lations 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.

Charles Mann - Why Pizarro Won

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

In the Land of Four Quarters

TAWANTINSUYU

Expansion of the Inka Empire, 1438–1537 A.D.

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 1393, 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 mêlée. The first son was banished or killed and the second took the name Wayna Qhapaq (Willa 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 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

In 1615, the Inka writer Felipe Guaman 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.
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 mumified 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'summy. 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 lasted 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

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 secessed 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 1535 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'uych'i. Unfortunately, Ninan K'uych'i died of the same illness right before Wayna Qhapaq. The Inka's next pick 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.
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 manipu-

*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.
late 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.

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 Lechtmann 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, Lechtmann 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 compatriots 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 as 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 stop 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
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. 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, outarmed 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. Encountered 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 Yannqui 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 very 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 thought to have evolved from a cattle virus that causes cowpox; a now-extinct equine virus responsible for horsepox; or, perhaps most likely, the camelpox virus, which affects camels, as the name suggests. People who survive the disease become immune to it. In Europe, the virus was such a constant presence that most adults were immune. Because the Western Hemisphere had no cows, horses, or camels, smallpox had no chance to evolve there. Indians had never been exposed to it—they were “virgin soil,” in epidemiological jargon.

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 Catalanion 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 *panaca*, were special. Each new emperor was born in one *panaca* but created a new one when he took the throne. To the new *panaca* belonged the Inka and his wives and children, along with his retainers and advisers. When the Inka died his *panaca* 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 *panaca* 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 *panaca*'s surviving courtiers or their descendants. With almost a dozen immortal emperors jostling for position, high-level Inka society was characterized by ramose political intrigue of a scale that would have delighted the Medici. Embodying 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 *panaca* 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 *panaca* 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 *panaca*, that of Pachacuti's mummy.

Washkar's *panaca* kept the civil war going even after his death (or, rather, nondeath). While Atawallpa was imprisoned, Washkar's *panaca* 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 convened 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 hiding 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 *panaca*, "which had lost everything, had a chance again." Apparently the new Inka hoped to return with Pizarro to Qosqo, where he might be able to seize the wheel of state. After that, perhaps, he could wipe out the Spaniards.
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 Challcocima, one of Atawallpa’s generals, whom Pizarro had captured at Cajamarca and brought along on his expedition to Qosqo. Challcocima 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 Challcocima. Pizarro agreed and the Spaniards publicly burned Challcocima 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 ports 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 1492?

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 1644, measles in 1618—all fleshted the remains of Inca 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 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 Egua or Bagua 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 hopscoitching 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 felled 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.