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The Pizarros and the Incas

In the South American Andes, however, the Spaniards did find “another Mexico.” As early as 1523, word circulated in Panama that a large empire lay somewhere to the south. Among those eager to follow up these leads was Francisco Pizarro, a Spaniard who had resided on the isthmus for several years. In 1531, Pizarro sailed with 180 men from Panama to the coast of Ecuador and Peru, gathering information on the Incas as he went. Learning that Atahualpa had defeated his rival and half-brother Huascar, Pizarro hastened to the mountains near Cajamarca, where the new emperor and his army were headquartered.

Pizarro and Atahualpa met at Cajamarca on November 16, 1532. The Spaniards had a familiar routine for such encounters. Native rulers were summarily informed that the invaders represented the true God and a great sovereign from across the sea and were “invited” to become Christians and subjects of the king of Spain. Atahualpa was not particularly impressed, even though the priest Vicente de Valverde presented him with a Bible and explained the intricacies of the Catholic faith. The emperor’s scornful response provided the Spaniards an excuse to attack his troops and take the emperor into custody. Atahualpa then offered his captors a room full of gold and two of silver in exchange for his freedom, and arranged to have more than 13,000 pounds of gold and 26,000 pounds of silver brought to Cajamarca. Pizarro and his associ-

ates, however, decided that the emperor was a threat to their safety. In a mock trial, they convicted him of plotting against them and executed him in July of 1533. In the meantime, native warriors loyal to Atahualpa had killed Huascar.

Meanwhile, Pizarro seized Cuzco with the help of Indians hostile to the Incas and installed Atahualpa’s half-brother Manco Inca as emperor, naively expecting him to cooperate fully with the Spaniards. In contrast to Cortés, Pizarro declined to make Cuzco the capital of the new colony of Peru, choosing instead the city of Lima on the coast, the “city of the kings,” which he founded in 1535. Lima was well situated for Peru’s integration in the emerging Spanish maritime empire, but it left Cuzco as a power base for his enemies, both Spanish and Indian. Other Spaniards marched northward into present-day Ecuador and Colombia.

Early in 1536, Manco Inca led a revolt, attacking Lima and besieging the Spanish settlers at Cuzco for nearly eight months. Unable to dislodge the Spaniards from either locale, Manco Inca and his forces retreated to the remote mountain fortress of Vilcabamba north of Cuzco, where they maintained a rebel neo-Inca state for more than 30 years. Meanwhile, civil war brewed among the conquistadors themselves. A key player was Diego de Almagro, a former supporter of Pizarro who felt he had not been suitably rewarded for his role in the conquest of Peru. In 1535, Almagro led an expedition to Chile, hoping to find there an alternative kingdom for himself. The venture yielded little, and two years later these frustrated would-be conquistadors straggled back to Cuzco to find the city in ruins and governed by Pizarro’s brothers Hernando and Gonzalo. Almagro felt that the right to control Cuzco was rightfully his, and he launched a revolt against the Pizarros.

The civil war lasted over a decade. Both Almagro and Francisco Pizarro died, and Hernando Pizarro spent 20 years in a Spanish prison for his role in the disturbances. In 1546 Gonzalo Pizarro and his supporters assassinated Peru’s first viceroy, Blasco Núñez Vela, sent by King Charles to impose order and to enforce laws requiring that the colonists cease exploiting the Indians. Unrest continued until 1548, when a new governor arrived, defeated Gonzalo’s forces, and had him beheaded. Although rivalry among the conquistadors continued, Spanish control of Peru now rested on a more stable base, and by the early 1570s they defeated the native rebels at Vilcabamba.

In Transatlantic Encounters: Europeans and Andeans in the Sixteenth Century, Kenneth J. Andrien and Rolena Adorno, eds., (Berkeley, University of California Press, 1991), 40-69.

The Cutting Edge: An Analysis of the Spanish Invasion and Overthrow of the Inca Empire, 1532-1539

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The invasion of Peru in 1532 by a small band of Spaniards led by Francisco Pizarro marks a watershed in Andean history and, at the same time, the beginning of one of the most seemingly implausible episodes in the history of warfare. Between their entry into Tawantinsuyu in the spring of 1532 and their consolidation of power in the wake of Manco Inca's great rebellion in early 1539, the conquistadors, by armed force, diplomacy, and political negotiation, carved out for themselves and for their imperial master Charles I a domain of unprecedented size and richness. Their feats cast a long shadow on subsequent events; Habsburg greatness and Peruvian silver were inextricably linked in the years to come, and the overthrow of Tawantinsuyu is arguably the salient political and cultural event of modern Andean history.

Viewed from the perspective of military history, the invasion of Peru and the overthrow of Atahualpa's empire has a peculiar fascination. Spanish methods of warfare underwent a revolution during the first decades of the sixteenth century, a revolution that did much to transform Spain from a regional to a global power. The tactical innovations of Gonsalvo de Córdoba, the development of the Spanish musket, and the appearance of the *tercio*, arguably the first permanent military formation in the modern sense, give evidence of the Spanish genius for war during this pivotal era. The invasion of Mexico provided the first major test of the fruits of this military revolution beyond its native habitat, but the conquest of Peru was to pose the most extreme challenge to Spanish arms, in cultural, in geographic, and in quantitative tactical terms. Nowhere else did the Spanish fighting man face such extreme tests, and

nowhere else did he perform with such sustained valor, however repugnant in its manifestations, for the overthrow of the Aztec empire required a bare two years, while that of the Inca took almost seven.¹

Spanish arms and methods of warfare played a pivotal role in the repulse of the Ottoman Turks from Vienna in 1529 and from Malta in 1565; they played an equally central role in the Habsburg containment of Valois ambitions, notably in the Wars of Italy (1494-1559). In the broad sweep of history, the role of Spanish arms in the overthrow of the Aztec and Inca states and the consolidation of Spanish power in the New World was no less important. For this reason, if for no other, the military aspects of the overthrow of the Aztec and Inca empires—the latter of which is our focus—deserve scholarly attention.

It is difficult to approach the military exploits of the conquistadors with objectivity. Nowhere is this more apparent than with the conquest of Peru, where the problem is amplified by the magnitude and improbability of their deeds. We are, after all, dealing with the overthrow of a huge, prosperous, and well-ordered empire, buttressed by religious legitimacy and successful traditions of governance, by a small band of determined individuals.

Scholars have only recently embarked on in-depth analysis of the role of military tactics and technology in the military successes of the Spanish invaders of the New World, and to date the emphasis has been on Mesoamerica.² Early attempts to explain the reality of Spanish victory subsumed technological advantage (tactics were hardly mentioned) within the overall heading of cultural or even racial superiority.³ Operationally naive arguments emphasizing the psychological shock of the unknown and crediting Spanish success to the impact of gunpowder and horses were quickly rejected. cursory analysis of the Cortés or Pizarro campaigns shows that the Aztec and Inca alike adapted quickly to horses and gunpowder within the limits of the means available to them; their defeat hardly can be attributed to simple inability to cope with the unknown. Monocausal cultural explanations of the Spanish military superiority have fared no better. The notion that the Spanish prevailed over indigenous polities accustomed to ritual warfare because they fought to win might have limited applicability to the conquest of Mexico but utterly fails in the case of the Incas, who waged war for political domination with single-minded ruthlessness.

More recent explanations have revolved around sophisticated economic, political, and cultural analysis, emphasizing the role of political fragmentation and preconquest strife among indigenous peoples and the assistance rendered the Spanish by local allies.⁴ Accepting as a given

the superiority of Spanish military technology, they focus on these other factors, pointing out—correctly—that Spanish military superiority took effect acting in combination with them. In the case of Peru, relevant considerations include the destructive civil war that ravaged the Inca domains in the years immediately preceding the Spanish invasion and the impact of an epidemic, probably smallpox, which swept through the indigenous populations just before the Spanish arrived.⁵ Geoffrey Conrad and Arthur Demarest argue persuasively that the economic structure and religious ideology of Tawantinsuyu forced the Incas to adopt frenetic expansion to forestall social and economic collapse from within; against this backdrop, they argue, the civil war between Huascar and Atahualpa left the empire “shattered and all the Spaniards had to do was pick up the pieces.”⁶ This conclusion, though perhaps overstated for effect, aptly highlights the pivotal underlying political realities.

These ethnohistorical hypotheses, rich and complex in detail yet suggestively elegant in their essential logic, are infinitely more satisfying than earlier explanations. The picture that they paint, of social and political resistance and attempted accommodation followed by economic and social collapse, has great explanatory power. But while recognizing the importance of military factors to the reality of conquest, the ethnohistorians quite properly have placed their emphasis elsewhere. In consequence, their explanations are incomplete where military factors are concerned. Nathan Wachtel poses the essential problem succinctly in the form of a thoughtfully phrased question:

* How could empires as powerful as those of the Aztecs or the Incas be destroyed so rapidly by a few hundred Spaniards? Undoubtedly the invaders benefitted from superior arms: steel swords against lances of obsidian, metal armor against tunics padded with cotton, arquebuses against bows and arrows, cavalry against infantry. But this technical superiority seems to have been of limited importance: The Spanish possessed few fire-arms at the time of the conquest and these were slow to fire: their impact at the beginning was, like that of the horses, primarily psychological.⁷

My purpose here is to answer Wachtel's question with respect to the overthrow of the Inca state, approaching the problem by means of careful military analysis. In short, my objective is to supplement the ethnohistorians' analysis, adding an additional, complementary dimension to their explanations. The social and political factors that the ethnohistorians emphasize were real considerations indeed, no less militarily than in other spheres of activity. They shaped the impact and dictated the pace of the Spanish invasion, and no military analysis can ignore them.

Finally, it is important to recognize that the political settlements and social, economic, and cultural accommodations that wars bring about are powerfully shaped by how they are fought; it was this set of relationships that the nineteenth-century German theoretician Carl von Clausewitz had in mind when he noted that in war the result is never final.⁸ The overthrow of the Inca empire was no exception.

Nevertheless, Spanish arms and tactics exercised a preemptive influence during the critical, early stages of the struggle which are the focus of our concern here. Following the overthrow of Tawantinsuyu, the Spanish, in a commanding though not dominant position, could turn increasingly to nonmilitary means of expanding their social and political control and securing economic advantage. In the early stages of the struggle, however, they did not have that luxury; if Peru was to be brought within the Spanish orbit, the Inca state had to be overthrown, and if that could not be achieved by force of arms, it could not be achieved at all. In short, the Inca armies had to be dealt with first. From Pizarro's entry into Tawantinsuyu in the spring of 1532 until the collapse of Manco Inca's final revolt in 1539, the Spanish were forced of necessity to assign first priority to strategic and tactical military concerns. Spanish arms formed the cutting edge of contact between the two civilizations during the period in question, both metaphorically and literally.

Differences between the experience of the Peruvian conquest and European historical parallels are both important and instructive. Clausewitz's principal point of reference in his reference cited above was the wars of eighteenth- and early nineteenth-century Europe. In these wars, the very existence of the nation was rarely threatened and, of greater importance, the underlying social order was not at risk in any fundamental sense.⁹ His main point was to demonstrate the existence of inherent limitations to the total application of force and to show their nature. The limitations that concerned Clausewitz derived in large part from the lack of any real threat to the underlying social order; explicit in his analysis, however, and acting as his limiting case, was the notion of a total application of force applying in the absence of social and political constraints. The overthrow of the Inca empire comes as close to this limiting case as we are likely to find in the pages of history. There was, moreover, an implicit awareness of the totality of the issues involved among participants. For that reason alone, the subject matter has a relevance which goes far beyond regional western hemispheric concerns.

The absence of any sort of social compact between Spaniard and Andean and its connection to the attendant horrors unleashed was evident to contemporary observers. One conquistador wrote,

I can bear witness that this is the most dreadful and cruel war in the world. For between Christians and Moors there is some well-feeling, and it is in the interests of both sides to spare those they take alive because of their ransoms. But in this Indian war there is no such feeling on either side. They give each other the cruelest deaths they can imagine.¹⁰

And this description was not hyperbole. During the 1536–1537 siege of Cusco, Hernando Pizarro, noting the importance to the Inca efforts of women employed for portage, food preparation, and so on, ordered all captured Indian women killed; he also ordered the right hands of several hundred captured male noncombatants cut off, after which they were released to spread fear and demoralization.¹¹ These acts were the results of carefully considered decisions and apparently had the desired effect. It should hardly surprise us that the outcome of a war so total should itself approach totality.

Military history is irrelevant unless undergirded by a sound understanding of salient social, technological, economic, cultural, and political considerations; conversely, the consequences of wars cannot be fully understood without an appreciation of how they were fought. The Spanish overthrow of the Aztec and Inca empires, where the incredible swiftness and completeness of conquest led to the establishment of a new social, political, and economic order within a single generation, provides a compelling test of this thesis. The links between the two cases are many, and each is the only true analogue to the other; any serious analysis of one must consider both, and I shall do so. The parallels are of limited value in an overall strategic sense, however, since the political texture of Mesoamerica was utterly different from that of the Andes. Moreover, Hernán Cortés's style of leadership and the political problems he faced were appreciably different from those of Francisco, Hernando, and Pedro Pizarro, Diego de Almagro, Sebastián de Benalcázar, and the rest. Technologically and tactically, however, the two cases offer useful comparisons and contrasts that enhance our understanding of the peculiar conditions of the Andean peoples, and I will use them for this purpose.

Enormous advances have been made in the theory and practice of history since William Prescott penned his classic narrative of the conquest of Peru in the mid-nineteenth century.¹² As anthropologist John V. Murra has noted, Prescott's account still reads remarkably up to date, but Murra's observation is more a plea for the integration of insights produced by anthropology, ethnology, and archaeology into mainstream historiography than a commentary on Prescott's remarkable skills as a

narrative historian.¹³ The same point can be made with respect to military history, which has come into its own as a subdiscipline in the century and a quarter since Prescott wrote. To rephrase a point made earlier, it is my purpose to apply the methodology of military history to the cutting edge of conquest, where Spaniard and Indian met in combat. Such an endeavor proceeds along untraveled ground, for there are few Latin American military historians, and the secondary literature is thin.

As a specialist in the military history of early modern Europe, I am acutely aware of the limitations of applying Old World precedent to the military experience of Europeans in the New World. Operational analyses grounded in European parallels, for example, are plainly inadequate to explain the outcome of combats where the Incas enjoyed seemingly overwhelming numerical advantages and lacked not at all in organization or courage, yet were utterly defeated. At the same time, most of what we know about the technological and tactical factors derives from European experience. Indeed, because of the enormous technological disparity between Spaniard and Andean, we must cast our net far wider than usual, drawing on ancient and classical examples as well as medieval and early modern. It goes without saying that any such endeavor must proceed with care, taking pains to examine the implicit and explicit assumptions behind any historical parallel.

With this caveat in mind, we will focus on contact between conquistador and Andean in combat, at the cutting edge. But there is more to it than that. Such a focus demands consideration of broader operational and strategic issues, and in considering the strategic objectives of the two sides we must take into account the Spanish and Inca—indeed, the Andean—worldviews. In evaluating the impact of weaponry we will become heavily embroiled in technological issues. No competent operational analysis slights the all-important motivational factors, and these bring us up against a host of cultural and religious considerations. Our analysis begins with the initial Spanish preparations and reconnaissances. It ends with the extinction of the last Inca successor state in 1572, though the emphasis will be on the period prior to the suppression of Manco Inca's great rebellion in 1539, for the Inca threat to Spanish rule waned markedly thereafter.

We must contend with limitations in the evidence which go beyond the problem of imbalance noted above. The Incas had no written language, and, in testimony to the shattering completeness of their defeat, no dynastic oral traditions survive.¹⁴ Some few Indian accounts of the conquest of Mexico based on contemporary and near-contemporary sources survive; these, whatever their limitations as sources for the cul-

tural or political historian, contain operational detail invaluable to the military historian, all the more useful for the disingenuousness with which it is reported.¹⁵ What little survives of contemporary indigenous sources for the conquest of Peru comes to us through the "double filter" of the Spanish observer and his Andean informant, in most cases a member of the Cusco elite opposed to Atahualpa's accession.¹⁶ There is no Peruvian parallel to Hernán Cortés's letters to King Charles I, for Francisco Pizarro was illiterate, nor is there an equivalent to Bernal Díaz del Castillo's classic account of the conquest of Mexico, written from the perspective of the rank and file. There are, however, accounts by participants, including those of Francisco Xerez and Pedro Pizarro and several letters by Hernando Pizarro, effectively his brother's second in command. On the Amerindian side we have the second-generation account of Felipe Guaman Poma de Ayala, particularly useful for its illustrations, as well as woodcuts prepared by Andean artisans within living memory of the events depicted, and the celebrated history of the mestizo El Inca Garcilaso de la Vega. These must be used with care, but they can be used, and here the military historian has an advantage, for operational military events tend to possess an unequivocal outcome, rarely present in social and political history, which even the hopelessly biased author cannot totally ignore.

To set the stage, a cursory assessment of the magnitude of the military success of the Spanish conquerors of Peru is in order. Though population figures for preconquest South America are in dispute, the population of the Inca empire probably numbered somewhere between two and nine million people at the time of the Spanish invasion.¹⁷ The size of the preconquest Inca military establishment is equally uncertain, but it is clear that the Inca empire could put three armies of some 30,000–40,000 more or less professional combatants each in the field at one time and that some 100,000 Inca soldiers were under arms when the conquistadors entered Inca territory in the spring of 1532.¹⁸ When Francisco Pizarro turned inland to begin his penetration of the Inca heartland that September, he led a force of 62 mounted fighting men and 106 on foot.¹⁹ This tiny force overwhelmed the bodyguard of the emperor Atahualpa, a force reasonably estimated at some 5,000–6,000 men, to effect the capture of the Inca emperor at Cajamarca on 16 November in the pivotal initial military encounter.²⁰ When Manco Inca's armies attacked Cusco in early May of 1536, his generals commanded a host variously estimated at from 100,000 to 400,000 by contemporary observers; the Spanish defenders of the city at that point numbered 190, only 80 of them mounted, yet they successfully held the city for almost a year; they did

have the help of Indian allies, but these seem to have been considerably less numerous than the besiegers.²¹

Other examples could be cited, and some will be discussed below, but the basic point is clear: conventional wisdom based on unconscious extrapolations from European military experience cannot explain hard-fought victory gained in the face of such enormous numerical disparities. Instead, we must go to root causes and circumstances. We will begin with a comparative assessment of underlying strategic factors, including weaponry, followed by an evaluation of the sources of Spanish tactical superiority, and will conclude with a strategic analysis of the campaign—or, more properly, campaigns—by which the conquistadors overthrew Tawantinsuyu.

UNDERLYING STRATEGIC FACTORS

The operational ebb and flow of any conflict depends on those factors that exercise a dominant influence on success and failure in combat: weaponry, morale, leadership, logistics, and the rest. But all need not be addressed in detail in each instance, for every conflict possesses unique operational characteristics that combine to make certain factors practically irrelevant and others critically important. Those particularly relevant here include security and loyalty, command and control, logistics, geography and climate, the worldviews of the opposing sides, and weaponry.²²

In the crucial areas of security and loyalty, neither the Spanish nor the Incas held a clear-cut advantage. The barely resolved and bitterly contested struggle between Huascar and Atahualpa posed particularly acute problems for the Incas which the Spanish were quick to exploit. But even without the turmoil of the succession, the conquistadors would have found native allies, for memories of independence were fresh in the minds of many recently conquered groups.²³ In any case, we may be confident that many *ayllus* (Andean kin groups) would have found common cause with the invaders as soon as they demonstrated effectiveness against Inca arms.²⁴ Conversely, those who adhered to the Inca tended to be steadfast in their loyalties, and their number increased as the nature of the invaders' objectives became apparent, making the Incas the only effective focal point of resistance. In a practical sense, the Spanish could depend on allies for logistical support, auxiliary troops, and local intelligence, but the communications of the Inca and his armies were essentially secure from Spanish penetration.

The Incas held the advantage over the invaders in two key areas:

* strategic command and control and logistics. The Inca's subordinate commanders could be relied upon to carry out whatever orders he issued with efficiency and dispatch, and the Inca road net and courier system provided sure and swift communications to all corners of the realm. The extreme centralization of authority at the top was a weakness that Pizarro exploited with ruthless efficiency, but so long as the Inca was willing to take action against the Spanish, his commands were turned into action. The clearest and most dramatic demonstration of this was in the great rebellion of 1536–1537, in which Manco Inca's mobilization orders, issued while he was nominally a Spanish puppet, were carried out with remarkable efficiency. These advantages persisted through the collapse of Manco's second rebellion in early 1539, then swiftly eroded as the futility of further large-scale resistance became apparent and as the structure of the Inca state broke down under the impact of Spanish-induced social and economic change.²⁵

Logistically, the Inca armies were supported by an extensive network of warehouses in which provisions, clothing, weaponry, and protective equipment were prepositioned to support campaigning armies. The value of these warehouses was magnified by the nature of Andean crops and methods of preservation; these produced an array of desiccated, high-energy food products that were light, were easily transported, and could be stored indefinitely.²⁶ We can only speculate about the administrative details, but it is difficult to imagine a more efficient source of ready nourishment for an army on the march than the freeze-dried tubers and animal flesh that the Inca's warehouses must have contained. The llama, the only native Andean pack animal, is relatively inefficient compared to mules or horses, and Inca armies seem to have made little use of them except as meat on the hoof. But near-total dependence on human locomotion would not have slowed the deployment of Inca armies, since draft and pack animals tended to reduce rather than increase the mobility of armies, except over relatively short distances.²⁷ Though we can only speculate concerning the specifics, the efficiency of the Incas' rations and the advantages of prepositioned supplies and equipment must have given them an overland strategic mobility surpassed prior to railroads only by mounted armies campaigning in areas of abundant forage and fodder. Also to the Incas' advantage was the fact that their troops were acclimated to the high altitudes at which the main campaigns of the conquest were conducted; this was both by virtue of greater lung capacity, for the Incas recruited selectively from ethnic groups that had adapted genetically to the high altitudes at which they lived, and by virtue of their knowledge of Andean conditions.

For their part, the Spaniards and their horses suffered from the rugged geography and climatic extremes; even the Inca roads, designed for the passage of humans, were hard on the horses' feet. But the conquistadors traveled light, moved swiftly, and displayed remarkable ingenuity in dealing with the unprecedented conditions that they encountered. Fodder does not seem to have been a problem—clear, if implicit, evidence not only of the richness of the country but also of intelligent planning and improvisation. The small numbers of horses involved no doubt helped, but it is clear that the Spaniards recognized their critical importance to the enterprise and took special pains to protect their health and well-being. Indicative of their concern, they procured locally made horseshoes of copper and silver,²⁸ and on one occasion the conquistadors set up an improvised forge at night in unfamiliar mountains to reset horseshoes thrown on the rough track, a remarkable piece of fieldcraft which seems to have been taken more or less for granted.²⁹ The Spanish could not have been supplied without the efforts of their native allies, but this in no way lessens the impressiveness of their logistical feats; they had to be not only logisticians but diplomats as well.

It is easy for the analysis of modern events to take worldview and religious outlook for granted or to dismiss them as deviations from the "rational" norm. This perceived rationality plainly did not apply in the sixteenth century, and there was a marked dissymmetry in the Spanish and Andean worldviews. For the Spanish, reversals and misfortunes, however serious, did not undermine their faith in God, their cause, and themselves. The sources of their perceived legitimacy were deeply rooted in the robust orthodoxy of Iberian Roman Catholicism and the searing reality of seven centuries of Reconquest. We should not make modern men of them, or even Renaissance men; no less than King Charles, after all, regarded the great storm that destroyed his fleet before Algiers in 1541 as a sign of divine displeasure (though Hernán Cortés, who was present, apparently did not). But it is clear that their fortitude had spiritual as well as physical and economic foundations, and that those foundations were extraordinarily solid.

The Incas and their Andean subjects viewed the world in very different terms. From our standpoint this is most strikingly apparent in the great importance attached to the Inca himself, for in his person and in the mummies of his ancestors resided the legitimacy of the realm. All of this must be seen in the light of the relative youth of the Inca empire. It is for this reason that Atahualpa's capture at Cajamarca and his subsequent execution and burial hamstrung the Incas so badly. Nor did the dissymmetry extend only to matters of legitimacy and sovereignty. An-

dean beliefs, for example, led them to suspend military activity in favor of religious celebration on nights of the new moon, a belief that the Spanish were quick to exploit.³⁰ This is not to imply that the Andeans were not adaptable; to the contrary, they learned quickly and well, but their worldview was constrained in a way the conquistadors' was not. This is illustrated in mundane fashion by an incident during the siege of Cusco in which the Amerindians, apparently tricked by a Spanish captive, threw captured letters into the Spanish lines as proof that they had annihilated a relief expedition, as indeed they had. From the torn-up letters, the garrison learned of Charles I's capture of Tunis from the Turks the previous year and took heart in consequence.³¹

The cutting edge of the Spanish advantage was in weaponry, and to comprehend the nature, degree, and tactical implications of that advantage, we must break things down into their essential components. A more complex and sophisticated typology would be required if we were concerned with differences in the effects of weapons on ships, structures, and fortifications, but our concern is almost entirely with the effects of weapons on men and horses, and a simplified scheme will suffice.

First, weapons fall into two basic categories, offensive and defensive. The latter are quickly dealt with: steel armor, particularly steel helmets, gave the conquistadors a considerable advantage, but one that took effect offensively. The relative security that effective armor afforded enabled the Spanish to extract full benefit from their offensive capabilities.

In simple terms, relative invulnerability made them more aggressive. But steel armor, though important, was not in itself decisive; if anything, steel provided more protection than was ordinarily required except for the head, and, as they had in Mexico, the Spanish supplemented and partially replaced their steel armor with lighter, warmer, and more flexible protective garments of quilted canvas and padded cloth.³² Horses were armored only seldom, and then lightly and partially.

Offensive weapons fall into two categories, according to the means of employment: hand-held and missile.³³ In the first instance, the weapon is retained by the user, who inflicts damage by swinging or thrusting with it. In the second, damage is done by a projectile that is thrown, slung, or fired. Next, offensive weaponry can be categorized according to the means of inflicting damage. The principal offensive weapons of the sixteenth century inflicted damage by one of three means: piercing, cutting, or crushing. Fire might be considered a fourth, but incendiary weapons were cumbersome and their role minor and specialized; the use by the Inca host of heated sling stones to fire the roofs of Cusco during the rebellion of 1536–1537 is the only example worth noting.³⁴

Concerned as we are with the tactical characteristics and effect on man and beast of piercing, cutting, and crushing weapons, we can quickly summarize their effects in two categories, hand-held and missile. Because piercing and cutting weapons depend on shape rather than mass for terminal effect, far less total energy is needed to do lethal damage. Piercing and cutting weapons substitute velocity for mass, and, since impact energy increases with the velocity squared, a lighter weapon has, in theory, more destructive potential for the amount of energy imparted to it.³⁵ In reality, this theoretical advantage is limited by two constraints. The first and most basic is that with the exception of gunpowder weapons, the maximum velocities attainable were limited by the abilities of the human body. The human arm can swing a sword or throw a dart or javelin only so fast, and while mechanical aids such as the bow, throwing stick, and sling permit much higher velocities, they can do so only with relatively light missiles. The crossbow circumvented this limitation by providing a means of storing energy, and gunpowder weapons bypassed it altogether, but the advantages of these weapons lay entirely with the Spanish.

The second constraint on the ability to increase the lethality of a piercing or cutting weapon by reducing mass and increasing velocity lies in the need to penetrate. A light, high-velocity weapon or projectile that penetrates is potentially lethal; conversely, one that fails to penetrate is ineffective regardless of the total energy imparted. Whether or not penetration occurs is a function of impact energy, the area over which it is applied, the hardness, sharpness, and toughness of point or edge, and the target's resistance to penetration. The physics are fiendishly complex in detail, but the basic relationships are readily demonstrated by observing the force needed to pierce the skin with a needle, as opposed to a thumbtack, or by drawing a razor blade and a table knife across a piece of leather with equal force.³⁶ It is easy for us, living in an age in which individual weapons capable of penetrating steel armor are commonplace, to lose sight of the toughness of horsehide and human skin, but for most of the millennia during which humankind has been civilized, weapons capable of reliably piercing or cutting either in combat have been a rarity.³⁷ It would be only a slight overstatement to say that a steel edge is required; bronze swords showed no clear advantage over axes in antiquity,³⁸ and the Andean civilizations did not possess effective weaponry of bronze, let alone steel.³⁹

In summation, the piercing or cutting weapon does damage by means of the sharpness of its point or the keenness of its edge. The crushing weapon, by contrast, inflicts damage by sheer kinetic energy; it is hence

inherently slower and more cumbersome for the amount of damage that it is capable of doing. The conquistadors, with their slender blades of good Spanish steel, thus had an immense advantage over the Andeans, for they could strike much more quickly and with far greater lethality, an advantage magnified by the Indians' lack of effective armor. The Andeans apparently had no slashing weapons at all, but depended exclusively on clubs and axes; there is no evidence to the contrary in battle narratives or surviving physical evidence to which I am privy.⁴⁰ This conclusion is supported by analysis of the near-contemporary illustrations in Guaman Poma de Ayala's *Nueva crónica y buen gobierno*, which emphasize Spanish swords, lances, and armor and depict Indian warriors armed with short spears, maces, and slings.⁴¹ Here, the contrast with Mexico is instructive, for the Mexicans possessed an effective slashing weapon in the *macuahuitl*, a sword of dense wood shaped like an oversized cricket bat edged with razor-sharp obsidian flakes; though more cumbersome than Spanish swords, the *macuahuitl* was a powerful weapon and figures prominently in the battle narratives.⁴²

Tactical analysis leaves little doubt that the most effective Andean weapon was the sling, a conclusion indirectly supported by the depiction in the *Nueva crónica* of prominent Inca commanders, notably the general Calcuchima, wielding the sling in battle.⁴³ Sling stones were said to be capable of shattering a horse's thigh or snapping a sword blade in two with a square hit at short range, and the Spanish feared these missiles as they feared no other indigenous weapon, no doubt in part because of their random nature.⁴⁴ But the stone shot could not penetrate human skin or horsehide; it was a crushing weapon, and its effect fell off sharply with range. Even armor of quilted cloth provided reasonable protection against it. This heavy reliance on crushing weapons explains the frequent references to wounded horses in Spanish accounts of the conquest and does much to explain Spanish superiority.

Though they would have expressed it in very different terms and knew they could not be certain until the shock of battle came, Pizarro and his men were well aware of the basic tactical considerations when they entered Inca territory. Most had had practical experience with them in Panama, Nicaragua, or the Caribbean and must have anticipated fighting under conditions similar to those they had already encountered. They were no doubt astonished by the size and organization of the Inca hosts, but insofar as weaponry was concerned the Incas, for all their administrative and political sophistication, posed a familiar problem. Like Cortés's men before them, Pizarro's conquistadors were no doubt poorly equipped by contemporary European standards.⁴⁵ But

that does not mean that they were poorly equipped for the task at hand. To the contrary, while they would no doubt have welcomed additional reinforcements on occasion—prior to the distribution of plunder—they would have been hard pressed to have made better choices in outfitting, arms, and equipment.

ELEMENTS OF SPANISH TACTICAL SUPERIORITY

Because the consequences of tactical factors can be observed more or less unequivocally in the results of combat, tactical analysis tends to be more straightforward and less tentative than strategic analysis. We need not theorize on what might have been, but can concentrate on explaining what happened, beginning with the central reality of clear Spanish tactical advantage. The causes of that advantage were complex and interrelated; they took effect in synergistic fashion and cannot be isolated cleanly one from another. They can be summarized nevertheless under a limited number of headings, listed below in diminishing order of importance.

1. Spanish Steel

The single biggest tactical advantage accruing to the conquistadors was that Spanish swords, pikes, and lances could strike far more quickly and lethally than Andean copper- or stone-tipped spears, clubs, and axes. This was due partly to the swiftness of the lighter Spanish weapons and partly to the ineffectiveness of crushing weapons against armor and horsehide; acting together, these factors were decisive. While Spanish success in combat cannot be attributed to a single factor, it is clear that the other elements of Spanish superiority took effect within a tactical matrix established by the effectiveness of Spanish hand-held slashing and piercing weapons. Spanish tactics were driven by a keen awareness of the magnitude of that superiority and an eagerness to exploit it. If one factor were to be singled out, it was the utter deadliness of Spanish swordplay. Pikes do not seem to have been used much; there was little need to keep the Indians at arm's length. That Francisco Pizarro himself, in an age in which mastery of equestrian combat skills carried heavy social connotations, fought by preference on foot armed with a sword provides eloquent, if indirect, testimony to the importance that he and his men accorded swords and swordplay.⁴⁶

2. Horses

Horses gave the Spanish crucial advantages in striking power, shock effect, and speed. The well-mounted Spaniard could strike harder and

more swiftly and reach farther with his sword than could his companion on foot; he could use the speed and mobility of his mount to drive home the point of his lance, and could do so without coming within reach of his enemy's hand-held weapon. The importance of quickness in this context is reflected by the fact that the Spanish horsemen generally rode *a la jineta*—that is, in the Moorish style, with shortened stirrups for maximum lateral mobility—rather than *a la brida*, leaning back in the saddle with extended legs in the classic style of European chivalry.⁴⁷ In addition, well-trained and well-ridden cavalry horses develop shock power directly. Modern horses, at least, will not deliberately run into an ordered line of men at full tilt,⁴⁸ but the living bulk of a horse is psychologically intimidating and physically imposing to a crowd. The Andeans never learned to form in ordered masses to repel cavalry, and it would have been futile for them to do so, for their weapons were out-reached by Spanish lances; that left them in loose formations that were handily scattered by a well-delivered charge. It is difficult to overstate the vulnerability of the bravest of foot soldiers under these circumstances, for well-mounted cavalry can move in among them with a quickness and power impossible to convey with words; this was true as late as the Napoleonic wars, where whole infantry battalions caught disordered by cavalry were effectively obliterated in minutes.⁴⁹

The Spanish advantage was more in speed than power, though the two acted in concert. A *corrida de rejoneadores*, a mounted bullfight, might give some sense of what the Indians were up against. Posting outlying guards gave the Incas little protection against surprise, for Spanish horses could overrun a picket line and reach the main body ahead of the fleeing pickets, and at times in advance of the news of their coming. The conquistadors were keenly aware of the importance of horses to their success, and so long as the conquest proceeded in Peru, horses were exceedingly expensive if they were for sale at all.⁵⁰ An unequivocal measure of the importance accorded horses can be seen in the division of booty after Cajamarca: the horseman's share was, on average, twice that of his dismounted fellow.⁵¹

Indeed, the conquistadors seem to have regarded their horses almost as partners in the enterprise; Bernal Díaz del Castillo lists "all the mares and horses that were shipped" in Cortés's expedition by name along with the names of their owners—and of those deemed competent to ride them in battle, for the two were not always the same.⁵² That the horse's owner would, at the moment of battle, relinquish his place in the saddle to one who could better fight there brings us up against a ruthless Spanish realism; social pretension counted for little against value in com-

bat. The lack of reported debate concerning who was chosen to ride and by what process is perhaps an even more remarkable commentary; these men were rampant individualists, sticklers on points of personal pride and honor, but on this point there seems to have been no need for debate: they knew. Cortés's comments in his Third Letter to King Charles on the plight of a riderless mare wounded by the Amerindians early in the siege of Tenochtitlan provides eloquent testimony to this feeling:

That day there were no casualties in our camp, except that when we emerged from our ambush, some of the horsemen collided and one fell from his mare, which rushed straight at the enemy, who shot at her and wounded her with arrows; whereupon, seeing how badly she was being treated, she returned to us but so badly wounded that she died that night. And although we were much grieved by this loss, for our lives were dependent on the horses, we were pleased that she had not perished at the hands of the enemy, as we thought would happen, for their joy at capturing her would have exceeded the grief caused by the death of their companions.⁵³

We should not make too much of Pedro Pizarro's pungent assessment of the relative value of horse and foot in the siege of Cusco, for it relates to special circumstances, but it is worth repeating: the horsemen, he said, "did all the fighting, because the rest were non-fighters and infantrymen, and these last did but little for the Indians hold them in slight account."⁵⁴ It is surely indicative that the three illustrations in Poma de Ayala depicting actual combat between Spaniards and Andeans show only mounted Spanish combatants.⁵⁵

3. Tactical Skill and Cohesion

The self-confident skill with which the conquistadors used the instruments at their disposal welded them together into a seamless whole, multiplying their impact. Cohesion, the social force that holds units together in combat and that makes the difference between a unit and a mob of individuals, was a Spanish strong point. Spanish fighting men were notoriously fractious in victory. The conquest of Peru offers rich examples, but under pressure they stuck together with a seemingly instinctive solidarity rarely matched in the history of war. Furthermore, their cohesion and the discipline through which it manifested itself in combat was not mechanical and unthinking; Spanish fighting men invariably showed high levels of initiative. Leadership emerged from the ranks when needed and was followed with panache. The attitude of Pizarro's force before Cajamarca, overwhelmingly outnumbered and facing the unknown no less than the Andeans, is indicative; in the words

of a near-contemporary chronicler, "On that day, all were knights," and through the long watches of the night *hidalgos* took their turn standing guard.⁵⁶

The Spanish quickness to appreciate Andean tactical vulnerabilities and the use of surprise played a decisive role. Spanish leaders were keenly aware of the multiplying effect of surprise on combat effectiveness, quickly learned how to apply it most effectively, and took pains to achieve it. Most of the Spanish captains had experience fighting Amerindians in Panama, Nicaragua, and the Caribbean, a point rightly emphasized by James Lockhart;⁵⁷ they gained more during their trek south along the Ecuadorian coast. They learned, and their knowledge served them well. On the pivotal occasion of Cajamarca, Pizarro was able to exploit the psychological shock of the unknown by capturing Atahualpa and slaughtering the bulk of his retinue.⁵⁸ Such an action was not repeated, but it did not have to be.

The Spaniards' awareness of the importance of tactical coordination in combat is evident most clearly in their treatment and handling of their limited equine resources, but extended to all areas. The Spaniards fought as integrated units, sword, pike, and shot acting in seemingly automatic concert with horse. Tactical finesse and solidity had become a Spanish hallmark in the Wars of Italy (1494–1559), a fact reflected in the retention of an uncommonly large number of sixteenth-century Spanish military terms in modern English.⁵⁹ Few of the men who fought under Francisco and Hernando Pizarro, Diego de Almagro, and Sebastián de Benalcázar in the conquest of Peru were soldiers, but militarily useful skills, values, and patterns of socialization were so deeply embedded and so widespread in early sixteenth-century Spanish society that the distinction is, from our standpoint, functionally unimportant.

This is not to imply that the Incas were tactically inept; to the contrary, the Incas showed remarkable tactical perspicacity and adapted quickly to the capabilities and limitations of Spanish arms. The battle of Vilcaconga, for example, fought in mid-November of 1533 when the Incas had virtually no experience in contesting Spanish arms in the open field, was a classic ambush in which the Incas displayed exquisite timing and a thorough understanding of Spanish vulnerabilities, exploiting every advantage at their disposal. Catching the Spanish advance guard under Hernando de Soto at dusk after a long day's march, overextended and exhausted, the Andeans attacked down a slope and by surprise, using terrain to perfection.⁶⁰ Exploiting a shrewdly chosen topographical advantage, darkness, and Spanish fatigue, they came as close to success as they ever did in a major engagement, overrunning and very

nearly overwhelming the tired men and horses—Pedro Pizarro reports that the Indians got in so close that they even laid hands on the horses' tails—but de Soto and his men fought their way to the top of the slope and held out until relief arrived, killing some eight hundred Andeans and suffering five Spaniards and two horses killed and a dozen or so horses wounded.⁶¹ It was a close call, and the Spanish suffered greater loss in men and horses in this engagement than in all the rest combined, but they prevailed by sheer hard fighting.

4. *Spanish Missile Weapons*

Spanish cannon, crossbows, and harquebuses were not in themselves decisive in the overthrow of the Incas. Their role was a supporting one, and here the contrast with Mexico, where cannon and harquebuses were an essential element of Spanish success, stands out clearly.⁶² In Peru, by contrast, Spanish missile weapons were no more than useful auxiliaries except perhaps in the siege of Cusco, where harquebuses and crossbows must have been important, though detailed confirmation is lacking. Cannon were more of an encumbrance than a necessity.

At bottom, the power of Spanish weapons, horses, and cohesion gave the conquistadors a tactical advantage that was all but insurmountable, except under special circumstances the Spanish generally managed to avoid. The Incas wiped out several relief expeditions sent to the aid of the beleaguered garrison of Cusco by ambushing them in mountain defiles and rolling rocks and trees down from above, but this was the exception; more to the point was the ease with which the Spanish-led forces routed the immense Indian host under Quizo Yupanqui before Lima in August of 1536.⁶³ John Elliott is probably correct in his belief that a balanced force of as few as fifty Spaniards, horse and foot, could hold their own against a numerically superior force of Amerindians—on reasonably open and level terrain—unless overcome by exhaustion.⁶⁴

STRATEGIC ANALYSIS

It remains to show how these technological and tactical elements were brought into play by Pizarro, his followers, and his rivals, and by the Incas—that is, to integrate them into a strategic analysis of the conquest.⁶⁵ As I have suggested above, it would be a mistake to assume that the tiny band of Spaniards that turned inland to invade the core of the Inca empire in September of 1532 did so armed with brute force and ignorance, ill-prepared for the trials that lay before them. There can be no doubt that the Spanish were surprised by the geography and climatic

extremes that they encountered in penetrating Tawantinsuyu. The Andean geography has no true analogue elsewhere, and the invaders had no experience of anything remotely similar; they were amazed as well by the richness of the land, both in human resources and in portable wealth.⁶⁶ Similarly, there can be little doubt as to their astonishment and apprehension at the size of the Inca's armies. But we must remember that much of what we know about their initial reaction to the Inca's empire comes from accounts written to impress Charles I and his court with the richness of their conquests and the audacity of their deeds.

In the first instance, they had provided themselves with translators: three men taken from the complement of an Inca trading vessel seized by Bartolomé Ruiz during his reconnaissance south along the Peruvian coast in 1527, and taught Spanish in the intervening years.⁶⁷ Their services were invaluable during the initial stages of the invasion.⁶⁸ This advantage was ameliorated by the fact that they, and whatever other translators Pizarro might have obtained, apparently were not conversant with the nuances of court Quechua (Atahualpa seems to have had little difficulty in issuing orders to his officials while in captivity) nor well informed on the inner workings of the Inca state. They may well have used their position to personal advantage on occasion, but this misses the point.⁶⁹ The information they possessed was potentially of great value, and Pizarro and his associates were no fools. Their captors had every opportunity to question them at length on the nature of the Inca's domains, resources, and military assets and no doubt did so, obtaining valuable, if mundane, information.

Pizarro's decision in early 1531 to land his expedition over three hundred miles north of the previously discovered Inca town of Tumbes on the Gulf of Guayaquil also is suggestive. Little that Pizarro did lacked purpose, and the argument that he exposed his men to needless delay and torment by landing them so far north is unconvincing.⁷⁰ That there is no evidence of significant disaffection among his band during its arduous progress south along the coast is powerfully indicative, for conquistadors were not given to suffering inept or dilatory leaders gladly. Pizarro must have proceeded deliberately, basing his decisions on the systematic seeking out and exploitation of information sources of which no record survives. And this should not be surprising, for Iberians were notoriously closemouthed about intelligence, and Extremadurans—like the Pizarros—were notoriously the most closemouthed of all. The Portuguese dispatch of agents to the Indian subcontinent well in advance of Vasco da Gama's voyage is a classic example, and the Spanish were

no less sensitive to the value of good intelligence . . . and the penalties of a loose mouth.⁷¹

A close study of early Spanish maps of the Caribbean, for example, reveals that accurate plotting of the landmass proceeded in advance of the recorded voyages of discovery.⁷² In any case, the confidence evident in Pizarro's decision to move inland to confront the Inca emperor at Cajamarca suggests something more than reliance on blind luck.

In the second instance, Pizarro and his band possessed an impressive amount of practical experience relevant to the task at hand, fighting the hostile geography and indigenous peoples of the Americas. Granted, the heights of the Andes were to confront them with problems for which there was no Old World precedent, but the jungles of Panama also had posed challenges for which European experience was irrelevant.

The tactical shock of the initial military encounters was a genuine surprise to both parties, but it was a far greater one to the Incas, fighting uphill against a steep technological gradient. It is easy to underestimate the surprise of the Incas and the other Andean peoples, however, which amounted at times to utter bewilderment. The desperate, stoic courage that Inca armies displayed in battle on occasion—Vilcaconga and the battles before Quito come to mind—serves only to underline the profundity of that surprise. Advanced technology was decisive, but only under conditions that its possessors forecast with reasonable accuracy. The failure to appreciate this point reflects a traditional, excessively narrow definition of technology. The lesson is that a society or civilization can hardly anticipate and effectively deal with the impact of entire categories of technology of which it has gained knowledge only recently.

Inca institutions came under stain in the early encounters as well. The fact that the legitimacy of Inca rule was accepted by many *ayllus* only under compulsion, and the inability of Inca ideology to provide a viable alternate focus for dynastic loyalty in the wake of Atahualpa's capture combined to provide the conquistadors with a series of opportunities. Here the Spanish and Andean worldviews are thrown into stark contrast by their strategic repercussions: on the one hand, we have a befuddled Calcuchima meekly surrendering to Pizarro, presumably on orders from an Atahualpa plainly acting under compulsion; on the other, we have Diego de Almagro returning from Chile in the spring of 1537 to raise the siege of Cusco, only to claim control of the better part of Peru from the Pizarros and fight them for it, all the while negotiating with Manco Inca, and at no great loss to the Spanish cause.

Whatever their internal differences and whatever their proclivity to

settle them with the sword, the Spanish owed allegiance to the same emperor and the same church on terms that all understood. Their long-term strategic objectives were the same: to carve the Inca domains, extract wealth from the Andean communities, and convert the indigenous peoples to Catholicism. It was clearly understood among the Spanish, if not among the Incas, that Almagro's negotiations with Manco Inca were purely tactical; while they may initially have caused Manco to take heart, no Spaniard seems to have felt seriously threatened by them.⁷³

Inca strategic objectives from Atahualpa's death through the collapse of Manco Inca's second rebellion were to recapture their domains, to restore Inca rule, and to drive out the invaders. Following the collapse of the rebellion, they were to remain sovereign over Vilcabamba, the remote remnant of empire that they had managed to retain. Their chances of succeeding in this were, as we can appreciate and they no doubt suspected, minimal.

CONCLUSIONS

As many recent studies attest, several factors, including political discontent with Inca rule, the impact of epidemic diseases, and the assistance of Andean allies, contributed to the Spanish destruction of Tawantinsuyu. At the same time, the role of technology, tactical skill, and leadership have been less well understood. In the early stages of the struggle the superiority of Spanish arms, strategy, and tactics proved decisive. Indeed, as this study has attempted to demonstrate, a number of important conclusions can be drawn from the military encounters between the Spanish invaders and the Andean peoples in the years from 1532 to 1539.

First, the Spanish advantage in the technology of war was, in fact, a vital factor in their stunning military victories. This was so, however, not just because of the steepness of the technological gradient against which the Inca armies had to struggle. That would no doubt have been the case in the long run; as we have indicated above, the Spanish technological advantage was all but overwhelming, in both weaponry and the manner in which the weapons were employed in battle. Moreover, we are not concerned purely with differences in military capability on a one-for-one basis; rather, our focus has been on the way combatant groups maintained their cohesion under stress. Cultural and religious factors are crucial components of cohesion, and these, acting in conjunction with superior technology, proved an important Spanish advantage. But while Inca defeat was probably inevitable sooner or later, its reality was,

in the event, heavily shaped by the fact that Pizarro and his men understood the nature and degree of their advantage and took steps to maximize it to a degree not commonly appreciated.

Second, the Incas responded intelligently and well to the Spanish challenge, pressing to the limit the means at their disposal. Indeed, tactically the Inca commanders were extraordinarily quick studies; they simply did not possess the means to profit from their understanding of the Spaniards' weaknesses and limitations. This was true strategically as well. Significantly, those bounds at the strategic level were set as much by ideological factors as by technology; the vulnerability of the Inca empire to the capture of Atahualpa and the instinctive Spanish appreciation of that vulnerability are the critical case in point. The strengths of the Inca system can be seen most clearly in the impressive logistical and strategic planning behind Manco Inca's great rebellion of 1536. If it could have been done with the resources available, it would have been. It is difficult to fault Manco and his subordinates in regard to staff work, courage, or leadership.

Third, the shock of military contact across so vast a cultural and technological gap was so great that significant technology transfer proved impossible before the Andeans' ultimate defeat. On occasion, individual Inca captains used captured Spanish swords and helmets to considerable effect, notably in the siege of Cusco, but that was about that.⁷⁴ Some twenty years, or two generations, were needed for the indigenous populations of the Americas to absorb effectively the military technologies that might have enabled them to survive on their own cultural terms. In 1564 Spanish authorities in Peru discovered large stores of weapons secretly manufactured and stockpiled in preparation for revolt.⁷⁵ Significantly, the stockpiled weapons included large numbers of pikes, the one weapon that might have enabled the Andeans to prevail against the Spanish horse. At about the same time, the Chilean Araucanians, arguably the most successful indigenous resisters of Spanish penetration, were learning the use of pikes, as well as how to breed horses and ride them in combat.

Here, the importance of the steepness of the technology gradient is particularly apparent; it took the Spanish only a year or so to learn the same lesson in Italy a half century earlier. Scattered by armored French mounted men-at-arms and Swiss pikemen at the Battle of Seminara in June of 1495, Gonsalvo de Córdoba's men had learned to cope with the problem by the next year and proved themselves masters of pike drill—if not quite the equals of the Swiss—at Cerignola in April of 1503.⁷⁶ As an important subsidiary lesson, the Inca hosts provide the military his-

torian with a limiting case to establish just how little ill-equipped infantry in loose formations, however well motivated and courageous, can do against even small numbers of aggressive and skillful cavalry.

Finally, having noted the way in which underlying cultural factors manifest themselves in combat, it is also important to observe that the way wars are fought frequently exercises a dominant influence over the ensuing peace. It would seem that the suddenness and totality of the Inca military defeat lessened the amount and scope of cultural transfer in other areas of human endeavor. Having learned to despise the Indians as armed foes, the conquistadors and their descendants were ill-disposed to respect them as subjects. This cultivated contempt—which, make no mistake, was partly fueled by a realistic fear of Andean courage—can be seen in Garcilasco de la Vega's condescending description of Indians fleeing in blind panic from horses in the streets in later years.⁷⁷ Might one see in the subsequent sorry tale of Spanish exploitation of indigenous labor resources in Peru a reflection of the enormous technological and tactical imbalance between Andean and conquistador in initial military contact at the cutting edge?

NOTES

1. Cortés landed at Veracruz on 22 April 1519; Tenochtitlan surrendered on 13 August 1521, just under two years and four months later.

2. Notably by Inga Clendinnen, *Ambivalent Conquests: Maya and Spaniard in Yucatan, 1517–1570* (Cambridge, Eng., 1987); Clendinnen's masterful comprehension and elucidation of guerrilla warfare conducted in an environment unfamiliar to modern scholars marks her work as seminal.

3. Early explanations often attributed the conquistadors' success to divine assistance, and in the early nineteenth century phrenology was used to explain the "inferiority" of native Peruvians. For a useful summation, see Waldemar Espinoza Soriano, *La destrucción del imperio de los incas* (Lima, 1973), 12–19.

4. See, for example, J. H. Elliott, "The Spanish Conquest and Settlement of America," *Colonial Latin America*, vol. 1 of *Cambridge History of Latin America* (Cambridge, Eng., 1984; henceforth *CHLA*), 174; Nathan Wachtel, "The Indian and the Spanish Conquest," *CHLA*, 210–211, notes that "it was the Indians themselves who provided Cortés and Pizarro with the bulk of their conquering armies, which were as large as the Aztec and Inca armies against which they fought."

5. John Hemming, *The Conquest of the Incas* (London, 1970), 28, citing, among other sources, E. Wagner Stern, *The Effect of Smallpox on the Destiny of the Amerindian* (Boston, 1945) and P. M. Ashburn, *The Ranks of Death: A Medical History of the Conquest of America* (New York, 1947).

6. Geoffrey W. Conrad and Arthur A. Demarest, *Religion and Empire: The Dynamics of Aztec and Inca Expansionism* (Cambridge, Eng., 1984), 138; the core of Conrad and Demarest's argument, summarized on page 136, is that Inca royal ancestor worship, manifested in split inheritance, left title to a growing proportion of productive agricultural resources in the hands of dead rulers and their heirs. This forced reigning Incas to seek additional lands through conquest and led to increased cultivation of marginal lands.

7. Wachtel, "The Indian and the Spanish Conquest," 210.

8. Carl von Clausewitz, *On War*, translated by Michael Howard and Peter Paret (Princeton, N.J., 1976), 80.

9. The political objectives of revolutionary France no doubt seemed extreme to most contemporary Europeans, as did the social and political forces that the French revolution unleashed and then harnessed so effectively to war. But this was true in an objective sense only against the backdrop of the Age of Reason; in the broad sweep of history they were modest.

10. Alonso Enriquez de Guzmán, *Libro de la vida y costumbres de Don Alonso Enriquez de Guzmán* (1543), translated by C. R. Markham, Hakluyt Society, 1st ser., 29 (London, 1862), 101, quoted in Hemming, *Conquest of the Incas*, 204.

11. Hemming, *Conquest of the Incas*, 204.

12. William H. Prescott, *The Conquest of Peru* (New York, 1847).

13. John V. Murra, "Andean Societies before 1532," *CHLA*, 60; see also James D. Cockcroft, "Prescott and His Sources: A Critical Appraisal," *Hispanic American Historical Review* (henceforth *HAHR*) 48, 1 (February 1968): 59–74.

14. Murra, "Andean Societies before 1532," 60.

15. *The Broken Spears: The Aztec Account of the Conquest of Mexico*, edited by Miguel Leon-Portilla, translated by Angel María Garibay K. and Lysander Kemp (Boston, 1962).

16. John V. Murra and Nathan Wachtel, introduction to *Anthropological History of Andean Politics*, edited by John V. Murra, Nathan Wachtel, and Jacques Revel (Cambridge, Eng., 1986), 2.

17. Murra, "Andean Societies before 1532," 64; for the difficulties in estimating preconquest population figures, see Noble David Cook, "Population Data for Indian Peru: Sixteenth and Seventeenth Centuries," *HAHR* 62, 1 (February 1982): 73–75. John Hemming, *Conquest of the Incas* (London, 1970), 349, 604–605, gives a useful discussion of the methodology behind various population estimates on the way to his own estimate of 6,300,000.

18. Hemming, *Conquest of the Incas*, 65, 68, credits the Inca general Calcu-chima as commanding thirty-five thousand effectives in the early spring of 1533, based on the testimony of Hernando Pizarro, who saw the host and watched Calcu-chima's scribes tick off the numbers on their *quipus*. Hemming credits the general Quisquis with commanding thirty thousand at the same time, and the third major Inca force in the field, under the general Ruminavi, was at least as large. Though hardly precise, these figures seem credible, and the Inca armies had, if anything, probably declined in size since the previous fall.

19. James Lockhart, *The Men of Cajamarca: A Social and Biographical Study of the First Conquerors of Peru* (Austin, Tex., 1972), xiii, 10; Hemming, *Conquest of the Incas*, 26. I agree with Lockhart, 18, that Pizarro's men were not soldiers in the modern sense of the word.

20. Hemming, *Conquest of the Incas*, 39, 555, citing a letter written by Hernando Pizarro shortly after the fact. Hemming, 630, supports Pizarro's estimate with a convincing analysis of the layout and size of the town square in which the ambush occurred. Francisco Xerez, *Verdadera relación de la conquista del Perú y Provincia del Cuzco* (Seville, 1534) in *Historiadores primitivos de Indias*, edited by Enrique de Uedia (Madrid, 1923), 2:327, credits Atahualpa with a total force of fifty thousand men during his approach to Cajamarca.

21. Hemming, *Conquest of the Incas*, 190–191, 577–578.

22. There is no set formula for comparative strategic assessment. Factors other than those I have selected might be legitimately isolated for analysis, and I would focus on other factors in addressing another problem. I have approached the problem from an operational perspective, focusing on those elements that seem to have affected the historical actors most in terms of their effect on strategic decisions. That is another way of saying that I do not believe in the inevitability of outcomes and conduct myself accordingly—as did the actors themselves, though in quite different ways. While it is easy for us to perceive with the hindsight of four and a half centuries that the long-term Inca chances for victory were virtually nil, the actors themselves did not see it that way. It would be singularly unrealistic to evaluate their actions and the situations that framed them as if they did.

23. Murra, "Andean Societies before 1532," 63: most of the empire's populace had fallen under Inca control only within the previous three or four generations.

24. See Steve J. Stern, "The Rise and Fall of Indian-White Alliances: A Regional View of 'Conquest' History," *HAHR* 61, 3 (August 1981): 461–491, for a penetrating analysis of the underlying factors. The *ayllu* was the basic social unit of Andean society. Originally it represented an endogamous lineage claiming descent from a common set of ancestors; after 1532 it formed the basic kin unit, allocating land and labor duties for the Andean communities. See Brooke Larson, *Colonialism and Agrarian Transformation in Bolivia: Cochabamba, 1550–1900* (Princeton, N.J., 1988), 333, and other scattered references.

25. Stern, "Indian-White Alliances," 472–475.

26. Murra, "Andean Societies before 1532," 64.

27. The reason for this seeming paradox is that the weight of forage consumed by pack and draft animals quickly exceeds the amount that they can carry or pull, setting an inflexible limit on the maximum distance they can proceed from sources of supply. In classical times, the limit was three or four days' march, according to Donald W. Engels, *Alexander the Great and the Logistics of the Macedonian Army* (Berkeley, Calif., 1978), 20–23. The development of the horse collar and pivoting front axle in medieval Europe improved the utility of

drayage, but the limit was relaxed, not eliminated; by the 1860s it was about one hundred miles from base, according to Martin van Creveld, *Supplying War: Logistics from Wallenstein to Patton* (Cambridge, Eng., 1977), 113.

28. Hemming, *Conquest of the Incas*, 68.

29. This was in the later stages of the Quito campaign, according to Hemming, *Conquest of the Incas*, 165, quoting Agustín de Zárate, *Historia del descubrimiento y conquista del Perú* (Antwerp, 1555).

30. Hemming, *Conquest of the Incas*, 203.

31. *Ibid.*, 216.

32. For a useful discussion see Terence Wise, *The Conquistadores* (London, 1980), esp. 12–14; though intended primarily for hobbyists, this little book, lavishly illustrated with photographs, drawings, and color reconstructions of Spanish and indigenous combatants by artist Angus McBride, is solidly based on archaeological and textual evidence.

33. Hand-held weapons are sometimes called shock weapons, but the typology is misleading since shock effect is a psychological distinction rather than a technological one.

34. Pedro Pizarro, *Relación del descubrimiento y conquista de los reinos del Perú* (1571), translated and edited by Philip Ainsworth Means as *Relation of the Discovery and Conquest of the Kingdoms of Peru* (New York, 1921), 2:302–303.

35. The relevant formulas are $F = ma$ (force equals mass times acceleration) and $v = at$ (velocity equals acceleration times time), to obtain the velocity of the weapon or projectile, and $K_e = \frac{1}{2}mv^2$ (kinetic energy equals one-half mass times velocity squared), to obtain impact energy.

36. For the only rigorous, scientifically based analysis of the terminal ballistics of pre-gunpowder missile weapons of which I am aware, see Peter Jones, "The Target," appendix 3 in Robert Hardy, *Longbow: A Social and Military History* (Portsmouth, Eng., 1986), 204–208.

37. So far as we know, the problem was first solved with the development by the Sumerians of piercing axes of bronze in the third millennium B.C., as discussed by Yigael Yadin, *The Art of War in Biblical Lands in the Light of Archaeological Study* (London, 1963), 1:41–42.

38. Yadin, *Art of War in Biblical Lands*, 1:44–45, 60–61, 78–80.

39. The larger issue of whether the Andeans possessed bronze at all is, so far as I can determine, an open one. The Andeans apparently combined tin with copper to produce alloys harder than pure copper, at least on occasion; it is clear, however, that they did not possess meaningful numbers of weapons made of bronze sufficiently hard and tough to furnish a useful cutting edge, and I see no evidence that they possessed such weapons at all.

40. Hemming, *Conquest of the Incas*, 115–116, for his examination of museum examples of Inca weaponry; n. 37 above. My review of the secondary literature failed to turn up an unequivocal statement that bronze metallurgy was unknown to preconquest Andean societies; I conclude that it was on the basis of negative evidence and operational analysis. In light of the sparse utilitarian use of metals

of any kind by preconquest Andeans, the distinction between bronze and copper is an academic one in economic, political or cultural terms. Militarily, however, it is crucial: swords (and reasonably efficient spear and arrow heads) can be made of bronze, but not of copper. It speaks volumes for the undeveloped state of early American military history that the distinction has not been highlighted.

41. Felipe Guaman Poma de Ayala, *Nueva corónica y buen gobierno*, edited by John V. Murra, Rolena Adorno, and Jorge L. Urioste, 3 vols. (Madrid, 1987). Guaman Poma was separated from the conquest by at least a generation but seems to have rendered remembered details with fair accuracy.

42. Though heavier and therefore more cumbersome than a steel sword, the *macuahuitl* was capable of inflicting horrendous injuries on man or horse; it was limited by the brittleness of its obsidian blades and their ineffectiveness against steel armor. The Spanish accorded considerable respect to these weapons, which Bernal Díaz del Castillo called "fearsome broadswords," *The Discovery and Conquest of Mexico, 1517-1521*, translated by A. P. Maudslay (New York, 1956), 126. A careful reading of indigenous accounts suggests respect for the slashing efficiency of Spanish swords, an efficiency that the Aztecs could well appreciate, as shown in León-Portilla, *Broken Spears*, where the emphasis on slashing wounds inflicted by Spanish swords underlines the perceived effectiveness of such weapons; see particularly the account of the Spanish massacre of the Aztec leadership during the festival of Huitzilopochtli, 73-76. I am indebted to Philip George of Time-Life Books, a penetrating student of pre-Columbian Mexican culture and technology, for his elucidation of this point.

43. Four of the illustrations in Poma de Ayala depict Inca commanders in battle; of these, two—and the most recent two, including Calcuchima—are armed with slings. See Guaman Poma, *Nueva corónica*, 159, 163. Though we should not make too much of it, it is worth noting that the last use of the sling by a prominent leader in the European historical tradition was by David against Goliath, 1 Samuel 17. Significantly, the conflict in question was between an Iron Age culture and a Bronze Age one; see Yadin, *Art of War in Biblical Lands*, 1:32-74. See also James K. Muhly, "How Iron Technology Changed the Ancient World—and Gave The Philistines a Military Edge," *Biblical Archaeology Review* 8, 6 (November/December 1982): 40-54.

44. Hemming, *Conquest of the Incas*, 192, reaches this conclusion based on contemporary Spanish accounts.

45. Elliott, "Conquest and Settlement of America," 175.

46. Lockhart, *Men of Cajamarca*, 121-122.

47. Robert B. Cunningham-Graham, *The Horses of the Conquest*, edited by Robert M. Denhardt, (Norman, Okla., 1949), 17-20.

48. John Keegan, *The Face of Battle* (New York, 1973), 153-155.

49. This did not happen often, but that was because European infantry was the beneficiary of five centuries of experience in avoiding and repelling cavalry charges. A British brigade caught unexpectedly in flank by Polish lancers at the Battle of Albuera in the Peninsular campaign suffered casualties of 85.3 percent,

75.9 percent, and 61.6 percent, respectively, in the three battalions nearest the point of impact, according to Philip Haythornthwaite, *Weapons and Equipment of the Napoleonic Wars* (Poole, Dorset, Eng., 1979), 52. These were first-rate, bayonet-armed infantry who knew exactly what to do; the fourth battalion had time to form square and was effectively untouched. The Inca hosts at best were worse off than these men at worst.

50. El Inca Garcilaso de la Vega, *Royal Commentaries of the Incas*, translated by Harold Livermore (Austin, Tex., 1966) 1:580-581. Xerez, *Verdadera relación*, 343, has horses going for around twenty-five hundred ducats of gold (*el precio común*) during the interlude after the distribution of the treasure at Cajamarca; this was nearly a third of a horseman's share of the booty and about half of a foot combatant's. To put these figures in perspective, in 1534 the cost to the Spanish crown of a war galley, fitted with masts and sails but without artillery, was between 240 and 350 ducats, according to article 4, document 28, in vol. 1 of the Colección Sanz de Barutell (Simancas) (Museo Naval, Madrid), and the salaries of a galley captain and an ordinary soldier assigned to the galleys were 7 ducats and 1½ ducats per month, respectively; see John F. Guilmartin, Jr., *Gunpowder and Galleys: Changing Technology and Mediterranean Warfare at Sea in the Sixteenth Century* (Cambridge, Eng., 1974), 293.

51. Xerez, *Verdadera relación*, 343; a horseman's share was 8,880 gold ducats and 372 silver marks, while a foot combatant's was 4,400 ducats and 181 marks.

52. Díaz, *Discovery and Conquest of Mexico*, 38-39. Cunningham-Graham, *The Horses of the Conquest*, 63.

53. Hernán Cortés, *Hernán Cortés: Letters from Mexico*, translated by Anthony Pagden (London, 1986), 252.

54. Pizarro, *Relation of the Discovery*, 2:303.

55. Poma de Ayala, *Nueva corónica*, 2, 394, 404, 434. These depict the death of Quizo Yupanqui before Lima (pierced, perhaps metaphorically, by a Spanish lance), the relief of Cusco (in symbolic fashion, with a mounted Santiago brandishing his sword in triumph above a prostrate Indian), and a Spanish defeat in Hernández Girón's rebellion against the crown.

56. Hemming, *Conquest of the Incas*, 35-36, quoting the account attributed to Cristóbal de Mena, *La conquista del Perú, llamada la Nueva Castilla* (Seville, 1534); Pedro Pizarro reports that during the night "many of the Spaniards made water without knowing it out of sheer terror." Pizarro, *Relation of the Discovery*, 1:177-180.

57. Lockhart, *Men of Cajamarca*, 23-24. The same point applied to the rank and file to an only slightly lesser degree: 52 of the 101 men present at Cajamarca whose experience prior to 1532 is known or can be surmised had spent five years or more in the Indies.

58. For Spanish devices to amplify the shock of surprise, hanging bells on the horses and signaling the attack with trumpet blasts and the discharge of a cannon, see Pizarro, *Relation of the Discovery*, 1:183-184.

59. For example, "colonel" from *cabo de columna* (head of the column) and

"point blank" from *punto de blanco* (pointed at the *blanco* or "white," a technical artillery term; the equivalent in modern Spanish is *quemarropa*, clothing-burning range).

60. Pedro Cieza de León, *Obras completas* (Madrid, 1984-1985), 1:304-305; originally *Parte primera de la crónica del Perú* (Seville, 1553); Pizarro, *Relation of the Discovery*, 1:236-240: "There was a sharp slope [which has an upward incline more than a league long] which it seemed to the Indians would cause the horses to be weary when they finished going up the grade, and [the Indians thought that] they would avail themselves the more than if the land had been flat, and so it almost turned out to be."

61. Cieza de León, *Obras completas*, loc. cit.; Hemming, *Conquest of the Incas*, 14.

62. Cortés's letters and Bernal Díaz del Castillo describe close coordination between horse and foot, shot and shock, from beginning to end, revealing a closely woven tactical tapestry of which harquebus shot and crossbow bolts were essential. Gunpowder weapons were particularly important in the siege of Tenochtitlan, and both cannon and small oared vessels armed with swivel guns, *bergantines*, were essential to the reduction of the city. In Peru, by contrast, missile weapons were ordinarily a luxury.

63. Hemming, *Conquest of the Incas*, 212.

64. Elliott, "Conquest and Settlement of America," 175-176.

65. Strategic analysis provides us with an invaluable analytical lens through which to view initial contact between cultures, for military strategy by its very nature seeks to bring into play every cultural, social, and economic strength and weakness that opposing societies possess. This is particularly true when the stakes are high and recognized as such, as was the case here. But strategy is exceedingly subtle and context dependent, not easily broken down into discrete components as with technology and tactics. Our analysis is therefore best done by example, using a selective operational recounting of the conquest as a framework.

66. Murra, "Andean Societies before 1532," 61-62.

67. Pizarro, *Relation of the Discovery*, 1:138-139; Hemming, *Conquest of the Incas*, 25.

68. The parallel with Doña Marina or La Malinche, Cortés's Indian mistress and confidante, is inescapable; La Malinche, however, initially spoke no Spanish, and intermediate translators were required.

69. Hemming, *Conquest of the Incas*, 82.

70. Hemming, *Conquest of the Incas*, 27, labels the decision inexplicable.

71. The epic travels of Alfonso de Pavia and Pero de Covilha, who visited India and East Africa during the 1490s, the latter ending up in Ethiopia after the death of the former, are a dramatic example, though da Gama's use of a local pilot, Ibn Madgid, to guide his expedition from the East African coast to Calicut is perhaps more characteristic; see Francisco Mello, *Viagens de Pero de Covilha* (Lisbon, 1988). I am indebted to Timothy Coates of the University of Minnesota for this citation.

72. Donald Keith, "The Molasses Reef Wreck" (Ph.D. diss., Texas A&M University, 1987); Keith, personal communication to the author.

73. It is worth noting that the Aztecs stand comparison to the Incas surprisingly well in this area. Impressed by the administrative and governmental achievements of the Incas and perhaps overly struck by the unabashedly fragmented character of the Aztec empire and the bloodthirsty nature of Aztec religion, scholars have tended to take for granted the Mexicans' remarkable resilience. The Mexicans were quick to recognize the threat posed by Montezuma's collaboration while a Spanish captive, and they took decisive action. The contrast between the relatively leisurely Spanish sojourn at Cajamarca of nearly a year and the swift and savage Aztec retaliation leading to Montezuma's death and the nearly catastrophic fighting Spanish retreat from Tenochtitlan, the Noche Triste, is instructive. The Aztecs were briefly able to battle the Spanish and smallpox at the same time; the Incas were unable to come to grips effectively with the former alone, until Manco Inca restored the uncompromised and unchallenged sovereignty of the Inca in 1536. We should not be surprised at the contrast in light of the Mexicans' higher level of technological development, notably in the possession of a glyphic writing system and markedly more advanced weaponry.

74. Pizarro, *Relation of the Discovery*, 2:313-315.

75. Hemming, *Conquest of the Incas*, 305-306.

76. Charles W. C. Oman, *A History of the Art of War in the Sixteenth Century* (London, 1937), 51-53.

77. Garcilaso de la Vega, *Royal Commentaries of the Incas*, 1:581-582.