moral, spiritual, and intellectual superiority.

The Chinese lived, they thought, at the center of the universe. Around them, lesser breeds drew on their glow, reached out to them for light, gained stature by doing obeisance and offering tribute. The Chinese emperor was the “Son of Heaven,” unique, godlike representative of celestial power. Those few who entered his presence showed their awe by kowtowing—kneeling and touching their head nine times to the ground. Others kowtowed to anything emanating from him—a letter, a single handwritten ideograph. The paper he wrote on, the clothes he wore, everything he touched partook of his divine essence.\*

Those who represented the emperor and administered for him were chosen by competitive examination in Confucian letters and morals.

\* Lest one think the Chinese strange, compare the rule in early modern Spain that all kneel when the wafer and wine of the Eucharist passed in procession.

These mandarin officials embodied the higher Chinese culture—its prestige, its wholeness and sublimity. Their self-esteem and haughtiness had ample room for expression and exercise on their inferiors, and were matched only by their “stunned submissiveness” and self-abasement to superiors.<sup>1</sup> Nothing conveyed so well their rivalry in humility as the morning audience, when hundreds of courtiers gathered in the open from midnight on and stood about, in rain and cold and fair, to await the emperor’s arrival and perform their obeisance. They were not wasting time; their time was the emperor’s. No mandarin could afford to be late, and punctuality fell short: unpunctual earliness was proof of zeal.<sup>2</sup>

Such cultural triumphalism combined with petty downward tyranny made China a reluctant improver and a bad learner. Improvement would have challenged comfortable orthodoxies and entailed insubordination; the same for imported knowledge and ideas.<sup>3</sup> In effect, what was there to learn? This rejection of the foreign was the more anxious for the very arrogance that justified it. That is the paradox of the superiority complex: it is intrinsically insecure and brittle. Those who cherish it need it and fear nothing so much as contradiction. (The French today so trumpet the superiority of their language that they tremble at the prospect of a borrowed word, especially if it comes from English.)\* So Ming China—convinced of its ascendancy—quaked before the challenge of Western technology, which was there for the learning.

Ironically, those first Portuguese visitors and Catholic missionaries used the wonders of Western technology to charm their way into China. The mechanical clock was the key that unlocked the gates. This, we saw, was a European mega-invention of the late thirteenth century, crucial for its contribution to discipline and productivity, but also for its susceptibility of improvement and its role at the frontier of instrumentation and mechanical technique. The water clock is a dunce by comparison.

For China’s sixteenth-century officials, the mechanical clock came as a wonder machine that not only kept time but amused and entertained. Some clocks played music; others, automata, featured figurines that moved rhythmically at intervals. Clocks, then, were the sort of thing the emperor would want to see and enjoy, that had to be shown him if only to earn his favor, that a zealous courtier had to show him be-

\* Latest move: the English CD-ROM, pronounced *say-day-rom* in French, will now be *cédérom*, pronounced *say-day-rom* in French.

fore someone else did. Not easy. This magical device had to be accompanied. Chinese instinct and practice dictated that foreigners be kept at a distance, confined to some peripheral point like Macao and rarely allowed to proceed to the center. The sixteenth-century clock, however, needed its attendant clockmaker.

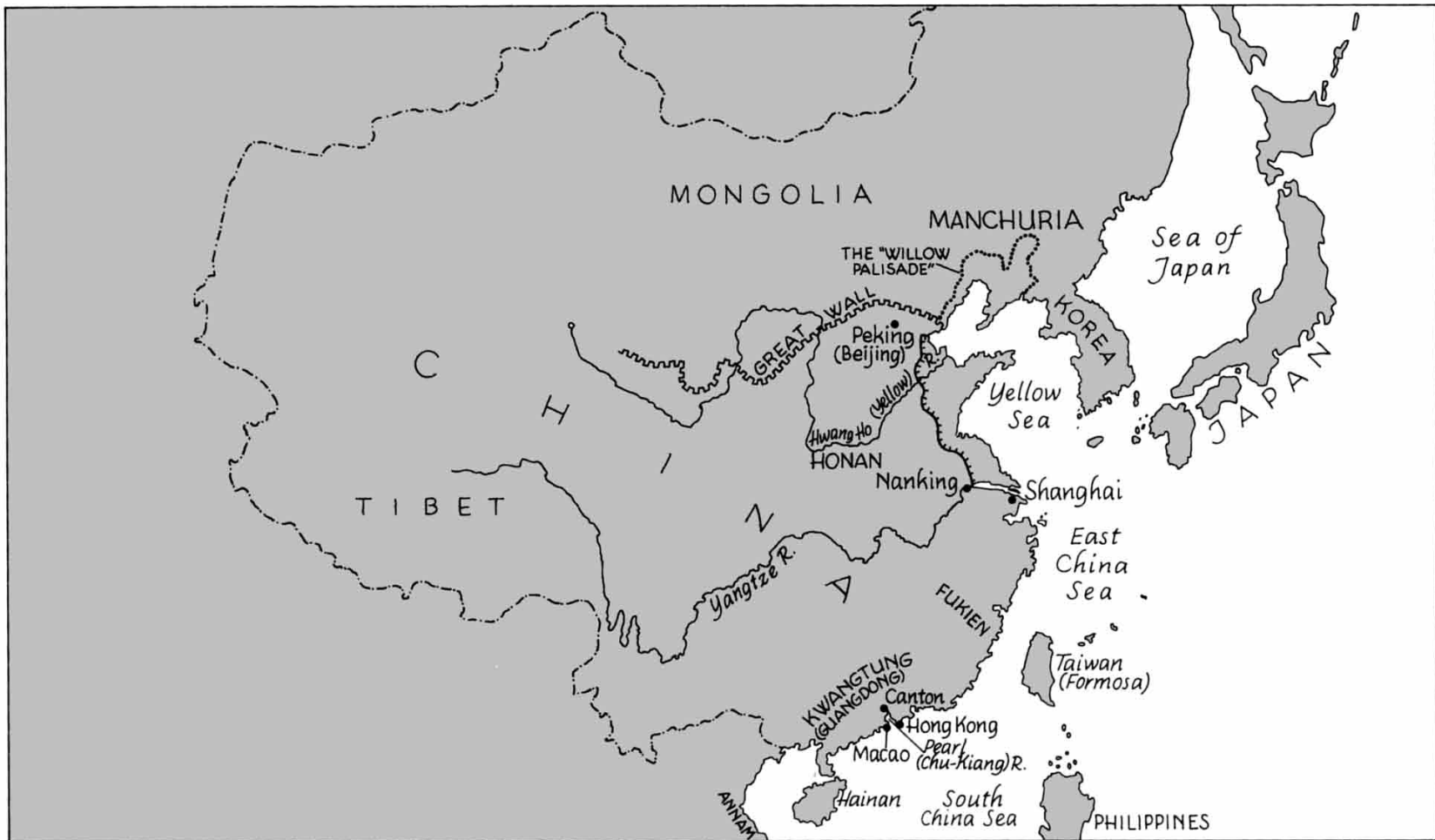
No question that Chinese loved clocks and watches. They were less happy, though, with their European attendants. The problem here was the Chinese sense of the wholeness of culture, the link between things, people, and the divine. The Catholic priests who brought them these machines were salesmen of a special kind. They sought to convert the Chinese to the one true trinitarian God of the Roman Church, and the clocks served a twofold purpose: entry ticket and argument for Christian superiority. Those who could make these things, who possessed special astronomical and geographical knowledge into the bargain, were they not superior in the largest moral sense? Was not their faith truer, wiser?

The Jesuits came prepared to make this argument, stretching the while the rules and rites of the Church to fit the moment. (The Chinese ideographs for ancestor worship, for example, became the signifiers for the Christian mass.) European laymen followed suit. Here is Gottfried Wilhelm von Leibniz, co-inventor of the calculus and philosopher:

What will these peoples say [the Persians, the Chinese], when they see this marvelous machine that you have made, which represents the true state of the heavens at any given time? I believe that they will recognize that the mind of man has something of the divine, and that this divinity communicates itself especially to Christians. The secret of the heavens, the greatness of the earth, and time measurement are the sort of thing I mean.<sup>4</sup>

On occasion, this argument carried. Catholic missionaries had some small success, although they had trouble persuading their open-minded "converts" to be good exclusivists (no other faith but the "true" faith) in the European tradition. But most Chinese saw these pretensions for what they were: an attack on Chinese claims to moral superiority, an assault on China's self-esteem.

The response, then, had to be a repudiation or depreciation of Western science and technology.<sup>5</sup> Here is the K'ang Hsi emperor, the most open-minded and curious of men in his pursuit of Western ways, the most zealous in teaching them: ". . . even though some of the Western methods are different from our own, and may even be an im-



LATE MING AND EARLY Q'ING CHINA, SIXTEENTH AND SEVENTEENTH CENTURIES.

The "willow palisade" surrounded the area of Chinese settlement in Liao-tung and cut it off from the rest of Manchuria.

provement, there is little about them that is new. The principles of mathematics all derive from the *Book of Changes*, and the Western methods are Chinese in origin. . . .”<sup>6</sup>

So ran the heart-warming myth. So the Chinese, who would not give up clocks, who wanted clocks, trivialized them as toys, which for many they were; or as nonfunctional symbols of status, inaccessible to *hoi polloi*. Premodern imperial China did not think of time knowledge as a right. Time belonged to the authorities, who sounded (proclaimed) the hour, and a personal timepiece was a rare privilege. As a result, although the imperial court set up workshops to make clocks and got their Jesuit clockmakers to train some native talent, these Chinese makers never matched Western horologists—for want of the best teachers and lack of commercial competition and emulation. Imperial China never had a clockmaking trade like Europe’s.

The same sin of pride (or indifference) shaped China’s response to European armament. Here we have anything but a toy. Cannon and muskets were instruments of death, hence of power. The Chinese had every reason to desire these artifacts, for the seventeenth century saw the Ming dynasty fighting to survive and losing to Tartars from the north. In these decades of war, European inventions might have tilted the balance of power.

And yet the Chinese never learned to make modern guns. Worse yet, having known and used cannon as early as the thirteenth century, they had let knowledge and skill slip away. Their city walls and gates had emplacements for cannon, but no cannon. Who needed them? No enemy of China had them. \* But China did have enemies, without and within. No European nation would have been deterred from armament by enemy weakness; when it came to death, Europeans maximized. European technology was also incremental: each gain led to further gain. The Chinese record of step-forward, step-back, signaled an entirely different process.†

\* The Jurchen Tartars (Manchus) who overthrew the Ming dynasty, replacing it with their own Qing line, opposed Chinese musketry with bows and arrows. Yet so ineffective were these muskets, presumably because they took so long to load and were hard to move about, that they were more handicap than advantage. See Wakeman, *The Great Enterprise*, I, 68.

† Students of Chinese technology and science, most notably Joseph Needham and his team, have made much of Chinese priority in discovery and invention, pushing the origins of important techniques and devices far back, well before their appearance in Europe. They see this quite properly as a sign of exceptional creativity and precocity, but they might better ask why the subsequent retreat and loss.

So it was that in 1621, when the Portuguese in Macao offered four cannon to the emperor by way of gaining favor, they had to send four cannoneers along with them. In 1630, the Chinese hired a detachment of Portuguese musketeers and artillerymen to fight for them, but gave up on the idea before they could put it into action. Probably a wise decision, because mercenaries have been the death or usurpation of more than one regime.\* But the Mings did use some Portuguese as teachers, and later on they got their Jesuit theologian-mechanicians to build them a foundry and cast cannon.

These Jesuit cannon seem to have been among the best China had. Some still found use in the nineteenth century, two hundred fifty years later. Most Chinese guns saw short service, however, being notoriously unreliable, more dangerous to the men who fired them than to the enemy. (We even hear of Chinese cannonballs made of dried mud, but these at least allowed the force of the explosion to exit by the mouth of the tube.) In general, Chinese authorities frowned on the use of firearms, perhaps because they doubted the loyalty of their subjects. In view of the inefficacy of these weapons, one wonders what they had to fear. Presumably the improvement that comes with use.<sup>7</sup>

All of this may seem irrational to a means-ends oriented person, but it was not quite that; the ends were different. Europeans saw the purpose of war as to kill the enemy and win; the Chinese, strong in space and numbers, thought otherwise. Here is Mu Fu-sheng (a pseudonym) on the imperial viewpoint:

. . . military defeat was the technical reason why Western knowledge should be acquired, but it was also the psychological reason why it should not be. Instinctively the Chinese preferred admitting military defeat, which could be reversed, to entering a psychological crisis; people could stand humiliation but not self-debasement. . . . The mandarins sensed the threat to Chinese civilization irrespective of the economic and political issues and they tried to resist this threat without regard to the economic and political dangers. In the past the Chinese had never had to give up their cultural pride: the foreign rulers always adopted the Chinese civilization. Hence there was nothing in their history to guide them through their modern crisis.<sup>8</sup>

\* The pressure actually came from Cantonese merchants, who feared losing the monopoly of foreign trade to such useful foreigners and bribed ministers at court to cancel the project—Wakeman, *The Great Enterprise*, I, 77, and n. 148.

Along with indifference to technology went resistance to European science. Christian clerics brought in not only clocks but knowledge (sometimes obsolete knowledge) and ideas. Some of this interested the court: in particular, astronomy and techniques of celestial observation were valuable to a ruler who claimed a monopoly of the calendar and used his mastery of time to control society as a whole. The Jesuits, moreover, trained gifted students who went on to do their own work: mathematicians who learned to use logarithms and trigonometry; astronomers who prepared new star tables.

Little of this got beyond Peking (Beijing), however, and soon the new learning ran into a nativist reaction that reached back to long-forgotten work of earlier periods. One leader of this return to the sources (Wen-Ting, 1635–1721) examined mathematical texts of the Song dynasty (tenth to thirteenth centuries) and proclaimed that the Jesuits had brought in little that was new. Later on, his manuscripts were published by his grandson under the title *Pearls Recovered from the Red River*.<sup>9</sup> The title was more eloquent than intended: by this time much Chinese scientific “inquiry” took the form of raking alluvial sediment.

Meanwhile European science marched ahead, and successive churchmen brought to China ever better knowledge (though still well behind the frontier). Here, however, constraints thwarted their mission. They had laid so much stress on the link between scientific knowledge and religious truth that any revision of the former implied a repudiation of the latter. How, then, deal with Europe’s constantly changing science? In 1710, a Jesuit astronomer sought to use new planetary tables based on the Copernican system. His superior would not permit it, for fear of “giving the impression of a censure on what our predecessors had so much trouble to establish and occasioning new accusations against [the Christian] religion.”<sup>10</sup>

This intellectual xenophobia did not apply to all Chinese. A few far-sighted officials and at least one emperor understood that the empire had much to gain by learning these new ways. Yet the curse of foreignness remained. In a letter of November 1640, the Jesuit von Bell wrote: “The word *hsi* [Western] is very unpopular, and the Emperor in his edicts never uses any word than *hsin* [new]; in fact the former word in used only by those who want to belittle us.”<sup>11</sup>

The would-be modernizers were thwarted, moreover, not only by brittle insecurities but also by the intrigue of a palace milieu where innovations were judged by their consequences for the pecking order. No

proposal that did not incite resistance; no novelty that did not frighten vested interests. At all levels, moreover, fear of reprimand (or worse) outweighed the prospect of reward. A good idea brought credit to one's superior; a mistake invariably meant blame for subordinates. It was easier to tell superiors what they wanted to hear.<sup>12</sup>

This prudent aversion to change struck generations of visitors. Listen to the Jesuit missionary Louis Le Comte (1655–1728): “They [the Chinese] are more fond of the most defective piece of antiquity than of the most perfect of the modern, differing much in that from us [Europeans], who are in love with nothing but what is new.”<sup>13</sup> George Staunton, Lord Macartney's secretary, disheartened by Chinese indifference to suggestions for improvement of their canals, lamented that “In this country they think that everything is excellent and that proposals for improvement would be superfluous if not blameworthy.” And a half century later a Christian friar, Evariste Huc, engaged in the Sisyphean task of missionizing, despairingly observed: “Any man of genius is paralyzed immediately by the thought that his efforts will win him punishment rather than rewards.”<sup>14</sup>

(Imperial China is not alone here. The smothering of incentive and the cultivation of mendacity are a characteristic weakness of large bureaucracies, whether public or private [business corporations]. Nominal colleagues, supposedly pulling together, are in fact adversarial players. They compete within the organization, not in a free market of ideas but in a closed world of guile and maneuver. The advantage lies with those in higher places.)

The rejection of foreign technology was the more serious because China itself had long slipped into technological and scientific torpor, coasting along on previous gains and losing speed as talent yielded to gentility. After all, China was its own world. Why did it not produce its own scientific and industrial revolutions? A thousand years ago, the Chinese were well ahead of anyone else—and certainly of Europe. Some would argue that this superiority held for centuries thereafter. Why, then, did China “fail”?

Some China scholars would mitigate the pain by euphemism: “Chinese society, though stable, was far from static and unchanging . . . the pace was slower . . . the degree of change less.”<sup>15</sup> (True, but the issue remains.) Others dismiss the question as unanswerable or illegitimate. Unanswerable because it is said to be impossible to explain a negative. (This is certainly not true in logic; the explanation of large-scale failure and success is inevitably complicated, but that is what history is all



about.) Illegitimate because where is the failure? The very use of the word imposes non-Chinese standards and expectations on China. (But why not? Why should one not expect China to be curious about nature and to want to understand it? To cumulate knowledge and go from one discovery to another? To pursue economic growth and development? To want to do more work with less labor? The earlier successes of China in these respects make these questions the more pertinent.)<sup>16</sup>

What about the relations between science and technology? Did the one matter to the other? After all, science was not initially a major contributor to the European Industrial Revolution, which built largely on empirical advances by practitioners. What difference, then, to Chinese technology if science had slowed to a crawl by the seventeenth century?

The answer, I think, is that in both China and Europe, science and technology were (and are) two sides of the same coin. The response to new knowledge of either kind is of a piece, and the society that closes its eyes to novelty from the one source has already been closing it to novelty from the other.

In addition, China lacked institutions for finding and learning—schools, academies, learned societies, challenges and competitions. The sense of give-and-take, of standing on the shoulders of giants, of progress—all of these were weak or absent. Here was another paradox. On the one hand, the Chinese formally worshipped their intellectual ancestors; in 1734, an imperial decree required court physicians to make ritual sacrifices to their departed predecessors.<sup>17</sup> On the other, they let the findings of each new generation slip into oblivion, to be recovered later, perhaps, by antiquarian and archeological research.\*

The history of Chinese advances, then, is one of points of light, separated in space and time, unlinked by replication and testing, obfuscated by metaphor and pseudo-profundity, limited in diffusion (nothing comparable to European printing)—in effect, a scattering of ephemera. Much of the vocabulary was invented for the occasion and fell as swiftly into disuse, so that scholars today spend a good deal of their effort deciphering these otherwise familiar ideograms. Much thought remained mired in metaphysical skepticism and speculation. Here Confucianism, with its easy disdain for scientific re-

\* And this in spite of considerable effort to collect knowledge in encyclopedias. One such project, really an anthology, may well have been the biggest of its kind ever attempted: 800,000 pages—Spence, *Search for Modern China*, p. 86. But a plethora of encyclopedias is a bad sign: like still photographs, they aim to fix knowledge at a point of time. They are useful as reference works, especially for historians, but they can impede free inquiry.

search, which it disparaged as “interventionist” and superficial, contributed its discouraging word: “With the microscope you see the surface of things. . . . But do not suppose you are seeing the things in themselves.”\*

This want of exchange and challenge, this subjectivity, explains the uncertainty of gains and the easy loss of impetus. *Chinese savants had no way of knowing when they were right*. It is subsequent research, mostly Western, that has discovered and awarded palms of achievement to the more inspired. Small wonder that China reacted so unfavorably to European imports. European knowledge was not only strange and implicitly belittling. In its ebullience and excitement, its urgency and competitiveness, its brutal commitment to truth and efficacy (Jesuits excepted), it went against the Chinese genius.

So the years passed, and the decades, and the centuries. Europe left China far behind. At first unbelieving and contemptuous, China grew anxious and frustrated. From asking and begging, the Westerners became insistent and impatient. The British saw two embassies dismissed with contempt. The third time, in 1839, they came in gunboats and blew the door down. Other Western nations followed suit, and then the Japanese, with their own pretensions to dominion after the Meiji Restoration (1868), moved to secure their place alongside Great Britain, France, Germany, and Russia.

Even so, the outsiders barely scratched the surface of the porcelain kingdom: some trading cities along the coast; uncertain spheres of influence in the interior; the right to import opium, kerosene, and manufactures. These represented only a small fraction of the market, but the potential size of the market—so many people!—made China the legendary El Dorado of the nineteenth and twentieth centuries.

Inside the brittle skin, the empire was restless, the people unhappy, the mandarinat divided, the rulers insecure. The Qing (pronounced “Ching”) dynasty (1644–1912), remember, was of Manchu origin. A small nomadic people of perhaps 1 million seized a nation of hundreds of millions and held them captive for two hundred fifty years. To be sure, the dynasty had adopted and been absorbed into Chinese culture,

\* From a poem, early nineteenth century, by the son of the prime minister, himself a high state dignitary, quoted in Taton, ed., *General History*, II, 593. Of course, when the time came, one could find support in Confucianism for other positions. One can quote sacred writ to one’s purpose. Which does not stop people from using it to bad purpose.

but the difference in manners, descent, and privilege remained. Markers (the obligation of Chinese males to wear the pigtail) distinguished rulers from ruled—a thorn in the flesh of the Chinese people. And while most of the administration was necessarily Chinese and these officials did not want for diligence and loyalty, they were inevitably diminished by their inherited inferiority and tainted by their collaboration.

The first years of the new dynasty saw improvement. Peace and order were restored; food supply kept up with demand. This was Europe's greatest gift to the people that thought it had everything: new crops (potatoes, sweet potatoes, peanuts) that could be grown on otherwise barren, upland soils. But now Chinese population grew sharply—the traditional Malthusian response—and when food supply leveled off, famine, hunger, and civil unrest returned. The Kangxi (K'ang Hsi) emperor (1662–1722) was barely in his grave when the trouble started, easily suppressed at first but a gathering storm.

Chinese thoughts turned easily to xenophobia. The foreigner became a focus of fear and hatred, the presumed source of difficulty, oppression, and humiliation. Much of this indictment was justified: superior power does not bring out the best in people. But insofar as it shifted responsibility for native ills, it was a self-defeating escapism. Most potent and costly of these internal explosions was the so-called Taiping rebellion (1850–64), a religiously inspired revolt that for all its nativism was part Christian-millenarian and took over a decade to suppress, at the cost of 20 million lives.

All this anger blocked economic modernization. Foreign ownership and management, for example, immensely complicated the introduction of railways. Steamboats were equated with gunboats—instruments of penetration and oppression. Mechanization, discouraged by an abundance of cheap labor and the reluctance of women to work outside the home, was tarred with the same brush.<sup>18</sup> As a result, factory industry barely had a foothold at the end of the nineteenth century, creeping into the foreign settlements of the treaty ports, extraterritorial carbuncles on the hide of the Chinese empire. Since the country could not defend itself against imports by tariffs—forbidden by the unequal treaties imposed from outside—these “plantation” enterprises had little exemplary influence on the domestic economy. China remained overwhelmingly agricultural with a scattered overlay of hand-craft industry.

And poor. Evariste Huc, who traveled through China as a missionary from 1839 to 1851, bears witness to the misery:

. . . unquestionably there can be found in no other country such a depth of disastrous poverty as in the Celestial Empire. Not a year passes in which a terrific number of persons do not perish of famine in some part or other of China; and the multitude of those who live merely from day to day is incalculable. Let a drought, a flood, or any accident whatever occur to injure the harvest in a single province, and two thirds of the population are immediately reduced to starvation. You see them forming up into numerous bands—perfect armies of beggars—and proceeding together, men, women, and children, to seek some little nourishment in the towns and villages. . . . Many faint by the wayside and die before they can reach the place where they had hoped to find help. You see their bodies lying in the fields and by the roadside, and you pass without taking notice—so familiar is the horrible spectacle.<sup>19</sup>



### “Modern Universal Science, Yes; Western Science, No!”

Nothing troubles a historian’s spirit more than the wounds of the past. This seems to be especially true when studying those countries and peoples whom time has mistreated. Once rich, they have become poor. Once mighty, they have fallen. Such losers and victims carry with them the memory of better days and resentments that feed on bitter experience. And the historian, who seeks to understand them and to translate them for others, who wants to know and love them, finds himself caught up in the campaign to justify their past, to assert their dignity, to salve their wounds.

This is a worthy mission. It can, however, get in the way of science. Nowhere is this more evident than in the historiography of China, navel of the universe, the earth’s richest and most populous empire a thousand years ago, still an object of admiration some three hundred years ago, only to be brought down to derision and pity thereafter. The desire of sinologists to defend China from outrageous outsiders has spawned a small industry of defensive scholarship, typically erudite and *ipso facto* intimidating, designed to enhance Chinese performance and correct Western criticisms.

Nowhere is this strain-to-maintain more prominent, indeed intrusive, than in discussions of the alleged failure of Chinese science and technology, especially in the context of Chinese contacts with Europe. Many China experts are not happy to be reminded of this

failure, for two reasons primarily. First, Westerners have often seen it as a mark of weakness and as proof of their superiority. In the seventeenth and eighteenth centuries even those visitors who admired China in general, and its government, its philosophy, its walled cities, its rectangular street patterns, its manufactures, and number of other aspects in particular, usually condemned and scorned Chinese science. Very awkward.

Secondly, nothing has been more distressing to the people and government of the new China than this condescension. In the past, the Chinese saw their land as “the one true center of civilization.”<sup>20</sup> How should they see it now—a caboose at the end of a European train? How to reconcile the pursuit of Western science with a legacy of sublime self-esteem? The answer: to stress the worldwide character of scientific inquiry and technological advance—one common stream—and highlight Chinese contributions to that enterprise. “The achievements of China’s ancient science and technology prove that the Chinese people have the ability needed to occupy their rightful place among the world’s peoples.”<sup>21</sup>

Western sinologues have taken up the cudgels. One tactic has been to minimize the import of the contrast. What’s all the fuss about? Why this fascination with West-East contacts and conflicts? China, these scholars contend, had its own history to live, and to see this solely in terms of confrontation, as a puppet of Europe-driven challenge and response, is to diminish it and empty it of its essence. Look in more than out.

The old emperors would have approved. But that kind of argument adds little to our understanding, for it is simply irrelevant to the issue of Chinese regression. You do not solve a major historical problem by pretending it does not exist and telling people to look elsewhere.

A somewhat similar dismissal says that we simply do not know enough about Chinese science to ask the question. To pose it would be “an utter waste of time, and distracting as well . . . until the Chinese tradition has been adequately comprehended from the inside.”<sup>22</sup> (Until when? It is always a good idea to learn more about one’s subject, but not at the expense of shelving important and timely questions. In fact, Nathan Sivin, author of this caution and collaborator with Joseph Needham in the exploration of the history of Chinese science, ignores his own advice and turns to this issue in other contexts.)

More to the point has been an effort to accentuate the positive by

painting a happy picture of Chinese achievements in the context of ecumenical science. This we might call the multicultural approach: knowledge is a house of many mansions, and diverse civilizations have each taken their own path to their own truth. And then, in science at least, all these truths merged in a common product. Here is Sivin again:

The historical discoveries of the last generation have left no basis for the old myths that the ancestry of modern science is exclusively European and that before modern times no other civilization was able to do science except under European influence. We have gradually come to understand that scientific traditions differing from the European tradition in fundamental respects—from techniques, to institutional settings, to views of nature and man's relation to it—existed in the Islamic world, India, and China, and in smaller civilizations as well. It has become clear that these traditions and the tradition of the Occident, far from being separate streams, have interacted more or less continuously from their beginnings until they were replaced by local versions of the modern science that they have all helped to form.<sup>23</sup>

This is the new myth, put forward as a given. Like other myths, it aims to shape the truth to higher ends, to form opinion in some other cause. In this instance, the myth is true in pointing out that modern science, in the course of its development, took up knowledge discovered by other civilizations; and that it absorbed and combined such knowledge and know-how with European findings. The myth is wrong, however, in implying a continuing symmetrical interaction among diverse civilizations.

In the beginning, when China and others were ahead, almost all the transmission went one way, from the outside to Europe. That was Europe's great virtue: unlike China, Europe was a learner, and indeed owed much to earlier Chinese inventions and discoveries. Later on, of course, the story was different: once Europe had invented modern science, the current flowed back, though not without resistance. Here, too, the myth misleads by implying a kind of equal, undifferentiated contribution to the common treasure. The vast bulk of modern science was of Europe's making, especially that breakthrough of the seventeenth and eighteenth centuries that goes by the name "scientific revolution." Not only did non-Western science contribute just about nothing (though there was more there than Europeans knew), but at that point it was incapable of participating, so far had it fallen behind or taken the wrong turning. This was no common stream.

All of this has not discouraged the propagation of the new gospel, because in matters of this kind scholars are often the servants of their ideals and their needs. The extraneous ideological and political motivation here may be inferred from the following text:

Educated people all over the world are now prepared to respond to new revelations about Chinese scientific traditions. . . . The heightened interest has meant a small but perceptible rise in the world's esteem for China. More to the point, it has meant that scientists all over the world are increasingly involved in the give and take that help Chinese scientists to be fully involved in the international scientific community.<sup>24</sup>

As though even now they needed encouragement.<sup>25</sup>