between thirty and fifty thousand native people. So many were exported to New England that most colonies there tried to ban or restrict the trade—the southern Indians were regarded as troublemakers. To be sure, Indians were not entirely hapless victims. Most slaves were prisoners of war, seized in intertribal conflicts and sold by enemy Indian groups to the English in exchange for guns, pots, and axes. Nonetheless, the simple existence of the Indian slave trade—thousands of native men and women working in bondage for Europeans—was a testament to Indians' catastrophic loss of power and status.

What happened? Europeans won military victories in New England, historians say, partly because they were divided among themselves. Indians were unwilling, too, to match the English tactic of massacring whole villages. But another, bigger part of the reason for the foreigners' triumph was that by the 1670s the newcomers outnumbered the natives. Groups like the Narragansett, which had been spared by the epidemic of 1616, were crushed by a smallpox epidemic in 1633. A third to half of the remaining Indians in New England died. The People of the First Light could avoid or adapt to European technology but not European disease. Their societies were destroyed by weapons their opponents could not control and did not even know they had.

3

In the Land of Four Quarters

"LIKE A CLUB RIGHT BETWEEN THE EYES"

In the early 1960s, Henry F. Dobyns, a young anthropologist working on a rural-aid project in Peru, dispatched assistants to storehouses of old records throughout the country. Dobyns himself traveled to the central cathedral in Lima. Entering the nave, visitors passed by a chapel on the right-hand side that contained the mummified body of Francisco Pizarro, the romantic, thuggish Spaniard who conquered Peru in the sixteenth century. Or, rather, they passed by a chapel that was *thought* to contain the conqueror's mummified body; the actual remains turned up years later, stashed inside two metal boxes beneath the main altar. Dobyns was not visiting the cathedral as a sightseer. Instead, he descended into the structure's basement—cold, dank, poorly lighted—to inspect birth and death registers kept there.

Dobyns belonged to a research team led by his doctoral advisor, Allan R. Holmberg of Cornell, the Holmberg after whom I have unkindly named Holmberg's Mistake. Holmberg had persuaded Cornell to let him lease an old colonial estate in rural Peru (the Carnegie Corporation, a charitable foundation despite its name, provided the funds). The estate included an entire village, whose inhabitants, most of them Indian, were its sharecroppers. "It was really a form of serfdom," Dobyns told me in a long conversation before his death in 2009. "The villagers were just heartbreakingly poor." Holmberg planned to test strategies for raising their incomes. Because land tenure was a contentious issue in Peru, he had asked Dobyns to finalize the lease and learn more about the estate's history. With his adjutants, Dobyns visited a dozen archives, including those in the cathedral.

Dobyns had been dipping his toe into archival research for more than a decade, with results he found intriguing. His first foray into the past occurred in 1953, while he was visiting his parents in Phoenix, Arizona, during a school break. A friend, Paul H. Ezell, asked him for some help with his doctoral thesis. The thesis concerned the adoption of Spanish culture by the Pima Indians, who occupy a 372,000-acre reservation south of Phoenix. Many of the region's colonial-era records survived in the Mexican town of Altar, in the border state of Sonora. Ezell wanted to examine those records, and asked Dobyns to come along. One weekend the two men drove from Phoenix to Nogales, on the border. From Nogales, they went south, west, and up into the highlands, often on dirt roads, to Altar.

Then a huddle of small houses surrounding a dozen little stores, Altar was, Dobyns said, "the end of the earth." Local women still covered their heads with shawls. Gringo visitors, few in number, tended to be prospectors chasing rumors of lost gold mines in the mountains.

After surprising the parish priest by their interest in his records, the two young men brought out their principal research tool: a Contura portable copier, an ancestor to the Xerox photocopier that required freshly stirred chemicals for each use. The machine strained the technological infrastructure of Altar, which had electricity for only six hours a day. Under flickering light, the two men pored through centuries-old ledgers, the pages beautifully preserved by the dry desert air. Dobyns was struck by the disparity between the large number of burials recorded at the parish and the far smaller number of baptisms. Almost all the deaths were from diseases brought by Europeans. The Spaniards arrived and then Indians died—in huge numbers, at incredible rates. It hit him, Dobyns told me, "like a club right between the eyes."

At first he did nothing about his observation. Historical demography was not supposed to be his field. Six years later, in 1959, he surveyed more archives in Hermosilla and found the same disparity. By this point he had almost finished his doctorate at Cornell and had been selected for Holmberg's project. The choice was almost haphazard: Dobyns had never been to Peru.

Peru, Dobyns learned, was one of the world's cultural wellsprings, a place as important to the human saga as the Fertile Crescent. Yet the area's significance had been scarcely appreciated outside the Andes, partly because the Spaniards so thoroughly ravaged Inka culture, and

partly because the Inka themselves, wanting to puff up their own importance, had actively concealed the glories of the cultures before them. Incredibly, the first full history of the fall of the Inka empire did not appear until more than three hundred years after the events it chronicled: William H. Prescott's *History of the Conquest of Peru,* published in 1847. Prescott's thunderous cadences remain a pleasure to read, despite the author's firmly stated belief, typical for his time, in the moral inferiority of the natives. But the book had no successor. More than a century later, when Dobyns went to Lima, Prescott's was still the only complete account. (A fine history, John Hemming's *Conquest of the Incas,* appeared in 1970. But it, too, has had no successor, despite a wealth of new information.) "The Inka were largely ignored because the entire continent of South America was largely ignored," Patricia Lyon, an anthropologist at the Institute for Andean Studies, in Berkeley, California, explained to me. Until the end of colonialism, she suggested, researchers tended to work in their own countries' possessions. "The British were in Africa, along with the Germans and French. The Dutch were in Asia, and nobody was in South America," because most of its nations were independent. The few researchers who did examine Andean societies were often sidetracked into ideological warfare. The Inka practiced a form of central planning, which led scholars into a sterile Cold War squabble about whether they were actually socialists *avant la lettre* in a communal Utopia or a dire precursor to Stalinist Russia.

Given the lack of previous investigation, it may have been inevitable that when Dobyns traced births and deaths in Lima he would be staking out new ground. He collected every book on Peruvian demography he could find. And he dipped into his own money to pay Cornell project workers to explore the cathedral archives and the national archives of Peru and the municipal archives of Lima. Slowly tallying mortality and natality figures, Dobyns continued to be impressed by what he found. Like any scholar, he eventually wrote an article about what he had learned. But by the time his article came out, in 1963, he had realized that his findings applied far beyond Peru.

The Inka and the Wampanoag were as different as Turks and Swedes. But Dobyns discovered, in effect, that their separate battles with Spain and England followed a similar biocultural template, one that explained the otherwise perplexing fact that *every* Indian culture, large or small, eventually succumbed to Europe. (Shouldn't there have been *some* exceptions?) And then, reasoning backward in time from this

master narrative, he proposed a new way to think about Native American societies, one that transformed not only our understanding of life before Columbus arrived, but our picture of the continents themselves.

TAWANTINSUYU

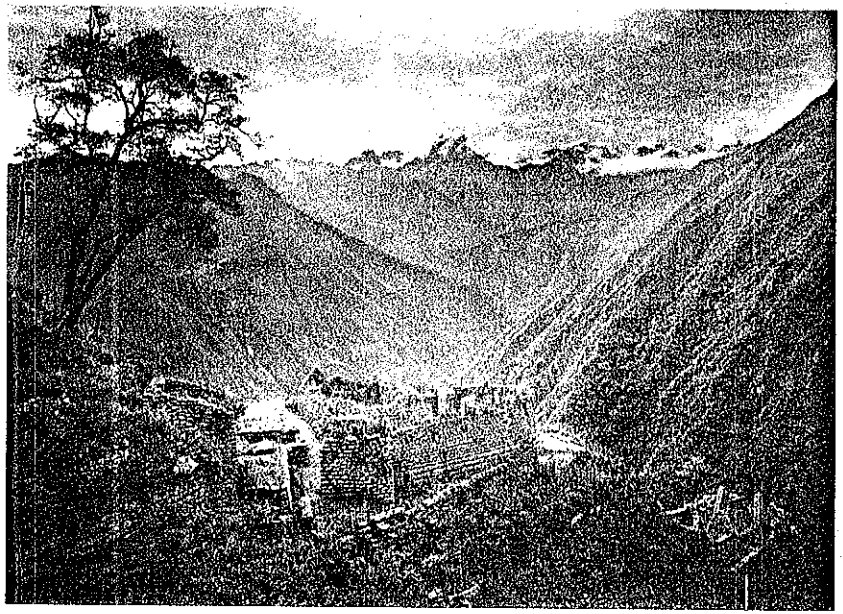
In 1491 the Inka ruled the greatest empire on earth. Bigger than Ming Dynasty China, bigger than Ivan the Great's expanding Russia, bigger than Songhay in the Sahel or powerful Great Zimbabwe in the West Africa tablelands, bigger than the cresting Ottoman Empire, bigger than the Triple Alliance (as the Aztec empire is more precisely known), bigger by far than any European state, the Inka dominion extended over a staggering thirty-two degrees of latitude—as if a single power held sway from St. Petersburg to Cairo. The empire encompassed every imaginable type of terrain, from the rainforest of upper Amazonia to the deserts of the Peruvian coast and the twenty-thousand-foot peaks of the Andes between. "If imperial potential is judged in terms of environmental adaptability," wrote the Oxford historian Felipe Fernández-Armesto, "the Inka were the most impressive empire builders of their day."

The Inka goal was to knit the scores of different groups in western South America—some as rich as the Inka themselves, some poor and disorganized, all speaking different languages—into a single bureaucratic framework under the direct rule of the emperor. The unity was not merely political: the Inka wanted to meld together the area's religion, economics, and arts. Their methods were audacious, brutal, and efficient: they removed entire populations from their homelands; shuttled them around the biggest road system on the planet, a mesh of stone-paved thoroughfares totaling as much as 25,000 miles; and forced them to work with other groups, using only Runa Sumi, the Inka language, on massive, faraway state farms and construction projects.* To monitor this cyclopean enterprise, the Inka developed a form of writing unlike any other, sequences of knots on strings that

*Runa Simi (Quechua, to the Spanish) is the language of all Inka names, including "Inka." I use the standard Runa Simi romanization, which means that I do not use the Spanish "Inca."

formed a binary code reminiscent of today's computer languages (see Appendix B, "Talking Knots"). So successful were the Inka at remolding their domain, according to the late John H. Rowe, an eminent archaeologist at the University of California at Berkeley, that Andean history "begins, not with the Wars of [South American] Independence or with the Spanish Conquest, but with the organizing genius of [empire founder] Pachakuti in the fifteenth century."

Highland Peru is as extraordinary as the Inka themselves. It is the only place on earth, the Cornell anthropologist John Murra wrote, "where millions [of people] insist, against all apparent logic, on living at 10,000 or even 14,000 feet above sea level. Nowhere else have people lived for so many thousands of years in such visibly vulnerable circumstances." And nowhere else have people living at such heights—in places where most crops won't grow, earthquakes and landslides are frequent, and extremes of weather are the norm—repeatedly created technically advanced, long-lasting civilizations. The Inka homeland, uniquely high, was also uniquely steep, with slopes of more than sixty-five degrees from the horizontal. (The steepest street in San Francisco, famed for its nearly undrivable hills, is thirty-one-and-a-half degrees.) And it was uniquely narrow; the distance from the Pacific shore to the mountaintops is in most places less than seventy-five



Highland Peru, captured in this image of the Inka ruin Wiñay Wayna by the indigenous Andean photographer Martín Chambi (1891–1973), is the only place on earth where people living at such inhospitable altitudes repeatedly created materially sophisticated societies.

miles and in many less than fifty. Ecologists postulate that the first large-scale human societies tended to arise where, as Jared Diamond of the University of California at Los Angeles put it, geography provided "a wide range of altitudes and topographies within a short distance." One such place is the Fertile Crescent, where the mountains of western Iran and the Dead Sea, the lowest place on earth, bracket the Tigris and Euphrates river systems. Another is Peru. In the short traverse from mountain to ocean, travelers pass through twenty of the world's thirty-four principal types of environment.

To survive in this steep, narrow hodgepodge of ecosystems, Andean communities usually sent out representatives and colonies to live up- or downslope in places with resources unavailable at home. Fish and shellfish from the ocean; beans, squash, and cotton from coastal river valleys; maize, potatoes, and the Andean grain quinoa from the foothills; llamas and alpacas for wool and meat in the heights—each area had something to contribute. Villagers in the satellite settlements exchanged products with the center, sending beans uphill and obtaining llama jerky in return, all the while retaining their citizenship in a homeland they rarely saw. Combining the fruits of many ecosystems, Andean cultures both enjoyed a better life than they could have wrested from any single place and spread out the risk from the area's frequent natural catastrophes. Murra invented a name for this mode of existence: "vertical archipelagoes."

Verticality helped Andean cultures survive but also pushed them to stay small. Because the mountains impeded north-south communication, it was much easier to coordinate the flow of goods and services east to west. As a result the region for most of its history was a jumble of small- and medium-scale cultures, isolated from all but their neighbors. Three times, though, cultures rose to dominate the Andes, uniting previously separate groups under a common banner. The first period of hegemony was that of Chavín, which from about 700 B.C. to the dawn of the Christian era controlled the central coast of Peru and the adjacent mountains. The next, beginning after Chavín's decline, was the time of two great powers: the technologically expert empire of Wari, which held sway over the coastline previously under Chavín; and Tiwanaku, centered on Lake Titicaca, the great alpine lake on the Peru-Bolivia border. (I briefly discussed Wari and Tiwanaku earlier, and will return to them—and to the rest of the

immense pre-Inka tradition in chapters 6 and 7.) After Wari and Tiwanaku collapsed, at the end of the first millennium, the Andes split into sociopolitical fragments and with one major exception remained that way for more than three centuries. Then came the Inka.

The Inka empire, the greatest state ever seen in the Andes, was also the shortest lived. It began in the fifteenth century and lasted barely a hundred years before being smashed by Spain.

As conquerors, the Inka were unlikely. Even in 1350 they were still an unimportant part of the political scene in the central Andes, and newcomers at that. In one of the oral tales recorded by the Spanish Jesuit Bernabé Cobo, the Inka originated with a family of four brothers and four sisters who left Lake Titicaca for reasons unknown and wandered until they came upon what would become the future Inka capital, Qosqo (Cusco, in Spanish). Cobo, who sighed over the "extreme ignorance and barbarity" of the Indians, dismissed such stories as "ludicrous." Nonetheless, archaeological investigation has generally borne them out: the Inka seem indeed to have migrated to Qosqo from somewhere else, perhaps Lake Titicaca, around 1200 A.D.

The colonial account of Inka history closest to indigenous sources is by Juan de Betanzos, a Spanish commoner who rose to marry an Inka princess and become the most prominent translator for the colonial government. Based on interviews with his in-laws, Betanzos estimated that when the Inka showed up in the Qosqo region "more than two hundred" small groups were already there. Qosqo itself, where they settled, was a hamlet "of about thirty small, humble straw houses."

Archaeological evidence suggests that the Inka gradually became more powerful. The apparent turning point in their fortunes occurred when they somehow made enemies of another group, the Chanka, who eventually attacked them. This unremarkable provincial squabble had momentous consequences.

According to a widely quoted chronology by the sixteenth-century cleric Miguel Cabello Balboa, the Chanka offensive took place in 1438. The Inka leader at that time was Wiraqocha Inka.* "A valiant prince,"

*The Inka sovereign had the title of "Inka"—he was *the* Inka—but he could also include "Inka" in his name. In addition, Inka elites changed their names as they went through their lives. Each Inka was thus known by several names, any of which might include "Inka."

according to Cobo, Wiraqocha Inka had a "warlike" nature even as a young man and vowed that after taking the throne "he would conquer half the world." Perhaps so, but he fled the Chanka attack with three of his four sons, including his designated successor, Inka Urqon. A younger son, Inka Cusi Yupanki, refused to run. Instead he fought the Chanka with such bravery that (according to the legend) the very stones rose up to join the fray. Inka Yupanki won the battle, capturing many Chanka leaders. Later he skinned them in celebration—Pizarro saw the trophies on display. But first Inka Yupanki presented the captives to his father, so that Wiraqocha Inka could perform the victory ritual of wiping his feet on their bodies.

Fearing that Inka Yupanki was becoming too big for his britches, Wiraqocha Inka chose that moment to remind his younger son of his subordinate status. The foot-wiping honor, he proclaimed, actually belonged to the next Inka: Inka Urqon. "To this," Betanzos wrote, "Inka Yupanki answered that he was begging his father to tread on the prisoners, that he had not won the victory so that such women as Inka Urqon and the rest of his brothers could step on them." A heated argument led to a standoff. In a Shakespearian move, Wiraqocha Inka decided to settle the issue by murdering his inconvenient younger son. (It was "a crazy impulse," one of Wiraqocha Inka's generals later explained.) Inka Yupanki was tipped off and the scheme failed. The humiliated Wiraqocha Inka went into exile while Inka Yupanki returned in triumph to Qosqo, renamed himself Pachakuti ("World-shaker"), and proclaimed that the ruling Inka families were descended from the sun. Then he went about conquering everything in sight.

Hey, wait a minute! the reader may be saying. This family story makes such terrific melodrama that it seems reasonable to wonder whether it actually happened. After all, every known written account of the Inka was set down after the conquest, a century or more after Pachakuti's rise. And these differ from each other, sometimes dramatically, reflecting the authors' biases and ignorance, and their informants' manipulation of history to cast a flattering light on their family lines. For these reasons, some scholars dismiss the chronicles entirely. Others note that both the Inka and the Spaniards had long traditions of record-keeping. By and large the chroniclers seem to have been conscious of their roles as witnesses and tried to live up to them. Their versions of events broadly agree with each other. As a

result, most scholars judiciously use the colonial accounts, as I try to do here.

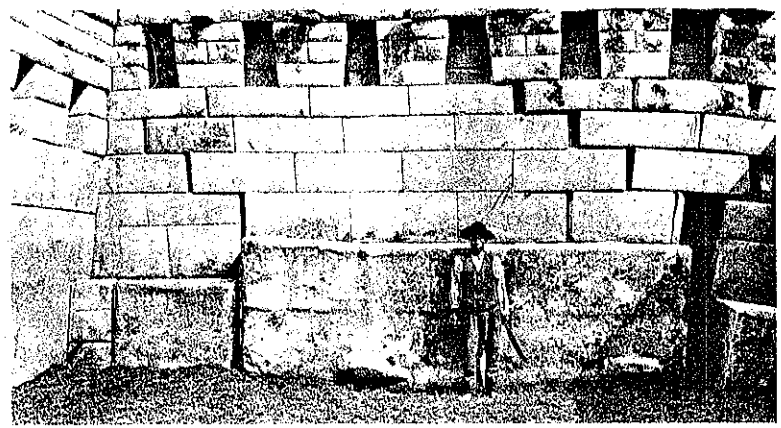
After taking the reins of state, Pachakuti spent the next twenty-five years expanding the empire from central highland Peru to Lake Titicaca and beyond. His methods were subtler and more economical with direct force than one might expect, as exemplified by the slow takeover of the coastal valley of Chincha. In about 1450 Pachakuti dispatched an army to Chincha under Qhapaq Yupanki (Ka-*pok* Yu-panki, meaning roughly "Munificent Honored One"), a kind of adopted brother. Marching into the valley with thousands of troops, Qhapaq Yupanki informed the fearful local gentry that he wanted nothing from Chincha whatsoever. "He said that he was the son of the Sun," according to the report of two Spanish priests who investigated the valley's history in the 1550s. "And that he had come for their good and for everyone's and that he did not want their silver nor their gold nor their daughters." Far from taking the land by force, in fact, the Inka general would give them "all that he was carrying." And he practically buried the Chincha leadership under piles of valuables. In return for his generosity, the general asked only for a little appreciation, preferably in the form of a large house from which the Inka could operate, and a staff of servants to cook, clean, and make the things needed by the outpost. And when Qhapaq Yupanki left, he asked Chincha to keep expressing its gratitude by sending craftspeople and goods to Qosqo.

A decade later Pachakuti sent out another army to the valley, this one led by his son and heir, Thupa Inka Yupanki ("Royal Honored Inka"). Thupa Inka closeted himself with the local leadership and laid out many inspired ideas for the valley's betterment, all of which were gratefully endorsed. Following the Inka template, the local leaders drafted the entire populace into service, dividing households by sex and age into cohorts, each with its own leader who reported to the leader of the next larger group. "Everything was in order for the people to know who was in control," the Spanish priests wrote. Thupa Inka delegated tasks to the mobilized population: hewing roads to link Chincha to other areas controlled by the Inka, building a new palace for the Inka, and tending the fields set aside for the Inka. Thupa Inka apparently left the area in charge of his brother, who continued managing its gratitude.

The next visit came from Pachakuti's grandson, probably in the 1490s. With him came escalating demands for land and service—the veneer of reciprocity was fading. By that point the Chincha had little alternative but to submit. They were surrounded by Inka satrapies; their economy was enmeshed with the imperial machinery; they had hundreds or thousands of people doing the empire's bidding. The Chincha elite, afraid to take on the Inka army, always chose compliance over valor, and were rewarded with plum positions in the colonial government. But their domain had ceased to exist as an independent entity.

In 1976 Edward N. Luttwak, now at the Center for Strategic and International Studies, in Washington, D.C., published a short, provocative book about imperial Rome that distinguished between *territorial* and *hegemonic* empires. Territorial empires directly occupy territories with their armies, throw out the old rulers, and annex the land. In hegemonic empires, the internal affairs of conquered areas remain in the hands of their original rulers, who become vassals. Territorial empires are tightly controlled but costly to maintain; hegemonic empires are inexpensive to maintain, because the original local rulers incur the costs of administration, but the loose tie between master and vassal encourages rebellion. Every conquest-minded state is a mixture of both, but all Native American empires leaned toward the hegemonic. Without horses, Indian soldiers unavoidably traveled slower than European or Asian soldiers. If brigades were tied up as occupiers, they could not be reassigned quickly. As a result, the Inka were almost forced to co-opt local rulers instead of displacing them. They did so with a vengeance.

Pachakuti gave command of the military to his son Thupa Inka in 1463 and turned his attention to totally rebuilding Qosqo in imperial style, in the process becoming one of history's great urban planners. Although he drew on Andean aesthetic traditions, Pachakuti put his own stamp on Inka art and architecture. Whereas the buildings of Sumer and Assyria were covered with brilliant mosaics and splendid pictorial murals, the Inka style was severe, abstract, stripped down to geometric forms—startlingly contemporary, in fact. (According to the Peruvian critic César Paternosto, such major twentieth-century painters as Josef Albers, Barnett Newman, and Mark Rothko were inspired by Inka art.)



Inka masonry amazed the conquistadors, who could not understand how they put together such enormous stones without mortar or draft animals. And it was astonishingly durable—the U.S. explorer Hiram Bingham photographed the citadel of Machu Piqchu in 1913, and found it in near-perfect condition despite four centuries of neglect.

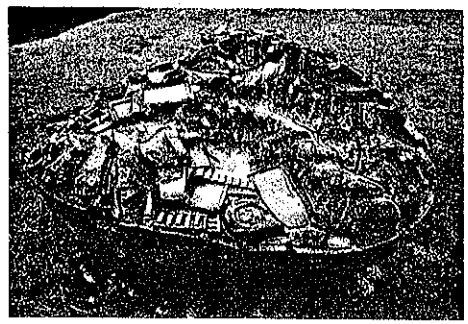
At the heart of the new Qosqo was the plaza of Awkaypata, 625 feet by 550 feet, carpeted almost in its entirety with white sand carried in from the Pacific and raked daily by the city's army of workers. Monumental villas and temples surrounded the space on three sides, their walls made from immense blocks of stone so precisely cut and fit that Pizarro's younger cousin Pedro, who accompanied the conqueror as a page, reported "that the point of a pin could not have been inserted in one of the joints." Across their facades ran enormous plates of polished gold. When the alpine sun filled Awkaypata, with its boldly delineated horizontal plain of white sand and sloping sheets of gold, the space became an amphitheater for the exaltation of light.

In Pachakuti's grand design, Awkaypata was the center of the empire—and the cosmos. From the great plaza radiated four highways that demarcated the four asymmetrical sectors into which he divided the empire, Tawantinsuyu, "Land of the Four Quarters." To the Inka, the quarters echoed the heavenly order. The Milky Way, a vast celestial river in Andean cosmology, crosses the Peruvian sky at an angle of about twenty-eight degrees to the earth's orbit. For six months the stream of stars slants across the sky from, so to speak, northeast to

southwest; the other six months it slants from southeast to northwest. The transition roughly coincides with the transition between dry and wet seasons—the time when the Milky Way releases life-giving water to Pacha Mama, Mother Earth—and divides the heavens into four quarters. Awkaypata, reflecting this pattern, was the axis of the universe.

Not only that, Qosqo was the center of a *second* spiritual pattern. Radiating out from Awkaypata was a drunken spiderweb of forty-one crooked, spiritually powerful lines, known as *zeq'e,* that linked holy features of the landscape: springs, tombs, caves, shrines, fields, stones. About four hundred of these *wak'a* (shrines, more or less) existed around Qosqo—the landscape around the capital was charged with telluric power. (The *zeq'e* also played a role in the Inka calendar, which apparently consisted of forty-one eight-day weeks.) So complexly interrelated was the network of *wak'a* and *zeq'e,* Columbia University archaeologist Terence D'Altroy has written, "that many otherwise diligent scholars have been reduced to scratching their heads and trusting someone else's judgement." Each *wak'a* had its own meaning, relative status, social affiliation, and set of ceremonial uses. One big stone outside town was believed to be the petrified body of one of the original Inka brothers; Inka armies often carried it with them, dressed in fine togs, as a kind of good-luck talisman. To keep track of the florid abundance of shrines and lines, Cobo observed, the empire "had more than a thousand men in the city of Qosqo who did nothing but remember these things."

Not only did Pachakuti reconfigure the capital, he laid out the institutions that characterized Tawantinsuyu itself. For centuries, villagers had spent part of their time working in teams on community



Around the Inka capital of Qosqo (modern Cusco) were more than four hundred *wak'a,* places in the landscape charged with spiritual power. Many of these were stones, some carved in elaborate representations, perhaps of the areas they influenced.

projects. Alternately bullying and cajoling, Pachakuti expanded the service obligation unrecognizably. In Tawantinsuyu, he decreed, all land and property belonged to the state (indeed, to the Inka himself). Peasants thus had to work periodically for the empire as farmers, herders, weavers, masons, artisans, miners, or soldiers. Often crews spent months away from home. While they were on the road, the state fed, clothed, and housed them—all from goods supplied by other work crews. Conscripts built dams, terraces, and irrigation canals; they grew crops on state land and raised herds on state pastures and made pots in state factories and stocked hundreds of state warehouses; they paved the highways and supplied the runners and llamas carrying messages and goods along them. Dictatorially extending Andean verticality, the imperium shuttled people and materiel in and out of every Andean crevice.

Not the least surprising feature of this economic system was that it functioned without money. True, the lack of currency did not surprise the Spanish invaders—much of Europe did without money until the eighteenth century. But the Inka did not even have *markets*. Economists would predict that this nonmarket economy—vertical socialism, it has been called—should produce gross inefficiencies. These surely occurred, but the errors were of surplus, not want. The Spanish invaders were stunned to find warehouses overflowing with untouched cloth and supplies. But to the Inka the brimming coffers signified prestige and plenty; it was all part of the plan. Most important, Tawantinsuyu "managed to eradicate hunger," the Peruvian novelist Mario Vargas Llosa noted. Though no fan of the Inka, he conceded that "only a very small number of empires throughout the whole world have succeeded in achieving this feat."

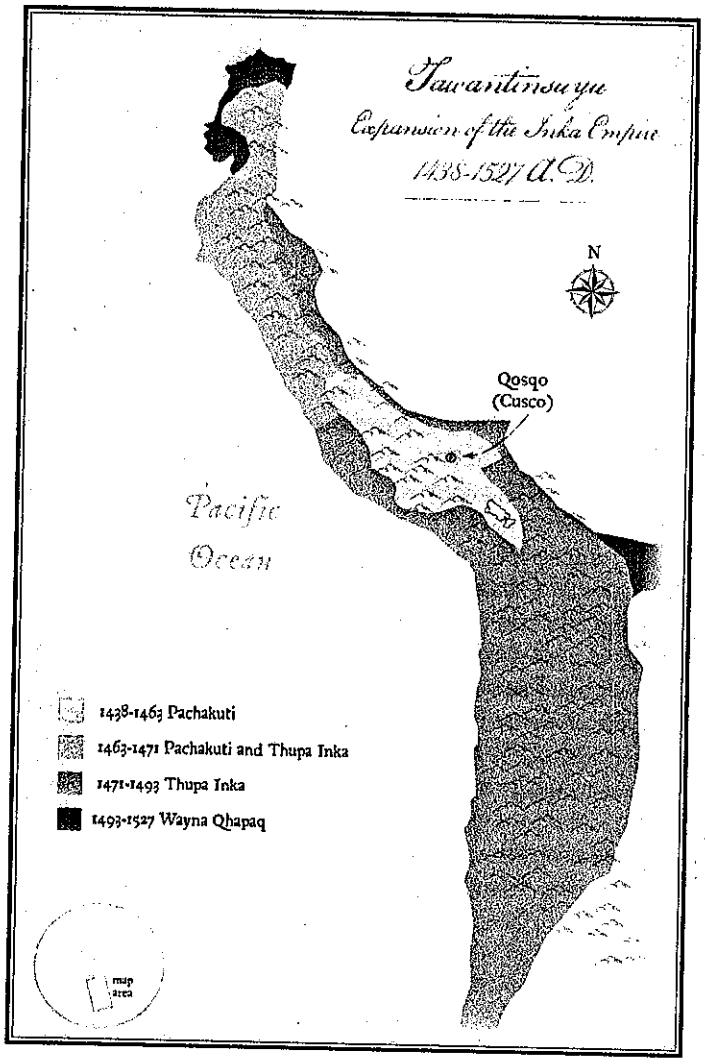
When Tawantinsuyu swallowed a new area, the Inka forcibly imported settlers from other, faraway areas, often in large numbers, and gave them land. The newcomers were encouraged to keep their own dress and customs rather than integrate into the host population. To communicate, both groups were forced to use Ruma Suni, the language of their conquerors. In the short run this practice created political tensions that the Inka manipulated to control both groups. In the long term it would have (if successful) eroded the distinctions among cultures and forged a homogeneous new nation in the imprint of Tawantinsuyu. Five centuries later the wholesale reshuffling of populations became an infamous trademark of Stalin and Mao. But the scale on which the Inka moved the pieces around the ethnic checkerboard would have excited their admiration. Incredibly, foreigners came to outnumber natives in many places. It is possible that ethnic clashes would eventually have caused Tawantinsuyu to implode, Yugoslavia-style. But if Pizarro had not interrupted, the Inka might have created a monolithic culture as enduring as China.

THE GILDED LITTER OF THE INKA

How did Pizarro do it? Sooner or later, everyone who studies the Inka confronts this question. Henry Dobyns wondered about it, too. The empire was as populous, rich, and well organized as any in history. But no other fell before such a small force: Pizarro had only 168 men and 62 horses. Researchers have often wondered whether the Inka collapse betokens a major historical lesson. The answer is yes, but the lesson was not grasped until recently.

The basic history of the empire was known well enough by the time Dobyns began reading the old colonial accounts. According to Cabello Balboa's chronology, Pachakuti died peacefully in 1471. His son Thupa Inka, long the military commander, now took the imperial "crown"—a multicolored braid, twisted around the skull like a headband, from which hung a red tasseled fringe that fell across the forehead. Carried on a golden litter—the Inka did not walk in public—Thupa Inka appeared with such majesty, according to the voyager Pedro Sarmiento de Gamboa, that "people left the roads along which he had to pass and, ascending the hills on either side, worshipped and adored" him by "pulling out their eyebrows and eyelashes." Minions collected and stored every object he touched, food waste included, to ensure that no lesser persons could profane these objects with their touch. The ground was too dirty to receive the Inka's saliva so he always spat into the hand of a courtier. The courtier wiped the spittle with a special cloth and stored it for safekeeping. Once a year everything touched by the Inka—clothing, garbage, bedding, saliva—was ceremonially burned.

Thupa Inka inaugurated the Inka custom of marrying his sister. In fact, Thupa Inka may have married *two* of his sisters. The practice was



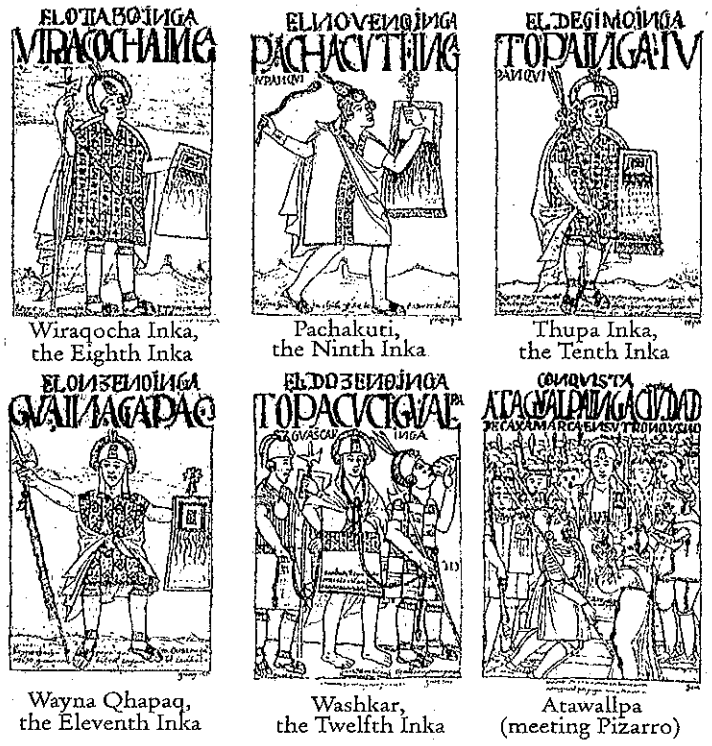
Tawantinsuyu is known to have risen and fallen with breathtaking rapidity, but the exact chronology of its trajectory is disputed. Most researchers regard the account of Miguel Cabello Balboa as approximately correct. It is the source for this map, though the reader is cautioned against regarding it as either exact or universally accepted.

genetically unsound but logically consistent. Only close relatives of the Inka were seen as of sufficient purity to produce his heir. As Inkas grew in grandeur, more purity was required. Finally only a sister would do. The Inka's sister-wives accompanied him on military forays, along with a few hundred or thousand of his subordinate wives. The massive scale of these domestic arrangements seems not to have impeded his imperial progress. By his death in 1493, Thupa Inka had sent his armies deep into Ecuador and Chile, doubling the size of Tawantinsuyu again. In terms of area conquered during his lifetime, he was in the league of Alexander the Great and Genghis Khan.

Thupa Inka's death set off a fight for the royal fringe. Tawantinsuyu did not have strict succession rules. Instead the Inka selected the son he thought most qualified. Thupa Inka had more than sixty sons from all of his wives, according to Sarmiento de Gamboa, so he had a lot of choice. Alas, Thupa Inka apparently selected one son but then changed his mind on his deathbed and selected another. Factions formed around each son, leading to a melée. The first son was banished or killed and the second took the name Wayna Qhapaq (*Why*-na Ka-*pok*) and became the Inka. Because the new Inka was still a teenager (his name means "Munificent Youth"), two of his uncles served as regents. One uncle tried to usurp power but was killed by the other. Eventually the Inka grew old enough to take the reins. Among his first official acts was killing two of his own brothers to avoid future family problems. Then he, like his father, married his sister.

Wayna Qhapaq was not a military adventurer like his father. He initially seems to have viewed his role mainly as one of consolidation, rather than conquest, perhaps because Tawantinsuyu was approaching the geographic limits of governability—communication down the long north-south spine of the empire was stretched to the limit. Much of Wayna Qhapaq's time was devoted to organizing the empire's public works projects. Often these were more political than practical. Because the Inka believed that idleness fomented rebellion, the Spanish traveler Pedro Cieza de León reported, he ordered unemployed work brigades "to move a mountain from one spot to another" for no practical purpose. Cieza de León once came upon three different highways running between the same two towns, each built by a different Inka.

Consolidation was completed in about 1520. Wayna Qhapaq then marched to Ecuador at the head of an army, intending to expand the



Wiraqocha Inka, the Eighth Inka

Pachakuti, the Ninth Inka

Thupa Inka, the Tenth Inka

Wayna Qhapaq, the Eleventh Inka

Washkar, the Twelfth Inka

Atawallpa (meeting Pizarro)

In 1615, the Inka writer Felipe Guamán Poma de Ayala presented his life's work, a massive history of Inka society with four hundred drawings, to King Philip II of Spain, hoping that the king would use it to learn more about his new subjects. Whether Philip ever saw the manuscript is unknown, but Poma de Ayala's work—one of the few non-European accounts of Inka life—is now a fundamental scholarly source. Although the portraits here are not taken from life, they hint at how the Inka viewed and remembered their leaders.

empire to the north. It was a journey of return: he had been born in southern Ecuador during one of his father's campaigns. He himself brought with him one of his teenage sons, Atawallpa. When Wayna Qhapaq came to his birthplace, the city now called Cuenca, Cobo reported, "he commanded that a magnificent palace be constructed for himself." Wayna Qhapaq liked his new quarters so much that he

stayed on while Atawallpa and his generals went out to subjugate a few more provinces.

They did not meet with success. The peoples of the wet equatorial forests did not belong to the Andean culture system and were not interested in joining. They fought ferociously. Caught by an ambush, Atawallpa was forced to retreat. Enraged by this failure, Cobo wrote, Wayna Qhapaq "prepared himself as quickly as possible to go in person and avenge this disgrace." He left his pleasure palace and publicly berated Atawallpa at the front. In a renewed offensive, the army advanced under the Inka's personal command. Bearing clubs, spears, bows, lances, slings, and copper axes, brilliant in cloaks of feathers and silver breastplates, their faces painted in terrifying designs, the Inka army plunged into the forests of the northern coast. They sang and shouted in unison as they fought. The battle seesawed until a sudden counterattack knocked Wayna Qhapaq out of his litter—a humiliation. Nearly captured by his foes, he was forced to walk like a plebe back to his new palace. The Inka army regrouped and returned. After prolonged struggle it subjugated its foes.

Finding the warm Ecuadorian climate more to his liking than that of chilly Qosqo, Wayna Qhapaq delayed his triumphal return for six years. Wearing soft, loose clothing of vampire-bat wool, he swanned around his palaces with a bowl of palm wine or *chicha*, a sweet, muddy, beer-like drink usually made from crushed maize. "When his captains and chief Indians asked him how, though drinking so much, he never got intoxicated," reported Pizarro's younger cousin and page, Pedro, "they say that he replied that he drank for the poor, of whom he supported many."

In 1525 Wayna Qhapaq suddenly got sick and expired in his Ecuadorian retreat. Once again the succession was contested and bloody. Details are murky, but on his deathbed the Inka seems to have passed over Atawallpa, who had not distinguished himself, and designated as his heir a son named Ninan K'uychi. Unluckily, Ninan K'uychi died of the same illness right before Wayna Qhapaq. Next in line was a nineteen-year-old son who had stayed behind in Qosqo. As was customary, high priests subjected this choice to a divination. They learned that this son would be dreadfully unlucky. The priest who reported this unhappy result to Wayna Qhapaq found him dead. In consequence, the court nobles were left to choose the emperor. They settled on the teenager who had been the Inka's final choice.

The teenager's principal qualification for the post was that his mother was Wayna Qhapaq's sister. Nonetheless, he had no doubts about crowning himself immediately—he didn't even wait to find out if Wayna Qhapaq had left any instructions or last wishes. The new Inka took the name Washkar Inka ("Golden Chain Inka"). Atawallpa remained in Ecuador, ostensibly because he was unable to show his face after being berated by his father, but presumably also because he knew that the life expectancy of Inka brothers tended to be short.

Meanwhile, Wayna Qhapaq's mummified body was dressed in fine clothing and taken back to Qosqo on a gold litter bedecked with feathers. Along the way, the dead emperor's executors, four high-ranking nobles, schemed to depose and murder Washkar and install yet another son in his place. Something aroused Washkar's suspicions as the party neared Qosqo—perhaps his discovery that Atawallpa had stayed in Ecuador with most of the Inka army, perhaps a tipoff from a loyal uncle whom the conspirators had approached. After staging a grand funeral for his father, Washkar ordered the executors to meet him one at a time, which provided the occasion to arrest them. Torture and execution followed.

The plot circumvented, Washkar went to work eliminating any remaining objections to his accession. Because Wayna Qhapaq had not actually married Washkar's mother—the union was properly incestuous but not properly legitimate—the new Inka demanded that his mother participate ex post facto in a wedding ceremony with his father's mummy. Even for the Andes this was an unusual step. Washkar further solidified his credentials as ruler by marrying his sister. According to the unsympathetic account of Cabello Balboa, Washkar's mother, who was apparently willing to marry her dead brother, objected to her son's plan to marry her daughter. The ceremony took place only after "much begging and supplication."

Civil war was probably unavoidable. Egged on by scheming courtiers and generals, relations between Atawallpa and Washkar spent several years swinging through the emotional valence from concealed suspicion to overt hostility. Washkar, in Qosqo, had the machinery of the state at his disposal; in addition, his claim to the fringe was generally accepted. Atawallpa, in Ecuador, had a war-tested army and the best generals but a weaker claim to the throne (his mother was merely his father's cousin, not his sister). The war

lasted for more than three years, seesawed across the Andes, and was spectacularly brutal. Washkar's forces seized the initial advantage, invading Ecuador and actually capturing Atawallpa, almost tearing off one of his ears in the process. In a sequence reminiscent of Hollywood, one of Atawallpa's wives supposedly smuggled a crowbar-like tool into his improvised battlefield prison (his intoxicated guards permitted a conjugal visit). Atawallpa dug his way out, escaped to Ecuador, reassembled his army, and drove his foes south. On a plateau near today's Peru-Ecuador border the northern forces personally led by Atawallpa shattered Washkar's army. A decade later Cieza de León saw the battleground and from the wreckage and unburied remains thought the dead could have numbered sixteen thousand. The victors captured and beheaded Washkar's main general. Atawallpa mounted a bowl atop the skull, inserted a spout between the teeth, and used it as a cup for his *chicha*.

With the momentum of war turning against him, Washkar left Qosqo to lead his own army. Atawallpa sent his forces ahead to meet it. After a horrific battle (Cieza de León estimated the dead at thirty-five thousand), Washkar was captured in an ambush in the summer of 1532. Atawallpa's generals took the Inka as a captive to Qosqo and executed his wives, children, and relatives in front of him. Meanwhile, Atawallpa's triumphant cavalcade, perhaps as many as eighty thousand strong, slowly promenaded to Qosqo. In October or November 1532, the victors stopped outside the small city of Cajamarca, where they learned that pale, hairy people who sat on enormous animals had landed on the coast.

No matter how many times what happened next has been recounted, it has not lost its power to shock: how the curious Atawallpa decided to wait for the strangers' party to arrive; how Pizarro, for it was he, persuaded Atawallpa to visit the Spaniards in the central square of Cajamarca, which was surrounded on three sides by long, empty buildings (the town apparently had been evacuated for the war); how on November 16, 1532, the emperor-to-be came to Cajamarca in his gilded and feather-decked litter, preceded by a squadron of liveried men who swept the ground and followed by five or six thousand troops, almost all of whom bore only ornamental, parade-type weapons; how Pizarro hid his horses and cannons just within the buildings lining the town square, where the 168 Spanish awaited the

Inka with such fear, Pedro Pizarro noted, that many "made water without knowing it out of sheer terror"; how a Spanish priest presented Atawallpa with a travel-stained Christian breviary, which the Inka, to whom it literally meant nothing, impatiently threw aside, providing the Spanish with a legal fig leaf for an attack (desecrating Holy Writ); how the Spanish, firing cannons, wearing armor, and mounted on horses, none of which the Indians had ever seen, suddenly charged into the square; how the Indians were so panicked by the smoke and fire and steel and charging animals that in trying to flee hundreds trampled each other to death ("they formed mounds and suffocated one another," one conquistador wrote); how the Spanish took advantage of the soldiers' lack of weaponry to kill almost all the rest; how the native troops who recovered from their initial surprise desperately clustered around Atawallpa, supporting his litter with their shoulders even after Spanish broadswords sliced off their hands; how Pizarro personally dragged down the emperor-to-be and hustled him through the heaps of bodies on the square to what would become his prison.

Pizarro exulted less in victory than one might imagine. A self-made man, the illiterate, illegitimate, neglected son of an army captain, he ached with dreams of wealth and chivalric glory despite the fortune he had already acquired in the Spanish colonies. After landing in Peru he realized that his tiny force was walking into the maw of a powerful empire. Even after his stunning triumph in Cajamarca he remained torn between fear and ambition. For his part, Atawallpa observed the power of Inka gold and silver to cloud European minds.* Precious metals were not valuable in the same way in Tawantinsuyu, because there was no currency. To the Inka ruler, the foreigners' fascination with gold apparently represented his best chance to manipulate the situation to his advantage. He offered to fill a room twenty-two feet by seventeen feet full of gold objects—and two equivalent rooms with silver—in exchange for his freedom. Pizarro quickly agreed to the plan.

*Because of their obsession with gold, the conquistadors are often dismissed as "gold crazy." In fact they were not so much gold crazy as status crazy. Like Hernán Cortés, who conquered Mexico, Pizarro was born into the lower fringes of the nobility and hoped by his exploits to earn titles, offices, and pensions from the Spanish crown. To obtain these royal favors, their expeditions had to bring something back for the king. Given the difficulty and expense of transportation, precious metals—"nonperishable, divisible, and compact," as historian Matthew Restall notes—were almost the only goods that they could plausibly ship to Europe. Inka gold and silver thus represented to the Spaniards the intoxicating prospect of social betterment.

Atawallpa, still in command of the empire, ordered his generals to strip Qosqo of its silver and gold. Not having lived in the city since childhood, he had little attachment to it. He also told his men to slay Washkar, whom they still held captive; all of Washkar's main supporters; and, while they were at it, all of Atawallpa's surviving brothers. After his humiliating captivity ended, Atawallpa seems to have believed, the ground would be clear for his rule.

Between December 1532 and May 1533, caravans of precious objects—jewelry, fine sculptures, architectural ornamentation—wended on llama-back to Cajamarca. As gold and silver slowly filled the rooms, all of Tawantinsuyu seemed frozen. It was as if someone had slipped into the Kremlin in 1950 and held Stalin at gunpoint, leaving the nation, accustomed to obeying a tyrant, utterly rudderless. Meanwhile, the waiting Spanish, despite their unprecedented success, grew increasingly fearful and suspicious. When Atawallpa fulfilled his half of the bargain and the ransom was complete Pizarro melted everything into ingots and shipped them to Spain. The conquistadors did not follow through on their part of the deal. Rather than releasing Atawallpa, they garroted him. Then they marched to Qosqo.

Almost at a stroke, just 168 men had dealt a devastating blow to the greatest empire on earth. To be sure, their victory was nowhere near complete: huge, bloody battles still lay ahead. Even after the conquistadors seized Qosqo, the empire regrouped in the hinterlands, where it fought off Spanish forces for another forty years. Yet the scale of Pizarro's triumph at Cajamarca cannot be gainsaid. He had routed a force fifty times larger than his own, won the greatest ransom ever seen, and vanquished a cultural tradition that had lasted five millennia—all without suffering a single casualty.

VIRGIN SOIL

I have just pulled a fast one. The Inka history above is as contemporary scholars understand it. They disagree on which social factors to emphasize and on how much weight to assign individual Spanish

chronicles, but the outline seems not in serious dispute. The same is not true of my rendering of Pizarro's conquest. I presented what is more or less the account current when Dobyns arrived in Peru. But in his reading he discovered a hole in this version of events—a factor so critical that it drastically changed Dobyns's view of native America.

Why did the Inka lose? The usual answer is that Pizarro had two advantages: steel (swords and armor, rifles and cannons) and horses. The Indians had no steel weapons and no animals to ride (llamas are too small to carry grown men). They also lacked the wheel and the arch. With such inferior technology, Tawantinsuyu had no chance. "What could [the Inka] offer against this armory?" asked John Hemming, the conquest historian. "They were still fighting in the bronze age." The Inka kept fighting after Atawallpa's death. But even though they outnumbered the Europeans by as much as a hundred to one, they always lost. "No amount of heroism or discipline by an Inka army," Hemming wrote, "could match the military superiority of the Spaniards."

But just as guns did not determine the outcome of conflict in New England, steel was not the decisive factor in Peru. True, anthropologists have long marveled that Andean societies did not make steel. Iron is plentiful in the mountains, yet the Inka used metal for almost nothing useful. In the late 1960s, Heather Lechtman, an archaeologist at the MIT Center for Materials Research in Archaeology and Ethnology, suggested to "an eminent scholar of Andean prehistory that we take a serious and careful look at Andean metallurgy." He responded, "But there wasn't any." Lechtman went and looked anyway. She discovered that Inka metallurgy was, in fact, as refined as European metallurgy, but that it had such different goals that academic experts had not even recognized it.

According to Lechtman, Europeans sought to optimize metals' "hardness, strength, toughness, and sharpness." The Inka, by contrast, valued "plasticity, malleability, and toughness." Europeans used metal for tools. Andean societies primarily used it as a token of wealth, power, and community affiliation. European metalworkers tended to create metal objects by pouring molten alloys into shaped molds. Such foundries were not unknown to the Inka, but Andean societies vastly preferred to hammer metal into thin sheets, form the sheets around molds, and solder the results. The results were remarkable by any standard—one delicate bust that Lechtman analyzed was less than an inch tall but made of twenty-two separate gold plates painstakingly joined.

If a piece of jewelry or a building ornament was to proclaim its owner's status, as the Inka desired, it needed to shine. Luminous gold and silver were thus preferable to dull iron. Because pure gold and silver are too soft to hold their shape, Andean metalworkers mixed them with other metals, usually copper. This strengthened the metal but turned it an ugly pinkish-copper color. To create a lustrous gold surface, Inka smiths heated the copper-gold alloy, which increases the rate at which the copper atoms on the surface combine with oxygen atoms in the air—it makes the metal corrode faster. Then they pounded the hot metal with mallets, making the corrosion flake off the outside. By repeating this process many times, they removed the copper atoms from the surface of the metal, creating a veneer of almost pure gold. Ultimately the Inka ended up with strong sheets of metal that glittered in the sun.

Andean cultures did make tools, of course. But rather than making them out of steel, they preferred fiber. The choice is less odd than it may seem. Mechanical engineering depends on two main forces: compression and tension. Both are employed in European technology, but the former is more common—the arch is a classic example of compression. By contrast, tension was the Inka way. "Textiles are held together by tension," William Conklin, a research associate at the Textile Museum in Washington, D.C., told me. "And they exploited that tension with amazing inventiveness and precision."

In the technosphere of the Andes, Lechtman explained, "people solved basic engineering problems through the manipulation of fibers," not by creating and joining hard wooden or metal objects. To make boats, Andean cultures wove together reeds rather than cutting up trees into planks and nailing them together. Although smaller than big European ships, these vessels were not puddle-muddlers; Europeans first encountered Tawantinsuyu in the form of an Inka ship sailing near the equator, three hundred miles from its home port, under a load of fine cotton sails. It had a crew of twenty and was easily the size of a Spanish caravelle. Famously, the Inka used foot-thick cables to make suspension bridges across mountain gorges. Because Europe had no bridges without supports below, they initially terrified

Pizarro's men. Later one conquistador reassured his countrymen that they could walk across these Inka inventions "without endangering themselves."

Andean textiles were woven with great precision—elite garments could have a thread count of five hundred per inch—and structured in elaborate layers. Soldiers wore armor made from sculpted, quilted cloth that was almost as effective at shielding the body as European armor and much lighter. After trying it, the conquistadors ditched their steel breastplates and helmets wholesale and dressed like Inka infantry when they fought.

Although Andean troops carried bows, javelins, maces, and clubs, their most fearsome weapon, the sling, was made of cloth. A sling is a woven pouch attached to two strings. The slinger puts a stone or slug in the pouch, picks up the strings by the free ends, spins them around a few times, and releases one of the strings at the proper moment. Expert users could hurl a stone, the Spanish adventurer Alonso Enríquez de Guzmán wrote, "with such force that it will kill a horse. . . . I have seen a stone, thus hurled from a sling, break a sword in two pieces when it was held in a man's hand at a distance of thirty paces." (Experimenting with a five-foot-long, Andean-style sling and an egg-sized rock from my garden, I was able, according to my rough calculation, to throw the stone at more than one hundred miles per hour. My aim was terrible, though.)

In a frightening innovation, the Inka heated stones in campfires until they were red hot, wrapped them in pitch-soaked cotton, and hurled them at their targets. The cotton caught fire in midair. In a sudden onslaught the sky would rain burning missiles. During a counterattack in May 1536 an Inka army used these missiles to burn Spanish-occupied Qosqo to the ground. Unable to step outside, the conquistadors cowered in shelters beneath a relentless, weeks-long barrage of flaming stone. Rather than evacuate, the Spanish, as brave as they were greedy, fought to the end. In a desperate, last-ditch counterattack, the Europeans eked out victory.

More critical than steel to Pizarro's success was the horse. The biggest animal in the Andes during Inka times was the llama, which typically weighs three hundred pounds. Horses, four times as massive, were profoundly, terribly novel. Add to this the shock of observing humans somehow astride their backs like half-bestial nightmare figures and it is possible to imagine the dismay provoked by Pizarro's

The conquistadors disparaged steep Inka highways because they had been designed for sure-footed llamas rather than horses. But they were beautifully made—this road, photographed in the 1990s, had lasted more than five hundred years without maintenance.

cavalry. Not only did Inka infantrymen have to overcome their initial stupefaction, their leaders had to reinvent their military tactics while in the midst of an invasion. Mounted troops were able to move at rates never encountered in Tawantinsuyu. "Even when the Indians had posted pickets," Hemming observed, "the Spanish cavalry could ride past them faster than the sentries could run back to warn of danger." In clash after clash, "the dreaded horses proved invincible." But horses are not *inherently* unbeatable; the Inka simply did not discover quickly enough where they had an advantage: on their roads.

European-style roads, constructed with horses and cars in mind, view flatness as a virtue; to go up a steep hill, they use switchbacks to make the route as horizontal as possible. Inka roads, by contrast, were built for llamas. Llamas prefer the coolness of high altitudes and, unlike horses, readily go up and down steps. As a result, Inka roads

eschewed valley bottoms and used long stone stairways to climb up steep hills directly—brutal on horses' hooves, as the conquistadors often complained. Traversing the foothills to Cajamarca, Francisco Pizarro's younger brother Hernando lamented that the route, a perfectly good Inka highway, was "so bad" that the Spanish "could not use horses on the roads, not even with skill." Instead the conquistadors had to dismount and lead their reluctant animals through the steps. At that point they were vulnerable. Late in the day, Inka soldiers learned to wait above and roll boulders on their foes, killing some of the animals and frightening others into running away. Men left behind could be picked off at leisure. Multiple ambushes cost the lives of many Spanish troops and animals.

To be sure, horses confer an advantage on flat ground. But even on the plains the Inka could have won. Foot soldiers have often drubbed mounted troops. At the battle of Marathon in 490 B.C., the outnumbered, outarmored Athenian infantry destroyed the cavalry of the Persian emperor Darius I. More than six thousand Persians died; the Greeks lost fewer than two hundred men. So dire had the situation initially appeared that before the fight Athens sent a messenger to Sparta, its hated rival, to beg for aid. In the original marathon, the courier ran more than a hundred miles in two days to deliver his message. But by the time the Spartan reinforcements arrived, there was nothing to see but dead Persians.

The Inka losses were not foreordained. Their military was hampered by the cult of personality around its deified generals, which meant both that leaders were not easily replaced when they were killed or captured and that innovation in the lower ranks was not encouraged. And the army never learned to bunch its troops into tight formations, as the Greeks did at Marathon, forming human masses that can literally stand up to cavalry. Nonetheless, by the time of the siege of Qosqo the Inka had developed an effective anti-cavalry tactic: bolas. The Inka bola consisted of three stones tied to lengths of llama tendon. Soldiers threw them, stones a-whirl, at charging horses. The weapons wrapped themselves around the animals' legs and brought them down to be killed by volleys of sling missiles. Had the bolas come in massed, coordinated onslaughts instead of being wielded by individual soldiers as they thought opportune, Pizarro might well have met his match.

If not technology or the horse, what defeated the Inka? As I said, some of the blame should be heaped on the overly centralized Inka command structure, a problem that has plagued armies throughout time. But another, much larger part of the answer was first stated firmly by Henry Dobyns. During his extracurricular reading about Peru, he came across a passage by Pedro Cieza de León, the Spanish traveler who observed three roads between the same two cities. Entranced by the first exhibition of Inka booty in Spain, Cieza de León had crossed the Atlantic as a teenager and spent fifteen years in Peru, Bolivia, Ecuador, and Colombia, traveling, fighting, and taking notes for what would become a massive, three-volume survey of the region. Only the first part was printed in his lifetime, but by the twentieth century historians had found and published most of the rest. Dobyns learned something from Cieza de León that was not mentioned in Prescott's history, in the Smithsonian's official *Handbook of South American Indians,* or in any of the then-standard descriptions of Tawantinsuyu. According to Cieza de León, Wayna Qhapaq, Atawallpa's father, died when "a great plague of smallpox broke out [in 1524 or 1525], so severe that more than 200,000 died of it, for it spread to all parts of the kingdom."

Smallpox not only killed Wayna Qhapaq, it killed his son and designated heir—and his brother, uncle, and sister-wife. The main generals and much of the officer corps died, wrote the Inka chronicler Santacruz Pachacuti Yamqui Salcamayhua, "all their faces covered with scabs." So did the two regents left in Qosqo by Wayna Qhapaq to administer the empire. After the dying Wayna Qhapaq locked himself away so that nobody could see his pustulous face, Salcamayhua reported, he was visited by a terrifying midnight vision. Surrounding him in his dream were "millions upon millions of men." The Inka asked who they were. "Souls of the lost," the multitude told him. All of them "would die from the pestilence," each and every one.

The story is probably apocryphal, but its import isn't. Smallpox has an incubation period of about twelve days, during which time sufferers, who may not know they are sick, can infect anyone they meet. With its fine roads and great population movements, Tawantinsuyu was perfectly positioned for a major epidemic. Smallpox radiated throughout the empire like ink spreading through tissue paper. Millions of people simultaneously experienced its symptoms: high fever,

vomiting, severe pain, oozing blisters everywhere on the body. Unable to number the losses, the Jesuit Martín de Murúa said only that the toll was "infinite thousands."

The smallpox virus is generally thought to have evolved from one of two closely related viruses: camelpox virus, which as the name suggests affects domestic camels, or taterapox virus, which is found in Kemp's gerbil, a West African rodent that is considered an agricultural pest. (The virus's name comes from the gerbil's former scientific name, *Tatera kempi*.) The idea is that about 15,000 years ago a chance mutation let the virus "jump the species barrier," as scientists say, and infect human beings. Neither the camel nor the gerbil existed in the Americas, so the disease never had a chance to exist there. In Europe, Asia, and Africa smallpox became a constant, terrible presence, infecting almost every child, killing many and leaving others with the disfiguring pockmarks that are its telltale sign. Survivors become immune to the disease. Because most Europeans contracted the disease in childhood, the great majority of European adults, the conquistadors among them, were immune. Indians, by contrast, had never been exposed to it—they were, in a second bit of scientific jargon, "virgin soil."

Virgin-soil death rates for smallpox are hard to establish because for the last century most potential research subjects have been vaccinated. But a study in the early 1960s of seven thousand unvaccinated smallpox cases in southern India found that the disease killed 43 percent of its victims. Noting the extreme vulnerability of Andean populations—they would not even have known to quarantine victims, as Europeans had—Dobyns hypothesized that the empire's population "may well have been halved during this epidemic." In about three years, that is, as many as one out of two people in Tawantinsuyu died.

The human and social costs are beyond measure. Such overwhelming traumas tear at the bonds that hold cultures together. The epidemic that struck Athens in 430 B.C., Thucydides reported, enveloped the city in "a great degree of lawlessness." The people "became contemptuous of everything, both sacred and profane." They joined ecstatic cults and allowed sick refugees to desecrate the great temples, where they died untended. A thousand years later the Black Death shook Europe to its foundations. Martin Luther's rebellion against Rome was a grandson of the plague, as was modern anti-Semitism. Landowners' fields were emptied by death, forcing them either to

work peasants harder or pay more to attract new labor. Both choices led to social unrest: the Jacquerie (France, 1358), the Revolt of Ciompi (Florence, 1378), the Peasants' Revolt (England, 1381), the Catalonian Rebellion (Spain, 1395), and dozens of flare-ups in the German states. Is it necessary to spell out that societies mired in fratricidal chaos are vulnerable to conquest? To borrow a trope from the historian Alfred Crosby, if Genghis Khan had arrived with the Black Death, this book would not be written in a European language.

As for Tawantinsuyu, smallpox wiped out Wayna Qhapaq and his court, which led to civil war as the survivors contested the spoils. The soldiers who died in the battle between Atawallpa and Washkar were as much victims of smallpox as those who died from the virus itself.

The ferocity of the civil war was exacerbated by the epidemic's impact on a peculiarly Andean institution: royal mummies. People in Andean societies viewed themselves as belonging to family lineages. (Europeans did, too, but lineages were more important in the Andes; the pop-cultural comparison might be *The Lord of the Rings*, in which characters introduce themselves as "X, son of Y" or "A, of B's line.") Royal lineages, called *panaqa*, were special. Each new emperor was born in one *panaqa* but created a new one when he took the fringe. To the new *panaqa* belonged the Inka and his wives and children, along with his retainers and advisers. When the Inka died his *panaqa* mummified his body. Because the Inka was believed to be an immortal deity, his mummy was treated, logically enough, as if it were still living. Soon after arriving in Qosqo, Pizarro's companion Miguel de Estete saw a parade of defunct emperors. They were brought out on litters, "seated on their thrones and surrounded by pages and women with flywhisks in their hands, who ministered to them with as much respect as if they had been alive."

Because the royal mummies were not considered dead, their successors obviously could not inherit their wealth. Each Inka's *panaqa* retained all of his possessions forever, including his palaces, residences, and shrines; all of his remaining clothes, eating utensils, fingernail parings, and hair clippings; and the tribute from the land he had conquered. In consequence, as Pedro Pizarro realized, "the greater part of the people, treasure, expenses, and vices [in Tawantinsuyu] were under the control of the dead." The mummies spoke through female mediums who represented the *panaqa*'s surviving courtiers or their descendants. With almost a dozen immortal emper-

ors jostling for position, high-level Inka society was characterized by ramose political intrigue of a scale that would have delighted the Medici. Emblematically, Wayna Qhapaq could not construct his own villa on Awkaypata—his undead ancestors had used up all the available space. Inka society had a serious mummy problem.

After smallpox wiped out much of the political elite, each *panaqa* tried to move into the vacuum, stoking the passions of the civil war. Different mummies at different times backed different claimants to the Inka throne. After Atawallpa's victory, his *panaqa* took the mummy of Thupa Inka from its palace and burned it outside Qosqo—burned it alive, so to speak. And later Atawallpa instructed his men to seize the gold for his ransom as much as possible from the possessions of another enemy *panaqa*, that of Pachacuti's mummy.

Washkar's *panaqa* kept the civil war going even after his death (or, rather, nondeath). While Atawallpa was imprisoned, Washkar's *panaqa* sent one of his younger brothers, Thupa Wallpa, to Cajamarca. In a surreptitious meeting with Pizarro, Thupa Wallpa proclaimed that he was Washkar's legitimate heir. Pizarro hid him in his own quarters. Soon afterward, the lord of Cajamarca, who had backed Washkar in the civil war, told the Spanish that Atawallpa's army was on the move, tens of thousands strong. Its generals planned to attack Pizarro, he said, and free the emperor. Atawallpa denied the charge, truthfully. Pizarro nonetheless ordered him to be bound. Some of the Spaniards most sympathetic to Atawallpa asked to investigate. Soon after they left, two Inka ran to Pizarro, claiming that they had just fled from the invading army. Pizarro hurriedly convoked a military tribunal, which quickly sentenced the Inka to execution—the theory apparently being that the approaching army would not attack if its leader were dead. Too late the Spanish expedition came back to report that no Inka army was on the move. Thupa Wallpa emerged from hiding and was awarded the fringe as the new Inka.

The execution, according to John Rowe, the Berkeley archaeologist, was the result of a conspiracy among Pizarro, Thupa Wallpa, and the lord of Cajamarca. By ridding himself of Atawallpa and taking on Thupa Wallpa, Rowe argued, Pizarro "had exchanged an unwilling hostage for a friend and ally." In fact, Thupa Wallpa openly swore allegiance to Spain. To him, the oath was a small price to pay; by siding with Pizarro, Washkar's *panaqa*, "which had lost everything, had a chance again." Apparently the new Inka hoped to return with Pizarro

Although Andean societies have been buffeted by disease and economic exploitation since the arrival of Europeans, indigenous tradition remained strong enough that this chicha seller in Cuzco, photographed by Martín Chambi in 1921, might have seemed unremarkable in the days of the Inka.

to Qosqo, where he might be able to seize the wheel of state. After that, perhaps, he could wipe out the Spaniards.

On the way to Qosqo, Pizarro met his first important resistance near the river town of Hatun Xauxa, which had been overrun by Atawallpa's army during the civil war. The same force had returned there to battle the Spanish. But the Inka army's plan to burn down the town and prevent the invaders from crossing the river was foiled by

the native Xauxa and Wanka populace, which had long resented the empire. Not only did they fight the Inka, they followed the old adage about the enemy of my enemy being my friend and actually furnished supplies to Pizarro.

After the battle Thupa Wallpa suddenly died—so suddenly that many Spaniards believed he had been poisoned. The leading suspect was Challcochima, one of Atawallpa's generals, whom Pizarro had captured at Cajamarca and brought along on his expedition to Qosqo. Challcochima may not have murdered Thupa Wallpa, but he certainly used the death to try to persuade Pizarro that the next Inka should be one of Atawallpa's sons, not anyone associated with Washkar. Meanwhile, Washkar's *panaqa* sent out yet another brother, Manqo Inka. He promised that if he were chosen to succeed Thupa Wallpa he would swear the same oath of allegiance to Spain. In return, he asked Pizarro to kill Challcochima. Pizarro agreed and the Spaniards publicly burned Challcochima to death in the main plaza of the next town they came to. Then they rode toward Qosqo.

To Dobyns, the moral of this story was clear. The Inka, he wrote in his 1963 article, were not defeated by steel and horses but by disease and factionalism. In this he was echoing conclusions drawn centuries before by Pedro Pizarro. Had Wayna Qhapaq "been alive when we Spaniards entered this land," the conquistador remarked, "it would have been impossible for us to win it. . . . And likewise, had the land not been divided by the [smallpox-induced civil] wars, we would not have been able to enter or win the land."

Pizarro's words, Dobyns realized, applied beyond Tawantinsuyu. He had studied demographic records in both Peru and southern Arizona. In both, as in New England, epidemic disease arrived *before* the first successful colonists. When the Europeans actually arrived, the battered, fragmented cultures could not unite to resist the incursion. Instead one party, believing that it was about to lose the struggle for dominance, allied with the invaders to improve its position. The alliance was often successful, in that the party gained the desired advantage. But its success was usually temporary and the culture as a whole always lost.

Between the sixteenth and eighteenth centuries, this pattern occurred again and again in the Americas. It was a kind of master narrative of postcontact history. In fact, Europeans routinely lost when they could not take advantage of disease and political fragmentation.

Conquistadors tried to take Florida half a dozen times between 1510 and 1560—and failed each time. In 1532 King João III of Portugal divided the coast of Brazil into fourteen provinces and dispatched colonists to each one. By 1550 only two settlements survived. The French were barely able to sustain trading posts in the St. Lawrence and didn't even try to plant their flag in pre-epidemic New England. European microorganisms were slow to penetrate the Yucatán Peninsula, where most of the Maya polities were too small to readily play off against each other. In consequence, Spain never fully subdued the Maya. The Zapatista rebellion that convulsed southern Mexico in the 1990s was merely the most recent battle in an episodic colonial war that began in the sixteenth century.

All of this was important, the stuff of historians' arguments and doctoral dissertations, but Dobyns was thinking of something else. If Pizarro had been amazed by the size of Tawantinsuyu *after* the terrible epidemic and war, how many people had been living there to begin with? Beyond that, what was the population of the Western Hemisphere in 1491?

AN ARITHMETICAL PROGRESSION

Wayna Qhapaq died in the *first* smallpox epidemic. The virus struck Tawantinsuyu again in 1533, 1535, 1558, and 1565. Each time the consequences were beyond the imagination of our fortunate age. "They died by scores and hundreds," recalled one eyewitness to the 1565 outbreak. "Villages were depopulated. Corpses were scattered over the fields or piled up in the houses or huts. . . . The fields were uncultivated; the herds were untended [and] the price of food rose to such an extent that many persons found it beyond their reach. They escaped the foul disease, but only to be wasted by famine." In addition, Tawantinsuyu was invaded by other European pestilences, to which the Indians were equally susceptible. Typhus (probably) in 1546, influenza in 1558 (together with smallpox), diphtheria in 1614, measles in 1618—all flensed the remains of Inka culture. Taken as a whole, Dobyns thought, the epidemics must have killed nine out of ten of the inhabitants of Tawantinsuyu.

Dobyns was not the first to arrive at this horrific conclusion. But he was the first modern researcher to put it together with the fact that

smallpox visited before anyone in South America had even *seen* Europeans. The most likely source of the virus, Dobyns realized, was the Caribbean. Smallpox was recorded to have appeared on the island of Hispaniola in November or December 1518. It killed a third of the native population before jumping to Puerto Rico and Cuba. Spaniards, exposed in childhood to the virus, were mostly immune. During Hernán Cortés's conquest of Mexico, an expedition led by Pánfilo de Narváez landed on April 23, 1520, near what is today the city of Veracruz. According to several Spanish accounts, the force included an African slave named Francisco Eguía or Baguía who had smallpox. Other reports say that the carriers were Cuban Indians whom Narváez had brought as auxiliaries. In any case, *someone* brought the virus—and infected a hemisphere.

The disease raced to Tenochtitlan, leading city of the Mexica (Aztecs), where it laid waste to the metropolis and then the rest of the empire. From there, Dobyns discovered, colonial accounts show smallpox hopscotching through Central America to Panama. At that point it was only a few hundred miles from the Inka frontier. The virus seemingly crossed the gap, with catastrophic consequences.

Then Dobyns went further. When microbes arrived in the Western Hemisphere, he argued, they must have swept from the coastlines first visited by Europeans to inland areas populated by Indians who had never seen a white person. Colonial writers knew that disease tilled the virgin soil of the Americas countless times in the sixteenth century. But what they did not, could not, know is that the epidemics shot out like ghastly arrows from the limited areas they saw to every corner of the hemisphere, wreaking destruction in places that never appeared in the European historical record. The first whites to explore many parts of the Americas therefore would have encountered places that were *already* depopulated.

As a result, Dobyns said, all colonial population estimates were too low. Many of them, put together just after epidemics, would have represented population nadirs, not approximations of precontact numbers. From a few incidents in which before and after totals are known with relative certainty, Dobyns calculated that in the first 130 years of contact about 95 percent of the people in the Americas died. To estimate native numbers before Columbus, one thus had to multiply census figures from those times by a factor of twenty or more. The

results obtained by this procedure were, by historical standards, stunningly high.

Historians had long wondered how many Indians lived in the Americas before contact. "Debated since Columbus attempted a partial census at Hispaniola in 1496," Denevan, the Beni geographer, has written, "it remains one of the great inquiries of history." Early researchers' figures were, to put it mildly, informally ascertained. "Most of them weren't even ballpark calculations," Denevan told me. "No ballpark was involved." Only in 1928 did the first careful estimate of the indigenous population appear. James Mooney, a distinguished ethnographer at the Smithsonian Institution, combed through colonial writings and government documents to conclude that in 1491 North America had 1.15 million inhabitants. Alfred L. Kroeber, the renowned Berkeley anthropologist, built upon Mooney's work in the 1930s. Kroeber cut back the tally still further, to 900,000—a population density of less than one person for every six square miles. Just 8.4 million Indians, Kroeber suggested, had lived in the entire hemisphere.

Recognizing that his continent-wide estimate did not account for regional variation, Kroeber encouraged future scholars to seek out and analyze "sharply localized documentary evidence." As he knew, some of his Berkeley colleagues were already making those analyses. Geographer Carl Sauer published the first modern estimate of northwest Mexico's pre-Columbian population in 1935. Meanwhile, physiologist Sherburne F. Cook investigated the consequences of disease in the same area. Cook joined forces with Woodrow W. Borah, a Berkeley historian, in the mid-1950s. In a series of publications that stretched to the 1970s, the two men combed through colonial financial, census, and land records. Their results made Kroeber uneasy. When Columbus landed, Cook and Borah concluded, the central Mexican plateau alone had a population of 25.2 million. By contrast, Spain and Portugal together had fewer than ten million inhabitants. Central Mexico, they said, was the most densely populated place on earth, with more than twice as many people per square mile than China or India.

"Historians and anthropologists did not, however, seem to be paying much attention" to Cook and Borah, Dobyns wrote. Years later, his work, coupled with that of Denevan, Crosby, and William H. McNeill, finally made them take notice. Based on their work and his

own, Dobyns argued that the Indian population in 1491 was between 90 and 112 million people. Another way of saying this is that when Columbus sailed more people lived in the Americas than in Europe.

According to a 1999 estimate from the United Nations, the earth's population in the beginning of the sixteenth century was about 500 million. If Dobyns was right, disease claimed the lives of 80 to 100 million Indians by the first third of the seventeenth century. All these numbers are at best rough approximations, but their implications are clear: the epidemics killed about one out of every five people on earth. According to W. George Lovell, a geographer at Queen's University in Ontario, it was "the greatest destruction of lives in human history."

Dobyns published his conclusions in the journal *Current Anthropology* in 1966. They spawned rebuttals, conferences, even entire books. (Denevan assembled one: *The Native Population of the Americas in 1492.*) "I always felt guilty about the impact of my *Current Anthropology* article," Dobyns told me, "because I thought and still think that Cook and Borah and Sauer had all said this in print earlier, but people weren't listening. I'm *still* puzzled by the reaction, to tell you the truth. Maybe it was the time—people were prepared to listen in the 1960s."

Listen—and attack. Dobyns's population projections were quickly seen by some as politically motivated—self-flagellation by guilty white liberals or, worse, a push to inflate the toll of imperialism from the hate-America crowd. "No question about it, some people want those higher numbers," Shepard Krech III, an anthropologist at Brown, told me. These people, he said, were thrilled when Dobyns revisited the subject in a 1983 book, *Their Number Become Thinned,* and revised his estimates upward.

Few researchers today accept Dobyns's estimates—they seem extreme—but most believe that native numbers were far higher than estimated by previous generations. Most, but not all. Vehemently arguing against Dobyns, Denevan, Crosby, Cook, and Borah was David Henige, of the University of Wisconsin, whose book, *Numbers from Nowhere,* published in 1998, is a landmark in the literature of demographic vilification. "Suspect in 1966, it is no less suspect nowadays," Henige charged of Dobyns's work. "If anything, it is worse." Henige stumbled across a seminar on Indian demography taught by Denevan in 1976. An "epiphanic moment" occurred when he read

that Cook and Borah had "uncovered" the existence of eight million people in Hispaniola. Can you just invent millions of people? he wondered. "We can make of the historical record that there was depopulation and movement of people from internecine warfare and diseases," he said to me. "But as for how much, who knows? When we start putting numbers to something like that—applying large figures like 95 percent—we're saying things we shouldn't say. The number implies a level of knowledge that's impossible."

Indian activists reject this logic. "You always hear white people trying to minimize the size of the aboriginal populations their ancestors personally displaced," according to Lenore Stiffarm, an ethnologist at the University of Saskatchewan. Dismissing the impact of disease, in her view, is simply a way to reduce the original population of the Americas. "Oh, there used to be a few people there, and disease killed some of them, so by the time we got here they were almost all gone." The smaller the numbers of Indians, she said, the easier it is to regard the continent as empty, and hence up for grabs. "It's perfectly acceptable to move into unoccupied land," Stiffarm told me. "And land with only a few 'savages' is the next best thing."

When Henige wrote *Numbers from Nowhere,* the fight about pre-Columbian population had already consumed forests' worth of trees—his bibliography is ninety pages long. Four decades after Dobyns's article appeared, his colleagues "are still struggling to get out of the crater that paper left in anthropology," according to James Wilson, author of *Their Earth Shall Weep,* a history of North America's indigenous peoples after conquest. The dispute shows no sign of abating. This is partly because of the inherent fascination with the subject. But it is also due to the growing realization of how much is at stake.