

## Introduction

Over the last twenty years historians have uncovered and illuminated a new history of Amerindian peoples under European rule. Spanish defeat and subjugation of native populations, so an older historiography once held, were the history of these peoples in the sixteenth and seventeenth centuries. More recently, however, scholars have concentrated instead on the Indians' resilience and adaptability – their capacity, in the face of terrible odds, to maintain themselves and their societies.

The new historiography has begun to reveal the faces and voices of peoples long misunderstood.<sup>1</sup> Still, little attention has been paid to another, very important element in the history of Amerindian populations – their biological adaptability and resilience. The social history of these peoples, in other words, will remain incomplete without further development of their pathogenic and immunological history. Disease, of course, existed in the Americas long before the sixteenth century. But, just as native societies resisted and eventually adapted to European conquest, so too did they adapt to Old World pathogens. Just as the responses of Indian communities to the economic and political demands of Spaniards varied over time, so did the immunological responses of indigenous populations change over generations. What began in the sixteenth century as contact and invasion soon would involve both Indians and Europeans in a new history of biological and social adaptation.<sup>2</sup> And this story, as it

1 For the Andean area, see Stern, *Peru's Indian Peoples*; and "The Age of Andean Insurrection, 1742–1782," pp. 34–93; Spalding, *Huacabirí*; and *De indio a campesino*; Larson, *Colonialism and Agrarian Transformation*; and "Caciques, Class Structure, and the Colonial State in Bolivia"; Sánchez-Albornoz, *Indios y tributos*; and "Migración rural"; Cole, *The Potosí Mita*; Silverblatt, *Moon, Sun, and Witches*; and Salomon, *Native Lords*. For Mexico and Central America, see Farriss, *Maya Society under Colonial Rule*; MacLeod and Wasserstrom, eds., *Spaniards and Indians in Southeastern Mesoamerica*; Newson, "Indian Population Patterns," 41–69; *Indian Survival*; and *The Cost of Conquest*; Hill and Monaghan, *Continuities in Highland Maya Social Organization*; Lovell, *Conquest and Survival in Colonial Guatemala*; and Zamora, *Los mayas de las tierras altas en el siglo XVI*.

2 To date, the most thorough and innovative analyses of biohistorical issues can be found in the works of historian Crosby, *The Columbian Exchange* and *Ecological Imperialism*.

developed in the northern sector of the viceroyalty of Peru – in Ecuador – is the subject of this book.

Because this study traces fundamental biological and social changes over many generations, it is important to assess the nature of Ecuador's native societies before the arrival of Europeans. The first chapter examines the physical and social settings and concludes with an analysis of the demographic history of the region before 1534. The second chapter introduces the pathological setting and relates it to native concepts about health, illness, and healing as they existed before the Spanish invasion. In so doing, it addresses the debate over the nature of pre-Columbian medical systems.

The history of biological and social adaptation begins in the third chapter, where the congruent paths of sixteenth-century military conquest and epidemics of Old World diseases are analyzed. Chapter three also examines European attempts to deal with illnesses, both their own and those of the Indian population, through the establishment of hospitals and the creation of rules and regulations designed to protect public health. It concludes with an analysis of the documentary evidence on the catastrophic decline of Ecuador's native population during this period.

In the fourth chapter, the resilience and adaptability of native society become especially clear. For although disease continued to exact a heavy toll during the seventeenth century, by 1690 the number of natives living in the north-central highlands of Ecuador had more than doubled. And although native concepts of disease underwent fundamental changes following the Spanish conquest, evidence suggests that the practice of native medical traditions continued largely unchanged. Demographic patterns, in addition, reveal the ways in which both individuals and communities responded to the onerous economic and political demands of Europeans by devising new social institutions and customs and by learning to use the mechanisms of colonial government to their own advantage.

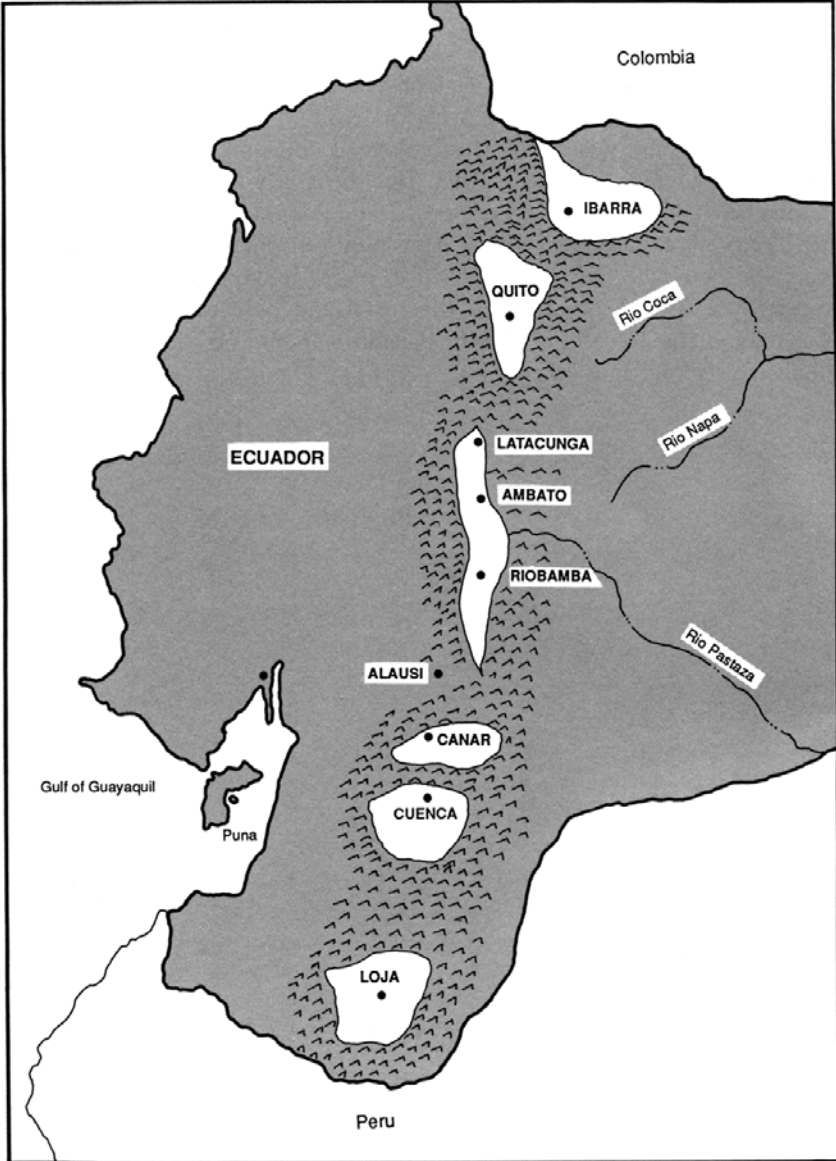
Population recovery, however, was to be short-lived in the *audiencia* (a jurisdictional and administrative unit of the Spanish empire; also, court of appeals) of Quito, and the fifth chapter examines the disasters of the 1690s and their demographic and economic effects on highland society. Chapter six then traces the disease history of the region during the eighteenth century, when these conditions reinforced each other and ensured that, at least in the sierra, Ecuador entered the era of independence with a declining Indian population and a shrinking economy. Significantly, it was during the same period that Quito's natives began to demonstrate immunological resistance to the very diseases that had devastated them for so long. At the same time, native opposition to colonial rule, often taking the form of violent protests, increased throughout the region. The old

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strategy of resistance through cooperation was replaced by direct confrontation, with native healers and shamans often leading the assault.

The story of the relation between the biological and social history of the Indian peoples of highland Ecuador raises many issues of concern to historians of colonial Spanish America. Among these, the most central involve the consequences of the biological collision of two cultures so distinctly different from each other. But this study is more than a history of disease incidence, medical responses, and population trends. The history of the biological adaptation it recounts also reveals much about a people's social and political experiences under colonial rule. It is difficult to separate the biological from the social and political in the effort to understand the colonial history of Ecuador's Indian peoples. Indeed, this book insists that it is impossible.



Map 2. Highland basins of Ecuador.

## 1

## Along the avenue of volcanoes

When the Spanish marched into the highlands of Ecuador in 1534, they knew that they were entering the northern sector of the Inca empire. Yet the terrain that they crossed and the societies they encountered were distinctly different from those of the southern Andes. These unique physical and cultural characteristics explain, in large measure, the area's special patterns of historical development both before and after the Spanish conquest. Inca control of the northern Andes had been achieved only a few years before the arrival of Europeans. Old World diseases quickly followed the Inca invasion and, in fact, preceded Pizarro and his men by several years. So even before the appearance of Spanish armies, demographic and political crisis gripped native communities throughout the Ecuadorian sierra.

**The setting**

The *páramo* (cool, humid highlands – 3,360–4,600 m) Andes of Ecuador are distinctly different from the *puna* (cold, dry highlands – 4,000–4,800 m) regions of the southern Andes, where higher elevations, lower temperatures, and an arid climate limit food production. In response to these challenging agricultural conditions, the indigenous inhabitants of Peru and Bolivia developed methods of food preservation enabling them to accumulate large surpluses. The level of political organization required to direct this effort, in turn, encouraged the development of large centralized state systems. Ecuador, by contrast, is characterized by lower elevations, higher temperatures, and constant humidity, allowing for year-round crop production. The milder climate and agricultural abundance of the north-

The following abbreviations appear in the tables and notes:

AGI – Archivo General de Indias, Seville, Spain

AJC – Archivo Jijón y Camañaño, Quito, Ecuador

AM – Archivo Municipal, Quito, Ecuador

ANHQ – Archivo Nacional de Historia, Quito, Ecuador

ern Andes did not necessitate the creation of vast political networks; hence the predominance of small-scale chiefdoms.<sup>1</sup>

The parallel cordilleras of the Andes are widely separated in Peru and Bolivia, in some areas by as much as 750 kilometers, but in Ecuador they run close together (with 130–220 kilometers between them), forming a series of insular highland basins where human populations have congregated for thousands of years.<sup>2</sup> Beneath the long, narrow valleys flanked by towering volcanoes lie a series of geological faults, the periodic shifting of which produces violent earthquakes and volcanic eruptions. As a result, generations of highland residents have experienced frequent natural disasters, often claiming many lives and disrupting agricultural production.

The climate of Ecuador is determined by a number of factors, including the cold Peruvian current, the warm countercurrent El Niño, and altitudinal variations. In the highlands, warm moisture-laden air from the Amazon collides with cold mountain air masses to produce much of the region's rainfall. But even within this limited area, "a 'crazy-quilt' pattern of innumerable micro-climates . . . prevail over short horizontal distances and lack a clearcut, orderly arrangement."<sup>3</sup>

Geographers and ecologists have divided the Ecuadorian highlands into five distinct climate zones. In the zone of perpetual snow located above 4,600 meters, melting snow and ice feed the many rivers and streams crucial to the local agricultural economy. Just below the snow line is the desolate páramo (3,500–4,600 meters), where poor soils and frequent frosts render the land unproductive. Below this lies the temperate zone, focal point of Indian and Spanish settlement. Here adequate rainfall, rich soil, and moderate temperatures provide farmers with an ideal climate for growing corn, wheat, barley, potatoes, and many types of vegetables. Below 2,500 meters are the subtropical and tropical zones, where fruit and vegetable production is largely determined by precipitation patterns. Where sufficient water is available, often at the bottom of river valleys, sugarcane, bananas, cacao, coffee, cotton, and other tropical crops grow in abundance. It was within this rich and complex ecological setting that Ecuador's indigenous societies developed their unique political and economic institutions.

- 1 For a discussion of this subject, see Troll, ed., *Geo-ecology of the Mountainous Regions of the Tropical Americas*, pp. 15–56; also see Murra, "El Archipelago Vertical' Revisited," in *Andean Ecology and Civilization*, Masuda et al., eds., pp. 3–13.
- 2 It was the German naturalist Von Humboldt who first described the Ecuadorian highlands as "the avenue of volcanoes." According to Humboldt, "Nowhere in the Cordilleras of the Andes are there more colossal mountains heaped together, than on the east and west of this vast basin of the province of Quito." Von Humboldt and Bonpland, *Personal Narrative*, 3:307.
- 3 Basile, *Tillers of the Andes*, p. 19.

**Native society before 1534**

Until the end of the fifteenth century many chiefdoms, each with its own language and customs, dominated the Ecuadorian highlands. The Pastos, Caras, and Panzaleos populated the region extending from southern Colombia to Quito, and the Puruha and Cañaris controlled the territory between Latacunga and Cuenca. These nations frequently fought among themselves but, before their consolidation under the Inca state, no one group exercised political hegemony over the region.

Archaeologists have found evidence of hundreds of villages scattered throughout the north-central highlands. Within these communities, ranging in size from several dozen to several thousand people, most families built their thatched houses close to their fields rather than congregate around a nuclear settlement.<sup>4</sup> The population of each community was divided into kin groups later called *parcialidades* by the Spanish. Like the Inca *ayllu* and Aztec *calpulli*, the extended kin group comprised blood relatives as well as others related by political or social bonds such as marriage, place of origin, or occupation. Individuals shared hereditary rights to agricultural lands and recognized one member as their *cacique* (political and economic leader).

The relationship between ruler and subject was clearly delineated within a set of reciprocal responsibilities. Caciques ensured the stability of the community by mediating disputes, distributing labor assignments equitably, arranging marriages, establishing trade agreements with other communities, regulating markets, and maintaining local security. The cacique was also responsible for the distribution of communal surpluses, especially *chicha* (maize beer) and food on ceremonial occasions.

In exchange for political and economic leadership and material largesse, lords enjoyed the prerogatives of power and privilege. Unlike commoners, the ruler was polygamous and therefore supported the largest household in the *parcialidad*. In addition to several wives and their offspring, these extended families often included siblings, aged parents, and the cacique's personal servants. The responsibilities of subjects to their lord included the planting and harvesting of crops on a portion of *llajta* (Indian village) land specifically set aside for this purpose, providing the household with a steady supply of firewood and game, and building and repairing the royal compound. Recent archaeological research has shown that caciques frequently chose to locate their houses on *tolas* (raised earthen platforms) close to the most productive agricultural areas.<sup>5</sup>

Corn was the staple food of the area's native population, but a variety of

4 Knapp, "Soil and Slope," p. 310.

5 Ibid., pp. 229–30, 352.

other crops was also cultivated, including beans, peas, squash, quinoa, and potatoes. Although archaeologists have uncovered some evidence of irrigation canals and mountainside terraces, throughout most of the north-central highlands adequate rainfall made such labor-intensive agricultural techniques unnecessary.<sup>6</sup>

Although the wet, mild climate of the Quito area enabled local residents to produce an abundance of agricultural goods, certain important commodities such as cotton, chili peppers, salt, and coca could only be grown at lower elevations. Therefore, highland society devised a variety of exchange mechanisms to ensure access to these and other coveted items. The most common avenue of trade was between *llajtakuna* (Indian villages). In this way families and communities could exchange local surpluses of corn, for example, for chili peppers grown in lowland areas. Long-standing relationships between ruling families, often reinforced by intermarriage, facilitated the flow of goods between communities. Northern chiefdoms also developed a system, similar to the Inca archipelago network, whereby a group of individuals, called *kamayuj*, resided permanently in foreign communities, providing agricultural labor in exchange for exotic products, which they sent back to their home settlements. In addition, an elite group of *mindales* (long-distance traders) specialized in the acquisition of specific lowland products such as gold, fish, coca, salt, and beads of various types. Because they controlled the flow of luxury items primarily consumed by ruling elites, *mindales* enjoyed special privileges, including the right to travel widely outside of their native regions and the right to pay tribute in gold rather than in labor. *Mindales* provided goods not only for their own *llajta* but also for *tiangueces* (permanent regional markets). The *tianguetz* at Quito, for example, brought together people and commodities from all over the highlands as well as from the eastern and western lowlands. Thus, regional markets became central places not only for the distribution of goods but also for the dissemination of information and the accumulation of political and economic power for those who controlled the locale.<sup>7</sup>

### The Inca conquest

The natural wealth of the northern Andes did not go unnoticed, and economic rather than military interests motivated the first Inca incursions into this area. After the Spanish conquest, local informants explained that Inca traders began arriving sometime during the reign of Pachacuti Inca

6 For a discussion of indigenous agricultural technology, see *ibid.*, pp. 234–95.

7 Salomon, *Native Lords*, pp. 97–115.



(1438–71). They brought with them luxury items such as silver jewelry and vessels, llama-wool textiles, and exotic ceramics, the novelty of which appealed to northern elites. Over a period of many years, local rulers came to depend on a steady supply of such goods; as a result, emissaries of the Inca state began to amass political and economic power, eventually opening the door to advancing Inca military forces.<sup>8</sup>

Topa Inca, heir to Pachacuti Inca, initiated the conquest of the northern Andes during the last quarter of the fifteenth century. His army eventually defeated the Cañaris and subsequently used their capital, Tomebamba, as a headquarters for further military operations. Because the Cañaris came under direct Inca control many years before their neighbors, Inca customs and institutions penetrated their area to a degree never attained farther north. By the eve of the Spanish conquest, the Cañaris had adopted many of the economic and political practices of their conquerors as well as the official state language, Quechua.

The Incas paid a high price in men and materials for the conquest of the chiefdoms to the north of Tomebamba. Although details are vague, both Spanish and Indian chroniclers agreed that subjugation of the Puruha required two military campaigns, and the defeat of the Carangues and Cayambes in the Otavalo area necessitated four campaigns over the course of some twenty years. Neither eastern nor western lowlands and their inhabitants ever came under Inca control. Huayna Capac, successor to Topa Inca, finally defeated the forces of Nasacoto Puento, cacique of Cayambe, in a massacre on the shores of Lake Yaguarcocha around 1500. According to Pedro Cieza de León, more than 20,000 adult males from the Otavalo area died in this battle.<sup>9</sup>

In order to reduce the chances for future rebellions, Inca leaders ordered the forced relocation of large segments of the population. Many of the surviving rebels and their families were transported to the coca plantations of Matibamba far to the south in the province of Angaraes. Others were moved to the Huanuco region and still others to Cuzco. The Incas referred to these relocated populations as *mitimae*, and enclaves of *mitimae* were scattered throughout the empire. In their place came subjects from all over the southern highlands. The Huancas and Huayacunti from Cajamarca settled in the Chilllos Valley near Quito. Other foreigners, including some Cañaris, occupied land near Cotocollao, while *mitimae* from many distant areas of the empire now lived in El Quinche. Enclaves of foreigners also were settled in communities throughout Latacunga, Ambato, Chimbo, and Riobamba.<sup>10</sup>

8 Ibid., pp. 215–18.

9 "Cuentan los mismos indios que mandó matar más de veinte mil hombres y echarlos en la laguna"; Cieza de León, *Obras*, 1:53.

10 Information on *mitimae* populations is scattered throughout many sixteenth- and seventeenth-

Caciques who accepted Inca rule without protest were allowed to remain in power; but where loyalty was in question, Inca officials deposed the suspect and replaced him with someone more willing to cooperate. In communities where outsiders had assumed control and members of the traditional elite remained, hostilities often developed; the repercussions of these dynastic feuds continued well into the seventeenth century when descendants of pre-Inca ruling clans sought to reclaim their ancestral privileges.

A revealing example of the lingering conflicts between native and Inca lords is provided by a suit filed in 1565 by Lorenzo Guamarico, cacique principal of the province of Chimbo.<sup>11</sup> Lorenzo had ruled Chimbo since the death of his father Rodrigo seventeen years earlier. In 1565, he petitioned the audiencia to order Santiago, cacique of San Rafael Cumbibamba, to obey and subordinate himself to Guamarico's rule. Santiago conceded that Lorenzo and his father Rodrigo had ruled Chimbo for many years, but he claimed that his own father Longomate had been the original cacique of the region. Both parties agreed that, about 1525, Atahualpa had deposed Longomate (for treason, according to Lorenzo Guamarico) and replaced him with his *pariente* (kinsman) from Cajamarca, Rodrigo. According to the testimony of Santiago, hundreds of *mitimae* came with Rodrigo and occupied many settlements throughout the region, confiscating large amounts of land from native inhabitants. Santiago argued that he should not be forced to subordinate himself to Guamarico because he had always exercised independent political control over San Rafael and because since the Spanish conquest he had been collecting and delivering local tribute to the *encomendero* (receiver of tribute and labor from the Indians) of the town, Juan de Larrea. Two years later, in 1567, the audiencia issued a decision denying Guamarico's request and upholding Santiago's right to independent political and economic control over San Rafael. The court's ruling undermined Guamarico's authority on the regional level and exacerbated tensions between native and Inca elites. This case also demonstrates that, as early as the 1560s, members of Ecuador's

century documents. See, e.g., AGI, Quito 32, Don Francisco García Ati, cacique de San Miguel, Latacunga a la audiencia (September 27, 1633); AGI, Justicia 682, Residencia tomada al Licenciado Juan Salazar de Villasante oidor de la Audiencia de los Reyes, como a Corregidor y Justicia Mayor de Quito, por el Licenciado Fernando de Santillán Presidente de esta Audiencia de Quito, 1564; and AGI, Justicia 669, Don Lorenzo Guamarica cacique principal del pueblo de Chimbo con Santiago indio principal del pueblo de Cumbibamba, July 13, 1565 y siguió hasta October 14, 1567. Also see Salomon, *Native Lords*, pp. 158–67, and Miguel de Cantos, "Relación para la real audiencia de los repartimientos y numero de indios y encomenderos que hay en el corregimiento de Chimbo," in *Relaciones geográficas de Indias*, Jiménez de la Espada, ed., 2:254–60.

11 AGI, Justicia 669, *ibid.*