

THE CAMBRIDGE ECONOMIC HISTORY OF LATIN AMERICA

The Cambridge Economic History of Latin America provides access to the current state of expert knowledge about Latin America's economic past from the Spanish conquest to the beginning of the twenty-first century. It includes work from diverse perspectives, disciplines, and methodologies from qualitative historical analysis of policies and institutions to cliometrics, the new institutional economics, and environmental sciences. Each chapter provides a comparative analysis of economic trends, sectoral development, or the evolution of the institutional and policy environment.

Volume I includes the colonial and independence eras up to 1850, linking Latin America's economic history to the pre-Hispanic, European, and African background. It also synthesizes knowledge on the human and environmental impact of the Spanish conquest, the evolution of colonial economic institutions, and the performance of key sectors of the colonial and immediate postcolonial economies. Finally, it analyzes the costs and benefits of independence.

Volume II treats the "long twentieth century" from the onset of modern economic growth to the present.

Victor Bulmer-Thomas is the Director of Chatham House, the London home of the Royal Institute of International Affairs, and Professor Emeritus at the University of London. From 1992 to 1998, he was Director of the Institute of Latin American Studies (now the Institute for the Study of the Americas) at London University. He is the author of *The Economic History of Latin America since Independence* (Second edition, 2003) and editor of *Regional Integration in Latin America and the Caribbean: The Political Economy of Open Regionalism* (2001).

John H. Coatsworth is Monroe Gutman Professor of Latin American Affairs in the Department of History at Harvard University. In addition to serving as the Director of the David Rockefeller Center for Latin American Studies since its founding in 1994, he chairs the Harvard University Committee on Human Rights Studies. His recent books include *Latin America and the World Economy since 1800*, edited with Alan M. Taylor (1998), and *Culturas encontradas: Cuba y los Estados Unidos*, edited with Rafael Hernández (2001).

Roberto Cortés Conde is Professor Emeritus of Economics at the Universidad de San Andrés in Buenos Aires, Argentina, and a corresponding member of the Royal Academy of History of Spain. A former Guggenheim Fellow, he has published numerous books and scholarly articles. His most recent books include *La economía argentina en el largo plazo (siglos xix y xx)* (1997); *Transferring Wealth and Power from the Old to the New World: Monetary and Fiscal Institutions in the 17th through the 19th Centuries* (2002), edited with Michael D. Bordo; and *Historia económica mundial* (2003).

THE CAMBRIDGE ECONOMIC HISTORY
OF LATIN AMERICA

VOLUME I

The Colonial Era and the Short Nineteenth Century

VOLUME II

The Long Twentieth Century

THE CAMBRIDGE ECONOMIC HISTORY OF LATIN AMERICA

VOLUME I

The Colonial Era and the Short Nineteenth Century

Edited by

VICTOR BULMER-THOMAS

Royal Institute of International Affairs

JOHN H. COATSWORTH

Harvard University

ROBERTO CORTÉS CONDE

Universidad de San Andrés



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PREFACE

The Cambridge Economic History of Latin America began with conversations among colleagues, later the editors, but would never have passed from idle chatter to intellectual and material substance without the collaboration of numerous scholars and institutions. The editors wish to thank the distinguished contributors to these two volumes for the chapters they contributed, for traveling great distances to discuss them, and for responding with dispatch and good cheer to requests to review texts, check citations, and correct translations.

Most of the papers that became chapters in these two volumes were presented in original and then revised form at one or more of three meetings. First draft papers were presented and discussed at the Congress of the Latin American Studies Association in Washington, DC, in September 2001 and at the Institute for Latin American Studies (now the Institute for the Study of the Americas [ISA]) at the University of London, hosted by ISA Director James Dunkerley, in February 2002. Revised papers, and some additional chapter drafts, were discussed at a presidential session of the Congress of the International Economic History Association (IEHA), organized by IEHA president Roberto Cortés Conde, in Buenos Aires in July 2002.

This project could not have come to fruition as it has without the generous support of the William and Flora Hewlett Foundation. The editors wish to thank the Foundation for its support and to acknowledge with special thanks the efforts of David Lorey, whose vision and hard work, in addition to his own distinction as a historian of Mexico, helped to make the Hewlett Foundation's program on U.S.–Latin American relations a major contributor in the reconstruction of academic institutions and intellectual networks in the western hemisphere in the past decade. The Hewlett

Foundation grant was administered without cost to the project by the David Rockefeller Center for Latin American Studies at Harvard University, whose assistance is also gratefully acknowledged.

The editors also wish to thank Frank Smith of Cambridge University Press (CUP) for his encouragement and patience, CUP's anonymous reviewers for helpful comments and suggestions, and Daniel Gutierrez of Harvard University for his hard work and expert editorial assistance.

While these volumes were still in preparation, the editors learned of the death of Enrique Tandeter from pancreatic cancer on April 24, 2004, at the age of fifty-nine. Enrique died seven months after the death of his wife, historian Dora Schwarzstein, also from cancer and at an even younger age. Enrique was a scholar of exceptional rigor and intelligence, whose research contributed in fundamental ways to our understanding of the social and economic history of the Andes during the colonial era. All who knew Enrique and Dora remember them for their warmth and sophistication, their courage in the face of exile and tragedy, the high standards of integrity and professionalism they set for themselves and their students, and their joy in the achievements of their talented children, Leah and Frederico.

INTRODUCTION

In the past two decades new research has transformed the economic history of Latin America. The pioneering work of the structuralist and dependency school historians, often collaborating with the United Nations Economic Commission for Latin America and the Caribbean (ECLAC),¹ produced a huge outpouring of new economic data in the 1950s and the 1960s, including the first historical (and in some cases current) estimates of Gross Domestic Product (GDP) for a number of countries. Statistical agencies and central banks, often founded and staffed by ECLAC graduates, undertook further work. The search for economic historical data was also stimulated by historians trained in the Anglo-American empirical tradition and in the methods of the French *Annales* School, and by heterodox development economists schooled in England and the United States. In the 1970s, these currents were joined by historians and economists trained mainly in the United States and often associated with the New Economic History. The ensuing debates over approaches and paradigms were fueled by the shifting fortunes of competing economic strategies – socialism, import substitution, freer trade – and by the rise of repressive military regimes throughout much of Latin America.

Latin America's economic history took a decisive turn with the 1982 financial and economic crisis and the ensuing transition to democracy throughout the region. Theoretical debates over competing economic strategies diminished in intensity. As democracies consolidated and the Cold War ended, ideological conflicts subsided or became muted. Economic history,

¹ ECLAC was known as ECLA (or CEPAL in Spanish) until the Caribbean was added to its name in 1973.

like the social sciences in general, professionalized in an environment that demanded better data and more sophisticated and coherent arguments. The impact of these changes in the Latin American intellectual landscape included notable advances in the study of the economic past marked by a series of general works and anthologies as well as an outpouring of original and often path-breaking monographic research.

The goal of these two volumes is to provide access to the current state of expert knowledge about the history of economic development in Latin America, here taken to include all of the western hemisphere from the “southern cone” of South America to the southern border of the United States. At the outset of the project, the three editors made two decisions that to some readers will inevitably appear at least arbitrary and possibly reckless. The first was to put aside the national and regional boundaries that have traditionally defined the scope of historical scholarship in order to commission chapters that address comparative topics with data and analysis on the entire region. The essays in these volumes focus on major trends and developments and confirm the utility of comparative work in economic history. The trade-off, of course, is that idiosyncratic experiences and smaller economies do not appear as often as they would in geographically delimited case studies.

The second decision was to break the two volumes at roughly 1850, a division that defies conventional periodizations. The logic of this division is economic and institutional rather than political. The transition from colonialism to independence in the 1820s coincided with economic fragmentation, but the economic and institutional legacy of the colonial economy continued to weigh heavily on the new countries. Not until the economic globalization of Latin America that commenced with massive inflows of capital and immigrants after 1850 did the region achieve sustained economic growth for the first time in history. The institutional modernization needed to sustain modern economic growth also took shape in the mid- to late nineteenth century. Finally, the onset of growth also coincided with the increases in the inequality of incomes and fortunes that were to characterize the region throughout the twentieth century.

THE COLONIAL ERA AND THE SHORT NINETEENTH CENTURY

The pre-Columbian economies of Mesoamerica and the Andes effectively integrated regional markets and production facilities over large areas,

though not without some stress on food supplies (Chapter 1). European conquest and colonization of the Americas transformed indigenous economies by applying to the New World a technological, organizational, and cultural repertoire substantially different from that available to indigenous societies. The impact of this extraordinary development was magnified by the forced migration of millions of Africans to the American tropics and adjacent areas. Volume I thus includes an assessment of the economic determinants and reciprocal effects of European expansion (Chapter 2). It also assesses the impact of the slave trade on Africa and the impact of American contacts on African society (Chapter 3).

European governments and settlers introduced massive changes in land use and labor organization. Even where indigenous societies retained some autonomy at the local level, the introduction of Old World crops and livestock, colonial taxes, labor drafts, and new regional and international market access transformed people and landscapes (Chapters 4 and 6). The effects of the European reorganization of economic life were magnified by the catastrophic loss of life that followed after the introduction of Old World pathogens into populations that had no prior exposure (Chapter 5).

Despite the existence of quantitative evidence, beginning soon after the conquest, on key sectors of the Spanish American colonial economies – such as mining output, fiscal accounts, and trade statistics – only a few rough estimates of GDP have ever been constructed. These estimates, together with fragmentary data on other sectors and abundant qualitative information, suggest three broad patterns.

First, productivity and external trade were highly correlated. The colonies with the highest GDP per capita in the late colonial period, such as Argentina and Cuba, were those with the highest trade-to-GDP ratios. Brazil may have been an exception to this rule, but economic statistics for colonial Brazil are far less abundant than for Spanish America. Second, the mainland colonies, with large indigenous populations concentrated in highland valleys and plateaus, had low export-to-GDP ratios because their exports were limited mainly to precious metals or gems that could be shipped profitably over long distances to the sea. These mainland colonies also suffered from the most burdensome taxation. Third, the New World colonial economies of Spain and Portugal tended to stagnate over time. The European settlers generally managed to apply well-known techniques and organization to newly discovered, exportable natural resources, such as mineral deposits and coastal sugar lands. Once this had been accomplished, stagnation set in. Fluctuations in economic activity occurred when

new products or mineral bonanzas were discovered, or when governments precipitated wars, raised taxes (they were seldom lowered), or imposed new regulations. The colonial economies of Spain and Portugal lacked the dynamism that characterized British North America in the eighteenth century.

Stagnating economies, however, are never static. Colonial Latin America experienced major changes and transformations over the three centuries of Iberian rule. Factor endowments and economic organization may have contributed to the colonial stagnation. Unlike northwestern Europe and British North America, most of Latin America's natural resources were land-locked and not economically accessible until the advent of the railroad in the late nineteenth century. The conquest and subordination of indigenous populations and the importation of African slaves created societies in which substantial majorities were marked, legally and socially, as inferior. Spanish and Portuguese tax and regulatory policies tended to inhibit many productive undertakings by raising start-up costs and risks, immobilizing people and capital, and distorting market signals to maximize revenues (Chapter 7). As the sectoral chapters in Volume I make clear, however, the relevant economic actors did not lack entrepreneurial spirit or willingness to work and sacrifice for future gain (Chapters 8–11).

As the colonial state disintegrated (Chapter 12), economic difficulties multiplied. In the first three decades after independence (1820s–50s), all of the Latin American economies suffered economic and political reverses (Chapter 13). Some fell into prolonged periods of political turmoil and instability (e.g., Argentina, Colombia, Mexico). International wars and blockades exacerbated political instability in nearly every country. Each tentative recovery collapsed as the bullets began flying again. A few countries managed to recover colonial levels of GDP per capita by mid-century, mainly as a result of natural-resource-based export bonanzas (e.g., copper in Chile, guano in Peru). Not until after mid-century, however, did developments in the world market, especially favorable movements in the terms of trade and sharply falling ocean transport costs, combine with political stability, institutional modernization, and massive capital imports for railroad building and other direct investments, to produce a region-wide transition to economic growth.

Part I

THE ECONOMIC BACKGROUND

THE GLOBAL ECONOMIC HISTORY OF EUROPEAN EXPANSION OVERSEAS

PATRICK KARL O'BRIEN

I. INTRODUCTION

Metanarratives about European expansion overseas had appeared even before Columbus claimed Hispaniola for Spain's Reis Catholicas and da Gama rounded the Cape of Good Hope on his murderous voyage to Calicut. By far the oldest, voluminous and most enduring metanarrative has been dominated by a concern to comprehend the history and nature of European impulses to trade with and to colonize the territories, assets, and populations of other continents. Another recent, more circumscribed discourse in political economy (which will be surveyed and reconstructed by this chapter) can be advertised as an inconclusive attempt to assess the macroeconomic costs and benefits accruing to Europe's national economies and to Western Europe as a whole from an intensified engagement with Asia, Africa, the Americas, and Australasia. The intensification of an ancient but sporadic and limited involvement with the places, populations, and regional economies of continents outside Europe really began with the Portuguese conquest of Ceuta in 1415 and persisted over some four centuries of mercantilism down to an "imperial meridian" (1783–1825). At that conjuncture in world history (which marked a transition in geopolitics from a mercantilistic to a liberal international economic order), the five European powers most seriously involved with expansion overseas (Portugal, Spain, the Netherlands, France, and Britain) had lost sovereignty over most of their former colonies and trading posts in the Americas, but continued to retain and to extend their empires in South and Southeast Asia, Australasia, and Africa down to an era of decolonization after the Second World War.

My chapter will begin by reviewing three separable stands of a historiography written by economic and other historians (based on research in national archives and informed by economic theory and comparative methods) designed to analyze connections between intercontinental commerce and colonization on the one hand, and the protracted but precocious industrialization of Western Europe on the other. I will conclude that this geographically bounded and Eurocentric paradigm for historical research is now “decadent” and our megaquestion can only be comprehensively and effectively addressed by relocating the whole enquiry into the recently reestablished discourse for the study of global economic history.

After an exercise in “deconstruction” the core of the chapter will then move on to specify, reconfigure, and, where possible, quantify the economic significance of connections between Western Europe and the rest of the world economy between 1415 and 1825. My essay offers guidelines for research, conjectures, and plausible speculations concerning the significance of outcomes flowing from expansion overseas for the evolution and integration of Western Europe into a system of technologically advanced market economies.

2. EUROCENTRIC HISTORY, COST–BENEFIT METAPHORS, AND COUNTERFACTUAL SPECULATIONS

Costs and benefits are familiar concepts, drawn from economic theory, and signal an intention to bypass all other motives behind expansion and to sideline the geopolitical, cultural, and social gains as well as the psychic, sexual, and spiritual gratification that Europeans derived from centuries of interactions with other continents.

From its beginnings as a process of maritime exploration, costs in the form of private and state investment were incurred to build up, protect, and develop commerce with societies and colonial settlements overseas. Over the centuries that investment cumulated and led in time to regular and ever-increasing flows of exports, imports, labor, capital, and useful knowledge across oceans, seas, and overland routes of a world economy that had been tangentially connected for more than a millennium before the rediscovery of the Americas in 1492. During the sixteenth century, connections multiplied and deepened when the maritime economies of Western Europe became increasingly involved not only with the Americas, but unavoidably with

Africa and Asia as well. Thus, the trans-Atlantic reconnection, together with the establishment of regular commerce with India, Southeast Asia, Japan, and China, represents a conjuncture in global history because it marked an acceleration in the growth of world trade that led (slowly at first) toward a widening and deepening of intercontinental commerce that evolved rapidly after the diffusion of steam-powered ships and trains into an ever closer integration of world markets for commodities, capital, labor, and technologies.

Although Europe is endowed with entire libraries of scholarship on oceanic trade, merchants, international finance, ports, ships, shipping, navies, mercantilist regulations, and interstate rivalry for the spoils of empire and commerce between Europe, Africa, Asia, and the Americas, nothing has been settled about their significance for its development. Connections between intercontinental trade on the one hand and metropolitan industry and agriculture on the other are often mentioned and occasionally analyzed, but almost never quantified. Likewise, published economic histories of European industries, agricultures, and services consider production, location, organization, entrepreneurs, workforces, and technologies, but only rarely are linkages to overseas trade explored. Furthermore, there is an imbalance in the published literature. National histories of oceanic commerce are easier to research and more exciting to read than histories of domestic production. The sheer volume and accessibility of sources dealing with intercontinental trade have led to an exaggeration of its significance in European economic history.

That exaggeration has, moreover, been compounded by the long preoccupation with interstate rivalry that has dominated the writing of European history since the time of the Reformation. Even for economic history, geopolitical themes such as: violence, predation, colonization, and mercantilist rivalry (eloquently represented by a venerable tradition of writing by canonical authors going back from Immanuel Wallerstein and Fernand Braudel to Karl Marx and Adam Smith) continue to dominate the historiography of European expansion overseas and resonate powerfully in analyses of European imperialism by radical intellectuals from all parts of the world. Seeking to deconstruct, qualify, and countervail what they regard as a simplistic grand narrative of exploitation by a more coherent, balanced, and validated alternative are three stands or separable programs of historical research. Ranked first in terms of the volume of publication comes a long and ever-growing bibliography of books and articles from historians bunkered in Europe's national and local archives, whose research

continues to be based on the assumption that generalizations about the economic significance of Europe's commerce and colonization over the epoch of mercantilism might well come from further spatial disaggregation into microcase studies focused on the involvement of particular maritime cities, regions, industrial sectors, and local agricultures in various parts of Western Europe with oceanic commerce. As usual, this "Rankean" paradigm of geographically confined and chronologically delineated historical research operates to undermine any but brave (or foolhardy!) attempts at synthesis. As yet there has, however, been no clear progression from the manufacture of bricks to the formulation of architecture.

Perhaps the only escape from the tyranny of historical detail is to be found in publications that do at least seek to analyze the macroeconomic impact of exports, imports, capital outflows, returns of profits and interest, and inflows of knowledge on the long-run development of national economies (Portugal, Spain, the Netherlands, France, and Britain) most actively engaged in imperialism overseas. Whenever macroeconomic investigations consider the terms and conditions for trade, set within an evolving framework of mercantilist rules and regulations, enforced by European states, and including estimates for the costs of conquest and protection for trade borne by metropolitan taxpayers, they move closer to a theoretically acceptable analysis of how overseas expansion might have related to the long-term growth of national economies. Unfortunately, retrospective macroeconomic balance sheets for any of Europe's major imperial economies have proved impossible to construct. Perhaps that is not surprising because models imported from economics (which link growth to trade) require rigorous specification, counterfactual reasoning, and a range of data (virtually unavailable before the late nineteenth century) to draw inferences about the magnitude, or even the direction, of effects that investment in colonization and commerce overseas might conceivably have exercised on national rates of growth.

Even if economic historians set aside (as they must) the heuristic but non-operational requirements of international trade theory and econometrics, and concentrate upon "plausible conjectures," the demands on those who wish to engage rigorously with this megaquestion remain formidable. For example, in order to move on from theoretical vocabularies and underspecified models of linkages between trade and growth, scholars are required to construct historical chronologies that begin with valid accounts of the actual growth that European agricultures, mines, manufactures, and trades had achieved for, say, several decades before a Genoese admiral navigated

Spanish ships to the Americas, or da Gama sailed a flotilla of caravels from Lisbon to Calicut.

In short, a seldom addressed counterfactual question lies behind any claims to pronounce on the economic significance of the first epoch of European exploration, mercantilism, and intercontinental commerce: namely, what kind of trajectory had the interconnected regional economies of Europe been on between, say, the conjuncture of the Black Death, 1348–50, and the beginnings of Portuguese exploration down the west coast of Africa in 1415. With so little data at their disposal medieval historians find it difficult to deal with clearly posed questions of this kind. Few suggest, however, that the local European agricultures, industries, and trades that they study seemed destined to run into diminishing returns or stop at the buffers of production-possibility frontiers. Their informed perceptions are that not long after the awesome shock of the Great Plague, and well before the rediscovery of the Americas, European economies were already on the move. Even a cursory reading of medieval history raises the counterfactual question – in what sense (and to what degree) did the slow advance in productivity growth toward a plateau of possibilities and opportunities from where the technological breakthroughs associated with the Industrial Revolution become probable depend on the commerce and imperialism pursued by the Iberians, the Dutch, the French, and the English in the Americas, Asia, and Africa?

This way of formulating the problem has promoted a third strand of modern inquiry, which anticipated that some insights might be gained by placing national histories of European trade and colonization side by side. The resort to comparative methods has at least rediscovered two clear contrasts that are relevant to any assessment of the costs and benefits of committing European resources to overseas expansion.

For example, comparisons reveal that several economies (German princely states, Austria, Denmark, Bohemia, Norway, and Sweden) matured into successful industrial market economies with virtually no allocation of capital, manpower, entrepreneurial talent, and armed forces to colonization and intercontinental trade during the age of mercantilism. More significantly, comparative methods show that the social returns from investments by five national economies (which remained more or less committed to Europe's imperial program) varied in explicable ways across space and through time. Modern economic histories of Portugal, Spain, France, the Netherlands, and Britain have concluded that long-term macroeconomic gains from investment in oceanic trade, maritime outposts, and colonial

possessions overseas accrued “ultimately” and “disproportionately” to two Protestant powers – primarily to Britain but to the Netherlands as well. Both nations came into the imperial project as latecomers and free riders on the initial and sustained investments made by Iberians in the research and development, conquest and colonization required for the establishment of regular and secure patterns of trade with the Americas, Africa, and Asia. That perception looked incontestable at the end of the Imperial Meridian, when the Dutch remained “embarrassed by riches” and Britain stood halfway through a First Industrial Revolution, whereas the economies of Portugal and Spain still struggled to recover from the destruction and depreciation of national capital, skill, manpower, and institutions that accompanied internal revolutions, civil wars, invasions by Napoleonic France, and the almost total loss of their colonial possessions and investments in the Americas. For earlier centuries, and even during the twilight of mercantilism from the Treaty of Utrecht (1713) to the outbreak of the French Revolution (1789), the claim that Iberian (and French) gains from intercontinental trade and colonization had become limited and heavily concentrated in the hands of Dutch and British merchants and investors seems less obvious.

Nevertheless, the weakness of an “exogenous impetus” promoted by imperialism for the long-term economic growth of Spain and Portugal is interesting to contemplate, bearing in mind that comparative histories of the national economies of Western Europe usually accord a greater weight to endogenous factors (such as natural endowments, locational, climatic, and other geographical advantages, and local institutions, cultures, and regimes for the production and diffusion of useful knowledge) than they do to external commerce.

Nevertheless, when they compare the development of Iberia with the rest of Western Europe over the sixteenth, seventeenth, and eighteenth centuries, Spanish and Portuguese economic historians tend to foreground negative effects and to emphasize how constricting institutional developments, attenuated backward and forward linkages to domestic production, and baneful externalities operated to restrain economic growth, despite material gains from three centuries of colonization and trade with Africa, Asia, and the Americas. For example (and long before the economies of Spain and Portugal suffered severely in conflict with Napoleonic France and from revolts for independence by colonists in southern America), high shares of the gains from a private–public partnership in imperialism accrued to both monarchies from their property in the colonies, from taxes, from legal services, and from their regal rights to grant monopolies, licenses,

and privileges to private individuals, firms, and corporations engaged in commerce with Latin America. Most of that windfall increment to state revenue seems to have been allocated to fund wars fought in pursuit of dynastic ambitions, territorial conquest, and Counter-Reformation on the mainland of Europe. However, the unavoidable allocations by both states to enforce mercantilist regulations designed to reserve trades with Asia, Africa, and the Americas for Spanish and Portuguese business and to protect private and public interests from Dutch, English, and French predators, rivals, and interlopers are now depicted as inadequate and ineffective. Furthermore, governmental construction at home tended to be far more monumental, palatial, and ecclesiastical than infrastructural. Madrid and Lisbon became architecturally impressive imperial cities, but they grew more in scale than in scope and are not represented by modern urban historians as “sites” conducive to innovation, skill formation, entrepreneurship, industrial investment, and the development of science that marked the celebrated achievements of Antwerp, Amsterdam, Paris, and London during the early modern era.

Fiscal needs for revenue strongly conditioned the formation of European states and their policies. Iberian colonies provided the monarchies of Spain and Portugal with unusual, widely envied, and predictable flows of hard currency that they deployed for purposes of accumulating royal debt, dispensing patronage, and above all, pursuing dynastic and strategic ambitions with limited reference to broader and longer term notions of national economic interest. Operating within the political and geopolitical constraints of their times, they used the considerable resources that accrued to them from colonization and commerce to reinforce traditional social structures. They patronized aristocracies with conservative outlooks and propensities to seek rents rather than profits. The Iberian monarchies (Aviz, Braganza, Hapsburg, and Bourbon) that ran the Portuguese and Spanish states are rarely presented as efficient managers of national assets and patrimonies or commerce with Africa, Asia, and the Americas.

For Portugal, a smaller and geopolitically more vulnerable economy than Spain, connections with oceanic commerce and colonization through trade migration and capital flows must have been relatively more important (in macroeconomic terms) than they turned out to be for its hostile neighbor. Spain was already a much larger, more urban and sophisticated economy by the mid-fifteenth century. Yet neither of these southern European economies experienced anything like the volume and diversity of import-based industrial development and export-led growth, elaborated upon in

studies of Dutch and English (and even French) connections with other continents. For several reasons, markets for exports and imported raw materials did not lead to a discernibly more rapid and extensive accumulation of skilled industrial workforces in the Iberian peninsula. Local agricultures that continued to employ and sustain the majority of their populations could not be transformed easily to release labor, basically because the technologies for raising the productivity of labor employed in “Mediterranean” farming systems (before the advent of chemical fertilizers, mechanized irrigation, and long-distance marketing networks) remained ecologically constrained. Spain's own entrepreneurial talent could satisfy its aspirations by engaging in mercantile enterprise in the carrying trades on Atlantic oceans and eastern seas, or live well on profits repatriated from investments in American mines and plantations, or perhaps luxuriate even more grandly upon rentier incomes derived from state patronage and privilege. Some (probably rather small?) proportions of more enterprising Iberians from lower down the social scale emigrated to use their talents and business acumen in Spanish and Portuguese possessions overseas.

Unfortunately for their home economies, the exploitation of alluring sources of mineral wealth in their colonies led to predictable changes in Spain and Portugal's structures of production and patterns of trade. Neither silver nor gold are utilitarian metals that can be used for construction or transformed into tools, household artifacts, or weapons. When not used as money (or as the basis for paper credit) they were skillfully crafted into articles of adornment for churches, monasteries, nunneries, royal palaces, and aristocratic mansions.

When operating as high-powered money, inflows of silver and gold certainly raised overall levels of metropolitan (and colonial) demand for goods and services, which the industrial and service sectors of the Portuguese and Spanish economies met to an entirely limited extent and by diverting resources away from the production of exportable goods. “Surplus” silver and gold that could not elicit a sufficiently elastic response from domestic producers either funded these “nonproductive” political and geopolitical expenditures by monarchies, or was exchanged for imported goods and services emanating from rival Dutch, French, and English economies. Bullion inflows from the Americas that allowed for increased domestic and colonial consumption of both tradable and nontradable goods led to adverse structural changes within both metropolitan economies because shortages of domestically produced tradable goods and services generated price inflation that spilled over to attract imports from the rest of Europe.

Iberian economic historians now construct their early modern economic histories as national economic failures because both public and private sectors realized only “disappointing proportions” of the benefits potentially obtainable from overseas trade and colonization. Failure (reflected in debates of the day and between Arbitristas and their opponents) occurred because monarchs and ministers became too preoccupied with unprofitable strategic and religious objectives and never managed to exclude rivals and predators from the Portuguese and Spanish empires overseas or to protect domestic manufacturing, shipbuilding, shipping, finance, and other mercantile services from foreign imports. They rarely add that the implicit counterfactual behind what is an essentially mercantilistic representation is that given time, proper protection from foreign competition, and other measures of governmental support, the political systems and the economies of Portugal and Spain possessed sufficient power and economic potential to mature into more efficient, larger, and more integrated imperial economies. Their other assumption is that policies of exclusion and reservation advocated by a succession of economic advisers and ministers to the rulers of Portugal and Spain were enforceable. Yet for some three centuries after the Reformation all European states made pretentious claims to absolute sovereignty over their territories, assets, and nominally subject populations, while operating within an international order afflicted by heightened dynastic rivalry and religious warfare, and with weak administrative capacities to rule local polities, economies, and societies, let alone distant colonies and trading networks located around the world’s oceans and seas.

Although inflows of revenues and profits from overseas expansion helped to sustain its centralized and powerful monarchy and national independence, Portugal paid for naval and military support from other major powers. For example, the cost of its long and famous alliance with England was to allow English merchants and English manufactures access to the country’s domestic and imperial markets. Given its size, its geopolitical location, the hostility of Spain, and the sustained attacks of the Dutch, Portugal’s potential gains from investment in overseas trade, maritime colonies, the exploitation of Brazilian gold, and the carrying trade had to be shared (for sixty years with Castile, 1580–1640, and thereafter with England).

Spain was an altogether larger, better endowed national economy and more formidable power than Portugal, but neither the Habsburg nor the Bourbon regimes ever mobilized sufficient naval power to prevent foreign commerce with its domestic economy or colonies overseas from becoming multilateral. Any kind of Spanish mercantilist strategy designed to

concentrate the gains from overseas expansion could only have been extraordinarily difficult to impose upon an empire dispersed across Europe as well as Asia and the Americas. Obsessed with Counter-Reformation and its prolonged and ultimately debilitating struggle with France for mastery in Europe (which closed with the Peace of the Pyrenees, 1659), Spain lost territory in the Caribbean and could only sporadically and intermittently contain the “conspiracy” spearheaded by its French, Dutch, and English enemies to smuggle goods into and out of southern America and to supply demands for Spain's domestic and colonial markets for manufactures and commercial services.

To sum up this preface of deconstruction: three lines of persistent and continuing historical enquiry into the significance of connections between European expansion overseas and the rise of the West seem to have reached an impasse. Traditional history has long been attracted to the question, but is either prone to exaggerated ad hoc assertions or mired in detail derived from Europe's national archives, which contain voluminous and accessible sources related to overseas trades of competing national empires. Meanwhile, demands from economic theory for rigorous specification and the quantification of observed connections cannot be met, not least because there is a serious imbalance between statistics available for trade and for production, and there is no prospect of ever finding data needed to aggregate the costs and add up the streams of benefits and externalities accruing to national economies over time from the engagement in commerce and colonization with Africa, Asia, and the Americas. Alas, economic theory provides little more than helpful vocabulary and a sense of the complexities involved in producing anything approximating to a “scientifically” acceptable answer to this important megaquestion.

Third, comparative histories juxtaposing case studies of national, regional, or city economies actively engaged in intercontinental commerce simply expose how a variety of local political, institutional, cultural, and geographical and other conditions generated favorable (Britain and the Netherlands), less favorable (France), and possibly malign (Iberia) outcomes from sustained commitments to expansion overseas. In the end the comparative history of European colonization and commerce labors one (albeit major) point, namely that the scale and scope for the realization of macroeconomic gains from oceanic commerce and imperialism depended upon a matrix of linkages to the local economies involved in that risky and predatory enterprise.

3. WESTERN EUROPE IN THE WORLD ECONOMY, 1415–1825

Latterly a new generation of economic historians have realized that a coherent, plausible, and memorable metanarrative concerned with Europe's protracted engagement with other continents could not be constructed from the building blocks made from materials contained in the archives of European countries, regions, or maritime cities.

They appreciate that Europe's engagement spanned the globe and led to more than three centuries of warfare, competition, and collaboration between the five powers most actively involved. No plausible narrative about outcomes could be constructed unless the connections of Western European economies as a whole – with each other and with other continents, Asia and Africa as well as the Americas – are taken as the appropriate geographical framework for analysis. This methodologically valid prescription will not be easy to take forward, basically because the post-Reformation history of Europe and the rest of the world has been written as densely documented accounts of competing but separated empires, nation states, and regional economies.

Fortunately, over the recent decades, it has become feasible and heuristic to "resituate" early modern European economic history within a venerable tradition of inquiry concerned with histories of contacts, connections, and differentiated paths of material progress contextualized within the world economy as a whole. Herodotus can be credited with inaugurating this recently revived historiographical tradition, which persisted in the form of Roman and Christian ethnography down to the age of the Enlightenment. By that time (more than two centuries after the voyages of discovery) the vastly increased flow of commodities and knowledge imported from Asia, Africa, and the Americas made systematic analysis of economic connections and contrasts between Europe and the rest of the world possible. The reflections of Montesquieu, Voltaire, Hume, Turgot, Quesnay, Robertson, Miller, and forgotten scholars of the Göttingen School can be repositioned alongside Adam Smith's celebrated *Inquiry into the Nature and Causes of the Wealth of Nations*, as marking the beginnings of classical economic thought and pointing the way forward toward the concerns of modern global economic history.

Alas, for long stretches of the nineteenth and twentieth centuries, apart from Malthus, Marx, and Weber, and excursions by scholars from the

German historical school, the parameters for historical investigations into long-run economic growth remained geographically and chronologically bounded by Europe's national, regional, and village economies. Furthermore, and after a mere interlude of classical political economy, problems of allocation, distribution, and short-term fluctuations emerged to dominate the neoclassical agenda in economics, while most economic historians seldom wrote or researched outside the circumscribed spatial and temporal boundaries that ensured their claims to expertise.

That is now changing. No surprise should be occasioned by the appearance during recent decades of "globalization" of an increasing flow of books seeking to resituate the economic history of Europe within a "world economy" – going way back in time and written to expound and explain the disparate levels of material progress achieved by countries, regions, and communities located on all four continents, Asia, Africa, and the Americas, as well as Europe. Modern scholarship in global economic history has, however, been constructed within paradigms for investigation established by two comparably Eurocentric Germans: Karl Marx and Max Weber. Both of these canonical figures maintained a serious interest (admittedly as a counterpoise to Europe) in the evolution of Indian, Chinese, American, and Russian economies, although Weber's investigations into Oriental religions, philosophies, cities, and states look far more serious than anything undertaken by Marx or Engels. As world history Marxism has classically been concerned to investigate the potential for material progress embodied in distinctive "modes of production" observed for different parts of the world. Only latterly have scholars working within a "deviant" Marxist paradigm "re-emphasized" processes of international and interstate rivalry and colonial exploitation as intrinsic to patterns of uneven development on a global scale. Its competitor, the Weberian research program, can also be divided into two major strands of inquiry: first, a comparison of hegemonic systems of belief, operating to promote or constrain personal and group behavior in economic spheres; and second, an empirical analysis into the political, legal, and institutional frameworks within which economic activity operated historically around the world.

Modes of production are usually broken down into essential characteristics and into distinctive systems for the production and distribution of goods and services found historically across several regions of the world economy. In classical Marxian thought, the only mode capable of generating sustained material progress, "capitalism," is based upon wage labor and the accumulation of capital. Marx found that the first transition from

precapitalist to capitalist modes of production occurred in Western Europe. Thereafter global historians (working within a mainstream Marxian tradition) have addressed his question of when and why that transition occurred there before considering its obverse: what sorts of precapitalist modes of production prevailed throughout Africa, Asia, and Amerindian America that somehow delayed or arrested comparable transitions to capitalism upon other continents?

Two general answers can be inducted from the sophisticated body of Marxian scholarship at our disposal and will be mentioned here as simplified headlines. First, that tradition suggests that capitalism emerged within the “hospitable matrices of feudalism” – a distinctively European mode of production that has not been discovered by Marxist historians to have been either dominant or persistent in other parts of the world, with the possible but significant exception of Japan. Instead nonprogressive modes of production (exemplified by frameworks for the organization of production in Europe’s classical civilizations as well as Africa, Asia, and the pre-Columbian Americas) either retarded or more generally (in the case of ubiquitous “Asiatic” modes of production) arrested potentially favorable transitions that occurred in the cradle of capitalism in Western Europe.

Over the last twenty-five years an alternative or supplementary “Marxian” paradigm has been rediscovered in the works of Marx and elaborated by the World Systems School of historical sociology. This school’s central hypothesis is that the transition to capitalism (or commercial society) and eventually to successful industrial market economies occurred first in Western Europe because Europeans reaped timely and decisive gains from intercontinental trade and from the colonization of resources in Asia, Africa, and the Americas for some three or more centuries before the onset of the French and Industrial Revolutions. In the more nuanced varieties of world systems explanations now published, Europe’s economic benefits are broadly conceived to encompass more than transfers of resources. They also include a range of positive political, institutional, and cultural feedbacks and spinoffs that can be connected to the ever-increasing flow of commodities imported after 1492 into European ports from all over the world, and especially from the Americas.

Unsurprisingly, the World Systems School’s elaborations upon the extension of markets for European exports to Asia, Africa, and the Americas, and above all its emphasis on the pervasive significance of trade and imports (embodiment productive knowledge) transshipped back to Europe from other continents has been contested. Classical Marxist scholars hold onto

canonical texts contrasting progressive with nonprogressive modes of production. In doing that they join forces with mainstream economic historians who continue to regard the peculiarities and particularities of Europe's historical trajectory as the basis of an early transition to commercial and then to industrial society. Parenthetically, and for this particular debate, none of the labels (concepts) that have dominated traditional preoccupations with stages of growth, nor that other unresolvable discussion about continuous versus discontinuous transformations from one kind of traditional economic system to another, and ultimately more progressive, system seem to matter. The central problem is to specify (and measure) the significance of endogenous compared to exogenous forces promoting economic growth in one part of the world economy (Europe) and restraining a similar momentum on the continents of Asia, Africa, and southern America.

In retrospect, a virtual library of Marxian scholarship concerned with Asiatic modes of production and with the absence or presence of peculiar forms of feudalism found outside Europe now looks more theoretical than historical. Furthermore (and perhaps because it was ostracized during the Cold War), that classical Marxist tradition has been less influential than its Weberian counterpart in establishing the parameters and vocabulary for a modern discourse, which is concerned with institutional restraints that, for several centuries, operated to prevent non-European economies from following a European trajectory, and which led toward those divergent standards of living between the West and the Rest that became so conspicuous over the course of the nineteenth and twentieth centuries. Most of the ad hoc comments made by Marx on Asian societies are now regarded as little more than exemplary Eurocentric speculations of his time. He seems, moreover, to have led generations of his followers down a blind alley in search of supposedly ubiquitous and unchanging Asiatic modes of production.

Max Weber's erudition looks more impressive. His approach, questions, and topics for investigation anticipated the agenda for the construction of global economic histories written in recent decades. Weber dealt with long spans of time, studied classical and two Oriental civilizations, and used comparative methods in order to comprehend why capitalism arose in the West and not in the East. Reading, as he did, over chronologies covering millennia, Weber recognized that the economies of India and China displayed early and impressive scientific and technical precocity. He appreciated that Arabs and Asians had established sophisticated systems and efficient institutions for the conduct of internal and overseas trade long before European ships and merchants began to sail regularly into

and around the Indian Ocean and China seas during the sixteenth and seventeenth centuries.

Weber remained less impressed, however, with the economic significance for European development (accorded by Adam Smith and latterly by the World Systems School of historical sociology) to the discovery and exploitation of the Americas. He was not inclined to inflate gains from intercontinental trade and colonization above endogenous forces operating for centuries before 1492 to promote economic growth within Europe. Weber also agreed with Marx that the accumulation of capital and the evolution of slave through feudal to free markets for labor really mattered as major determinants of material progress in Western Europe.

He remained, moreover, too scholarly to succumb to the lure of stark binary contrasts that jar as Eurocentric in the asides of Marx and mar the writings of Weber's less fastidious followers in historical sociology and latterly in economic history. Yet for scholars concerned to construct a plausible and viable metanarrative about the long-run history of material progress, Weber elaborated upon themes that resonate into modern stories told about the economic success of the West and the relative retardation of the East over the past millennium. Following on from Montesquieu and other thinkers of the Enlightenment, Weber (and modern "Weberians" – see bibliographical essay, Section 2.1) believed that discernible contrasts in the institutional, ideological, and legal frameworks within which economic activities were embedded in Europe compared with the rest of the world had prevailed for "several" centuries and that marked differences in religious beliefs, cultural conditioning, family life, institutions, and political systems promoted divergent paths of economic growth that eventually produced a clear divide into affluent and poor countries within the world economy.

By the late twentieth century, when the present generation of economic historians found it timely to reconfigure the by then unmistakably superior scientific, technological, and economic achievements of Western societies in a global context, they found they could address, retain, reformulate, or reject the canonical views of their classical mentors because they could call upon whole libraries of books and articles dealing with non-Western agricultures, industries, towns, commercial networks, communications, trade, science, technologies, cultures, business organizations, taxation, state systems, government policies, etc., covering the last millennium, written by historians – many from universities not long emancipated from imperial rule. Furthermore, they found that this impressively detailed volume of historical research has been synthesized and communicated to the West by

specialists in area studies from North American, European, Australian, and Japanese universities. Not long after the Second World War and during an era of decolonization, a new generation of economic historians took the opportunity – provided by the accumulation of a large body of knowledge (long available about Europe and North America) – to reposition disconnected regional and national histories of economic growth one against another in order to construct “global histories” of material progress and to reconsider economic outcomes for the development of the West as well as the East that might have flowed from European expansion overseas. (See Section 2.2 of bibliographical essay.)

Potentially the most useful research currently under way for comprehending the global economic history within which expansion occurred has been concerned to apply economic theory and measurement to the problem of understanding long-term material progress across the continents. As a style of scholarship this research explicitly displays its dependence upon a framework of analysis provided by national accounts and is concerned with the specification, location, and quantification of differentials in average incomes, real wages, and productivities around the world. The approach originated in Keynesian macroeconomics and related statistical programs for the construction of a widening range of indicators designed to quantify levels and rates of growth for economic achievements across space and through time. For Europe, comparable sorts of “political arithmetic” go back to the late seventeenth century, and empirical investigations designed to verify growth and fluctuations for a wider range of national economies and for the world economy as a whole appeared during the Great Depression. Nevertheless, a sustained institutional commitment to economic measurement on a global scale has only matured under the auspices of the United Nations and its subsidiary organizations (particularly the World Bank) over the last fifty years.

During the past half century an endeavor to extend backward through time the impressive base of data now available to compare and to track recent developments in the wealth and poverty of nations has been undertaken by a group of assiduous historical statisticians. Most scholars (cited in Section 2.3 of the bibliographical essay) would recognize the pioneering work of Simon Kuznets as their model. His and their publications have added enormously to the body of salient economic facts and plausible conjectures at our disposal for purposes of intercontinental comparison, but confined alas, basically for comparisons across Europe, North America, Australasia, and Japan. More recent research, concerned to measure real

wages, consumption standards, health, and mortality as well as the productivities of land and labor for populations and workforces located in several (largely maritime) regions of India, China, Southeast Asia, South America, and Africa, is beginning to emerge and to widen the data base at the disposal of global historians who wish to conduct systematic comparisons into factor productivities attained and standards of living offered by non-European economies for centuries preceding the Industrial Revolution.

Although the situation is improving, the paucity of data continues to be a severe handicap. Historians lack any clear sense of when divergences in productivities and standards of living between Europeans and the “rest” clearly emerged. Yet most believe that an accepted chronology is a precondition for the analysis of why intercontinental differences in economic efficiency and social welfare had become discernible by the late eighteenth century and indisputable by 1900.

If Paul Bairoch’s conjecture that the gap in average per capita incomes between East and West could have been around eight to one by 1913 turns out to be roughly correct, then some simple backward extrapolations could be conducted – based on evidence from national accounts – as calibrated by Maddison. Maddison’s estimates suggest that average incomes in Western Europe, North America, and Australasia had grown by 1 percent per annum over the nineteenth century. If Asian per capita incomes either remained roughly constant or declined over the same period, the arithmetic of backward extrapolation indicates that a gap in standards of living between Europeans and Asians could not have emerged much before the first half of the eighteenth century. If Asian per capita incomes had fallen from some higher level down to mere subsistence standards over these same centuries, then divergence could have emerged even later.

Meanwhile, reliable economic data (or indeed even an acceptable representative sample of observations recorded by European travelers and visitors to other parts of the early modern world economy) are hardly out there. The quantitative evidence currently extant would certainly not be regarded as nearly sufficient to underpin a serious program of historical research designed to account for long-term economic success and failure (of rise and relative decline) among the national economies of Western Europe, North America, and Australasia. In its absence, global histories of material progress continued to be marked (we might say, marred) by three powerful Marxist and Weberian presuppositions. First, that Europe’s technological and economic superiority over Asia (which

became first visible and then unmistakable during the nineteenth and twentieth centuries) had evolved gradually, but cumulatively, over several centuries before 1815. Second (and this is Weber's central point), that since the Middle Ages, Europe's political, legal, cultural, and institutional heritage for the conduct of economic activity continued to be exceptionally favorable for the promotion of Smithian growth, leading to technological progress. Third, many historical geographers suggest that in contrast to Europe, Asian populations lived and worked in more hostile environments and that this big ecological fact restrained and often arrested long-term economic development in Asia and South America, but particularly in Africa.

Versions of these three pervasive assumptions, common to most canonical writings from nineteenth-century social science, are present (often omnipresent) in global sociology published in recent decades. That is why the only route of release from a powerful Weberian tradition in history and historical sociology is to specify and, above all, to measure differences between European and other economies as they evolved over long spans of time. But in the absence of data (that might map chronologies of divergence – and thereby establish relevant periods and parameters for deeper inquiry), scholars attempting to construct a viable metanarrative continue to make inferences based upon more qualitative research into the histories of Oriental, South American, and African economies as they operated and evolved before (and after!) the Industrial Revolution. For example, Jones, Rosenberg, Landes, Aldcroft, and Macfarlane (following in the footsteps of Marx, Weber, and a longer tradition of "Weberian" writing that can be traced back to Montesquieu) insist that Europe's competing national economies had been on a potentially more promising historical trajectory for long-run growth for centuries before and continued on that trajectory for centuries after the rediscovery of the Americas. They have emphasized persistent contrasts between the systems of property rights, political constitutions, institutional arrangements, legal frameworks, cultural conditioning, and religious beliefs within which economic activities continued to be embedded in Western Europe on the one side and Asia, Africa, and southern America on the other for at least four centuries before 1825. Some cruder Weberians tend to juxtapose "preconditions" for long-run Smithian growth that they find operating efficiently in Europe (or rather in some countries in northwestern Europe) with their presumed absence within the regional economies of other continents where, in their view, political, social, familial, cultural, and other negative institutions and beliefs restrained or

impeded the emergence and operation of competitive markets for commodities, capital, land, labor, and useful knowledge.

Their critics (see Sections 2.2 and 2.3 of the bibliographical essay), who seem more deeply and widely read in the now massive bibliography of economic history dealing with South, East, and Southeast Asia and the Ottoman Empire, have cited samples of data (related largely to life expectancy, levels of urbanization, balances of commodity trade, yields per hectare, and levels of calorific consumption) largely for selected maritime regions of China, Japan, and India that at the very least qualify any presumption that the standards of living afforded by European economies for the majorities of their populations must have been discernibly superior long before, say, the outbreak of the French Revolution. Of course, at this level of “continental” aggregation and comparison, the selection of representative data for comparative global economic history remains entirely problematic if only because the “Asian economy” includes much larger shares of the world’s cultivable land, resources, income, and population than early modern Europe.

Although we are and likely to remain a long way from offering statistically secure comparisons for average levels of productivity and living standards, the still accumulating volume of research now available on non-Western agricultures, industries, trades, credit systems, mercantile enterprise, transportation networks, and markets for commodities and factors of production has, however, probably degraded simplistic Weberian perceptions that Europe alone had evolved the political, institutional, legal, cultural, and religious frameworks required for an ongoing process of Smithian growth long before other continents into dubious position for serious historians to adopt. As Marshal Hodgson observed decades ago: “All attempts to invoke pre-modern seminal traits in the occident can be shown to fail under close historical analysis.” Braudel, Chaudhuri, Goody, Frank, Wong, Pomeranz, Goldstone, McNeill, and other global historians more in touch with the evidence for the Orient would concur. (See Section 2.2 of the bibliographical essay.) From his detailed comparisons of markets and types of development achieved by Europe and Asia in the early modern period, Braudel inferred that “the populated regions of the world faced with demands of numbers seem to us to be quite close to each other.” But there is, he continued, “a historiographical inequality between Europe and the rest of the world. Europe invented historians and made good use of them. Her own history is well lit and can be called as evidence or used as claim. The history of non-Europe is still being written. And until the balance of knowledge and

interpretation has been restored the historian will be reluctant to cut the Gordian knot of world history.”¹

Braudel wrote these words more than two decades ago. “If” the balance of historical knowledge has now shifted against canonical notions that (to quote David Landes) “Europe (the west) has for the last thousand years been the prime mover of development and modernity,”² and if instead the advanced regions of early modern Eurasia can be represented (in that evocative phase coined by Kenneth Pomeranz) as “a world of surprising resemblances”³ rather than a Weberian world economy in which the particularities and peculiarities of European history were leading to political, institutional, and cultural preconditions for formation and integration of efficient markets for commodities, factors of production, and useful knowledge, how might we now reconstruct a more plausible metanarrative to account for the rise of the West? Along with natural endowments (particularly coal), the other core chapter of the alternative metanarrative that now rejects Weberian explanations will be of real interest to historians of Latin America because that chapter insists on the large (for some scholars, paramount) significance of European expansion overseas.

James Blaut’s hyperbole captured its conclusions well in his readable polemic *The Colonizers Model of the World*. “Prior to 1492,” he observed, “progress was taking place in Asia and Africa as well as Europe. This hemisphere wide system began to break apart shortly thereafter because of the wealth and power acquired by Europeans in America. The massive flow of wealth and power from colonial accumulation in America and later in Asia and Africa was the one basic force that explains the fact that Europe became transformed rapidly into a capitalist society.”⁴

No other author, broadly in support of this view, is as pellucid or unequivocal. Nevertheless, Blaut encapsulates the views of adherents to the World Systems School of historical sociology as well as numerous economists, anthropologists, geographers, historians, and other lineal intellectual descendants of Adam Smith, who continue to accord a comparable degree of significance to European commerce with colonization overseas.

Having successfully undermined or severely qualified Weberian hypotheses on the rise of the West, marginalized differences in natural endowments,

¹ Fernand Braudel, *Civilization and Capitalism 15th–18th Century*, vol. 2 (London, 1984), 134.

² David Landes, *The Wealth and Poverty of Nations* (London, 1998), xxi.

³ Kenneth Pomeranz, *The Great Divergence. Europe, China and the Making of the Modern World* (Princeton, NJ, 2000), 28.

⁴ James Blaut, *The Colonizers Model of the World* (New York, 1993), 152.

and neglected to consider contrasts across Eurasia in the accumulation of scientific and technical knowledge, the dominant alternative metanarrative now on offer from global economic history has revived a story that the economic advance of Western Europe (and the contingent retardation of southern America, Asia, Africa, and Eastern Europe) originated and evolved over the centuries (1415–1825) when “core” economies (Portugal, Spain, the Netherlands, France, and Britain) turned the terms and conditions for intercontinental trade in their favor. Deploying superior (naval) power and more effective political, business, and military organization, Europeans expropriated resources and knowledge from other continents and reduced the weaker polities of Eastern Europe to conditions of economic dependency. After incorporating the Americans into a global economy, they reorganized and jacked up intercontinental trade and enforced (or promoted) methods of labor control (such as slavery, serfdom, peonage, and sharecropping) at the periphery that depressed and maintained the prices of imports purchased and/or “expropriated” from the Americas, Africa, and Asia (as well as Eastern Europe) close to subsistence wage costs.

Not one of these documented contentions (which can also be found in the works of the young Marx) could have surprised European kings, statesmen, and their advisers of the day. Connections between affluent maritime cities, advanced economic regions with productive fiscal bases, on the one hand, and commitments to mercantile enterprise, oceanic trade, maritime outposts, and colonial possessions, on the other, persistently impressed Europe’s predatory monarchies, aristocracies, merchant elites, and their satraps of mercantilist intellectuals advocating unions of power with profit.

4. THE SPECIFICATION AND MEASUREMENT OF EUROPEAN GAINS FROM OCEANIC COMMERCE AND COLONIZATION

Modern economic historians who now recognize that metanarratives purporting to explain the rise of the West should now be reconfigured in a global context are, nevertheless, not prepared to accept what is, in effect, an elaborated, updated, and sophisticated Marxist story, based essentially upon “exploitation” by the West of the populations and resources of other continents, at face value. They continue to insist upon the specification of connections and mechanisms and, where possible, the measurement of

the economic significance of intercontinental commerce and colonization overseas for the long-run development of Western Europe.

Too many interpretations of outcomes flowing from expansion overseas (1415–1825) concentrate on gains and virtually ignore costs. It is, therefore, necessary to observe that Europeans made “considerable” (alas, unquantifiable) outlays (upon ships, ports, warehouses, transportation, soldiers, sailors, weapons, indentured servants, slaves, and the formation of commercial, financial, and distribution networks) before oceanic commerce became a regular and important activity for their maritime and national economies. Investments in the infrastructures required for trade embodied opportunity costs that may have been considerable, particularly over the first two centuries when losses were omnipresent. They certainly looked risky, were heavily subsidized from tax revenues, enjoyed state protection, and were inflated in value by excessive competition and the predatory violence endemic to the post-Reformation geopolitical and mercantilist economic order for international trade.

Furthermore, the conviction that “returns” could not have been anything less than “substantial” and abnormally profitable rests on an assumption that could only be verified if historians found it possible to reconstruct the net annual sums of profits, interest, rents, royalties, fees, taxes, and other income flowing into Western Europe from the rest of the world. That income would have been augmented by the upswing in oceanic trade that followed from the establishment of direct and regular oceanic commerce by ships with the Americas and other continents during the sixteenth century. Since Marx wrote his famous manifesto condemning Western loot, plunder, and the exploitation of other continents, the potential scale and significance of the “monetary returns” from European enterprise and imperialism overseas have attracted sustained research from economic historians. Estimates of the magnitudes and rates of profit obtained from specific investments in colonization and commerce can be found in contemporary accounts of merchants, shippers, brokers, bankers, shareholders, partners, and firms and the records of famous corporations, such as the Dutch East India Company. In short, the evidence published for centuries before 1825 is voluminous, particular, and only questionably representative and could never be aggregated into the kind of estimates that are constructed, with difficulty, by the bureaucracies of modern states to record “income received from the rest of the world on national balance of payment accounts.”

Nevertheless, proceeding (as they must) without data, some macroeconomic perceptions are shared by global historians who continue to

grasp for sustainable generalizations. Most would agree that for some three centuries down to 1825 flows of profits from the organization of commerce accrued in increasing proportion to Western Europeans. Europeans (not Arab, African, Indian, Chinese, and other private businessmen and/or government agents) established and managed trans-Atlantic commerce. In addition, Europeans profited from their seizure of oceanic commerce within Asia, which they slowly took over after da Gama had attacked Calicut. Operating as middlemen, Portuguese, then Dutch and English, ships out-gunned and gradually outcompeted their rivals from other continents by Europeanizing the final stages involved in the finance and transshipment of Asian produce and artifacts to European markets. European merchants and ships also (again gradually) increased their presence in intra-Asian, intra-African, and Afro-Asian commerce.

Historians of India, China, Southeast Asia, the Middle East, and Africa have correctly insisted that the intrusion of European violence, competition, and mercantile enterprise was neither sufficient nor necessary to promote seaborne trade between Asians and Africans, which had persisted for centuries before and continued long after Portuguese, Spanish, Dutch, French, Danish, and English ships began to sail around the coasts of Africa, the seas of Arabia, the Indian Ocean, and China's home waters. They maintain that it is Eurocentric to represent voyages of discovery to the east as some kind of fundamental discontinuity or necessary condition for the growth of world trade, let alone as the onset of "globalization" or the economic integration of national and local economies into seaborne commerce. Europe's well-armed ships and merchants forced their way, with difficulty, into Afro-Asian networks for trade that had operated long before they arrived on the scene. Trade continued to advance on the basis of natural and comparative advantages – supported by commercial institutions and facilities that had been operating for centuries. Variations in the level of European and (by way of incorporation) American trade with the "East" continued, moreover, to be linked to and fluctuate with cycles in production, productivity, and consumption within Asia, particularly to demographic and economic growth and fluctuations of the continent's two largest economies: the Chinese and Indian empires.

Thus, what the entry of Europeans into the coastlands of the Americas and into ports along the Indian Ocean and the China, Arabian, and other Asian seas presaged was an upswing in European purchases and the shipping of imports from Asia, slaves from Africa, and primary produce and minerals from the Americas. In short, the sixteenth century witnessed

a discontinuity in the volume of goods, services, and knowledge traded across all four continents, which must be attributed in part to familiar (but not drastic) falls in transportation, transaction, and protection costs as a growing share of the commodities traded between east and west and north and south were transshipped by sea rather than overland. Goods of any weight and bulk had long been cheaper to transport by water. Merchandise usually moved more rapidly and safely by ship towards ports of destination and avoided the predation of thieves and the disruption of armies, as well as the tolls, taxes, and duties of rapacious rulers, which had been endemic to Eurasian and African routes overland since the Roman Empire. As time went on Europeans exploited competitive advantages in shipbuilding, nautical techniques, corporate forms of mercantile organization, and, above all, their well-armed ships to "expropriate" growing shares of a rising volume of east–west trade that their colonization of the Americas and investments in the infrastructures for oceanic global commerce facilitated and sustained.

Historians of Asia certainly recognize that Europe's nautical technologies, maritime exploration, and mercantile enterprise, as well as the resort to violence and predation, operated to connect the Americas with Asia, Africa, and the Middle East. But they will also point out that for centuries before that occurred, Europeans possessed no obvious natural or comparative advantages to turn the gains from trade with Asia in their favor. Exports (or rather re-exports from the Americas) rescued Europe from an age-old balance of trade problem with the east. Cargoes of silver (almost immediately), supplemented (later) with primary produce and minerals, "expropriated" (not purchased at free market prices!) through the exploitation of unfree Amerindian and African slave labor, eventually provided a dominant share of the exports required to increase both the volumes and the gains from trade with Asia. Ironically, Columbus had sailed westward to find ways of reducing the transportation and transaction costs for trade with the Orient. The Genoan navigator's discovery turned out to be a huge windfall of natural resources that, combined with enslaved Africans, provided not only foodstuffs, raw materials, and minerals, consumed in Europe, but, at the top of the list, bullion that could be converted at "substantially" improved terms of trade into Asian produce, artifacts, and useful knowledge, as well as profits derived from the transportation, distribution, and finance of global trade.

European imperialism and mercantile enterprise in the Americas, Africa, and Asia jacked up rates of growth of world trade to higher and more stable levels, which could conceivably at "*pôles de croissance*" (where net

investment, technological innovation, and the diversification of production occur) be represented as significant for the precocious and sustained advances in productivity achieved by core maritime cities, regions, and national economies (particularly the Netherlands and Britain) as they evolved into industrialized market economies.

Claims of this kind seem valid and plausible. Their significance is often asserted, but quantified conjectures of scope and scale remain difficult to make. No estimates exist for either the jump in world trade or the flows of benefits accruing to any single national economy, let alone to Western Europe as a whole, that followed from voyages of discovery. Skeptics are not inclined to accept the rhetoric of James Blaut or the more cautious arguments of Immanuel Wallerstein that Europe's growing economic connections with the Americas, Africa, the Middle East, and Southeast and East Asia over the early modern period can be "reified" into "the one basic force" behind Europe's early transition to industrial market economies. They continue to insist that profits and externalities from those connections overseas could only have been proportional to ratios of intercontinental commerce to national outputs of the core or metropolitan economies of Western Europe.

Historians of Europe will probably agree that the sustained commitment of European investors, merchants, and other middlemen involved in oceanic commerce and colonization suggests that they probably received "supernormal" profits from their activities overseas. But Fernand Braudel went further and transformed merchants into key agents promoting the development of Europe, and he formulated several highly influential hypotheses based upon his impressive research on the mercantile and financial elites who operated out of Genoa, Venice, Seville, Lisbon, Antwerp, Amsterdam, Bordeaux, London, and a host of other minor maritime cities during the sixteenth, seventeenth, and eighteenth centuries. Braudel's perceptions have been elaborated upon in the writings of Wallerstein, Arrighi, and Frank and supported by a generation of historians researching into urban and business history. In their writings Europe's *parvenu* capitalist elites, located in maritime cities and involved in oceanic commerce, are represented as progressive and frugal men who channeled high proportions of their often "ill-gotten" gains ("heroic rewards") into state formation, the extension of infrastructures, the formation of new institutions, and the integration of markets required for innovation and industrial diversification. Since ratios of net capital formation to national products remained at low levels throughout the early modern period, at the margin, the "incremental"

investments and entrepreneurial initiatives of these “progressive” agents may well have made, in their view, the “crucial” or “vital” difference to Western Europe’s slow, regionally concentrated, and faltering evolution toward higher levels of productivity and standards of living.

That hypothesis is being explored. Meanwhile the stance of skepticism toward the exaggeration of the significance of Europe’s expansion overseas remains tenable simply because the statistics that Paul Bairoch has constructed for the late eighteenth century (which offer ratios of total oceanic trade, exports plus imports, to his guesstimates for Europe’s gross domestic product) are too small to sustain “strong claims” that colonization and intercontinental commerce operated as “the engine” of Western Europe’s precocious and sustained transition to modern industrialization. For example, during the decade of recovery and boom that followed the American War of Independence, total Western European trade (exports plus imports) with the Americas, Asia, and Africa could not have amounted to as much as 10 percent of the combined national product of the “core.” Let us make outer bound conjectures that “profits, rents, and interest” accruing to Braudel’s “great predators,” Wallerstein’s “privileged actors,” or Arrighi’s “hegemonic capitalists” amount to, say, half this ratio, and that on trend they reinvested half their returns in the formation of capital, institutions, and networks conducive to raising rates of productivity growth first within and then diffusing into the hinterlands of maritime cities. This exercise in stylized arithmetic leads to a quantified conjecture that by the late eighteenth century (some three centuries after the Americas became connected to waterborne routes and networks for transoceanic trade), not more than a quarter of Europe’s gross domestic capital formation could conceivably have been funded and promoted by inflows of returns from commerce and colonization with Asia, Africa, and the Americas.

Yet it is also possible to model and marshal evidence to suggest that increments to growth rates in productivity emanated from “leading sectors” of national economies that were linked in diverse ways to the expansion of maritime cities’ imperialism and intercontinental commerce. Large outcomes can cumulate from small beginnings. Nevertheless, the statistical foundations for grand narratives favored by world systems theory reifying intercontinental connections have not been (and probably cannot be) underpinned by the kind of rigorously specified models and quantitative evidence required to sustain them as anything more than rhetorically persuasive history.

Finally (and to return to according Weberian narratives the due that they merit): in any process of long-run development, “exogenous” and “endogenous” forces and inputs are symbiotically interrelated and separable only for purposes of theoretical speculation. For example, “substantial gains” from trade certainly “helped” to transform the British economy, but the nature and elasticity of “local” responses to opportunities overseas depended on timing, the geopolitical circumstances confronting the kingdom’s rivals, the realm’s natural endowments, and the evolution of the political, legal, and institutional framework within which the domestic economy had been long embedded before a serious commitment to naval defence combined with one reantilist expansion overseas came on stream after the Civil War.

Unfortunately, the only way around the limited illumination obtainable either from comparative economic history or macroeconomic measurement moves the narrative away from prospects for secure generalizations underpinned by statistics. Mercantilists of the day knew nothing of gross domestic product, net capital formation, or the balance of payments. Nevertheless, they appreciated that gains from commodity trade flowing from expansion overseas took the form of a surplus of imports (including bullion) over exports and that the increasing range of imports entering European ports from Asia, Africa, and the Americas embodied “desirable characteristics” as well as knowledge, feedbacks, and forward linkages that could become important for the growth and diversification of maritime cities and their hinterlands, and also for the revenues of states and princes whom they told what they wished to hear – namely, that predation and commerce overseas would pay off and promote state formation.

For example, mercantilists appreciated that imported foodstuffs (such as maize, potatoes, rice, beans, chilies, and tomatoes) supplemented European diets and added to overall supplies of calories necessary to sustain population growth and urbanization. But in relation to total consumption inflows of these “basic” foodstuffs exercised nothing like the effects on the structures of relative prices, rural wages, or the release of labor from agriculture that followed from massive increases in the volume of grains and livestock imported into Western Europe from the Americas and Russia between 1873 and 1914. Earlier, American crops such as maize and potatoes, particularly the latter, diffused slowly and, for decades before the tragic Irish, Belgian, and German famines of the 1840s, encouraged population growth, increased burdens of dependency, and retained labor in the countryside. Furthermore, their initial and, possibly, more rapid transplantation into

the Qing empire supported the massive increase in population in China and exercised positive effects on the volume of European trade with Asia.

All other imported foodstuffs such as “tropical groceries” (sugar, coffee, tea, chocolate, spices, and, let us add, tobacco) competed to an entirely limited degree with European agricultures and hardly added to the supplies of calories and organic energies available to European populations. Initially they entered the food chain as “luxuries” for the rich, but moved gradually down the social scale to become “decencies” and to add variety to the diets of the middling sort. Tropical groceries prompted some people to work more industriously in order to vary their constricted patterns of consumption. Tea and coffee substituted for beer and wine, which improved the health and productivity of local workforces. The processing, storage, and distribution of tropical foodstuffs widened the industrial bases of maritime cities. As re-exports, passing through Seville, Cadiz, Lisbon, Antwerp, Amsterdam, London, and other cities, these commodities reinforced long-established patterns of intra-European trade and specialization and assisted the economies of southern and western Europe to procure grain, timber, iron, wax, hemp, flax, pitch, tar, and other naval goods from Scandinavia, Russia, and other regions with access to the Baltic Sea. As luxuries and semiluxuries in inelastic demand, imported sugar, beverages, and tobacco provided taxes for fiscally constrained states and sustained their commitments to expenditures on the naval and military power required to protect European investment in commerce and colonization overseas, as well as wasteful warfare and Counter-Reformation.

Until later in the nineteenth century, the total value of imported raw materials from Asia, Africa, and the Americas remained “small.” Such imports included hardwoods manufactured into furniture; dyestuffs (indigo, gum, *quecitron*, and *orlean*) for the finishing of European textiles; and botanical pharmaceuticals, such as quinine, *curvée*, pecal, sasparillo, and a range of new purgatives and laxatives, which also improved the health of constipated Europeans.

After 1500 virtually no scientific knowledge, machinery, or industrial technologies diffused from other continents into Europe. The “transformative” knowledge and manufactures transshipped from Asia, Africa, and the Americas were embodied in finished porcelain, silks, cotton textiles, and little else. These three Asian manufactures stimulated emulation and industrious behavior and sustained processes of import substitution. Although raw silk cultivation, the spinning of natural fibers (including cotton) into yarn, and the weaving of silk cloth became well established in Mediterranean

Europe centuries before the rediscovery of the Americas, Europeans continued to copy East Asian designs and techniques of silk production throughout the early modern era. As for porcelain, the Chinese guarded their secrets of its manufacture with care. Although the Portuguese shipped samples of kaolin to Europe as early as 1520, it was not until 1708 that a tolerable imitation of Chinese porcelain could be produced by an innovator at Meissen under the control of the Elector of Saxony.

Cotton textile production (located in Italy and Germany since the Middle Ages) also took a very long time to mature into a European industry. The real stimulus to that development emerged in the late seventeenth century as a direct response to a massive upswing in the volume of relatively cheap, fashionable, and fine cotton cloth, manufactured in India, and shipped into London, Amsterdam, Copenhagen, and other ports by the English and Dutch East India Companies. Thereafter, but within a favorable framework of prohibitions, tariffs, and Parliamentary regulations, a mechanized cotton textile industry evolved within Lancashire's long-established linen industry. Cotton textile production established for centuries in Asia and the Middle East diffused into Europe as the prototypical example of import substitution. It is the exemplary case of the relocation of an important global industry from east to west. Cottons made in India dominated world production and markets until the last quarter of the eighteenth century. But by that time, the import of long staple cotton fibers grown on slave plantations (set up by European colonists in the Americas) supplied the cheap raw material that accelerated the decline of handicraft production in Bengal and elsewhere on the Indian subcontinent and thus became another component within a matrix of historical connections (operating through trade, colonization, and violence) that gradually shifted more and more of the world's manufacturing industry from Asia to Europe.

Transplanted initially to Lancashire, cotton textiles evolved into the first fully mechanized steam-powered factory industry and demonstrated to European investors, entrepreneurs, engineers, and skilled workers how extraordinary rates of increase in output and productivity could be achieved in short compass by application of inanimate energy and machinery to problems of production. For two or more decades before, but unmistakably after the 1790s, the British cotton textile industry became the wonder of the age. Its technologies, modes of organization, and marketing strategies diffused fairly rapidly into the production of other textiles (linens, woolens, and silks) and, as the example of "mechanization" more gradually

and by adaptation, to manufacturing in general. For Europeans of that time, cotton certainly represented the industry of the future.

Nevertheless, is there a need for historians to exaggerate its macroeconomic significance or exalt its British or Asian ancestry? As late as 1841, when cotton textile production accounted for some 6 percent of Britain's gross domestic product, the "demonstration effects" flowing from the manifest success of steam-powered machinery and factory modes of organization were only beginning to spread to other industries. Furthermore, the mechanization of cotton textile production should not be used as a metaphor for European industrialization as a whole. In Britain it matured rapidly into a staple industry. On the mainland, its share of national industrial outputs remained altogether smaller. The development trajectories of most other forms of manufacturing industry can only be linked tangentially to the precocious mechanization of cotton textiles. That surely was the case for most sectors of industry (mining, metallurgy, shipbuilding, engineering, transportation, etc.) even in Britain. Although the introduction and initial diffusion of cotton textile production into Europe must be located within that matrix of mercantilist commerce with Asia and the Americas, subsequent processes of innovation and the adoption of steam-powered machinery to the preparation of other fibers and their weaving and finishing into cloth cannot be referred to Asian antecedents. For later stages of development and for most industries other than textiles, Europe's historians continue to emphasize local regimes and European networks for the generation of useful and reliable knowledge behind the development of steam-powered and mechanized forms of production. Such regimes emerged gradually within historically specific urban, institutional, cultural, and political conditions that can be represented as "virtually" European – albeit with historical links to Asian innovations and to Islamic science of an earlier era.

Finally, there is American (and African) bullion that started and sustained European expansion overseas. Von Glahn, Flynn Geraldez, and other scholars, rightly convinced of a need to widen and deepen the perceptions of "Eurocentric" historians, have returned our attention in heuristic ways to this infamous and most valuable of imports from the New World, namely to silver and gold. As universally acceptable forms of purchasing power, and as durable reserve assets of intrinsic and (supposedly) stable value – backing and promoting the gradual evolution of diverse forms of paper credit – precious metals had long been highly significant for the functioning of states, for the development of national economies, and for internal and international commerce.

Cyclical, but truly large flows, first of gold, then of silver, and then at gold again, emerged onto world markets as a result of Iberian colonization and mining operations in Africa, Peru, Mexico, Bolivia, and Brazil. Except within contested margins of error, it has proved difficult to measure tons mined and almost impossible to relate bullion refined in Southern America and exported across the Atlantic to Europe's own stocks, which continued to accumulate from the production of mines in Saxony, Bohemia, Hungary, the Tirol, and Thuringia. Although most American metals shipped to Europe stayed there, up to 40 percent may have been re-exported to Asia and an unknown (but not insignificant) proportion of New World production found its way via Acapulco to Manila and on from that Spanish colony in the Philippines into several East and Southeast Asian economies, but principally into the Chinese empire.

Even to locate the mechanisms through which cyclical but incrementally significant inflows of silver and gold from Africa and the Americas promoted economic growth in Western Europe has not been easy. To quantify their macroeconomic impact has long been an ambition, but still remains beyond the grasp of European economic historians. Historical debates really are circular and rarely settled, as Von Ranke hoped, by research. For example, imported silver and gold obviously provided cheaper and pliable materials for the local manufacture of household ornaments and wares, jewelry for personal and ecclesiastical adornment, and embellishment for aristocratic furnishings. But American bullion hardly supplied substitutes for Europe's supplies of iron, copper, lead, tin, zinc, and other utilitarian metals.

Apart from the lure and encouragement that "treasure" provided for European investment and those (rather limited) flows of voluntary migration to the New World, its ramifications for European economic growth have been elaborated within a historiographical tradition dominated by analyses of bullion's monetary and inflationary effects. Only latterly have references to its fiscal implications for state formation, interstate rivalry, and funds for the armies and navies that contained Islamic and Ottoman power along the southern and eastern borders of the Christian West extended the analysis for the key commodity traded globally throughout the early modern period in more illuminating directions.

Twenty-five years ago Vilar propounded a monetarist argument of a rather reductionist kind that has since been taken further and underpinned by some statistical evidence. Vilar maintained that in the sixteenth and seventeenth centuries, imported American silver (and later Brazilian gold) relieved actual and potentially more serious constraints on the capacity

of Europe's own supplies of metallic currency to finance intracontinental trade among its regions as well as increased oceanic commerce with the Near and Far East. Imports of bullion initially from Africa, but overwhelmingly from the Americas, provided European economies not merely with specie minted into coins, but with a substantial addition to the reserve base of precious metals required by financial intermediaries and institutions for the expansion and diffusion of notes, bills of exchange, and paper instruments of every kind. Thus supplies of silver and gold expropriated by Iberians from the New World allowed for the extension and integration of markets at local, regional, national, European, and transcontinental levels, and promoted upswings in Smithian growth, underway in Europe since the Middle Ages. American treasure introduced elasticity into an otherwise restrained capacity exhibited by medieval systems of financial intermediation. Real rates of interest declined and growth and specialization and investment and entrepreneurship followed from the imports of bullion and the extension of credit it facilitated.

Furthermore, American bullion was also utilized to settle deficits in commodity trade that had for centuries constrained overseas commerce and specialization among European regions. By the mid-sixteenth century strategically important and economically indispensable raw materials from Poland, Russia, Prussia, Scandinavia, and other primary producers with coastlines along or access by river to the Baltic could be more easily procured for the towns and industries of southern, western, and central Europe through their re-export of American silver and gold. To an increasing extent, as time went on, these regions (of an integrating and urbanizing Western European economy) traded additional supplies of timber, bar iron, flax, hemp, tar, pitch, furs, wax, fish, and grain in exchange not only for silver, but also for tropical groceries and other luxuries that European merchants obtained through multilateral trade with the East and by re-exporting bullion, foodstuffs, and raw materials imported from the Americas to Asia.

For some two hundred fifty years, after its rediscovery American endowments of silver and gold virtually provided the major solution to Europe's age old problem of how to augment and to balance trade with Asia. For centuries preceding the establishment of regular oceanic commerce Asian demand for European commodity exports remained inelastic, whereas European demands for Asian tropical groceries and high-quality manufactures had long been income and price elastic. From the mid-sixteenth century onwards, opportunities provided by the establishment, organization,

and protection of reorganized networks of seaborne commerce to Africa and Asia could be taken forward because European merchants and multi-national corporations circumvented potentially constricting deficits on the balance of commodity trade between West and East. They did that in some small, but growing part by selling shipping, protection, and financial services to Asians; in larger proportion by obtaining access to Asian supplies of loans and credit; but above all by re-exporting American silver and gold to the Ottoman Empire, India, Southeast Asia, the Mughal Empire, and in the largest measure to Ming and Qing China.

Fortuitously, demand for silver was jacked up in the late sixteenth and seventeenth centuries by Chinese imperial decisions (which followed from failures of experiments with paper money) to reorder the entire fiscal and monetary system of the Ming empire by placing fiscal and economic transactions on a silver base. Between 1540 and 1650 the bimetallic ratio within the world's most populous and commercialized empire moved sharply in favor of silver and provided astute European and Asian merchants with opportunities of earning extra profits from arbitrage. For Europeans that prospect improved when Japan's silver mines ran into diminishing returns in the late seventeenth century and Japanese exports of silver to China gave way to European re-exports, derived ultimately from the exploitation of silver mines in southern America. Over the first half of the eighteenth century, Chinese population growth, sustained, in part, by an early and rapid diffusion of novel food crops (sweet potatoes, maize, and peanuts from the New World), stimulated overland colonization and interregional trade within the Qing empire, which led to a second upswing in Chinese demand for American silver.

Thus recent scholarship in global economic history has reconfigured the significance of Spanish American silver and Brazilian gold for the economic development of early modern Europe. Endogenously determined demands from China, and its tributaries (as well as the silver-based Mughal Empire) raised the price of expropriated silver and thereby sustained European commitments to colonization in the Americas.

Discussion has moved heuristically forward from those largely theoretical preoccupations with monetary and nonmonetary forces behind the rather mild price inflations of the sixteenth century and from that linked (but untestable Keynesian) hypothesis about the long-term benign effects of a (still unsubstantiated) wage lag for profits and investment in Europe's manufacturing industries. Instead the functional properties of America's precious metals for purposes of intraregional trade and specialization for

market integration and Smithian growth in Europe, India, and China now occupy the high ground for debate and research.

Ironically, some Asian historians deplore the observed propensities of the states and populations of the Ottoman, Safavid, Mughal, and especially the Ming–Qing empires to import, consume, monetize, and hoard “useless” American metals in exchange for “real” commodities, such as silks, cottons, porcelain, spices, sugar, tea, and botanical medicines and the manufactured products of the East’s skilled but cheap labor. Their “global” perspective on the leading export from the Americas underlines the point that the gains to Western Europe from its trans-Atlantic connection cannot be comprehended without reference with Asia. Alas, the heuristic elaboration of that context and the recent “reorientation” of the history of the West has led on to the formulation of other less implausible hypotheses. Gunder Frank now provocatively suggests that the deceleration in the production of American bullion over the later decades of the eighteenth century formed an underlying structural condition that intensified the search for ways of circumventing the imminent threat of a predictable decline in profitable commerce with the East. By the beginnings of the Imperial Meridian innovative, enterprising, and ruthless Europeans had come up with three solutions to that persistent mercantilist dilemma: the mechanization of textile production; the colonization of India; and the reallocation of investment to speed up shifts in the cultivation of tropical foodstuffs and raw materials to slave plantations in the Americas.

5. CONCLUSIONS TO DECONSTRUCTED AND RECONSTRUCTED METANARRATIVES

Of course, there are no settled conclusions to metanarratives and no end to the controversies that could be constructed on the basis of scholarly research into myriads of economic connections between Europe, Asia, Africa, and the Americas over those centuries of Smithian growth between 1492 and 1825.⁵

World systems theory, together with the re-emergence of global economic history, has heightened awareness of the ramifications of European expansion overseas and helped historians of Europe to escape from and to modify traditional Eurocentered metanarratives about the sources and

⁵ Andre Gunder Frank, *ReOrient. Global Economy in an Asian Age* (London, 1997), chap. 7.

origins of their continent's early transition to industrialized economies. Crude Weberianism is no longer tenable. Violence and power have been brought back to degrade an anachronistically premature liberal discourse about Europe's comparative advantages. Nevertheless, debate about the significance of endogenous compared to the exogenous forces behind Europe's precocious transition cannot be brought to a conclusion. Meanwhile the numbers, such as they are, and investigations of connections, commodity by commodity, are not congruent with the kind of rhetoric exemplified by "colonizers' models of the world" and resistant to eloquent pressures to "ReOrient."

Agreed: the force of external connections at margins that really mattered for improvements in rates of growth are not easily measured within the standard national accounts framework provided by macroeconomics. Yet any decomposition of imports, commodity by commodity, does not expose many "strategic" or "indispensable" imports flowing into Europe's ports from other continents – not even American bullion. After all, a very high proportion of that infamous "treasure" was dissipated on European warfare – hardly the kind of expenditure favored by liberal economic theory. Some bullion traveled east to buy luxuries and tropical groceries consumed largely by the upper and middle classes. The rest certainly facilitated the integration of markets and perhaps that particular function should be depicted as the primary benefit accruing to Europe from the violent "expropriation" of America's precious metals.

But European historians inquire if silver and gold could be plausibly represented as "indispensable." Many think not and will construct counterfactual (but realistic) historical precedents for scenarios of debasements, fiat currencies, and accelerated shifts to paper credit that might also have supported the integration of markets and imperialism overseas. In its more Hegelian manifestations, world systems theory has failed to read enough European history and to recognize that Europe's own endowments, cultures, institutions, polities, and economies also promoted and sustained bounded and autonomous trajectories for economic development that remained analytically separable from the continent's involvement with China, Africa, and the Americas. For two, even three centuries after the Voyages of Discovery, on any measurable set of indicators, that involvement, contextualized within the standard aggregation of the total economic activity (GDP) carried on in Western Europe, certainly expanded but still looks too small to carry the weight placed upon it by new metanarratives in global economic history.

Older, but now obsolete (Marxist) historiographies used to be preoccupied with Europe's very own precocious transition from feudalism to capitalism, whereas Weberians insisted (and insist) upon the particularity and superiorities system of Europe's competitive state system as well as its institutions and cultures. In this new metanarrative of a Eurasian world of surprising resemblances created by modern historical research, there are missing chapters on natural endowments and explanations for the distinctive character of European regimes for the production and diffusion of useful and reliable knowledge. Both before and after the Imperial Meridian, technology always mattered far more than commerce for the development of Europe's economic "progress" (which must include rising labor productivity) imputable to the diffusion of steam power, machinery, and better tools. True, all three were connected, but only tenuously, to European expansion and colonization overseas.

2

AFRICAN CONNECTIONS WITH AMERICAN COLONIZATION

PATRICK MANNING

From the seventeenth to the nineteenth century, Latin America's colonial economy developed in interaction with African economies, and especially through ties to West and Central Africa. While every region of the African continent had connections to the economic history of Latin America, the trans-Atlantic interplay was strongest for the African coast and hinterland from Senegal to Angola. The dispatch of some ten million enslaved Africans to Latin America and the Caribbean stands out as the most striking element of the interregional relationship. The complete story, however, includes exchanges of plant and animal biota and technologies, as well as a wider range of demographic and commercial interactions. To understand the dimensions of this intercontinental exchange, one must account for the impact of Africa on the Americas, the impact of the Americas on Africa, any new phenomena that emerged from their interactions, and the temporal ups and downs in intercontinental contact. In addition to chronicling these flows and confrontations, this survey provides an opportunity for some comparison of the historiography of economic change for Latin America and for Africa from the sixteenth to the nineteenth century.¹

Three points stand out for particular emphasis. First, for the period up to 1650, Africa and Latin America exerted profound influences on each other in their initial biological, economic, demographic, and cultural encounters. Second, for the period from 1650 to 1800, the Atlantic slave trade brought about substantial transformation in West and Central Africa and in parts

¹ For studies linking economic issues in Latin America and Africa, see Frederick Cooper, Allen F. Isaacman, and Florencia E. Mallon, *Confronting Historical Paradigms: Peasants, Labor, and the Capitalist World System in Africa and Latin America* (Madison, WI, 1993); Joseph C. Miller, *Way of Death: Merchant Capitalism and the Angolan Slave Trade, 1730–1830* (Madison, WI, 1989).

of Latin America. Third, during the nineteenth century, even with the independence of most of Latin America and the decline of the Atlantic slave trade, several new sorts of intercontinental connections arose.

THE REGIONS OF WEST AND CENTRAL AFRICA

The African connections with Latin America began, rather suddenly, at the turn of the sixteenth century. To provide a baseline for investigating those connections, this section reviews the economic geography of West and Central Africa, in topographical, linguistic, commercial, and geopolitical terms, as of about 1500.

LAND AND VEGETATION

The lands of West and Central Africa stretch in three broad belts from west to east.² The northern savanna is the largest and most populous of these belts. The equatorial forest lies astride the equator in the Congo River basin, and smaller patches of forest stretch along the West African coast from Nigeria to Guinea-Bissau. The southern savanna covers the southern half of Congo-Brazzaville and Congo-Kinshasa and extends into neighboring Angola and Zambia. In addition, the highlands of Rwanda, Burundi, and the Kivu region of Congo are a small but densely populated region of open, hilly grassland and regular rains. In 1880 the totality of these lands supported roughly fifty million people, almost all of them in rural settlements; the population in 1500 was perhaps slightly smaller. About thirty million lived in the northern savanna, some eight million lived in the southern savanna, and about twelve million lived in forest zones.³ These great landscapes, and the many variations within them, reflected and in turn conditioned the rainfall, temperature, vegetation, animal life, and, above all, the forms of human habitation of each.

The northern savanna, a great expanse of grassland with trees dotting the river valleys and the wetter lands, is bounded to the north by the Sahara

² The principal general works on African history are Roland Oliver and J. D. Fage, eds., *The Cambridge History of Africa*, 8 vols. (Cambridge, 1975–84); and UNESCO, *General History of Africa*, 8 vols. (Berkeley, CA, 1981–93). For a recent geography of Africa, see A. T. Grove, *The Changing Geography of Africa*, 2nd ed. (London, 1993).

³ The remainder of the African continent sustained perhaps another 50 million inhabitants.

Desert and to the south by dense forest. This broad savanna is covered with fertile soil, but most crops must be grown during the short summer rainy season. The savanna stretches 3,000 kilometers from the coast of Senegal to Lake Chad in the center of the continent and another 3,000 kilometers to the Red Sea. The desert edge of the savanna, known as the Sahel (Arabic for coast, since the Sahara can be seen as a sea of sand), has short grass and fluctuating rains. In some years it could be farmed, in other years it was grazed, and in some years it had to be abandoned.

The northern savanna is often called the Sudan, from the Arabic term for "the land of the blacks." The Sudan is conventionally divided into three sections: the Western Sudan (the Senegal and upper Niger valleys), the Central Sudan (the lower Niger valley and the basin of Lake Chad), and the Eastern Sudan (the middle Nile valley). Most of the Western and Central Sudan is drained by the Niger River, which rises in the mountains of Futa Jallon in Guinea, flows northeast to the desert edge at Timbuktu, and then curves in a great bend to flow southeast. From its bend, the Niger flows across the savanna toward the coast where, after passing under the forest, it finally discharges its waters through a maze of creeks into the Bights of Benin and Biafra. Further east, in the very center of the continent, the Shari River rises just beyond the northern fringe of the forest and flows gently northward into the landlocked basin of Lake Chad. The lake, salty and shallow after millions of years of receiving the Shari, still supports a large fish population.

Each year, summer rains brought the savanna to life. Farmers, working with hoes, prepared the fields and planted millet and sorghum. Within two months of sprouting, millet stalks reached heights of two meters. These and other crops covered the landscape with a carpet of green. But after the millet harvest in September and the end of the rains in October, the savanna turned back to the brown, gray, and gold that dominated its colors for most of the year. In one sense the farmers of Senegal and the savanna stretching to the east were repeating an annual cycle that had been carried on for the thousands of years since millet had been domesticated. But the rains were not always regular, and in too many years they did not come at all. Farmers planned accordingly, and built the granaries whose conical forms became a dominant feature of savanna architecture.

The forest, which skips along the West African coast from Guinea-Bissau to Cameroon, with a breadth of 100 kilometers at most, expands to nearly 1,000 kilometers in breadth in Central Africa, and extends eastward over 2,000 kilometers from the Atlantic to the highlands of Kivu and Uganda.

The western portion of the equatorial forest is drained by the Ogowe River, which reaches the Atlantic in Gabon. The great majority of the equatorial forest is drained by the Congo River and its tributaries: the Ubangi in the north, and the Lualaba and the Lomami in the east. The Congo flows in a great semicircle through the forest and emerges into the southern savanna before flowing to the sea. Its level rises and falls in a complicated pattern in response to rains north and south of the equator. Forested areas have two rainy seasons each year, with the heavy rains in late spring and lighter rains in late summer. For the forest south of the equator, the spring rains begin in October, and the summer rains begin in February. Despite the luxurious and dense foliage of the rain forests, the underlying soils were poor and weak in nutrients. Winning a livelihood from this land required farmers to plan and to work energetically.

Crops varied significantly among regions of the forest. In the most westerly regions, from Guinea-Bissau to Ivory Coast, the main crop was rice. This was not the paddy rice of Asian origin, but a rice native to Western Africa that was grown under rainfall. Further east, along the coast from Ivory Coast to Cameroon, the main crop was yams. Still further east, the forest peoples of the Congo and Ogowe basins lived primarily on plantains and bananas. The farmers of the forest region also grew a variety of other crops, and they raised small domestic animals, including poultry, goats, and sheep.

The mouth of the Congo River lies in the southern savanna, an expanse of grassland extending from the southern fringes of the equatorial forest, at some five degrees of latitude south, to the Namib Desert in modern Namibia, and ranging eastward to the great lakes. In the west, the lower Congo is fed by the Kasai and Kwango rivers. To the east, the Luapula River flows north across the savanna and feeds into the upper Congo. At the southern limit of Angola, the Kwanza River flows west from the highlands to the Atlantic. The millet-growing peoples of this savanna also herded cattle according to patterns similar to those of East Africa.

LANGUAGE

Of the African peoples in contact with Latin America, almost all were speakers of Niger-Congo languages.⁴ This grouping – the largest of the

⁴ Joseph Greenberg, *The Languages of Africa* (Bloomington, IN, 1963); John Bendor-Samuel, ed., *The Niger-Congo Languages: A Classification and Description of Africa's Largest Language Family* (Lanham, MD, 1989).

four major language groups spoken in Africa – dominates the western, central, and southern portions of the continent. The current pattern of linguistic distribution shows that the Niger-Congo languages had become widespread in West Africa by 10,000 years ago, and spread further with the development of agriculture and other technologies.

Each of the major Niger-Congo subgroups left a substantial imprint in the Americas as a result of the slave trade. Here, the African homelands are listed from northwest to southeast:

- The Atlantic languages, centered in the modern countries of Senegal, Guinea-Bissau, Guinea, Sierra Leone, and Liberia.
- The Mande languages, spoken mainly in modern Mali but also in the surrounding countries.
- The Gur or Voltaic languages, spoken mainly in Burkina Faso but also in the surrounding countries.
- The Adamawa-Ubangi languages, spoken in the inland areas of Nigeria, Cameroon, Chad, and the Central African Republic.
- The Kwa languages, spoken in a band along the coast from Ivory Coast into Nigeria.
- The Benue-Congo languages, spoken in southeastern Nigeria, in Cameroon, and in lands from there east to the Indian Ocean and south to the tip of the continent.

These language groups reflect historical communities, so there is some correlation between language, habitat, and primary food crop. Rice is grown among speakers of Atlantic and Mande languages. Sorghum and millet are grown among all the savanna groups – Atlantic, Mande, Gur, and Adamawa-Ubangi. Yams are a principal food among speakers of Kwa and Benue-Congo languages, except that Benue-Congo speakers have now moved to a wide range of habitats. In West Africa, numerous migrations are revealed in the pattern of languages. For instance, cattle-keeping people speaking the Fulfulde language of the Atlantic group moved progressively east from their homeland in Senegal, occupying the best cattle ranges along the desert edge as far east as Cameroon.

The most spectacular migration, however, was that of Bantu speakers, who began migrating perhaps 5,000 years ago from what is now southeastern Nigeria, and who gradually colonized the great majority of the continent to the east and south. This series of processes, widely known as “the Bantu migrations,” is often misunderstood as a relatively coherent and recent phenomenon. But the accumulation of linguistic and archaeological

work shows that the overall pattern of linguistic homogeneity arose from a series of distinct migrations and patterns of gradual colonization that were widely separated in time. Local variations resulted from ecological differences and from the varying patterns of interaction and amalgamation of the migrants and colonists with local populations. Nonetheless, the result is considerable linguistic and cultural unity across the southern third of the African continent, in contrast to the much greater cultural variety in the northern half of the continent.⁵

Of the other major language families in Africa, only certain subgroups of the Afro-Asiatic languages had significant ties to the Americas: most notably, these include Arabic speakers from Morocco and the western Sahara and Hausa speakers of the central Sudan.⁶

POLITICS

The political units of West and Central Africa, although often elaborately structured, were fragmented. As of 1500, most people in West and Central Africa lived in states, but most were quite small. Larger units arose from time to time, and a few of them maintained their institutions for centuries. In the Wolof-speaking area of Senegal (in the West African savanna), the kingdom of Jolof broke up into several constituent states in the mid-sixteenth century. The kingdom of Mali, founded in the thirteenth century in the upper Niger valley, survived for three centuries. Songhai, downriver from Mali, created an immense empire during the fifteenth and sixteenth centuries, but it collapsed with the Moroccan invasion of 1591. The Mossi kingdoms of Burkina Faso, although smaller, maintained their existence from the time of Mali to the twentieth century. In what is today northern Nigeria, several states among the Hausa people – each centered on a walled commercial town – maintained a stable existence, along with the larger kingdom of

⁵ Jan Vansina, *Paths in the Rainforests* (Madison, WI, 1990); Christopher Ehret, *An African Classical Age* (Charlottesville, VA, 1998).

⁶ The major subgroups of Afro-Asiatic languages include the Chadic languages of the Lake Chad basin, of which Hausa is the most widely spoken language; the Berber languages of the Sahara and North Africa; the Cushitic languages of the Horn and Northeast Africa; and the Semitic languages. The Semitic languages, although centered in Southwest Asia, include two major language communities in Africa – speakers of Arabic in all of the Mediterranean littoral, the western Sahara, and the central and eastern Sudan, and speakers of Amharic and Tigrinya in Ethiopia and Eritrea. Aside from the Niger-Congo languages, the other major language groups of Africa are the Khoisan languages (spoken in southwestern Africa), the Nilo-Saharan languages (spoken in the middle and upper Nile valley and in the savanna and desert regions between the Nile and Lake Chad), and the Afro-Asiatic languages.

Borno, which had moved its center from the east bank to the west bank of Lake Chad.⁷

For the coastal and forested areas of West Africa, traditions of monarchy developed firmly but on a small scale, with two exceptions. Among the Yoruba-speaking peoples of modern Nigeria, Ife became the site of a major kingdom notable for its artistic achievement and its politico-religious prestige. Ife itself had declined by 1500, but the kingdom of Benin grew up among the neighboring Edo-speaking peoples. Although the *oba* of Benin had to be confirmed in office by the *oni* of Ife, by 1500 Benin was a major regional power, with influence several hundred miles to the west.⁸

The equatorial forest, lying eastward from the coasts of Cameroon and Gabon, provided a home for Bantu-speaking farmers and fishers who maintained small-scale polities. The noted historian Jan Vansina – working with materials collected in historical linguistic studies of Bantu languages – has reconstructed a long and complex tradition of political change among these peoples, as village-level organizations developed on principles of age-grade organization, patrilineage, matrilineage, or spiritual associations.⁹

In the southern savanna – mainly in modern Congo and Angola – larger polities developed. The kingdom of Kongo, when the Portuguese encountered it in the 1480s, was a large kingdom with a capital at Mbanza Kongo and several provinces. Relatively new kingdoms were then growing among the Kuba on the Kasai River, the Tyo just north of Kongo, and the Luba and Lunda near the copper- and salt-producing regions of the upper Congo basin. Larger still was the kingdom of Mwenemutapa among the Shona peoples of modern Zimbabwe, which had a tradition of massive construction in stone and a gold-mining industry linked to the Indian Ocean trading network.¹⁰

Identifying Africans by ethnicity, nation, region, state, or locality became a matter of some complexity as people began to move around the Atlantic in slavery and freedom. The term “Guinea” – from a Berber word for sub-Saharan West Africa – came to be widely applied to the whole west coast of

⁷ Boubacar Barry, *Senegambia and the Atlantic Slave Trade* (Cambridge, 1988); Paul E. Lovejoy, *Transformations in Slavery: A History of Slavery in Africa* (Cambridge, 1983).

⁸ Frank Willett, *Ife in the History of West African Sculpture* (London, 1967); A. F. C. Ryder, *Benin and the Europeans: 1485–1897* (New York, 1969).

⁹ Vansina, *Paths*.

¹⁰ Other large-scale states in existence in 1500 were to have little connection to Latin America. These included Burundi, Bunyoro, and other states in the great lakes region; the Ethiopian kingdom; and the Funj state of the middle Nile.

Africa and to its peoples. The term “Senegal” was applied in the eighteenth century to Wolof-speaking people from Senegal; the same region included people known as “Nard” (meaning Arabic-speaking Moors), “Pular” (meaning Fulfulde-speaking people), and “Bambara.” The latter category refers in general to Mande-speaking peoples from the Niger valley, but it could refer more narrowly to the Mande group calling itself Bambara, or more broadly to other Mande-speaking populations of modern Guinea and Sierra Leone. Slaves embarked at the Gold Coast were commonly called “Coromanti,” after the name of the coast, though many of them had been born in the interior in a quite different group. Slaves taken from Central Africa were commonly called “Kongo” no matter where they came from within the immense region from which captives were drawn. Rules of thumb can usually be worked out by scholars working on documents from Africa or the Americas, but it is worth emphasizing that the identities assigned to African individuals and groups could vary widely, depending on their place of origin, the points through which they passed, and their destination.

The geographic names of African regions changed with time and with the language and outlook of those recording the names. The region that is today the coast of Togo and Benin was known as “Costa da Mina” by the Portuguese because it was downwind from the fortress at Elmina, but it was known as the “Slave Coast” in the late seventeenth century when it became the principal region for export of slaves, and then the “Bight of Benin” in the nineteenth century.

DOMESTIC ECONOMIES

The domestic economies of West and Central Africa, around 1500, relied substantially on technology and organizational patterns known widely throughout the Old World, and especially its tropical regions.¹¹ Although local systems varied substantially because of ecology and cultural choices, the range of choices was widely shared. The principal field crops in the

¹¹ Because the availability of observations on African regions as of 1500 is uneven, analysts are often left with linking fragmentary evidence for 1500 to back-projections of observations made at later times. For an example of a debate over the use of such evidence on agricultural change between 1500 and 1700, see Jouke S. Wigboldus, “Trade and Agriculture in Coastal Benin c. 1470–1660. An Examination of Manning’s Early-Growth Thesis,” *A.A.G. Bijdragen* 28 (1986): 299–393; Patrick Manning, *Slavery, Colonialism, and Economic Growth in Dahomey, 1640–1960* (Cambridge, 1982).

northern savanna were sorghum and millet, and millet alone in the southern savanna. Fields were prepared with iron hoes; they were planted, weeded, and harvested within four months; and the harvest was stored in granaries, usually elevated. Rice was grown as a major crop in the upper Niger valley and in the adjoining coastal regions; it was grown intermittently in other areas of West Africa. Yams of African origin were the principal crop in the forests and wet savannas of the Kwa and Benue-Congo language areas; yams were grown in mounds of earth, weeded repeatedly, and stored in racks after harvest. In the equatorial forest, yams had long since given way to plantains, which had arrived in the early centuries C.E. from Southeast Asia. Bananas and plantains had spread all across the African continent, and plantains proved to be especially favored in the equatorial forest, where they brought higher productivity and could be grown on fields where yams would not grow. Beans of various sorts grew widely, including African groundnuts.

West African farms included a number of tree crops: the oil palm in moist regions and the shea butter tree in drier regions, each providing cooking oil; and the African locust bean and cashew, pistachio, and citrus trees. Fibers came from cotton and the silk cotton tree (*kapok*) in West Africa and from raffia palms in Central Africa. The range of other fruits, vegetables, and condiments cultivated included several varieties of pepper.

Animal husbandry was a part of most farms, though there were also specialists. Sheep, goats, and cattle had been domesticated early on, though cattle were limited to the relatively dry areas outside the range of the tsetse fly and the sleeping sickness it brought. Specialist herders kept camels in and near desert areas, and cattle in the best grazing areas of the savanna. Donkeys were a widely used beast of burden in the West African savanna. Horses – though relatively small in number – were important and prestigious. Since they bred rather poorly in West Africa, horses were often imported from North Africa. By 1500, cavalry corps were essential for the armies of the northern savanna, and the *oba* of Benin, deep within the tsetse-fly zone, maintained a number of horses for prestigious display.

Fishing was a full- or part-time activity wherever possible, and the technology of fishing involved intricate and imaginative ways of capturing fish. Fishers in the ocean used small boats, lines, and nets. In rivers and lakes, fishers used lines, nets, traps, weirs, poisons, and such devices as digging trenches off waterways, trapping fish in them, and then harvesting the fish when they had grown to maturity. In the southern savanna, meanwhile, a tradition of beekeeping had developed, and for a time the region exported substantial quantities of beeswax.

African domestic economies relied on several sorts of manufacturing. Most basic was the mining and smelting of iron. Iron deposits are widespread in Africa, but they are generally of low yield, so the quantity of iron used in African societies never became large. But the technological skill of African smiths was high, and the iron implements they manufactured were of high quality. Copper mines in the southern savanna led to large-scale trade of copper goods in that region and smaller trades elsewhere. Gold was mined in the Bambuk region of Guinea, in the Bure region of Senegal, and in many parts of southern Ghana; goldsmiths created decorative items in these regions. Metal workers also worked in brass, creating the well-known lost wax sculptures of Nigeria and Benin, and the decorative gold weights of Ghana. Silver was rare in Africa, and little silver was imported into Africa until the nineteenth century.¹²

Other manufacturing activities included woodwork – the distinguished tradition in wooden sculpture throughout West and Central Africa makes clear this skill. Architecture included buildings in adobe, wood, stone, and thatch. Textiles were also widely developed, based on distinctive hand looms for West African cotton textiles, and on raffia textiles for central Africa. Textile manufacture was naturally accompanied by dyeing, notably in indigo. Pottery and basketry provided two further sorts of household industry, along with tanning and salt preparation.

The social organization of African economies did not rely on a high degree of specialization. Categories of age and gender defined duties in agriculture, animal husbandry, and manufacturing, though these differed from region to region: women did most agricultural work in the fields of Central Africa, whereas men did most field work in much of West Africa. Specialists in such craft work as blacksmithing, pottery, and textile manufacture usually carried on agricultural work as well. Among the Mande and Atlantic speakers, however, there arose endogamous castes limited to work in ironsmithing and other such tasks.

Institutions of slavery and dependency were known in all areas of Africa, and were associated with warfare and famine. But the widespread existence of institutions of slavery does not mean that many Africans were held in slavery. John Thornton's widely circulated argument that Africans in the fifteenth century had numerous slaves, ready for sale, does not hold up to detailed scrutiny. Slave populations only became large when there existed

¹² Eugenia W. Herbert, *Red Gold of Africa: Copper in Precolonial History and Culture* (Madison, WI, 1984).

reasons to create them and the power to maintain them. The imperial state of Songhay was able to hold thousands of people in slavery to provision the palace in the sixteenth century, and the kingdom of Dahomey was able to control thousands of slaves in the nineteenth century to produce palm oil for export. But apart from these cases, it was rare to have either the concentration of state power or the market for slave produce that would provide the basis for a large slave population. All of Africa in the sixteenth century sold about 5,000 slaves per year for trans-Atlantic export, whereas in the late eighteenth century the same region sold over 75,000 per year. These figures strongly suggest that the rate of enslavement rose more than tenfold in the interim, and rose more in response to external demand than to a domestic proclivity to enslave.¹³

One of the disputes in African economic history is whether land or labor was in short supply. Some argue that the export of slaves indicates that labor was in surplus, in which case land must have been in short supply. Others argue that labor was in short supply, and that land was therefore more than ample. It is true that, generally, lineage and clan groups had control of land, and individuals could gain the right to use land but not to alienate it from the chief. But this common condition cannot be extended to the conclusion that Africans had no concept of land ownership. In practice, land markets showed up whenever land became valuable. Further, in areas of West Africa where Islamic law was in force, it applied the usual codes to ownership, inheritance, and sale of land.¹⁴

DEMOGRAPHY

Various estimates made over the course of the last several centuries have placed the population of the African continent in 1500 at roughly 100 million. This estimate, although more consistent than authoritative, would suggest for the year 1500 a population of fifty to sixty million for West and Central Africa – roughly comparable to the population of the Americas at the same time.¹⁵ The population of West and Central Africa, although sparser than that of Western Europe, South Asia, or East Asia, was denser

¹³ John Thornton, *Africa and Africans in the Making of the Atlantic World, 1400–1600* (Cambridge, 1992).

¹⁴ Henry A. Gemery and Jan S. Hogendorn, "The Atlantic Slave Trade: A Tentative Economic Model," *Journal of African History* 15, 2 (1974): 233–46; Patrick Manning, *Slavery and African Life* (Cambridge, 1990).

¹⁵ A. M. Carr-Saunders, *World Population* (New York, 1934).

than that of the Americas or of other regions in Eurasia. Furthermore, there is every reason to believe that the region's population had been growing slowly in previous centuries: the language distributions suggest no recent large-scale migrations, and available information on agricultural and other technology suggests that there had not been any great recent technological advances.¹⁶

Much of West and Central Africa had a monetized economy by 1500. The upper Niger valley used two currencies – gold and cowrie shells. The gold was produced within the region in the mines of Bambuk and Bure and, at a further distance, in the Akan area of the Gold Coast. Gold circulated as gold dust rather than as coins and was exchanged both by weight and by volume. For smaller transactions, cowrie shells circulated in the upper Niger valley. Cowries, harvested especially in the Maldives Islands off the coast of South India, were used as money in many areas of the Indian Ocean. They came to West Africa by a route that took them up the Red Sea to Cairo, across the Mediterranean to Morocco, and across the desert to Mali. In other parts of Africa, silver and gold coins served as money on the Swahili coast, local *nzimbu* shells served as money on the Angolan coast, and cloth and copper bars, crosses, and wire served as money in other regions.¹⁷

A regular system of long-distance trade linked the Niger valley across the Sahara to North Africa, exchanging gold, cowries, salt, horses, and slaves. Within the northern savanna, a dense network of trade moved such commodities as kola, leather goods, textiles, fish, and grains; the Niger itself was a major axis of such commerce. In Central Africa, copper trading networks crossed the interior. The Congo and its tributaries supported trade in fish and other products. Systems of local markets are presumed to have existed for the region in 1500, though they were not described until later. One such system was the interlocking network of markets on a four-day calendar along the West African coast.

Interpretations of African economies in early modern times have tended to alternate between continental generalizations and descriptions of localities, and to focus on links of Africa to external (Islamic or European) influence, rather than on their connections among African regions.¹⁸ Over

¹⁶ Few records have yet been developed to convey African expectation of life in the sixteenth century. Louise Marie Diop-Maes has relied on a range of evidence to argue for a much larger African population in earlier times. See Diop-Maes, *Afrique Noire: Démographie, sol, et histoire* (Paris, 1996).

¹⁷ Jan Hogendorn and Marion Johnson, *The Shell Money of the Slave Trade* (Cambridge, 1986).

¹⁸ For exceptions, see Ralph Austen, *African Economic History* (London, 1987), and Anthony G. Hopkins, *An Economic History of West Africa* (London, 1973).

the long term, the connections among African regions are unmistakably clear, as shown in the distribution of languages and the spread of iron, bananas, and many other aspects of material culture. But short-term, large-scale commercial caravans or road construction were not greatly in evidence. As examples of regular communication from region to region, one can note the river trade in the Niger, the lagoon trade from Benin as far west as the Volta River in modern Ghana, and the fishing trade and migration along the Congo River.

INITIAL CONNECTIONS: 1450–1650

In the era from 1450 to 1650, the Atlantic ceased to be a barrier, and became a fluid linkage of previously isolated lands. The Atlantic world in its early days differed dramatically from the world of the Indian Ocean in the same era. For the Indian Ocean, a system of exchange had developed over two millennia of connections. The arrival of the Portuguese modified, but did not transform, that system. For the Atlantic, ships under numerous European flags created a whole new set of interactions and connections. In the first stage, European voyagers established connections with the Atlantic islands and Africa; by 1492 there were a substantial number of African workers in Portugal, most of them slaves, and a plan was being hatched for conversion of the Kongo kingdom to Christianity. In the second stage – after the voyages of Columbus – the eastern Atlantic as a whole made its impact felt on the Americas.¹⁹

Portuguese trade with the Atlantic islands focused on gathering and agriculture. Trade with the African mainland focused, whenever possible, on gold, as well as on labor for agricultural work, and luxury goods such as pepper. The search for gold led the Portuguese to construct Elmina Castle on the Gold Coast in 1481, which resulted in a substantial and profitable flow of gold to the Portuguese treasury. The search for labor led the Portuguese to seize and purchase captives in Senegal, Upper Guinea, Benin, and Kongo. The kingdom of Benin, which was content to trade in pepper with Portugal, managed to withdraw from the export of slaves by 1530. The efforts of the Kongo king to halt the sale of slaves were not successful, and Portuguese planters on the island of São Tomé built a

¹⁹ For an excellent description of the early days of the Atlantic world, see Thornton, *Africa and Africans*, 13–42.

profitable set of sugar plantations. Portuguese merchants were also looking for other trades to carry. Observing the cowrie trade to West Africa, they began carrying cowries from the Maldives to the West African coast by 1517. Portuguese terms for the various units of cowrie currency up to a *cabeça* of 4,000 shells were adopted into the languages of the West African coast from the Niger to the Gold Coast.

Meanwhile, in both Peru and Mexico, the discovery of huge silver deposits brought silver shipments to Spain. By 1571 the Manila galleons had begun to carry silver to the Philippines, from which it rapidly passed to China. The Chinese demand for silver kept the price high. Portuguese adventurers searched in vain for silver mines in Africa. The African connection to this silver boom was indirect: Indian textiles were bought with silver by Portuguese merchants and then went to Africa for the purchase of slaves who worked as artisans in the silver mines. Thus, by the end of the sixteenth century, the three great oceans and five continents were united – mostly by the flow of silver – into a single system.²⁰

The initial destinations of the African slave trade focused on the Atlantic islands and the Iberian peninsula rather than the Americas. In an extension of the system of mutual raids and slaveholding that prevailed in the Mediterranean, Africans went in largest numbers to destinations in the eastern Atlantic until about 1570, after which the colonial system in the Americas expanded enough to raise demand for the shipment of slaves.²¹ Trans-Atlantic deliveries of slaves went first to the Spanish Caribbean, then to Mexico, and by the mid-sixteenth century, to Peru and Brazil. Most captives crossing the Atlantic in these days were from West Africa. Bowser's excellent work on Peru indicates that over half the slaves reaching Peru in this era were from Senegambia and Guinea-Bissau, roughly 10 percent were from the eastern coast of West Africa, and about one third were from Angola. Aguirre Beltrán's scantier returns on Mexico indicate the reverse, with a larger proportion coming from Angola. Males were more numerous than females among the newly arriving captives, but the proportion of females in these early times was larger than it was to be in later centuries.²²

²⁰ Dennis O. Flynn and Arturo Giráldez, "Born with a 'Silver Spoon': The Origin of World Trade in 1571," *Journal of World History* 6 (1995): 201–22.

²¹ Manuel Lobo Cabrera, *La esclavitud en las Canarias orientales en el siglo XVI: Negros, moros y moriscos* (Gran Canaria, 1982).

²² Frederick P. Bowser, *The African Slave in Colonial Peru, 1524–1650* (Stanford, CA, 1974); Aguirre Beltrán's figures are reported in Colin A. Palmer, *Slaves of the White God: Blacks in Mexico, 1570–1650* (Cambridge, MA, 1976).

Table 2.1. *Annual rate and overall volume of slave exports: 1450–1650*

| | Est. captive arrivals per year, 1450 | Est. captive arrivals per year, 1650 | Est. cumulative total of captive arrivals, 1450–1650 |
|------------------------|--------------------------------------|--------------------------------------|--|
| WEST AFRICA | | | |
| To Sahara | 2,800 | 4,900 | 875,000 |
| To Atlantic and Europe | 880 | 100 | 168,000 |
| To Spanish America | 0 | 2,300 | 123,000 |
| To Brazil | 0 | 1,200 | 70,000 |
| Non-Spanish Caribbean | 0 | 600 | 23,000 |
| TOTAL WEST AFRICA | 3,680 | 9,100 | 1,259,000 |
| CENTRAL AFRICA | | | |
| To Atlantic and Europe | 0 | 400 | 124,000 |
| To Spanish America | 0 | 1,300 | 90,000 |
| To Brazil | 0 | 2,400 | 180,000 |
| Non-Spanish Caribbean | 0 | 0 | 0 |
| TOTAL CENTRAL AFRICA | 0 | 4,100 | 393,600 |

Sources: Philip D. Curtin, *The Atlantic Slave Trade: A Census* (Madison, WI, 1969); Ivana Elbl, "The Volume of the Early Atlantic Slave Trade, 1450–1521," *Journal of African History* 38 (1997): 31–75; Ralph A. Austen, "The Trans-Saharan Slave Trade: A Tentative Census," in Henry A. Gemery and Jan S. Hogendorn, eds., *The Uncommon Market: Essays in the Economic History of the Atlantic Slave Trade* (New York, 1979), 23–76.

American-born populations of African ancestry developed progressively. The largest number of second-generation slaves and free people of color came from unions of Africans. From the beginning, however, mulatto children grew from unions of African women and Iberian men. After more than twenty years of slave imports, it was possible to have adult mulatto women who, in unions with Iberian men, could have carterón children; these, after another twenty years, would be ready to bear children. The social categories of mulatto and quadroon thus developed, with a lag, in each area of Old World settlement. Mulatto and quadroon women faced alternatives (if not always choices) in setting up families with a person of color or with a white. Thus, within half a century, a society beginning with three discrete racial types could develop into a cosmopolitan and elaborately hierarchical social order.

One key element of the hierarchy was the range of sexual access. Women were perpetually in short supply in colonial society; this was true for every color, but least so for women of mixed race, all of whom were locally born

and thus equal in number to the men of their color. But because white men had the monopoly of access to white women, and had access to mulatto and black women by virtue of their social power, mulatto and especially black men were far more likely to remain childless. This process was one reason that the steady import of slaves from Africa was not sufficient to keep the black population of the Americas growing as rapidly as the white and mixed populations. A mixed-race population grew, at a far slower rate, in Africa as well. Mixed-race populations in Africa were overwhelmingly free and tended to specialize in trade, whereas mixed-race populations in the Americas included large numbers of slaves and tended to specialize in artisanal work.²³

Philip Curtin estimated that 125,000 captives were transported to the Americas in the sixteenth century, and another 360,000 in the first half of the seventeenth century, for a cumulative total of half a million. By 1650, something over 100,000 people of African descent lived in the Americas, representing 2 percent of the total population. But they were the majority of the two major cities – Mexico and Lima – and were perhaps majorities in the port cities of Veracruz, Callao, and Cartagena, and in the Caribbean as a whole. Even in thinly populated Brazil, Africans were probably over 2 percent of the population.²⁴

In disease, Africans were perhaps as influential as Europeans in serving as hosts to the infectious agents that decimated the American population. The major diseases of the American demographic collapse were known in Africa as well as in Europe. Diseases of the tropical lowlands, notably malaria, were more deadly in Africa than in Europe, and spread in the Americas with migration. Smallpox, however, may have been a different case. It seems less than certain that smallpox was firmly established in West Africa before the fifteenth century; smallpox epidemics and religious cults built around protection against smallpox were common in later centuries. It may be that smallpox spread to Africa at the same time as it spread to the Americas. More generally, it is possible that African mortality rose in the fifteenth and sixteenth centuries with increased external contacts.

The numbers of Africans and Europeans migrating to the Americas up to the mid-sixteenth century were roughly equal, as measured by the

²³ These considerations are underscored in my unpublished research on eighteenth-century Louisiana.

²⁴ Curtin, *Atlantic Slave Trade*. See also Paul E. Lovejoy, "The Volume of the Atlantic Slave Trade: A Synthesis," *Journal of African History* 23 (1982): 473–501.

populations of European and African descent in Lima and Mexico City in 1650. Europeans went in larger proportions to the rural highland areas, whereas Africans went in larger proportions to the Caribbean lowlands. In the early colonial period, Africans in slave status performed much of the work of constructing the new colonial order.²⁵ The skills of African workers were central to building the colonial economy in such areas of work as agriculture, animal husbandry, mining, metalwork, textile production, basketry, woodwork, construction, and boat handling.

African foodstuffs reached the Caribbean and Brazil, especially as provisions for maritime voyagers. Whereas millet and sorghum seem not to have taken significant hold in the Americas, yams, taro, and other tubers grown by African farmers came to the Americas. So also did such tree crops as plantains, bananas, oil palms, raffia palms, and coconut palms. The impact of the Americas on Africa in this era was probably somewhat lesser. American crops moved rapidly to Africa, but it took one or two centuries before their influence became significant.

THE SLAVE-TRADE ERA: 1650–1820

The Dutch wars with the Spanish and Portuguese, and the Portuguese revolt against Spain, provided a military indication of change in the Atlantic world. The steady rise of the sugar trade provided a commercial indication of the same change. And the further expansion of the slave trade provided a demographic indication of the changing times. The *asiento* for Spanish slaves now passed from the Portuguese to the Dutch and then to the English, and the slave trade to the Spanish and especially to the inland areas became a smaller portion of the total. With the rise of sugar production, the destinations of slaves became concentrated along the Caribbean and Brazilian coasts.

The Dutch, with a fleet based in Pernambuco, seized Elmina castle from the Portuguese in 1637, and began to develop control of the trade in both gold and slaves. The Dutch were frustrated in their attempt to take Angola from the Portuguese, but began steady slave trading in nearby Loango. After being driven out of Pernambuco in 1654, Dutch colonists moved to the Caribbean and assumed the role of brokers rather than planters: they held the *asiento* from 1662 to 1713 and provided slaves to the expanding

²⁵ Bowser, *The African Slave*; Palmer, *Slaves of the White God*.

Table 2.2. *Annual rate and overall volume of slave exports: 1650–1820*

| | Est. captive arrivals per year, 1650 | Est. captive arrivals per year, 1820 | Est. cumulative total of captive arrivals, 1650–1820 |
|-----------------------------|--------------------------------------|--------------------------------------|--|
| WEST AFRICA | | | |
| To Sahara | 4,900 | 7,400 | 1,105,000 |
| To Atlantic and Europe | 100 | | 600 |
| To Spanish America | 2,300 | 10,000 | 794,000 |
| To Brazil | 1,200 | 3,800 | 623,000 |
| Non-Spanish Caribbean | 600 | 7,000 | 3,152,000 |
| TOTAL WEST AFRICA | 9,100 | 28,200 | 5,674,000 |
| CENTRAL AFRICA | | | |
| To Atlantic and Europe | 400 | | 5,100 |
| To Spanish America | 1,300 | 10,000 | 77,500 |
| To Brazil | 2,400 | 30,000 | 3,135,700 |
| Non-Spanish Caribbean | 0 | 7,000 | 942,000 |
| TOTAL CENTRAL AFRICA | 4,100 | 47,000 | 4,160,300 |

Sources: David Eltis, *Economic Growth and the Ending of the Transatlantic Slave Trade* (New York, 1987); Paul E. Lovejoy, "The Volume of the Atlantic Slave Trade: A Synthesis," *Journal of African History* 23 (1982): 473–501; Patrick Manning, *Slavery and African Life* (Cambridge, 1990).

new English and French colonies. English, French, and Danish trading companies followed the Dutch in setting up forts and lodges at key points along the African coast in the late seventeenth century. In addition to the growing Caribbean demand for slaves, the Brazilian market also expanded. Sugar producers in Bahia organized voyages to the Gold Coast and the Bight of Benin, offering Bahian tobacco in exchange for slaves. And the discovery of gold in Minas Gerais in the 1680s created a demand for slaves from West Africa and Angola.²⁶

As slave purchasers assembled on the West African coast, warfare began to expand among groups in the Bight of Benin, especially the Gbe-speaking populations of modern Benin and Togo. The troops in the growing armies carried firearms purchased with slave exports. The expansion of trade and

²⁶ Johannes Menne Postma, *The Dutch in the Atlantic Slave Trade, 1600–1815* (Cambridge, 1990); A. J. R. Russell-Wood, *A World on the Move: The Portuguese in Africa, Asia, and America, 1415–1808* (New York, 1993); C. R. Boxer, *The Portuguese Seaborne Empire* (New York, 1969); Boxer, *The Dutch in Brazil, 1624–1654* (New York, 1957); Colin Palmer, *Human Cargoes: The British Slave Trade to Spanish America, 1700–1739* (Urbana, IL, 1981).

warfare was such that by the end of the seventeenth century, slave exports from this region rose to 15,000 per year (meaning that 2 to 3 percent of the population was deported each year in chains), and remained at that level for the forty years from 1690 to 1730. West of the Bight of Benin, the Gold Coast underwent a parallel but less devastating transformation. In the late seventeenth century, firearms and warfare expanded, and the numerous small towns with their manufacturing centers gave way to dispersed settlement. The kingdom of Denkyera expanded, gaining control over neighboring states, and selling captives on the coast. By 1700, a defensive coalition organized by Asante overturned Denkyera and established an imperial hegemony over much of the Gold Coast.²⁷

For these two regions, and for the African coast in general, the price of slaves rose by a factor of four in the course of the thirty years from 1690 to 1720. The magnitude of the price increase is confirmed in at least three ways: by the prime cost to English merchants buying slaves with goods loaded in England; by the local price of slaves in cowrie currency; and by a shift in the flow of gold. In the last case, the Gold Coast, in addition to its long-term exports of gold, had imported slaves since the sixteenth century. Portuguese and local merchants had brought slaves from the Kingdom of Benin to the Gold Coast, where some of them were put to work as miners. But, by the end of the seventeenth century, the price of slaves had risen so high that Gold Coast merchants were now exporting slaves and were accepting payment in Brazilian gold. Thus, more gold was flowing into the region than out. The expansion of the slave trade caused a decline in population and the development of new types of inequality in the affected areas of Africa.

In the case of Gold Coast, by 1730 the export of slaves had risen to 7,000 per year. Since control of the coastal region by Asante was secure, most of the slaves exported came from areas further inland. In the Bight of Benin, the kingdom of Dahomey expanded greatly in the 1720s, conquering both Ardra and Savi and moving in the direction of the regional hegemony achieved by Asante. However, the larger inland empire of Oyo sent its cavalry to disperse Dahomey's forces in several campaigns, forcing Dahomey to render tribute from 1734 to 1818. The result, with Dahomey and its local enemies each in existence, was continuing warfare throughout the eighteenth century, and a steady devastation of the region.

²⁷ Robin Law, *The Slave Coast of West Africa, 1550–1750* (London, 1991); Manning, *Dahomey*; Ray A. Kea, *Settlements, Trade, and Polities in the Seventeenth-Century Gold Coast* (Baltimore, 1982).

By the 1730s, an average of 45,000 slaves per year were sent across the Atlantic from a growing range of African ports. The Bight of Benin, despite exhaustion from four decades of warfare and deportation, still led all other regions in slave exports with about 10,000 per year. Slaves from this region went to Brazil, to French territories, to Dutch colonies and secondary markets, and to the English, who settled them in the Caribbean and sold a portion to the Spanish. Population was declining rapidly in the Bight of Benin, but was also beginning to decline in Gold Coast, Senegambia, and the Bight of Biafra.

The estimates of the volume of the Atlantic slave trade, and the related task of estimating the demographic impact of slave trade on Africa, have involved much indirect analysis, requiring as much modeling as enumeration. These areas of demographic estimation thus share some of the methodological challenges of estimating American populations in the sixteenth century and before. Each of these fields of analysis would probably benefit from more comparison and cross-checking with the other.²⁸

The pattern of exporting twice as many men as women from Africa had several consequences. First, there developed a substantial shortage of adult men, leaving women to take on new types of work – and giving those men who remained in Africa more women to choose from. Second, the expansion of systems of slave catching meant that many of the women (and some of the men) remaining in Africa were in slavery. A system of female-based slavery spread over much of the coastal region of West and Central Africa in the eighteenth century. Third, the expanding system of female enslavement led to higher prices for women in African markets; men received higher prices in European markets. As a result, few women from interior areas arrived in the Americas. The women captured along the coast might be sold to European merchants, but women captured in interior areas were sold in local markets. Those who walked the long distances from the interior to be sold at the coast were almost all men, whereas at the coast both male and female captives might be sold to the Europeans. As a result, the African females in the Americas were generally from the coastal peoples – including Wolof, Susu, Ardra, Yoruba, Ibo, and Kongo. The men might be from either the coast or the interior. Throughout West and Central Africa

²⁸ Patrick Manning, “The Impact of Slave Trade Exports on the Population of West and Central Africa, 1700–1850,” in Serge Daget, ed., *De la traite à l'esclavage*, 2 vols. (Paris, 1988), vol. 2, 111–34; Manning, *Slavery and African Life*; David Eltis and others, *The Trans-Atlantic Slave Trade: A Database on CD-ROM* (Cambridge, 1999).

in the period from 1730 to 1850, males averaged about 80 per 100 females among adults.²⁹

With the higher prices and developing shortage of captives in the Gold Coast and the Bight of Benin, English and French merchants looked to the Bight of Biafra, where the ports of Calabar and Bonny funneled 5,000 captives per year in the 1710s, and 10,000 per year by the 1750s. Most of these were Igbo-speaking people from the densely populated immediate hinterland of those ports. The system for collecting and transporting captives in the Bight of Biafra was distinctive, and relied on the specific circumstances of this highly commercialized but politically decentralized region. Most victims were seized not in military campaigns or in large raids, but in individual kidnappings and in delivery of individuals to courts and religious oracles as the price of holding proceedings there. The Aro – a clan that controlled the prestigious oracle of Arochukwu – served both as religious leaders and as directors of a slave-trading network. Individuals seized or purchased by them were taken to Calabar, Bonny, or smaller ports of the region, sold to brokers there, and later sold again to European purchasers. This system of enslavement continued to grow during the late eighteenth century until, in some years, over 20,000 people were sent across the Atlantic each year. This resulted in a sharp decline in the region's population. British purchases of slaves in the Bight of Biafra declined in the 1790s and virtually halted after 1807, which eased the pressure on the region's population. But other purchasers came forth to replace the British, and exports continued at a rate of about 12,000 per year, bringing further population decline until the late 1830s, when treaties with the British ceased the export of slaves from the Bight of Biafra.³⁰

In the early eighteenth century, the Senegambia region also became involved in the rapidly growing exports of slaves, although at a lower rate. Here, slaves were purchased mostly by French merchants and taken to the Caribbean colonies and the newly expanding Louisiana colony. Although most of these slaves were labeled as "Senegal" – meaning that they were Wolof-speaking people from the coastal region – a growing minority were known as "Bambara" – meaning that they were captives of the newly expanding Segu polity of Mamari Coulibaly, a leader of freebooting warriors who turned raiding into the basis for a substantial state. Those captured

²⁹ Manning, *Slavery and African Life*.

³⁰ David Eltis and David Richardson, "West Africa and the Transatlantic Slave Trade: New Evidence of Long-Run Trends," in Eltis and Richardson, eds., *Routes to Slavery* (London, 1997), 16–35; Douglas B. Chambers, "My Own Nation": Igbo Exiles in the Diaspora," in *Routes to Slavery*, 72–97.

in the domains of the Segu state were sent for sale either to the coast, or into the Sahara and to North Africa. As a result, the population of the Western Sudan probably declined from the early eighteenth century until 1750, when the volume of slave exports from the region declined.³¹

The Upper Guinea coast – ranging from modern Guinea-Bissau through the Ivory Coast – was one of the regions involved at an early stage in the sale of slaves to Portuguese merchants. There, export of slaves declined to a low level for the seventeenth and mid-eighteenth centuries, but leapt to above 15,000 per year in the late eighteenth century before declining to a level that enabled population growth to keep up with the loss of captives.

For the Central African regions of Loango and Angola, slave exports were large and grew throughout the eighteenth century. Slaves coming from an extensive hinterland would go to either of these coastal nodes of export. Most of the slaves exported from the Loango coast came from the Congo River basin, walked overland from the head of navigation at Malebo Pool (near modern Brazzaville), and were embarked at the port of Loango in the Vili Kingdom (near modern Pointe Noire). Most slaves shipped from the Portuguese colony of Angola were embarked at Luanda after being drawn from regions throughout modern Angola. The export volumes – averaging roughly 15,000 slaves per year for each of these stretches of the coast for all of the eighteenth century – were sufficient to bring a substantial decline in population for the Loango hinterland and a lesser but still important decline in population for Angola.³²

As significant as the number of persons sent to the Americas was their distribution by age and sex. The distribution focused heavily on young adults, with roughly twice as many males as females being sent. The number of children set on board slave ships was small, and the number who arrived in the Americas was even smaller, indicating that mortality rates were high for children in transit, and that few small children were captured. Because larger numbers of males than females were taken from Africa, the adult population remaining in Africa included far fewer males than females. Nevertheless, the number of females deported in slavery was too large for

³¹ Richard Roberts, *Warriors, Merchants, and Slaves: The State and the Economy in the Middle Niger Valley, 1700–1914* (Stanford, CA, 1987); Barry, *Senegambia*; Philip D. Curtin, *Economic Change in Precolonial Africa: Senegambia in the Era of Slave Trade* (Madison, WI, 1975).

³² The Portuguese also exported slaves from Benguela, south of Luanda. For an important analysis of the distinctive patterns of slave trade in Luanda, see Miller, *Way of Death*. On the Loango coast and hinterland, see Phyllis Martin, *The External Trade of the Loango Coast* (London, 1972), and Robert Harms, *River of Wealth, River of Sorrow: The Central Zaire Basin in the Era of the Slave Trade and Ivory Trade, 1500–1891* (New Haven, CT, 1981).

those who remained to sustain the population. In the most severely affected areas of Africa, the population declined by as much as 2 percent per year or more; and in those same areas, the adult male population may have been no more than 50 percent of the adult female population.³³

Africans bought a wide range of goods in exchange for the captives they sold, but took cash for captives in many parts of the coast. "Cash" included some silver and gold coin, but usually meant other currencies. For the Bight of Benin, cowrie currency composed 20 to 35 percent of the value of all imports during the eighteenth century. The result was a substantial expansion of the money supply, and an expansion of the cowrie currency zone from the coast to the upper Niger valley in the interior.³⁴ In the Bight of Benin, brass *manillas* had been purchased from the Portuguese in earlier times, and were imported in greater amounts in the eighteenth century with the rise of slave exports. In Angola and Kongo, much of the imported cloth was used as currency rather than being used in dress. Copper, iron bars, wire, and even bottles of gin served as currency. All of these currencies had luxury value in addition to their value as currency. Cowries were widely used as personal decoration, just as silver and gold, although widely used in jewelry, maintained their value as money.

Philip Curtin and Alfred Crosby each tentatively speculated that the spread of maize and manioc might have increased food output enough to offset the loss of population through the slave trade.³⁵ Their speculation is unconfirmed, however, and seems implausible when compared to other crop movements. The adoption of the potato in northern Europe did not occur until the late eighteenth century, though the adoption of maize in north China seems to have occurred earlier. The impact of maize and manioc in Africa depends on how rapidly the new crops spread among African farmers, and on whether farmers were, in fact, more productive. It seems easier to demonstrate that maize and manioc were adopted by farmers in areas of intensive slave trade – maize in the Bight of Benin, manioc in Angola – because of their advantage in storage over competing crops. That is, they could provide food for populations on the move. In addition, by the nineteenth century, farmers in the northern savanna had taken up peanuts, pineapples had spread to humid zones, and tomatoes and chile peppers had spread to many regions in Africa. With the movements in

³³ Manning, *Slavery and African Life*.

³⁴ Hogendorn and Johnson, *Shell Money*; Manning, *Dahomey*.

³⁵ Curtin, *Atlantic Slave Trade*; Alfred W. Crosby, Jr., *The Columbian Exchange: Biological and Cultural Consequences of 1492* (Westport, CT, 1972).

food came exchanges in culinary techniques. African-style stews appeared all along the American littoral, though the ingredients included items such as peanuts and maize that had come from the Americas to Africa.

In sum, the export of slaves from West and Central Africa rose after 1650 to unprecedented levels of human migration. As indicated in Tables 2.1 and 2.2, the arrivals of African captives in distant lands reached about 1.6 million persons in the period between 1450 and 1650, and rose to nearly ten million persons in the period between 1650 and 1820.³⁶ The trans-Saharan portion of this slave trade grew in absolute magnitude, yet fell in relative terms from half of the total from 1450 to 1650 to just over 10 percent of the total from 1650 to 1820. Emigration from West and Central Africa was roughly comparable to European emigration from 1450 to 1650, and greatly exceeded European emigration from 1650 to 1820.³⁷ The results of African forced migration were sufficient to cause the populations of West and Central Africa to decline from the early eighteenth to the mid-nineteenth century. During this time African labor was especially significant in the Caribbean and in colonial and early imperial Brazil.

AN INDUSTRIALIZING WORLD: 1820–1850

Another great wave of changes surged through the Atlantic world at the turn of the nineteenth century. The Haitian revolution, the broader antislavery movement, and other movements for social equality and local autonomy changed the shape of economic relations. Latin American countries gained political independence and sought to follow independent economic policies. The trans-Atlantic slave trade was abolished by stages between 1807

³⁶ Philip Curtin's 1969 estimate of just under 10 million arrivals of African trans-Atlantic captives for the whole Atlantic slave trade has been raised in subsequent analysis by about 1.5 million. The figures in Tables 2.1 and 2.2 are estimates of those arriving in their lands of destination: to these figures must be added the deaths of those in transit. The latter are estimated at roughly 20 percent of those voyaging across the Atlantic in the period 1450–1650, and 15 percent of those voyaging in the period 1650–1820. Related demographic losses to Africa included the export of captives across the Sahara with its attendant loss in transit, and the mortality due to enslavement within sub-Saharan Africa. Curtin, *Atlantic Slave Trade*; Lovejoy, "Volume of the Atlantic Slave Trade."

³⁷ Further, after 1820 an additional 1.8 million captives reached the Americas; most of these came from Central Africa. David Eltis has noted that European-descended populations exceeded African-descended populations by 1840, even though many more Africans than Europeans had migrated to the Americas. David Eltis, "Free and Coerced Transatlantic Migrations: Some Comparisons," *American Historical Review* 88 (1983): 251–80. See also Nicholas Canny, ed., *Europeans on the Move: Studies on European Migration, 1500–1800* (London, 1994).

and the 1850s. (The emancipation of slaves took place more slowly than the abolition of the oceanic slave trade: it proceeded in stages, from abolition in 1777 in the North American state of Vermont to the 1930s in some parts of Africa.) In the northern African savanna from Guinea to Cameroon, a series of Muslim-led revolutions created powerful states – most importantly the Sokoto Caliphate in Northern Nigeria, founded in 1804. The wars of these theocratic states led to the expanded capture and sale of prisoners, and brought some of the combatants and their disputes to the Americas. The collapse of the Oyo empire in 1830 – a result of the expansion of the Sokoto Caliphate – led to a succession of civil wars among the Yoruba peoples. This in turn led to the sale of many war captives abroad, and to the dispersal of Yoruba language and culture throughout the Atlantic.

The long boom in international trade under the aegis of British commerce and finance brought about the substantial expansion of slavery in some parts of the Americas and Africa. Cuban sugar and Brazilian coffee relied heavily for their expansion on newly imported African slaves coming mostly from Angola and the Bight of Benin. In Africa, slave workforces and free peasants produced peanuts, palm oil, palm kernels, coffee, and cotton for export, plus textiles, leather goods, and grains for domestic consumption. Late in the nineteenth century another American crop, cacao, began its spectacular expansion in the fields of the Gold Coast, and thereafter in Nigeria and the Ivory Coast.

In the formerly Spanish colonies, slaves gained emancipation in a complex linkage of nationalism and human rights. Slave imports ended (except in Venezuela and Texas); slaves gained emancipation in Mexico by 1829 (except for slaves imported to Texas by colonists from the United States), and in Peru and Venezuela, through a series of partial steps, by 1854. Slave imports ended in 1808 for the British Caribbean and in about 1830 for the French territories, and continued until after 1850 in the Spanish Caribbean and Brazil.

Slave exports across the Atlantic declined from an average 75,000 per year in the late eighteenth century to an average 55,000 per year in the early nineteenth century. For the Senegambia in the early nineteenth century, slave exports fell to 2,000 per year, and exports from the Gold Coast were even lower. Exports from the Upper Guinea Coast averaged 4,000 per year. Exports from the Bights of Benin, Biafra, and Loango each averaged 10,000 per year. Though the population continued to decline, the exports of slaves were lower than in previous years. Arrivals of African captives in

the Americas after 1820 are reliably estimated to have totaled nearly 1.8 million people.³⁸

Slave prices paid on the African coast declined as Atlantic demand diminished and as the cost of circumventing the British antislaving squadron grew. For those areas that pulled out of the Atlantic slave trade, prices fell, and a new system of slavery emerged. With lower prices, African purchasers could buy more slaves. Captives were now both male and female, and new institutions of slavery – more like those of plantation slavery in the Americas – arose. The female-based, household-centered system of slavery for the eighteenth century turned into a class-based system of slave villages in the nineteenth century. Slaves now produced grains, textiles, dyes, and other goods for the market, and provided personal service for the masters.³⁹ The masters were now landowners as well as owners of human capital.

However, for Angola the old system continued and expanded its influence in the nineteenth century. Slave exports from Angola, destined for Rio and Cuba, rose to an average near 20,000 per year for the first half of the nineteenth century. Only after 1850 did the bleeding of the region's population end, and only then was it possible to turn slave labor to expanding the commercial farms that had become prominent in West Africa. Meanwhile, slave exports from Mozambique also rose to an average of over 10,000 per year up to 1850.⁴⁰

AFRICAN GROWTH, TRANSFORMATION, AND STAGNATION

African and Latin American economic experiences became tied in an inverse relationship through their participation in the Atlantic economy. The accompanying figures, although they are not precise, indicate the connections and the divergences of the two regional economies. The catastrophic decline in Amerindian populations continued for more than a century and a half; in the eighteenth century the population began to grow from its low level both locally and through immigration. The point to emphasize here is that the collapse of population in the Americas led to a demand for labor that eventually caused population decline in Africa. Meanwhile, overseas

³⁸ Eltis, *Economic Growth*, 249.

³⁹ Lovejoy, *Transformations in Slavery*; Manning, *Slavery and African Life*.

⁴⁰ Jan Vansina, *Kingdoms of the Savanna* (Madison, WI, 1966); Manning, *Slavery and African Life*.

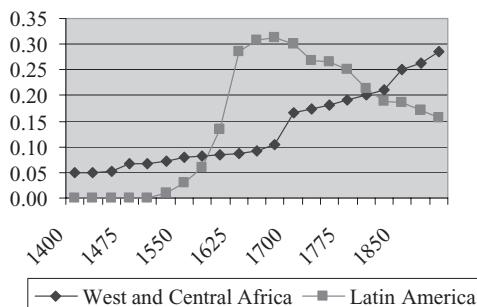


Figure 2.1. Exports per capita in British pounds of 1800.

Note: Figure 2.1 is a heuristic representation and is not based in any detail on primary data. Export values are assumed to be the current FOB value of continental exports: principally silver and sugar from Latin America, and slaves from Africa. Export values are divided by estimates of continental population to yield the per capita export values shown, in British pounds of 1800. It would be of interest to attempt an empirical calculation of the variables sketched here.

trade grew in value on both sides of the Atlantic, with such occasional rapid changes as the opening of American silver trade in the late sixteenth century and the dramatic rise of prices for slaves in Africa at the turn of the eighteenth century. Combining figures for population and export value permits estimation of the value of exports per capita. Per capita exports, sketched in Figure 2.1, peaked for Latin America in the early eighteenth century mainly because population had fallen so low. Similarly, African export value per capita rose in the eighteenth century as populations declined and slave prices rose.

The continental patterns of gross domestic product were even more clearly inverse, as sketched in Figure 2.2. GDP, consisting mainly of output for local consumption but including a growing proportion of exports, fell for over a century in Latin America with population until the eighteenth century, when it began to rise. For Africa, GDP declined at a slower rate for a century after the early eighteenth century before growing again. These comparisons serve to highlight the impact of each continent on the other.

African and Latin American economies both grew as the nineteenth century progressed, especially as measured by the volume of their international trade. Although trade of the regions with each other was progressively cut off, their trade with the world through European merchants grew substantially. The development of steamships tended to concentrate trade in the

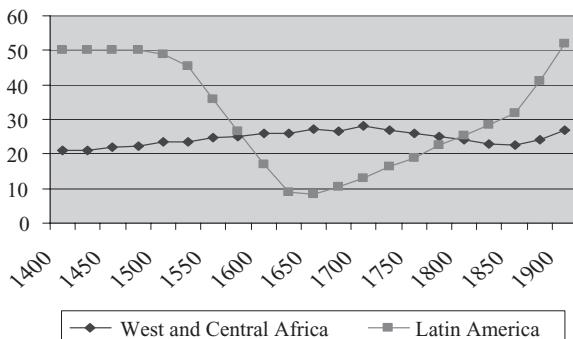


Figure 2.2. GDP in millions of 1800 British pounds.

Note: Figure 2.2 is a heuristic representation and is not based in any detail on primary data. Output for domestic consumption is to be assumed a constant per capita local output for populations in Africa and Latin America. Exports are assumed to be the current FOB value of continental exports, as in Figure 2.1. GDP is then taken as the sum of the value of domestic consumption and exports for each of the two regions, in millions of 1800 British pounds. As with Figure 2.1, it would be of interest to attempt an empirical calculation of the variables sketched here.

ports of the North Atlantic so that the direct links of ports on opposite sides of the South Atlantic declined. Silver finally became important as coinage in Africa, but through trade with the British in the era after Chinese demand for silver had declined. For Latin America, the nineteenth century led into an era of neocolonial dependency and peripheral industrial transformation; for Africa, the experience was to be colonial rule and direct extraction by European powers.

Overall, the fluctuations in population and output in Latin America were far greater than those in Africa, but a significant portion of the change in each can be explained by connection to the other. African social structure underwent transformation in each century in response to changes in the slave trade. In the Americas, the African-descended population had reached roughly 2 percent of the total population in 1650, and had expanded to something over 15 percent by 1820.⁴¹ Trade between the two regions grew steadily until the early nineteenth century. Thereafter, with the halt to African migration and the great expansion in European migration to the Americas, the population of African descent in the Americas fell almost to 10 percent by 1960.

⁴¹ I believe these estimates are minimal; detailed analysis may show the African-descended portion of Latin American populations to have been higher.

As late as the 1890s, small vessels were still leaving the port of Lagos (now the capital of a British colony) and carrying textiles, casks of palm oil, and kola nuts to Salvador, where they served the market of Yoruba-descended people of Bahia. Overall, however, the imposition of colonial rule on Africa resulted in a near total halt in the close ties of trade and migration that had linked the two coasts of the South Atlantic for over three centuries. Only with the independence of African countries in the 1960s did the ties of commerce and migration begin to expand again.

3

THE PRE-COLUMBIAN ECONOMY

REBECCA STOREY AND RANDOLPH J. WIDMER

Latin America constitutes a large and geographically diverse region of the New World. Physiographically, it is characterized by high precipitous mountain ranges – the Sierras Madres in Central America and the Andes in South America – with narrow Pacific coastal plains. Broad, well-drained, low-lying basins are found on the eastern slopes of the mountains that run into the Atlantic and Gulf of Mexico. There are extensive high, arid plains, such as the *altiplano* of Mexico and South America and the *punas* of Peru, Bolivia, and Chile. There are also a number of tropical islands (both humid and arid, depending on prevailing winds and mountains) that extend north from South America, forming an archipelago in the Caribbean Sea that terminates in the Bahamas. A number of large islands – notably Cuba and Hispaniola – form the northwestern arm of this island chain. One distinctive feature of Latin America is that it has a very long north–south axis, with little of the east–west continental area unbroken by the north–south trending mountain ranges. This north–south spine crosscuts latitudes, making it difficult for animals and plants to migrate naturally east to west. Typically, similar climates lie along a common latitude. But in Latin America, the same latitude is dissected by altitudinal gradients that result in incredibly diverse ecosystems with diverse cultures adapting to the patchwork of environmental regimes.¹ Some more extensive and large-scale political systems have taken advantage of the juxtaposition of different environmental and climatic regimes to integrate them into complex economies. In other

¹ Of course, this argument about the effect of the geographical axis of continents and the pace of cultural development was presented and developed by Jared Diamond, *Guns, Germs, and Steel* (New York, 1997). The later transition to agriculture and perhaps slower technological development of the Americas may at root be attributed to the environmental barriers.

situations, this extreme dissection resulted in isolated economic systems with political systems unable to expand beyond the boundaries of local economies.

The nature and quality of the data on the economic history of pre-Columbian Latin America is highly variable. This is because most aboriginal societies, with the exception of the Maya, did not have writing, and even the prehistoric Maya utilized their writing for political and genealogical purposes rather than for economics. Most historical sources for understanding the native economies come from colonial accounts at European contact. Some are excellent – such as the thirteen-volume treatise of Bernard Sahagún known as the Florentine Codex for the Aztecs – but for the most part they are incomplete, inadequate, or nonexistent for many regions. For this reason, much of our knowledge of the pre-Columbian economies of Latin America is derived from archaeological sources in conjunction with cross-cultural comparative ethnographic models drawn from anthropology. This is a common technique that results in reasonable knowledge of prehistoric economic systems.²

The economies found in Latin America at the time of European contact varied significantly. Some were similar to those in Europe at the same time. Other groups, particularly in the extreme tip of South America, had a foraging economy relying on natural wild plants and animals. Still other groups had simple agricultural economies supplemented with hunting, fishing, and the raising of domesticated animals. There were, however, two economic characteristics differentiating Latin America from Europe and the Old World. First, metals were never utilized extensively for tools, but instead were used primarily for jewelry. And second, although animals were domesticated, none were suitable for traction; hence, wheeled vehicles and plows drawn by animal muscle never developed. The latter had important economic consequences because it limited the availability of extra energy in the form of animal muscle for use in transportation and agricultural intensification. Particularly lacking were animals that could digest high-cellulose plant fibers indigestible by humans. Such animals do not compete with humans for food energy and so provide an unearned energy source. This ecological shortcoming resulted in limitations on the economy for moving resources and transportation in general. It is also a reason that

² This methodology has a long precedence in Europe and was utilized for understanding upper Paleolithic hunting economies in France and also for the generalized foraging patterns of Europe. For example, William J. Sollas, *Ancient Hunters and Their Modern Representatives* (New York, 1924), and J. D. G. Clark's *Prehistoric Europe: The Economic Basis* (London, 1952).

well-engineered road systems were rare. A single pack animal, the llama, was available but restricted to the high altitudes of South America. Naturally, the most elaborate and best-engineered road systems were built where llamas were domesticated. However, the pre-Columbian cultures of Latin America did develop long-distance trade, bulking of commodities by water transport, and elaborate agricultural systems of irrigation and terracing to rival many in the Old World.

The pace of economic development in pre-Columbian Latin America was highly variable. In many areas, there was no economic change for thousands of years; in others, economic change was rapid. All types of economic systems, from generalized foraging to intensive systems of agriculture with specialized modes of production, were in existence within Latin America on the eve of European contact. These differing histories are a function of differential demography and food supply. Not all areas of Latin America were environmentally suitable for implementing agriculture with domestic food crops, due to short growing seasons, lack of water, or inappropriate soils and terrain. The ultimate results of these environmental differences were that some societies grew into complex, populous polities with relatively advanced economies, whereas others were limited in their growth, or did not grow at all. Figure 3.1 provides a general chronological framework for the pre-Columbian world, and illustrates comparative levels of economic development, utilizing the Band, Chiefdom, and State levels of sociopolitical complexity.³ As can be seen in this diagram, not all areas developed complex economic systems with the specialized modes of production characteristic of states. Indeed, only a few societies – for example, the Aztec, Maya, and Inca – had these characteristics.

It is interesting to speculate on how the indigenous economies would have developed had there been no European intervention. The rugged topography, dependence on stone technology, and lack of animal muscle energy for traction would always have been severe limitations on economic development. Another severe limitation on the expansion and growth of the aboriginal systems was the lack of livestock for food. There were no domesticated counterparts to sheep, goats, cows, or pigs in the New World. Only ducks, turkeys, dogs, llamas, and guinea pigs were used as food. No long-term storable food – such as wine, oil, or beer – was present.

³ These levels and their theoretical importance were mostly developed by Elman Service, *Origins of the State and Civilization* (New York, 1975). Although the use of these terms is the subject of some debate within anthropology, they are used here for simplicity in distinguishing between different complexities of organization.

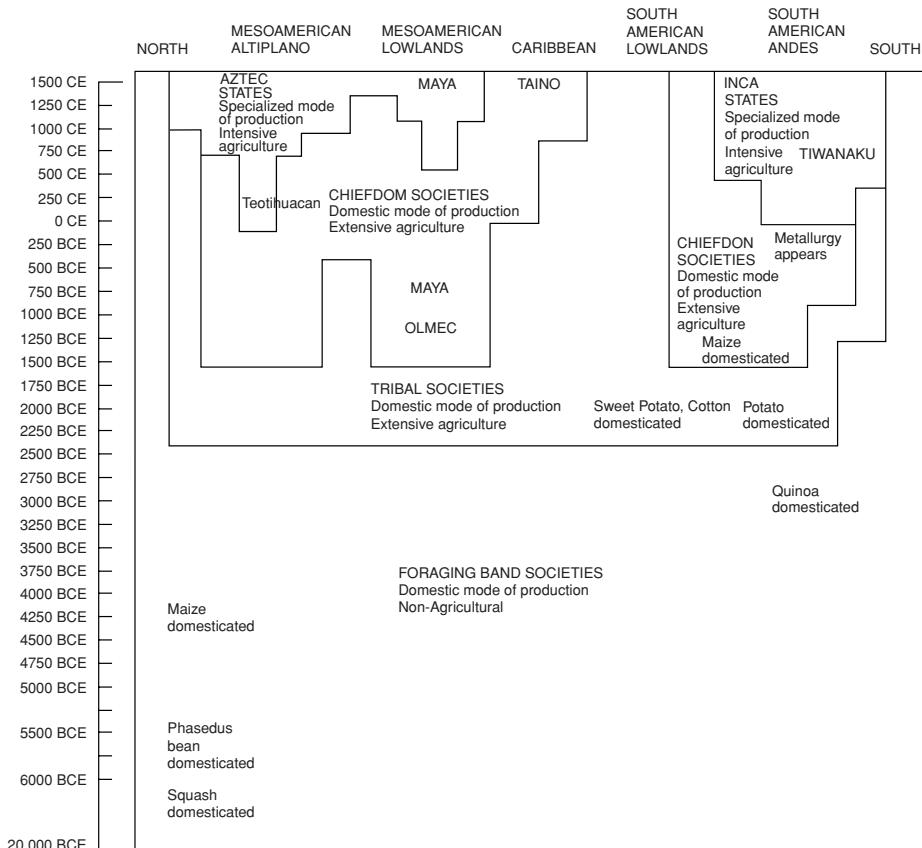


Figure 3.1. Chart covering the trajectory of economic development in pre-Columbian Latin America, indicating the variability and differing complexity of societies and economic systems through time.

Note: Developed by Randolph Widmer.

For example, the alcoholic drinks *chicha* (from maize) and *pulque* (from maguey) do not preserve. More importantly, there was no high-energy storable food equivalent to olive oil that not only provided fat for consumption but also provided fuel for cooking and heating.

This chapter will compare and contrast the various pre-Columbian economic institutions found in Mesoamerica, Central America, and South America, focusing on the most developed and highly integrated societies, such as the Aztec, Inca, and Maya. However, there will also be discussion

of smaller and less-known groups that vary markedly from the larger well-known groups.

PRODUCTION

LAND USE AND AGRICULTURE

In pre-Columbian Latin America, there were far more autonomous societies and cultures than in Europe at the time. Most of these societies had economies characterized by a “domestic mode of production.”⁴ Economies on this scale were self-sufficient. Each family constructed, produced, and gathered all that it needed to survive, and each family was economically redundant with the next – it engaged in the same economic activities. Typically, there was a sexual division of labor with males engaged in hunting, fishing, stone-tool production, and warfare. Women typically were involved in weaving, food preparation and cooking, fuel and water collection, and ceramic production. Often, both sexes were involved in agriculture and house construction.

However, some economic tasks required additional labor beyond the work capacity of an individual nuclear family. Fishing, field clearing, harvesting crops, and house construction were often not feasible with two adults as a work force. Additional labor was typically sought from close relatives, such as aunts, uncles, and cousins, living in the same community. Usually, this grouping of extended family units held agricultural land in common and scheduled the labor beyond that of an individual family. This resulted in socioeconomic units known as lineages that traced membership through either the father’s or mother’s bloodline. These economies can also be said to have been corporate and kin-based.

However, the original land use for subsistence and other resource extraction started as a generalized foraging adaptation that incorporated natural plant products and supplemented this vegetative base with animal protein obtained by hunting wild game.⁵ Fishing supplemented plant collecting and terrestrial hunting in those areas where coastal waters were

⁴ The term used by Marshall Sahlins for noncapitalist economic relationships in communities integrated only by household and kinship organization. *Stone Age Economics* (Chicago, 1972).

⁵ The timing of the entrance of humans into the hemisphere is still contested. The conservative estimates are that the entrance of humans into Latin America occurred between 10,000 and 20,000 years ago. See D. J. Meltzer et al., “On the Pleistocene Antiquity of Monte Verde, Southern Chile,” *American Antiquity* 62 (1997): 659–63.

productive. Small bands of families occupied a broad, roughly defined territory, and made scheduled movements annually, timed to the availability of wild resources. This mobile foraging strategy lasted into the twentieth century only in the southern tip of South America, where the adaptation focused on the hunting of guanaco and vicuña. In one case, along coastal Chile and Peru, fish were actually the basis of subsistence because the upwelling of currents produced an abundant supply of fish that could be stored, thereby allowing sedentary habitation. The first settled communities in Latin America developed based on this resource between 5,000 and 3,000 years ago.

In some areas of Latin America, the process of collecting wild plants led to the selection of certain varieties with desirable traits, such as larger seeds, or the ability to remain viable while stored. The continued cultural selection for these desirable attributes led to a larger and more reliable food supply and a shift to a much narrower range of plant resources utilized as food. This restricted the mobility of foraging bands and lengthened the period of time that local bands stayed in any one area, particularly an area with the desirable plants. It seems that these genetically modified foods, the first in Latin America, ultimately led to the domestication of many plant varieties that were then intentionally planted. They were gradually incorporated into the diet until they became staples. At this time, permanent residences and village life appeared in more locations, and fully agricultural economies emerged.

The discussion of prehistoric agriculture and land use in Latin America will be broken down into two patterns, the tropical and the highland. Simpler and earlier systems give way to more intensive and productive ones in many locations, including raised fields and terraces.

Tropical Agriculture

The earliest evidence for agriculture in Latin America comes from the tropical zone. In the Aguadulce Shelter of Panama, stone grinding tools were found in sediments dating between 5800 and 3500 B.C.E. that had traces of arrowroot (*Maranta arundinacea*), yam (*Dioscorea* sp.), corn (*Zea mays*), and manioc (*Manihot esculenta*) on their working surfaces. Maize pollen has been found in sediments dating to 7,100 years ago at the site of San Andres in coastal Tabasco, Mexico. The earliest maize cobs were found in the Guila Naquitz cave in the state of Oaxaca, Mexico, where they dated

to about 4250 B.C.E. Manioc was also found at San Andres and dates to around 4600 B.C.E., although it is not known whether it is a domesticated variety or not. Because manioc has been determined through DNA analysis to have been domesticated along the southern border of the Amazon Basin from a subspecies *M. esculenta flabellifolia*, its presence along the Mexican Gulf Coast suggests some form of diffusion or exchange at this early date to account for its introduction. Squash (*Cucurbita pepo*), dating to 8000 B.C.E., is the oldest domesticated plant in Latin America and was also recovered from the Guila Naquitez cave. The domesticated common bean (*Phaseolus vulgaris*) dates to about 5500 B.C.E.

In lowland, tropical South America, manioc, sweet potatoes (*Ipomea batata*), lucuma (*Lucuma obovata*, a pulpy yellow bronze fruit resembling a persimmon), pacay (*Inga feuillei*, a leguminous tree crop), beans (*Phaseolus vulgaris*), guava (*Psidium guajava*), and cotton (*Gossypium barbadense*) were domesticated by 4,000 years ago. All of these species have been found in association with irrigation agriculture at the early site of Caral in the Supe Valley on the central coast of Peru. Although manioc – a domesticate of South American origin – was found early in Mexico, maize – a Mexican domesticate – was not found in South America until after 1500 B.C.E.

Gradually, an agricultural system developed that took advantage of the seasonal wet and dry climatic regimes of the lowland tropics. This extensive agricultural system is known by a number of terms, including swidden. The forest is felled to form gardens, which are tended for a few years and then allowed to go back to forest. It is a very productive system as long as land is plentiful and population density low. In the low-lying regions of Mesoamerica and Central America, maize was the primary domesticate produced using swidden agriculture, complemented with smaller amounts of beans and squash grown in fields called *milpas*. Typically, crops were planted in raised beds either as ridges (*camellones*) or as mounds (*montones*). The purpose of these low ridges was to prevent erosion, facilitate moisture retention during the dry season, and, to a lesser extent, increase soil fertility through the incorporation of weeds and other vegetation into the soil in the bank formation.

In the tropical lowlands of Mesoamerica, swamp reclamation was practiced in Pulltrouser Swamp in northern Belize. Here, soil was dredged from shallow swamps to build permanent agricultural fields for growing maize. The resultant deeper swamps also had the added benefit of ponds for collecting aquatic animals. Bifacial weeding tools have been found in

archaeological sites dating as early as 1200 B.C.E. However, they are most frequent at about 1 C.E., suggesting that more intensive land use occurred at this time.

Cotton and cacao were also grown in the humid lowlands of Mesoamerica. These were important trade items and were also used for currency. However, they are both quite ancient, with cacao cultivation dating to at least 200 C.E. and cotton probably being grown even earlier. Originally, cotton and cacao were grown and utilized locally. Later they were incorporated into prestige trade systems. It was not until after 1000 C.E. that these items moved from a domestic and prestige economy into a market economy. Both of these items were important tribute goods.

In the Amazon and Orinoco basins, the primary domesticate utilized in swidden was manioc, which was later supplemented or replaced with maize and sweet potatoes. The only animal domesticated in the lowlands of South America was the Muscovy duck (*Cairina moschata*). In the low-lying flood plains of the river basins of South America, *camellones* were utilized to provide adequate drainage for agricultural fields since the flooding corresponded with the rainy season moisture necessary for agriculture.

With the development of swidden agricultural systems, there was a migration out of the delta of the Orinoco River and into the Caribbean. This migration involved the use of manioc as the dominant crop. A distinctive root crop agriculture system known as *conuco* evolved in Cuba and Hispaniola, and to a lesser extent in some of the other Caribbean islands. The *conuco* system involved the construction of earth mounds arranged in regular rows within a cleared field. Each mound was about three feet high and about nine feet in diameter. *Conuco* agriculture, unlike the swidden system, was a more permanent method of cultivation in that it slowed erosion, made it easier to control weeds, and improved drainage.

A distinct form of landscape modification emerged in the savannas of the western Amazon basin. Long, zigzaggy, artificial earthwork ridges were constructed in the seasonally inundated savannas of Bolivia. These formed enclosures ten to eighty hectares in area and were surrounded by artificial ponds ten to thirty meters in diameter and up to two meters in depth. They had causeways that ran from forest island to forest island. The zigzaggy enclosures apparently functioned as permanent fish weirs, and the artificial ponds served as a storage facility for fish captured during the flood season. These features were present when the Spanish arrived in the area. Whether these fish resources were exploited to the exclusion of agricultural

crops, or instead were used to provide protein lacking in root crops, is unknown.

Along the treeless desert coastal valleys of Peru, a different kind of agricultural system developed. Permanent irrigated fields, appearing as early as 2000 B.C.E., were required for agriculture in this area. Root crops were the primary caloric source but beans, squash, lucuma, guava, and pacay were also grown. Sunken fields dating back to 1 C.E., known as *mahamaes*, were also developed along Pacific coast of South America to tap low-lying ground water. The protein- and fat-rich fish caught from the productive coastal waters supplemented agricultural production. Cotton was an essential component in this food production system, because it provided the fibers for making fishnets. Fishing the coastal waters would not have been possible without this net technology. It is possible that cotton was the initial agricultural crop along valleys of the desert coast, since there are large permanent settlements with abundant fish remains but no food cultigens.

Highland Agriculture

In the *altiplano* of Mesoamerica, the swidden *milpa* system was also practiced, as were ridge and furrow systems. The highland agricultural systems rely on rainfall for moisture. However, moisture from rainfall was deficient or unpredictable in some areas, and so irrigation systems developed. The earliest and simplest of these was a form of pot irrigation, where a well was dug to the water table in fields and the cluster of plants within the *milpa* were then watered. Floodwater irrigation was also practiced in the basin of Mexico, where canals and simple dams developed, starting about 500 B.C.E. Flood water irrigation provides more consistent water to the fields and has the added benefit of allowing the field to be planted earlier in the growing season, thus allowing maize to mature before the onset of frost. Permanent or long-term water storage facilities were never developed.

Terracing is a common agricultural practice in the highlands of Latin America because much of the highlands has land with moderate to steep slopes subject to extreme erosion if used for agriculture. Terraces are formed by building a series of walls of stone or mud that run parallel to the slope and that capture soil runoff and build up fields with deep soil behind them. Cacti (*Opuntia* sp.) and the century plant (*Agave* sp.) are grown on the terrace ridges. These serve to stabilize the terrace walls and also form valuable crops for food and fuel. Although it is difficult to determine

the age at which terracing appeared, it most likely developed by 1 C.E. in Mesoamerica.

Late in pre-Columbian times, along the shores of Lake Chalco in the southern basin of Mexico, a distinctive form of drainage agriculture called *chinampa* developed. *Chinampas* have been erroneously termed “floating gardens,” but actually, they are agricultural fields created by digging canals to drain the swampy lakeshore edge enough to produce agricultural crops. As many as three crops per annum could be grown on these fields by utilizing seed beds and transplanting in a continuous succession of plot use. High soil fertility was maintained by replenishing the fields with algae-rich soil and decomposing aquatic vegetation dug from the lakebed and applied to the fields. This also raised the elevation of the fields, thus reducing the danger of flooding. Not only did this produce new and extraordinarily productive arable land, but also it produced a network of canals for transportation. The highest pre-Columbian food yields in Latin America were produced on *chinampas* with maize as the main crop. It is difficult to date the age at which this agricultural system was developed, but based on settlement location data it appears that it did not develop until about 1350 C.E.

In the highlands of South America, a large number of domesticated plant foods were utilized, including fifteen root crops, three legumes, three grains, and more than a dozen fruits. Together these are referred to as the “Cordilleran Complex.” Two of these crops became the most important staples there. The first of these was *quinoa* (*Chenopodium quinoa*) a grain adapted to cold, dry climates that was cultivated in the Andean highlands by 3000 B.C.E. An even more important domesticate was the potato (*Solanum tuberosum*), of which there are more than 200 known varieties. The exact date of domestication of the potato is not known, but it is thought to have been around 2000 B.C.E. This cultigen became an extremely valuable food source because of its ability to grow well in the extremely high altitudes of the Andes, with very short growing seasons, dramatic diurnal temperature changes (often 300 days a year with frost), and little moisture. An ingenious method of processing potatoes was developed in the highlands of South America about 2,600 years ago. The end result of this process is known by the native term *chuñu*; it is more commonly known to us as freeze-dried potatoes. When completely dried, the potatoes could be stored for up to four years.

The raised field *camellones* system was utilized extensively in the south central Andes, particularly in the Lake Titikaka Basin of Bolivia where it was essential for growing potatoes. Here, *camellones* had the additional

advantage of mitigating salinization since the lake was saline. The *camellones* were very similar in appearance to the *chinampas*, although the latter were built-up from lake mud whereas *camellones* were created by drainage canals. Algae grew as a cover crop in the low-lying furrows between the ridges. Today the algae are used as fodder for cattle and they were most likely used as llama fodder in pre-Columbian times. An even more ingenious method of cultivation was developed to grow potatoes in the Lake Titikaka Basin. Known as *qocha* agriculture, it involves utilizing depressions, low spots, and shallow lakes in the Titikaka Basin. These shallow water areas acted as heat sinks, absorbing heat during the day and then radiating the heat back out at night to ward off frost.

Maize was a particularly important crop and was grown wherever possible at elevations below 2,500 meters. Maize, unlike the high-altitude-adapted crops, was difficult to grow in the Andes and required terracing and irrigation. However, it was important for religious ceremonies and also could be stored for up to four years. Maize was the crop of choice in the Inca empire and acted as an imperial grain. Fields were the property of the Inca state, and the Incas developed incredibly well-engineered terrace and irrigation systems to rival any in the world. Enormous maize granaries were built throughout the Inca empire for storing this seed so that it could be available anywhere and at any time for state needs. The maize grain was used to feed soldiers, to make *chicha* for consumption at state rituals and ceremonies, and feed corvée laborers engaged in state work projects.

Two kinds of domesticated animals were of significance to highland South American economies. The first are the camelids (the llama and alpaca); the second is the guinea pig. Llama and alpaca were a valuable source of fiber for clothing, skins for leather, and meat. The meat was also freeze-dried into a jerky called *charki*. Llamas also acted as pack animals. The dung was an important fuel source in the treeless alpine regions of the Andes. Llamas and alpacas were well adapted to the highlands and had the further advantage of utilizing grazing land that could not be used for agriculture, and so did not directly compete with humans for either food or territory. The llama appears to have been domesticated by 1000 B.C.E. The guinea pig was kept almost as a household pet, foraging off of domestic food scraps. Although the actual age of domestication is not known for sure, it is thought that they were utilized for food when door sills were added to houses so that they could not escape.

The close geographical juxtaposition of numerous different local environments and their unique ecology and growing conditions was in many

cases a spur to the incorporation of local economies adapted to the individual habitats into larger political entities. These local differences have largely to do with temperature, moisture, and altitude. The history of the political economy of the highlands of South America can be thought of as a series of efforts to integrate these various zonal habitats by a process referred to as verticality. The horizontal differences in latitude and its varying photoperiod, temperature, and other physiographic characteristics – such as propinquity of river drainages – is also important in the incorporation of territories and their local economies into larger political units. As in Mesoamerica, ever larger polities incorporated more varied lands and productive systems through time.

ECONOMIC SPECIALIZATION

Economic specialization in pre-Columbian Latin America did not develop until settled village life appeared, around 1600 B.C.E. in Mesoamerica, and around 2400 B.C.E. in South America. At this time, some economic activities beyond the labor capacity of individual households might have been undertaken by clusters of households. Although ceramic production was easily undertaken by individual households, in some regions it might have been more effective to have ceramic vessels fired at one time for a number of households to conserve fuel. Also, many individual households were not in proximity to certain necessary resources. Stone (for making *manos* and *metates* for grinding and for chipping into cutting tools) and salt are two such examples. Households have been found that have quantities of debris associated with the production of these items that go beyond the individual requirements of households. The production output, on the other hand, does not seem to go beyond that needed for the local community. Households that did engage in producing items beyond individual family use also engaged in the full range of other economic activities characteristic of a domestic mode of production.

Another kind of economic specialization developed involving the production of prestige items from exotic materials obtained in exchange. Craft specialists produced elite prestige, ritual, and political paraphernalia from these exotic materials, some of it also for exchange. Elite kin closely related to the hereditary ruling chiefs – in political systems we refer to as chiefdoms – were often the craftsmen. These individuals were supported by surplus food collected by chiefs from their societal constituents. At the site of San José Mogote, Oaxaca, workshop areas for marine shell and feathers were

found. The massive carved basalt heads of the Olmec and other monumental stone carving carried out in workshops located in public ritual areas are further evidence of this early craft specialization in Mesoamerica. At the site of Copan, Honduras, a specialized lapidary workshop that produced ritual paraphernalia from exotic materials – such as jade and marine shell – was excavated in a high-status elite residence, further indicating that craft production was often an elite activity in these first complex societies.

Economic specialization for market exchange first appeared in Mesoamerica at Teotihuacán (just north of Mexico City) sometime after 200 C.E. Here, obsidian workshops were discovered associated with public buildings, which suggests state control of stone tool production. This model has been challenged, but what is apparent is that obsidian tools, whether or not they were produced there, were used in quantities that exceeded the needs of general domestic use. At apartment compound S₃W₁ were found ceramic kilns and waste material from the production of two ceramic types – craters and amphoras – out of a much wider range of ceramic forms utilized in the city, suggesting specialization of production for market exchange. This ceramic production was supplemented with lapidary production of costume jewelry in a wide range of media, including stone and shell. It is assumed that these items were exchanged in the marketplace for needed resources that the compound did not have, because there is no evidence for any food production. The residents of S₃W₁ compound were not engaged in a domestic mode of production but relied on market exchange for their material needs.

Patterns of shift from a domestic mode of production to a specialized mode of production have been demonstrated in Teotihuacán. Early in the city's history, ceramic figurines were handmade in individual households. Later, this production shifted to specialized workshop production that was probably state-controlled. Evidence for this is the appearance of molds found near large public buildings and a change in sex of the figurine producers, as evidenced by sex-linked patterns of fingerprints. Women had made figurines as part of their general household activities in a domestic mode of production. As the economy of the city shifted to a specialized market economy, men took over the production of figurines, and molds were utilized to speed production – a technology not necessary for household production.

Specialized market production continued to evolve, so that by Aztec times craft specialists were well defined and quite numerous, even taking on guild-like status. Spanish documents refer to many craft specialists,

including lapidary specialists, obsidian tool specialists, feather workers, hide tanners, paper makers, ceramic specialists, charcoal makers, and wood carvers. Evidence for this comes not only from the Spanish chroniclers but also from the incredible caches of elite paraphernalia and art found in the dedicatory caches in the Templo Mayor, the Aztec temple in Mexico City. In spite of the increased importance of tribute for the Aztecs, markets were still central to the economy.

In South America, economic specialization developed along a historical trajectory similar to Mesoamerica. With the appearance of chiefdom-level societies, many craft objects make their appearance and are common thereafter. Fine embroidered textile production is indicative of craft specialization in South America and appears in burials in the arid desert valleys of the Pacific coast by 1600 B.C.E. The production of these textiles was labor-intensive. They were clearly used as markers of social status, suggesting use in the chiefly prestige economy. Ceramics were also clearly elaborated as craft production, with the spectacular portrait vessels of the Mochica being a classic example. The fact that these vessels required special techniques of production and great artistic skill to decorate suggest that only specialists, rather than general domestic production, were involved. Ceramic workshops have been found in some of the large urban centers on the Peruvian coast, indicating that by the first millennium C.E. the market economy associated with states was probably present. This would also account for the large number of specially produced ceramics found in domestic household settings. Lapidary specialization in *Spondylus* shell and exotic minerals was also an important craft and figured into the prestige economy of chiefs or important individuals. Most of our knowledge of this craft production comes from mortuary sites, particularly in the dry coastal valleys of Peru where preservation is outstanding.

A distinct difference is that metallurgy developed early in South America and was a very important craft activity; in Mesoamerica, it was not seen until very late and was never very extensive. The use of gold, silver, and copper (often used together in alloys known as *tumbaga*) dates to 500 B.C.E. Metal was extracted by smelting from ores. Artifacts were fashioned into both utilitarian household items of copper – such as fishhooks, tweezers, spindle whorls, and needles – and jewelry and personal adornment – such as ear spools, necklaces, pectorals, and head and facial ornaments, usually of gold, silver, or *tumbaga*. Utilitarian items of copper or copper alloy were made in molds, whereas many of the more intricate gold and silver items were made with the lost wax method. These artifacts, even the utilitarian,

are sociotechnic in function, indicating high-status families rather than just function. Their production was present in chiefdoms and states.

The economic system of the Inca was based on a centralized principle of redistribution. All land, the products of land, and the output of labor production officially belonged to the state. These resources were collected and doled out in a process of redistribution by the Inca central authority. Much of Inca production was for ceremonial and ritual purposes, as well as for funding the state bureaucracy and military, and for individual household use. There were specified percentages of how this production was to be allocated. The overall idea was that the centralized Inca state would provide all of the needs – material and spiritual – for the residents of the polity, although there is some argument about how this actually played out in practice. Even though all land was owned by the state, for example, it is clear that not all of the resources produced were social. Potato production was not usually controlled by the state and so remained in the domestic economy of individual households. Although Inca control over production and resources might have been less absolute than the state ideology indicated, especially for local/domestic resources, nevertheless, the archaeological evidence overwhelmingly underscores the power of the central authorities to build and maintain facilities and to move people.

In fact, because the Inca economy was state-owned, craft specialists were of particular interest to the state. For example, cloth was the most valued commodity in the Inca economy. Cloth had symbolic as well as economic value to the Inca. A distinct group of young women, *mamkuna*, were chosen from the Inca's territory and cloistered in great compounds, called *Aqlla Wasi*, where they spun and wove cloth used in ceremonies and by the Inca. They also brewed *chicha* and prepared and cooked the food for priests and ceremonies. Wool, cotton, and maize all came from state lands. The state also controlled cloth production to dress armies and provided jewelry to symbolize the rank and status of the soldiers. Dress style was also associated with status and sex, and the state used cloth to enforce this social structure. Metallurgy was also controlled by the Inca state. The Inca ruler owned all the large mines and their output. Although smaller mines were owned by local communities, the final products were still given to the Inca as gifts. Thus, all metal products belonged to the Inca state and were distributed by the Inca ruler himself. The Inca, in effect, controlled all craft specialists and their output. Moreover, there is clear evidence that specialists could be relocated as the state desired.

EXCHANGE AND CONSUMPTION

Although many pre-Columbian Latin American societies had a domestic mode of production, redistribution and exchange were characteristic of all of them. Redistribution is the pooling of surplus food by high-status elites for their own use. This pooled surplus food – crops grown in excess of individual family needs – could be given back in time of shortage. In smaller societies, a formal system of redistribution was not necessary, and informal exchange was sufficient to eliminate agricultural and resource inequities. Reciprocal economic exchanges could also serve to create or sustain alliances among families or among groups. Sometimes similar commodities – for example, two ceramic vessels of identical function – were exchanged. At other times, jewelry or clothing was exchanged. In either case, the exchange was not purely an economic one but also served sociopolitical functions. This took on a more complex form when elite exchange occurred.

When polities became so large that they cross-cut varied environmental and resource zones, economic systems developed to provide all of the dispersed resources necessary to the polity. This involved the development of markets and tribute relationships with other less integrated and smaller societies. Markets typically occurred with complex states that had areas and populations too large to be based on the economic redundancy inherent in the domestic mode of production. Not everyone in the society had to or could perform every economic task, because economic resources were more heterogeneously distributed and direct access to them by individual families was impossible. Thus, we see the development of economic specialists with various exchange systems to obtain the basic material necessities of life. Tribute systems that resulted from conflict and warfare are also found in large, politically complex societies. Tribute brought into the political system various types of economic resources and commodities specifically defined and matched to the environment and geology of the conquered polity.

TRADE

Trade, as used here, refers only to a limited form of exchange – namely, the procurement and distribution of material goods or commodities from beyond the local bounds of a society. For the pre-Columbian past, mostly known from archaeological and ethnohistorical sources, material goods are the best evidence of trade, and thus can be seen as a window into the

organization of past societies. For example, an important distinction can be made as to whether goods are utilitarian and necessary to the successful adaptation of a group to its environment or are valuable and found only in elite and ritual contexts.

Although the procurement of objects from some distance has been a characteristic of human groups since the Upper Paleolithic era, the regular importation of commodities is not a feature of the archaeological record until the appearance of societies with sufficient population, the stability to support internal status distinctions and specialization, and a centralized leadership. Commonly, elites would distinguish themselves by access to and control of valuable, exotic goods from afar and use the goods to manipulate political, social, and economic relationships within the group. Exotic goods can function in this way because “members of traditional societies do not interpret geographical distance in neutral terms. Instead they accord a range of symbolically charged meanings to distance-related phenomena, generally viewing them as inherently superior or inferior, dangerous, or superlatively beneficial to the home society.”⁶ Items from long distances could be acquired through inter-elite exchange and distributed to others, mainly through various forms of gift giving.

While utilitarian goods could and were circulated between regions, transport costs dictated that only prestige and high-value items, such as marine shells, jadeite, cacao, and gold, would be moved over large distances with any regularity. These items gained value from their rarity, and/or from the labor or skill necessary to produce them, or craft them into objects, although their conversion into prestige and power should be added to their use value. The items served to consolidate position in the local hierarchy, but also to foster alliances between polities of similar size. From larger and more complex societies to smaller societies, inter-elite exchange served to build patron-client relationships and to involve polities in the larger sphere of interaction. Thus, considerable resources and energy were given to this trade, perhaps more than would be deemed “rational” in modern economic terms.

Early examples of probable inter-elite long-distance trade can be found during the first millennium B.C.E. in both Mesoamerica and South America. The Olmec of the southern Gulf Coast acquired iron-ore mirrors, obsidian, and jade, probably along with other more perishable valuables, from sources usually several hundred kilometers away. One site in the Valley of Oaxaca

⁶ Mary W. Helms, *Craft and the Kingly Ideal: Art, Trade, and Power* (Austin, TX, 1993), 3.

produced small flat mirrors of magnetite – probably worn only by elites – which were traded not only to the Gulf Coast but also to the north. In turn, the Valley of Oaxaca received pearly freshwater shells from the Gulf Coast and Pacific marine shells via a different exchange route. This valuable raw material was then worked locally into ornaments. The Valley of Oaxaca probably also received ceramics, turtle shell drums, stingray spines, shark teeth, and conch shell trumpets from the Gulf Coast, and also used Olmec motifs in its own ceramics and sculpture. The widespread finding of Olmec-influenced artifacts in many parts of Mesoamerica reflected the widespread exchange of valuables among elites and the strong demand for exotic materials created by the more sophisticated Gulf Coast society.

Similarly, South American societies traded objects of obsidian and shell, but also had metal goods of copper and gold, and fine textiles that circulated among early polities. The cult that is identified with Chavín de Huántar in the Cordillera Blanca of Peru – the Early Horizon style – is similar to the Olmec culture in the widespread adoption of motifs and iconic figures. It also seems to have fostered long-distance trade to fulfill the demands of the elite and for temple furnishings, mortuary goods, and rituals. Obsidian, from 470 kilometers south of Chavín, became available in many areas where the cult was found, for example. Elites were buried with marine shells, beads of sodalite, quartz, and turquoise, and sheet-gold objects. Slightly later, the relatively isolated and small-scale chiefdoms of the Moquegua valley, Peru, in the first century B.C.E. had pottery and textiles from both the Paracas–Nasca south coast and the highlands in their distinctive “boot” tombs for elites. Thus, material evidence of long-distance trade in pre-Columbian times is found in many parts of the Americas.

The vitality of this long-distance trade in elite items is revealed by ethno-historical information from just before the Spanish Conquest. Chiefdoms, independent of the Inca, flourished in Colombia, Venezuela, the Ecuador coast, and greater Amazonia. The larger or paramount chiefdoms had well-defined trade networks. For example, Buriticá (in the Cauca–Patía depression of Colombia) had trade contacts that extended throughout northern South America to Central America. Gold, emeralds, fish, salt, textiles, and slaves were traded in various directions. The Spanish, in fact, were surprised by the involvement of chiefs in commerce. By a series of gift exchanges between various polities on the occasion of ritual visits, alliances, or marriages, goods could travel large distances. For example, *Spondylus* shells (thorny Pacific oyster) are found from California to Ecuador in moderately deep water. These very prestigious shells were used as ornaments both by

the distant Maya of the Yucatan Peninsula and by the Nasca and their successors in southern Peru, more than a thousand miles from the source.

Besides the exchange of valuables, there was also trade in more utilitarian items – such as food items, and the raw materials and tools needed to carry out basic activities – between environmentally different areas, especially where geographical distance was not too great. There is a general conclusion among researchers that such trade increased through time in the pre-Columbian world. One important characteristic of both Mesoamerica and South America is their great environmental diversity, from jungles to coastal deserts to arid highlands to alpine areas. In some places, notably the Andean region, this great variability is found within a few hundred kilometers. There is thus in Andean studies a long history of interest in verticality or zonal complementarity – that is, the attempts of societies to gain access to many different production zones on both the eastern and western slopes of the Andes to ensure stable and sufficient subsistence.

Research indicates that such concern for complementarity has great time depth in the region. The Andean use of high-altitude zones was undoubtedly the environmental spur to verticality, because nowhere else is there such intensive use of land above 2,800 meters in altitude by humans. Such environments are plagued by cold (because they are tropical in latitude, light is not a problem), which limits the crops and animals that can be successfully raised. However, the cold did allow the development of a freeze-drying technology, which allowed camelid jerky (*charki*) and potato (*chuñu*) to be stored and easily transported. These were exchanged with peoples from lower elevations and the coast for important products, such as maize, coca, marine fish, guano, cotton, fruits, and vegetables. Various ecological zones also had varied mineral and other natural resources. Although most ecological zones could certainly be self-sufficient, nutrition and dietary variety were greatly enhanced by zonal complementarity, as was the availability of various stone and ore resources. It was probably crucial for the *altiplanos*, where cold might make the food resources fail or fluctuate in productivity more often, to have access to products from lower elevations.

One area of interest and debate among Andeanists is the nature of the zonal complementarity. The older model (first developed by John V. Murra) posits that economic constraints caused by ecological zonation were dealt with by highland groups through direct colonization and control of land and resources outside the home territory, thus creating an “archipelago” of “islands” of ethnic enclaves in different zones. An alternative model, first suggested by María Rostworowski, was based on evidence of exchange

between politically independent groups. Rostworowski argued that such exchanges were the primary mechanism for adapting to “verticality.” These exchanges would have been barter exchanges, market exchanges, or kin-based and non-kin-based trading alliances. The question is really not which model is right, because both colonization and intergroup exchange existed since the sixteenth century and are found archaeologically in earlier times. That is, polities may deal with the need for zonal complementarity by colonization at some times and in certain zones, and by exchange at other times and places, or by a mixture of the two at any given time.

One area of research interest is the possible time depth of ethnic enclaves and colonies. The highland Lake Titikaka Basin may have been the origin of migration into lower elevations in the first millennium B.C.E., where *altiplano* patterns of ceramics, textiles, and settlement types are found in the Moquegua region of southern Peru. However, Goldstein’s study of these Huaracane sites indicates the existence of an independent group probably trading, mostly in elite goods, with both the coast and the highlands.⁷ The earliest clear example of colonies may date to the time of Tiwanaku, a Lake Titikaka Basin site that was clearly the center of an expansive state between about 200 and 1000 C.E. The Omo site in the Moquegua region (beginning in 550–600 C.E.) appears to have been settled by colonists from Tiwanaku and to have remained separate from local populations. Similar sites are found throughout the south central Andes and seem to indicate direct colonial control of the major maize-producing areas. However, Stanish, discussing post-Tiwanaku times in one small valley in the Moquegua drainage, argues that there was much shifting between modes of exchange in the area.⁸ Direct colonization occurred when there was regional political disorganization. During times of political stability, more regular exchange relationships would allow zonal complementarity to function efficiently. Whether this is true of other regions in the Andes can only be answered with future research.

In Mesoamerica as in South America, the different environmental zones are usually divided into the *tierra fría*, *tierra templada*, and *tierra caliente*. Each zone has its own products. Mesoamerica differs from the Andes because its mountainous regions are lower in altitude, so its cold regions are not as cold and harsh. Maize can thus be grown in all zones. The

⁷ Paul S. Goldstein, “Exotic Goods and Everyday Chiefs: Long-Distance Exchange and Indigenous Sociopolitical Development in the South Central Andes,” *Latin American Antiquity* 11 (2000): 335–62.

⁸ Charles Stanish, *Ancient Andean Political Economy* (Austin, TX, 1992).

distances between major zones, however, are considerable, so different areas were probably more self-sufficient in food products than was the case for the Andean area. The linkages between the zones occurred mainly as the result of long-distance trade of valuable resources and elite, exotic materials. Within the three zones, exchange developed as a result of micro-geographical environmental diversity. The Valley of Mexico, heartland of large pre-Columbian states, is a good example. Within a fairly delimited arid highland, there are altitude differences, rainfall differences affected by altitude and decreasing from south to north, and variation in susceptibility to frosts, depth of soils, and the presence of important minerals. Each community would probably not be able to meet all its needs locally, but another community not too distant might be able to make up some deficiencies and another community others. The result was to foster early exchange and community specialization, because the most practical way to acquire the necessities of daily life and for a region to prosper. Communities intensively produced whatever their particular ecological area encouraged and exchanged, probably through markets, with other communities. This created larger, regional systems, which became the springboard for the dense populations engaged in intensive production capable of supporting the complex sociopolitical societies that developed in the Valley of Mexico.

This high density of population was generally found in the highlands, but clearly it was also characteristic of some of the *tierra caliente*. The Mayan lowlands of Mexico and upper Central America, for example, had a dense population of several million at the height of the Classic Maya civilization (circa 250–1000 C.E.) in an area that is much less densely populated today. Although the Mayan lowland area appears to have been more homogeneous, it too had microgeographical variations in such resources as stone suitable for cutting tools, salt, clays for ceramics, and the quality of soils for intensive agricultural production. Research in chert lithics (for stone cutting tools) and ceramics reveals that there was community specialization for those close to the raw materials, with products exchanged widely in a defined local region. The existence of markets in this area is not as widely accepted, but there was at least barter exchange. Some useful goods – such as obsidian, fine ceramics, and salt – came from a longer distance and probably formed part of the long-distance elite exchange. From the perspective of one small community in the Mayan lowlands, Ceren, one can see how some valuable utilitarian items such as these were distributed within the group. Each household in Ceren had to obtain obsidian tools, a fifth of its ceramics, salt, and a jade axe (for woodworking), plus hematite cylinders and marine

shells for ritual purposes. Payson Sheets argues that households exchanged some sort of surplus in nearby markets at elite centers for these items.⁹ It is also possible that households could acquire these goods in other forms of exchange with elites.

As a result of greater sociopolitical complexity, both long-distance and local interchanges between environmental zones became more institutionalized and formal under the auspices of centralized states, which came to dominate Mesoamerica during the first millennium C.E., and continued until European contact. The scale of trade also increased dramatically, especially in late pre-Hispanic times. However, the less institutionalized patterns of exchange discussed previously also continued to be present and important in local areas throughout this time period. The Aztec and Inca empires were the most complex polities in the Americas, and both were still developing and expanding at the time of the Spanish conquest. Both empires provide strong examples of the importance and variety of trade present at the end of pre-Columbian autochthonous history.

Long-distance trade among the Aztecs was carried out by a hereditary guild of merchants called *pochteca*, indicating a formalized structure for this activity. There were various ranks of merchants, from the wealthy and powerful to the fairly modest traders operating in small markets. There is evidence that individuals would begin fairly modestly and work up to higher ranks and wealth. Outsiders could enter at the lowest ranks, but the occupation was primarily hereditary, filling a status that was above the commoners but without all the privileges of nobles. The guilds, however, were fairly powerful entities, with their own leaders, laws, and punishments. The guilds were also in charge of the markets. Twelve cities in the Valley of Mexico, the heart of the Aztec polity, had guilds of *pochteca*, as did other cities in the polity.

Merchants were not the only individuals to trade in markets, but they handled the largest quantities of goods and were in charge of long-distance trade in high-value goods. They imported sumptuary goods for the elite, as well as valuable raw materials for use by the craftsmen of the Valley of Mexico, such as feathers, green stone, amber, and animal skins in exchange for high-value exports, including obsidian implements, gold ornaments, cotton capes, and lake products. Some merchants enjoyed the rare privilege of traveling and trading outside the boundaries of the Aztec empire. The

⁹ Payson Sheets, "Provisioning the Cerén Household: The Vertical Economy, Village Economy, and Household Economy in the Southeastern Maya Periphery," *Ancient Mesoamerica* 11 (2000): 217–30.

most powerful merchant guilds resided in Tenochtitlan and Tlatelolco, the twin cities at the center of Aztec political and economic power, and enjoyed trading privileges in neutral ports of trade outside of the empire. There is some controversy, supported by ambiguity in the sources, regarding the level of state control over trade. Some researchers argue that long-distance trade was closely administered, whereas others argue that merchants, although subject to some restrictions on trading outside the empire, functioned freely. Many *pochteca* functioned within the empire and at all levels in the markets; they were not limited solely to long-distance trade.

Tawantinsuyu, the empire of the Inca, was truly a territorial marvel, encompassing almost a million square kilometers divided into four administrative quarters, centered at the capital of Cusco. There were eighty provinces, comprising the territories of the conquered populations. With so many different subjugated polities and ethnicities, there was tremendous variety of sociopolitical organization and economic characteristics within the empire. Most researchers agree that the Incan political economy was well integrated, so that although local conditions and economic strategies varied, the state was able to finance overarching institutions and activities efficiently. Movement of goods over long distances was obviously part of this economy and was important in political relations and ritual practices. The state practiced a widespread formal reciprocity. Valuable goods were received from local elites as obligatory gifts, such as shell beads, unfinished *Spondylus* shell, and various metal objects. The state reciprocated by giving local lords gifts of cloth, gold, shell beads, copper axes, and coca, among other things. These “gifts” might actually be considered from our perspective as either payments for political services or tribute. The state would also give valuable commodities for “sacrifices” at shrines around the empire. All these goods were accumulated, transported, stored, and paid out by the state as needed, as this system evolved into a highly developed and intensive form of inter-elite exchange.

The Inca state promoted the exchange of goods between different ecological zones, consolidating and extending the organization of zonal complementarity discussed above. The direct control of various zones and their varying produce through colonists is documented for certain areas, particularly the southern Andes. The altiplano–coastal interaction continued as it long had, exchanging lowland agricultural and maritime products for highland products using barter exchange with local groups and the development of colonies. There is evidence for some parts of the empire of merchants who functioned similarly to the Aztec *pochteca*. It appears that

there was a diversity of strategies in Tawintinsuyu, basically determined by environmental and ethnic traditions. However, administered trade, barter exchange, and reciprocal gifts moved most goods across the empire, and in this, Tawintinsuyu contrasts with the predominance of merchants and markets among the Aztec.

TRANSPORTATION

Closely related to the issue of trade is that of transportation, because it is the cost of moving goods that determines the extent and volume of trade that is possible, and thus how large an area may interact economically. In this regard, the contrast between South America and Mesoamerica is quite dramatic. In South America economic integration and trade took place over a larger territory than was feasible for Mesoamerica.

Because of the absence of draft animals and wheeled vehicles, pre-Columbian Mesoamerica was limited to foot traffic on land. Thus, roads were mostly variations of foot trails and emphasized directness, with sharp turns and gradients. The limiting factors were distances that could be covered in one day, and the amount of a load that a human could carry, using a packframe and tumpline. Mesoamerican economic characteristics were always affected by the fact that bulk goods, such as staple foods, could not profitably be brought from very far away. Thus, cities had to be provisioned from nearby hinterlands, and only fairly lightweight valuable goods (e.g., obsidian, feathers, cacao) would have traveled long distances.

In Aztec times, there were professional porters or *tlamemes*, a hereditary lower-class occupation. Codices clearly show children being trained for this occupation. They were based in towns and available for hire to passing merchants, who would hire them to carry a load (around fifty pounds, although it probably varied by distance, terrain, and purpose) for one day's journey to the next town, where other *tlamemes* would take over the load for another day's journey. Long-distance transport thus consisted of relays of porters. The exceptions to this pattern included porters carrying supplies for armies and *pochteca* trips outside the empire. Here, the same porters accompanied the merchants for the entire journey. Because *tlamemes* had to be paid, and probably carried much of what they would eat on the trip (which was a minimum of two days), and probably needed to rest, the limited efficiency of this mode of transport is clear. It was, however, an expanding occupation at the time of the Spanish Conquest, fueled by demand and the entrance of people displaced by Aztec conquests. The time

depth of the status of professional porter is unknown. It probably extends back to earlier cities like Teotihuacán, although the organization of this occupation probably did not extend to as large a territory.

Where water transport was feasible, as in the lakes of the Valley of Mexico and along the Gulf Coast, canoe transport was much more efficient. Canoes could carry forty times as much freight per man employed as human porters. It was through canoe transport that Tenochtitlan was able to bring food from a more extensive hinterland and unite the whole of the Valley of Mexico into one interlocked economic region, more so than was possible for earlier polities. The earlier city in the valley, Teotihuacán, reached almost the same size, but was not as close to the lakes, indicating that transportation costs may have been more of a burden. The canoes could transport more bulky items along coasts as well, permitting a greater exchange of lowland products than would otherwise have been possible. However, much of Mesoamerican trade was constrained by the limits of human transport.

In contrast, the Andean area had llamas for transport. Llama caravans carrying produce and goods have been important for millennia. The zonal complementarity of Andean societies was made feasible by their ability to move bulky goods by caravan, thus allowing the creation of vertical archipelagos of colonies at some distance from their cores. Water transport by rafts along lakes and the coast also allowed the efficient movement of goods. Foods and other important goods could travel much greater distances than in Mesoamerica.

The importance of caravans resulted in greater investments in roads as opposed to footpaths, which were more important in Mesoamerica. The Inca road system, built partially upon older existing systems, is one of the best for a premodern society. It extended more than 25,000 kilometers, with suspension bridges over canyons, drainage canals, road walls to keep herds out of adjacent fields, way stations, and causeways. There were main highways, to link the four provinces, and many other roads that linked with these. Way stations, or *tampu*, were constructed about a day's walk apart. Officially, these could only be used by state personnel and for state business, so the regulation of llama caravans along the roads would allow the state to control the movement of goods and trade.

LABOR

One of the important resources of any economic system is the labor of its people. Individual labor that serves to support that individual and his/her

familial dependents is implied in the discussion of agriculture, craft specialization, and trade above. The labor discussed here is surplus labor mobilized in a hierarchical society to increase production and to complete public works. Nobles and elites called upon the labor of common people both to support noble households and to build public architecture, roads, bridges, irrigation systems, and so on. Again, it is at the end of the pre-Columbian period that we have clear evidence of the variety and burden of this labor. Although part of the labor obligations were intimately linked with tribute, it would be a mistake to consider all surplus labor as forcibly extracted. It can also be considered a "gift" (for example, to the gods, or the lord). While the difference between a gift and a tribute obligation may not ultimately make much difference in terms of effort and burden on an individual, it probably was important in the perceptions of social relations among people, nobles, and the state. It is not always possible to determine the exact nature of various labor obligations among the Aztecs and Inca, but elements of both expected gifts and forcible extractions appear to be present in both systems.

In Tawantinsuyu, control of surplus labor was extensive and organized into several types. In fact, some researchers argue that the key to the Incan economy was the state's control of labor. The Inca state mobilized massive amounts of labor to build the roads, storehouses, buildings, and settlements. Probably the oldest form of obligatory or surplus labor was the *mit'a*, the labor provided by individuals on a rotating basis. This labor worked the fields of the Inca, the religion, and the local lord. *Mit'a* labor also labored on public works and made up the armies. Women wove textiles for the state, in addition to working in the fields. Some labor obligation projects, such as service in the army or in mining, could require months of service. However, *mit'a* labor was conceived in terms of reciprocity, and the state provided feasts and support for the laborers (including state-supplied song and music) while they were engaged in these tasks. Such labor probably had long been a pre-Inca Andean tradition for the support of lords and religion.

More permanent forms of labor control involved people called *mitmaqkuna* and *yana*. The former were transplanted colonists who moved with their goods, families, and chiefs from one area to another and were employed mainly for agricultural purposes, but also for other tasks, such as maintaining garrisons. The *mitmaqkuna* maintained their cultural identities and ties with home communities, and thus were easily distinguished from the people around them. Such relocations were ordered by the state

and could force people to move long distances. The *yana*, on the other hand, were laborers totally detached from their communities, working solely for the state as peasants, craft specialists, and chiefs. The best example of *yana* is the *mamakuna* – women taken as young girls to labor in cloistered compounds.

Land and labor were closely linked in the Aztec empire. Land – communal and private – was generally controlled by nobles. Communal land was allocated to commoners in exchange for military service, for corvée labor, and for routine labor and food for the noble household. There is evidence that these relations of commoner and noble were thought of in terms of reciprocity. On the nobles' private land, however, the commoners' households owed the lord agricultural labor on the lord's own lands, kitchen labor for grinding corn, and spinning and weaving labor for textiles, which were crucial tribute items in the Aztec empire. In addition, some communities were designated to provide labor and goods for Tenochtitlan and did so directly through the imperial bureaucracy. Over time, the imperial system was able to increase the numbers of commoners subject directly to it, making them tributaries, and expropriating their labor and products. This was accomplished by the seizure of communal lands and the reduction of individuals and communities to a tributary status. Thus, as in the Inca system, there was a gradation of labor obligations from reciprocal relations to more forcible extraction. How much time was devoted to the various forms of surplus labor is unclear, but for some commoner households, the burdens could have been quite heavy. For the Aztec, as for the Inca, the control of large amounts of surplus labor was an important strategy for expansion.

TRIBUTE

For many pre-Columbian societies, surplus labor was used to produce goods, which were then collected by elites or state officials in designated quantities. That is, communities and households owed so many of various goods annually. This tax was an important basis of public finance. Although it has often been called "tribute," it is really only tribute when there is an element of forcible extraction involved, usually because the group has been subjugated. The importance of tribute in state finances probably has some time depth in both Mesoamerica and parts of South America, but it is only with the final empires that detailed information is available. It seems that both the Aztec and Inca empires were expanding by increasing control over labor.

All researchers agree that Tawantinsuyu controlled vast amounts of goods, both staple and sumptuary. These goods were the result of labor expended on state lands, mines, quarries, specialist workshops, and so on. The empire built a vast system of storehouses to house them, which are well-known archaeological features of Inca settlements. For example, in the Cochabamba valley, there are some 2,400 round, thick-walled structures on the mountain slopes that were used to store maize from the state plantations. To keep track of goods and foods, Inca administrators used the *khipu*, a system of knotted strings (which even today is not completely understood). It is known that the *khipu* worked on a decimal system and recorded the results of mathematical calculations. However, the *khipu* and the administrators who kept and interpreted them were able to keep exact accounts, according to Spanish chroniclers. Thus, the state could keep track of tribute paid to it and then use the proceeds to finance the support of conquering armies to expand the empire and its tributaries, for public works construction projects, to reward the laborers on state lands, and to give gifts to subject lords.

When territories were conquered, the Inca claimed all land, animals, valuables, and women, and then redistributed the land and animals to the state, religious institutions, and the smallest part, apparently, back to the community as communal property to be apportioned to individual households. A man could receive a wife, access to land, and some animals from the local administrators, but became *hatun runa*, a tributary, in return for his labor on state and religious lands or participation in war campaigns and public works. Of course, sometimes the *mit'a* required the *hatun runa* to leave their communities for construction or wars. The empire seems to have required definite production quotas and to have micromanaged the system to be sure that sufficient production was available in the warehouses for state purposes; local production was probably less regulated.

The Aztec system had many similarities, but also some crucial differences. Military conquest and expansion were important here as for the Inca. And like the Inca, with every territorial gain, the empire gained subjects and tribute. Tribute obligations have been documented for each of the thirty-eight provinces conquered by 1519. The quantities of tribute goods received by the imperial capital are astounding. The distance from the empire's center and the products available from a province are generally reflected in the tribute levied. For example:

Cuauhnahuac [a close province] annually sent its overlords 12,800 cloaks of various designs, 1,600 loin cloths, 1,600 women's tunics, 8 warriors' costumes of diverse styles, 32,000 bundles of paper, 8,000 bowls, and 4 bins of maize and

beans. . . . Tochtepec on the Gulf Coast of present-day Mexico, provided the following yearly tribute: 9,600 decorated cloaks, 1,600 women's tunics, 1 warrior's costume and shield, 1 gold shield, 1 feather standard, 1 gold diadem, 1 gold headband, 2 strings of gold beads, 3 large jades and 7 strings of jades, 40 lip plugs, 16,000 rubber balls, 80 handfuls of quetzal feathers, 4 bunches of green and yellow feathers, 24,000 little bunches of feathers, 100 pots of liquid amber, and 300 loads of cacao.¹⁰

Some of this tribute, especially in luxury or high-value raw materials, often had to be imported by the tribute-paying province, probably through trading with merchants. For example, cotton was a common tribute item demanded even of non-cotton-growing regions. The cotton was probably purchased in the marketplace and then formed by women into clothes and delivered to their lords or imperial collectors. On the other hand, some products of a province, though required of other provinces, were not demanded, such as in the case of Tochpan, whose cacao and honey were not part of their tribute, though turquoise (which they had to import) was.

The burdens on provincial commoners in the empire may have been considerable. For example, in the province of Morelos, there were four levels of tribute: lowest to the local lord, then from the lord to his local city-state, the city-state to the capital of the province, and the province to the imperial capital. All labor and goods were provided by commoner households, whereas nobles were responsible for seeing that the tribute levies were met. We are not sure exactly how much was expected of each household or even how much labor it took to produce one cotton garment. Based on the productivity of modern weavers with similar technology, it could have taken between one and four weeks to produce a manta, depending on its size. Evidence from one local lord in Morelos could indicate that for just the two lowest tribute levels, four households (actually the women) might have had to make twenty-two cotton mantas annually on top of any other obligations.

As in the Inca case, the tribute received was crucial for state finance and was carefully guarded and recorded in state warehouses by administrators. Tribute in staples and valuables was used to support the imperial bureaucracy, armies and military campaigns, and the royal palaces. The tribute goods also went to provide gifts and commissions to merchants, artisans, and officials and to feed the urban dwellers and provide for emergencies. An important aspect of the Aztec system was that individuals could receive

¹⁰ Frances F. Berdan, *The Emperor's Mirror: Understanding Cultures through Primary Sources* (Tucson, AZ, 1998), 36.

luxury items from tribute as payments or rewards, but then exchange some of them in the marketplace for subsistence items.

MARKETS AND CURRENCIES

Markets have been present in many parts of Mesoamerica for two millennia but may have been more limited in pre-Columbian South America. In Aztec times, markets were clearly vital to the economies of all levels of settlement, and there was a clear hierarchy of markets. Important towns held markets, sometimes daily, with a wide range of basic and luxury goods available. However, even commoner households could exchange their surplus at local markets in every settlement, often held every five days. And the products of such households could be of interest to nobles as well as other commoners. Adjacent villages would have different days, so market specialists could circulate to all. Large towns periodically held important market days, for more variety and wider regional circulation of goods. The greatest market of all, of course, was at Tlatelolco, in the imperial capital of Tenochtitlan. There is no better description of a pre-Columbian market than that of conquistador Bernal Díaz del Castillo:

When we arrived at the great square we were struck by the throngs of people and the amount of merchandise they displayed, at the efficiency and administration of everything. The chiefs who accompanied us showed us how each kind of merchandise was kept separate and had its place marked out. Let us start with the dealers in gold, silver, and precious stones, feathers, cloth, and embroidered goods, and other merchandise in the form of men and women to be sold as slaves. . . . Then there were merchants who sold homespun clothing, cotton, and thread, and others who sold cacao, so that one could see every sort of goods that is to be found in all of New Spain, set out the way it's done where I come from, Medina del Campo, during fair time. . . . I wonder why I waste all these words in telling what they sold in that great square, for I shall never finish describing everything in detail.¹¹

The economic necessity of using the market plus regulations requiring periodic market attendance served to make markets central. It was illegal to exchange outside of the market. A portion of the goods brought to market were paid to the ruler. So markets were important sources at all levels of government.

As in the Andes, Mesoamericans did not use money in the modern sense. Currency equivalents were available to make exchanges easier and

¹¹ Bernal Díaz del Castillo, *The Bernal Díaz Chronicles*, translated by Albert Idell (New York, 1956), 156–7.

more regular, as well as to “even out” transactions. These “currencies” were different from money, because they were also consumables – for example, cacao beans, cotton cloaks or *quachatlī*, and quills filled with gold dust. These goods had standardized values, and many items had value in cacao beans or *quachatlī* – for example, slaves (eight to forty *quachatlī*) and feathers (bunch of twenty for twenty *quachatlī*) – and *quachatlī* were worth 65, 80, or 100 cacao beans depending on quality. Market transactions consisted of barter, by count not weight, and probably involved use of one of the currencies to equalize the value of goods being exchanged. And, of course, one could drink or wear the currency instead.

The principal merchants also were the main administrators of the markets, and, at least in the largest markets, were responsible for enforcing fair prices and sitting in judgment on complaints. While *pochteca* were responsible for bringing luxury items to the empire, it seems clear that they paid some as taxes in kind to rulers or nobles, but also had plenty to sell in the market. The crucial aspect of Aztec economics is that luxury items could be exchanged for subsistence and other basic necessities in Aztec markets. Items intended for tribute would often be purchased in markets, and those received as tribute payments could be exchanged for other items in markets. Markets are what tied labor, production, trade, and tribute together.

The role of markets and currency among the Inca is much more controversial. Certainly, there was no general currency in Tawantinsuyu; wealth was measured by amounts of commodities. There does not seem to have been extensive market exchange or even the physical presence of markets in many parts of the empire. Barter exchange of local goods – for example, between the specialized fishermen and farmers of the coastal valleys – had probably occurred for millennia. The caravans of llamas from the *altiplano* trading with coastal peoples by barter had also been going on for quite some time. Markets, however, were only present in some areas and functioned as part of the diversity allowed under the empire, mostly on frontier areas of the empire. Also, some researchers argue that certain sumptuary goods functioned as a special-purpose currency, generally only exchanged for itself and for only certain types of exchanges. Fine cloth and coca were the two most important. The state controlled a large proportion of production and distribution, but recipients could move the valuables around themselves. Only coca, however, might be exchanged for other goods. However, the Inca economic system appeared to be of a nature different from that of the Aztec, the main difference being the prominence of markets in one and their relative unimportance in the other.

CONCLUSION

The economic variability across Mesoamerica and South America makes it impossible to characterize economic systems except in general terms. Most peoples at most times depended on reciprocal exchanges within their local spheres, supplemented with periodic access to long-distance goods, especially utilitarian products. With the rise of elites, exchanges of rare and valued items become more prominent. These types of exchanges were still very widespread in the New World on the eve of the European conquest, especially in the Caribbean, in Amazonia, northern South America, and most of Central America.

Many characteristics of the Aztec and Inca economies are found in earlier societies in their respective geographic areas. The pre-Columbian period saw the rise and demise of several complex societies, notably Tiwanaku, Moche, the Classic Period Maya city-states, and Teotihuacán. Once such complex polities appear, histories all over the world record successive cycles of decline and resurgence of new, vigorous civilizations. The reasons for decline and collapse of complex societies are often something of a mystery. Economic failures are often implicated, especially an inability to support the population suitably and generate the necessary wealth to keep the institutions of state thriving. For many of these pre-Columbian civilizations, climate change has recently become a popular explanation for collapses: warming, cooling, drought, or the effects of volcanic eruptions put stress on an ecology already pushed to maximum productivity by intensive human use. The delicate balance of population, resources, and exploitation was periodically disturbed beyond the technological capacity of those societies to cope, and so they collapsed. However, it seems that nothing resembling the scale and complexity of the Aztec and Inca systems had emerged before. Thus, the Spaniards came upon economies at their peak development, while these systems were actually still expanding. One can only speculate if these too were destined for ecological disaster.

It would be difficult to compare pre-Columbian economies and societies with those elsewhere in the world. There have been two recent attempts to do this. Angus Maddison, contrasting worldwide economic and demographic growth over the last two millennia, finds, for Latin America in the period up to 1500 C.E., very slow population growth and a subsistence level of \$400 GDP per capita.¹² This is roughly equivalent to all other continents

¹² Angus Maddison, *The World Economy: A Millennial Perspective* (Paris, 2001), 28 and Appendix B.

at that period. Maddison suggests that there was no economic growth until after the conquest. Maddison does not discuss the assumptions underlying his estimates fully, but he apparently sees all the pre-Columbian economies as stagnant at the lowest possible subsistence per capita. It is probable that he is underestimating the demographic and economic impact of the more complex societies and finding it hard to translate their standards of living into contemporary currencies. The crux of the problem is how medieval individuals in Europe or Asia were equivalent economically to those in Tiwanaku, Teotihuacan, Aztec, and Inca, and Maddison's attempt really does not do much to develop equivalencies that could answer that question. Here is a subject for useful future research.

Another method of comparing these disparate economic systems and societies is to look at possible health indicators on skeletons as proxies for standards of living. This was done by the Backbone of History Project. The project compared sixty-five sites from the New World, spanning from ancient foragers to historic populations at the beginning of the twentieth century. A health index was constructed based on the prevalence of pathological lesions of morbidity, and the sites were ranked according to their index values. The Mesoamerican samples uniformly fell below the average, among the lowest, indicating high burdens of morbidity in these populations, especially for those from the complex, hierarchical societies. On the other hand, the South American populations were generally better off, especially the forager societies and those in coastal environments and some early highland sites. Again, more complex societies and more dependence on agriculture were associated with lower scores on the health index. Nevertheless, one post-Conquest Native American sample and three Euro-American samples from Ecuador did not reveal a great deterioration in health and nutrition and showed a general lack of chronic morbidity indicators. Although European colonizers might be expected to do better than natives, because they were generally at the top of the new hierarchy, settlers were often badly impacted by epidemics as well. The colonial samples do not have better life expectancy, but do reveal less morbidity during life. The preliminary evidence from this project indicates that Mesoamerican societies were often plagued by ill health and chronic morbidity, whereas the South American samples were generally less burdened. The key here may be the South American diet, with more protein from coastal, riverine, and camelid resources, coupled with more efficient transportation.

What the conquerors imposed on the Native Americans in large parts of Mesoamerica and South America was not so radically different from what

they were accustomed to. They understood tribute taxation, corvée labor, centralized storehouses, and centrally administered economies. Especially among the Aztecs, they understood market exchange and currencies as well. In fact, if not for strong political controls and the disruptions of demographic collapse caused by the introduction of new diseases, it should have been possible for native peoples to enter and thrive in the global economy opened to them. In fact, the new food resources and technology of the Europeans could have mitigated the chronic morbidity of Mesoamerica and allowed the regime's already vibrant market economy to flourish. The more centralized economy of the Inca may have made control easier at first, but the loss of the native population to disease undoubtedly made it hard to keep up production. The colonial history of Latin America was deeply influenced by the pre-Columbian economy present when the Europeans arrived and by how the latter made use, or misuse, of the resources over which they had gained control.

Part II

NATURAL RESOURCES AND FACTOR ENDOWMENTS

LAND USE AND THE TRANSFORMATION OF THE ENVIRONMENT

ELINOR G. K. MELVILLE

The Spaniards and the Portuguese came to the New World with the means to reproduce their societies and their landscapes. On his second voyage to the Caribbean in 1493, for example, Columbus brought 1,500 men in 17 ships to settle in Espanola. He also brought seeds to grow wheat, as well as vegetables, fruit trees and grape vines, horses, cattle, sheep, goats, and pigs. Over the following decades, as the Spaniards spread across the islands of the Caribbean Sea and into the mainland, they took with them their companion species – their “portmanteau biota,” as Alfred Crosby has called them. Even when their aim was purely military, the *conquistadores* traveled with at least horses and war dogs; but when they settled they made every effort to grow the plants and raise the animals so necessary for a proper (Mediterranean) diet: wheat for bread; olive trees and grapes for oil and wine; sheep and cattle for meat, milk, and cheese, wool for warm clothing, and leather for saddles and bags; and so forth. And they grew sugar cane, with a view to producing sugar for export to Europe. The Portuguese, intent at first on trade and later settlement, followed closely with sugar and slaves, cattle and horses, and planted their *engenhos* on the eastern coasts of South America. In the process of developing the specialized ecosystems that maintained these plants and animals, the Spanish and the Portuguese transformed not only the ways in which the land was used and hence the landscapes, but the physical environment itself. The invaders were successful, Crosby suggests, where their portmanteau biota thrived and transformed the indigenous worlds.

There is a third group of invaders that must be taken into account in considering the impact of changing land use after 1492: the Africans. It is not usual to think of the Africans as “invaders,” but in a biological sense

they were. There is strikingly little written about their impact on American land use and environments outside their role as slaves on plantations; but studies such as Judith A. Carney's book *Black Rice: The African Origins of Rice Cultivation in the Americas* demonstrate quite clearly that although their migration was forced, and although they came with a reduced number of their companion species, Africans brought with them the knowledge required to develop and maintain the agro-ecosystems necessary for the successful migration of African crops such as okra, yams, pigeon peas, cowpeas, and rice, medicinal plants such as cassia fistula and castor oil, and even birds such as the guinea fowl. Most importantly, Africans also brought with them knowledge of livestock management. Another African plant, coffee, was evidently imported later in the colonial era by members of botanical societies – but African slaves worked on the coffee plantations of Brazil, and with Carney's evidence for the role played by African slaves in the development of rice cultivation it is hard to believe that they did not also use their knowledge of the requirements of this plant in the development of the coffee plantations.

The Iberians were interested in far more than settling down to live a bucolic provincial life in their colonies, however: they aimed to grow rich. One of the means to that end was production for export, and over the centuries the inhabitants of the American colonies searched ceaselessly for products that could be sold on the international market. At different times and places they exported indigenous products such as dyewoods, rubber, indigo, cochineal, and cacao; they mined the soil for silver, lead, mercury, and gold; and they produced in bulk exotic tropical products such as sugar and coffee. Finally, at the end of the colonial era, they turned to the export in bulk of wool, hides, and dried meat – the products of those same species they had brought with them to the Americas.

This chapter is a preliminary attempt to clarify the mutual influences of three processes: the invasion of the Americas by alien humans and their companion species; the transformation of the indigenous environments that resulted from that invasion; and the formation of a new economic order specifically organized around production for export. The connections between production for export and environmental transformation may seem obvious at the beginning of the twenty-first century, especially given current understanding of Latin American environments as overexploited for the production of export crops and raw materials. And indeed, it is fatally easy to collapse the history of the environments of the region into a story of exploitation for metropolitan interests or overseas markets: to assume that

colonial production was, from the beginning, controlled by the metropoles or their agents; and to argue by extension that Latin American environments were shaped by European needs and desires. But close examination of the colonial political economies, carried out over the past quarter century, has called into question the idea that the colonial economies functioned always and everywhere for Europe's benefit, or even that Europeans resident in the Americas always and everywhere centered their interests on Europe – that Europe was “home.” Indeed, such research has demonstrated that while the business relations of such men might well encompass trade with Europe, the center of gravity of their world was located in America. America was where their wealth was generated, and where their families – often drawn from local populations – were located. *America* was home.

Our reading of the colonial/metropolitan relationship has changed, and in a general way we have come to accept that although the American regions were politically dominated by their metropoles they were to an often surprising degree economically autonomous. Historians of the Spanish empire, for example, have proposed not only that the internal markets of the colonies drove the development of rich regional economies in the Americas, but that Spain effectively lost control of these economies by the end of the sixteenth century. Indeed, the power of the merchants of the colonial regions to control the political economies of often enormous regions has prompted historians to conceptualize the empire (Hapsburg if not Bourbon) as a collection of empires with multiple metropoles: Madrid, Mexico City, and Lima. And historians of Brazil and western Africa are beginning to treat the South Atlantic as a trading region that was controlled by Luso-Brazilian and Luso-African merchants, rather than an outpost controlled by Lisbon. The corollary of such thinking is that Latin American environments were shaped by *American* requirements.

AMERICAN WORLDS

The worlds that evolved after 1492 were American worlds; quite simply, they could not have developed anywhere else. The Iberians, the Africans, and their companion species came to America; the processes of adaptation by these alien humans and exotic species to the new environments (broadly conceived as encompassing the physical and the social worlds) occurred in America. Most importantly, the formation of colonial regimes involved both indigenous peoples and invaders in their construction. The indigenous

societies, cultures, and physical environments did not simply provide the backdrop against which Spaniards, Portuguese, Africans, and *castas* played out their destinies as imperial governors, merchants, plantation owners, slaves, or tenants. The fact that the Spaniards invaded Mesoamerica and from there Peru, whereas the Portuguese attached themselves like limpets to the Atlantic coast of South America, was critical for the changes in land use each group brought about, the colonial regimes they developed, and the systems of long-distance trade they entered into.

The Spaniards and the Portuguese brought markedly different histories of conquest and of trade to bear on the alien lands and societies of the Americas, and their quite different aims and expectations were reflected in the ways they approached these new lands and peoples. And although they brought with them essentially the same species, the Spaniards and the Portuguese differed markedly in which species formed the primary focus of their colonial projects. It is clear that different approaches to alien peoples, different requirements, and different companion species played a major role in the development of distinctly different colonies. But the indigenous societies and the physical environments the Spaniards and the Portuguese invaded could not have been more different. It is our argument that all these factors drove the development of distinctly different Spanish and Portuguese worlds in the Americas.

The Spaniards moved into the centers of imperial regions in Mesoamerica and the Andes that were characterized by dense populations, centralized polities, complex political economies, and urban centers that formed a nexus for local market systems, long-distance trade, and imperial tribute flows. The presence of centralized imperial systems meant that the Spaniards were able to continue their career as imperial administrators begun in the reconquest of the Iberian Peninsula from the Moors – with the added benefit of not having to incur the expense of implementing imperial systems of governance. The presence of millions of peasant agriculturalists, as well as market and tribute systems, meant that the Spaniards were able to develop their own economic systems within recognizable systems of surplus generation and distribution. Thus the presence of empires and peasant producers helps to explain the speed with which the Spaniards emerged as the hegemonic power after the collapse of the Aztec and the Inca empires (to be discussed subsequently) and the generation of considerable wealth by the *conquistadores* within a very short period of their arrival. But the presence of empires and peasant producers does not entirely explain the successful

development of political economies based ultimately on the classic agropastoral species of the Mediterranean.

The key to understanding the successful translation of the Mediterranean species to the Americas, and the development of a new economic order based on them, is to be found in the fact that the Aztec and the Inca empires – and following them the viceregal centers of the Spanish empire – were located in temperate highlands. The Spaniards' desire to settle, their interest in livestock management – and, above all, the importance of livestock as the means to wealth and hence to prestige in the sixteenth-century Spanish world – meant that the Spaniards were more likely to attempt to develop production systems that depended on Mediterranean species. But the fact that they invaded regions that could actually support these temperate-zone species meant that their companion species did not merely survive – they thrived. And the success of their species meant that the Spanish colonies in the Americas were, from the beginning, far more than administrative outposts of alien empires: they were settler societies.

The Portuguese did not find centralized state societies on the east coast of South America; hence they did not deal with societies that automatically produced a surplus for tribute and trade. In any case, their primary interests lay in the African coast and in India, and early contacts between the Portuguese and indigenous American societies were limited to fleeting exchanges for dyewood, water, and food as the ships swung around the South Atlantic, pushed by the winds on their way to India. When the Portuguese did begin to settle the tropical coastal lowlands of South America they had already developed sugar plantations on islands off the west coast of Africa. So it is not surprising that they transferred the plantation system of production across the Atlantic and made sugar the major product of their early settlements – especially after it became clear that exchange with the indigenous populations for local resources was of limited value. A critical factor in the translation of sugar to this new land, however – and the key to the profitability of the plantations – was the fact that the coastal lowlands where they set up the early sugar plantations had the conditions of temperature and humidity that ensured that this tropical plant would thrive.

There was, then, a considerable element of luck in the settlement of America. The locations of the Spanish and Portuguese settlements were to some extent determined by the Treaty of Tordesillas; and the specific crops and domesticated animals they carried to the Americas were determined by

cultural criteria and trading interests. But the presence in these regions of soils, climate, and soil–water conditions suitable for the successful translation of species critical to the Spanish and Portuguese projects was entirely accidental. Because luck is not a usual topic in academic discussion, the success of the Iberian settlements has generally been ascribed to the power of the Europeans to displace aborigines from lands that just happened to be perfect for their primary economic species. Problems involved in the colonization of these completely strange environments have been overlooked by historians until recently. Indeed, certain assumptions about invading species and European invasions have precluded the close examination of such problems: we have become used to hearing about species invasions, for example, and we assume that invading species are somehow naturally successful, either because they have a competitive edge (usually undefined – even by biologists), or because they are associated with successful humans; and we have not questioned the adaptation of the Europeans' biota because European dominance itself was not questioned. Indeed, the successful adaptation of their species to American environments, and the development of often immensely profitable colonial economies based on these species, has augmented the myth of automatic European success.

The fortunate presence of environments suitable for the survival of their companion species does not entirely explain the resounding success of the Iberians' economic systems, however. Having a plant grow in an alien soil, or a ewe give birth, is a long way from developing a system of production that underwrites profitable internal markets or export trade. Crop production and livestock management are complex skills that require a fund of knowledge about a whole range of things: climate, soils, vegetation, and hydrological regimes, for example, as well as the needs of different varieties of plants and different breeds of animals, and their suitability for different niches. Large-scale, extensive crop production, and livestock management bring with them the added problems of scale: how to grow huge quantities of plants without depleting the soils for future crops; how to harvest and/or process and store crops without losing them to mold or other types of infestations; how to care for large numbers of animals, control their movements, feed and water them without destroying the range for future herds; how to control their life spans – to know which to kill and when; how to process their wool, milk, and hides, and so on.

The land is only as useful as the knowledge of the users, and in the invasion of the Americas the environments were alien to the invaders while their companion species – and the specialized ecosystems that ensured

their multiplication – were alien to the indigenous agriculturalists. We must, then, suppose a period when both invader and invaded accumulated knowledge. And in order to understand how the Spanish and the Portuguese were successful, not simply in invading the Americas but in setting up profitable political economies, we have to consider not just the different characteristics of the lands they settled, but also the different labor forces they used, and what knowledge or lack of it these workers brought to the lands where they labored.

THE INDIGENOUS WORLD

The indigenous world was a place of plants. Thousands of years before the arrival of the Europeans, indigenous peoples had begun to domesticate a remarkable number of plants, such as maize, cassava, potatoes, amaranth, quinoa, beans, squash, chilies, tomatoes, avocados, and cacao, and to develop sophisticated and efficient agro-ecosystems to grow them. The indigenous agriculturalists did not rely solely on domesticates, and like their contemporaries in Europe and Africa they combined the cultivation of domesticates with the management of “wild” plants to produce all they needed in the way of foodstuffs and raw materials for manufactures, as well as dyes, medicines, paints, housing materials, and so forth. The indigenous agriculturalists thus brought to the formation of the colonial worlds an intimate knowledge of their physical environments and of an extraordinary array of plants. In contrast to the homelands of the invaders, however, the indigenous worlds contained relatively few domesticated animals; and the only place in this vast territory where large grazing animals had been domesticated was in the Andes, where llama herds provided fine warm hair for weaving into textiles, as well as transportation and meat. The indigenous agriculturalists thus brought little or no knowledge of the management of domesticated herd animals.

Eurasian animals (where they successfully acclimated to local conditions) seem to have been more readily accepted into this world than plants, despite, or perhaps because of, the dominance of plants in indigenous systems of land use. The consumption of plant products such as maize, potatoes, or cassava confirmed the identity of the eater in America in the same way that the consumption of wheat, olive oil, and wine confirmed the identity of Mediterranean peoples, and there was considerable resistance to giving up valuable lands to grow Eurasian cereals such as wheat. We should be careful not to overstate the rejection of the Eurasian plants by

the indigenous agriculturalists, however. It is probably correct that in most places the introduced plant species did not replace traditional foodstuffs and become basic staples; and we could even argue that the indigenous world had no real need for new plant species. Nonetheless, curiosity, interest, and the possibility of turning a profit could – and did – tempt people to grow the new plant species, especially where the Spaniards formed a ready market.

Given the paucity of domesticated herd animals, the introduction of Eurasian animal domesticates into this world was stunning. After the initial surprise of seeing men on horseback and herds of large horned beasts under the control of humans, indigenous peoples began to adopt the new species, adding them to their subsistence and trading systems. Indeed, one of the most striking aspects of the expansion of Eurasian species into the Americas was the speed with which many indigenous peoples added the new animal species to their subsistence base. The new animals were not adopted everywhere, however, and not always at first contact. These were, after all, temperate zone creatures: they thrived in the highlands of the Andes and Mesoamerica, and in the higher latitudes of North and South America. They were not terribly successful in the hot humid lowlands, and we see very few Eurasian grazing animals in vast areas of the neotropical forests today – although that is changing with the importation of cattle breeds from other tropical regions such as India.

Where the grazing animals did acclimate, and where they formed a major element in the exploitation of a region, their presence in the local ecosystems brought about changes in vegetation and soils. Grazing and trampling resulted in changes in native vegetation that were, at best, simply a rearrangement of the architecture of the native plant communities. At worst, grazing and trampling – and excessive burning, carried out to stimulate grass growth – could result in environmental degradation such as erosion or increasing aridity, with associated loss of species of plants and animals. Whatever the extent of the changes, the alien animal species modified the physical and social landscape within which choices were made and land use planned. Erosion, for example, could deplete agricultural production, whereas the production of new items such as wool or cheese opened up new markets.

The Caribbean provides us with evidence of some of the most profound changes in the physical environments of the Americas consequent on the arrival of the Europeans and Africans and their portmanteau biota. Perhaps the most far-reaching changes in the landscapes of the Caribbean

islands resulted from the expansion of sugar-cane plantations in the seventeenth and eighteenth centuries, but some striking environmental changes occurred much earlier. Between the arrival of Columbus in 1492 and 1519 when Cortes left Cuba on his voyage to the mainland, the indigenous human populations of Cuba and Española declined – the result of a deadly combination of disease and overexploitation; and in an ominous preview of the history of the Caribbean, Spaniards had already turned to raiding neighboring islands and the coastal mainland to obtain slaves needed to grow their crops – and to make money. Over the same twenty-seven-year period, the numbers of the introduced animal species increased remarkably, with consequences for land use and landscape. Enormous herds of pigs disrupted the subsistence base of the Arawak communities by eating the root crops. They also ate Spanish plantings, to the vast annoyance of the Spanish landowners, and in 1508 permission was granted to kill feral animals. The effects of the growing populations of alien animals were not limited to agricultural lands, however, and they transformed the vegetative cover of the islands: free-roaming herds of cattle and pigs carried the seeds of both introduced and native plants in their guts – depositing them far and wide in ready-made compost – and by 1519 the “normal” island vegetative cover consisted of new and unstable associations of exotic and indigenous plant species. In some places exotic species such as citrus dominated island plant associations, and when the Jesuit José de Acosta wrote about Española later in the century, he described entire hillsides covered in forests of limes and oranges. The world that Columbus saw in 1492 had been transformed.

The Caribbean was a testing ground for Spanish conquest and, one would think, for their companion species as well. But despite the explosion of the pig and cattle populations, and to a lesser extent the horse population, the islands of the Caribbean were not the temperate lands natural to the Spaniards’ companion species, and sheep and wheat – critical elements of sixteenth-century Spanish economy – did not do well here. When the Spaniards began their invasion of the mainland, however, they found temperate highlands suitable for their species and imperial states perfect for the development of colonial regimes. In the following section we follow the Spaniards onto the mainland and consider the implications of the introduction of livestock management into regions of indigenous peasant production for the formation of the Spanish world of the Pacific Highlands. We then turn to the introduction by the Portuguese of sugar production into lands that were “emptied” of their indigenous populations and discuss

the implications of the use of African slave labor in the formation of the Portuguese world of the South Atlantic.

THE SPANISH WORLD OF THE PACIFIC HIGHLANDS

The centers of the Spanish viceroyalties in Mexico and Peru were remarkable for the rapid development of variants of agro-pastoralism. Despite the dense populations of humans in the central highlands of Mesoamerica and in the Andes, and the fact that vast areas of land were given over to agriculture when the Spaniards arrived, it was here that the widest range of distinctively American agro-pastoral systems developed. Agro-pastoralism, as the name suggests, is a type of land use that combines the cultivation of plants with the management of grazing animals, and has existed in Eurasia and North Africa for millennia. As already noted, however, agro-pastoralism existed only in the Andean region of the Americas before the arrival of the Spaniards and their domesticated grazing animals. The development of American variants of agro-pastoralism after 1492 was thus a process of agrarian syncretism whereby alien and indigenous species of plants, alien herd animals, and European and indigenous systems of land management were combined to form new systems of land use. A subset developed in the Andean region (or series of subsets, depending on the species of adopted animal) where alien grazing animals and alien systems of range management were combined with indigenous agro-pastoralism.

By the last quarter of the sixteenth century the Eurasian grazing animals had adapted to the temperate zones, the changes in vegetation associated with the adaptation of alien species of herbivores to American ecosystems were complete in the highland central regions, and the organization of labor resulting from the adoption of domesticated grazing animals was in place. Within village boundaries and on their own lands, peasants had developed myriad forms of agro-pastoral units that combined traditional tools and agricultural technology with varying numbers and species of the introduced animals and the systems of management specific to each species. Outside the village boundaries – now reduced in many cases – other agro-pastoralist systems of production had evolved. The most famous of these was the so-called great estate, or *hacienda*.

The two basic forms of the *hacienda* – the mixed or grain *hacienda*, and the livestock *hacienda* – reflect different developmental processes and different forms of livestock management and production. Mixed *haciendas* picked up the slack in food production associated with the demographic

collapse of the indigenous agriculturalists. They used Eurasian animals and indigenous labor to produce indigenous crops such as maize in bulk, as well as European crops such as wheat and barley. Oxen, mares, and mules necessary for agricultural chores such as plowing, winnowing wheat, and transportation were used on both mixed haciendas and small mixed farms (*labores* in New Spain; *chacras* in the Andes). Livestock haciendas, as their name suggests, specialized in livestock production, but they could differ markedly in location, size, and management style depending on the species of animals, the vegetation, the markets, and local social organization. The most famous form of American pastoralism was, strictly speaking, not livestock management at all; rather it was a form of hunting or culling feral animals whereby the cattle and horses that ranged the grasslands on the sparsely populated fringes of the viceroyalties were rounded up and killed for specific products such as skins or tallow. Holdings that practiced the highly specialized form of livestock breeding that produced mules – the “truck” of the colonial economies – were located in grasslands along trade routes. Large herds of cattle and horses, followed and guarded by their owners’ retainers on horseback, were located primarily in the provinces. Flocks of sheep were found primarily in the viceregal centers, where they were carefully managed by shepherds working on foot who corralled the flocks at night on hacienda lands. Livestock haciendas could attain enormous sizes. The largest were associated with the feral and semiferal free-range animals on the borders of the viceroyalties, although livestock haciendas in the centers of the viceroyalties were often very large as well – attaining extensions of more than five hundred square kilometers. But whereas the latifundia of the north Mexican grasslands and the Venezuelan llanos, and ultimately the Argentine pampas, were formed in the eighteenth century in a context of cheap land and extensive land management systems, large livestock holdings in the centers and provinces of the viceroyalties appear to have been formed in the late sixteenth century by pastoralists who increased their land holdings in reaction to declining flock size – possibly the result of deteriorating range caused by overgrazing in the mid-sixteenth century. As the carrying capacity of the land declined, more land was required to maintain the same number of animals – and thus the same profits. Thus, whereas the mixed grain haciendas developed in the context of the declining indigenous human populations, the livestock haciendas of the viceregal centers developed in the context of declining animal populations and deteriorating native range.

Haciendas and peasant villages were critical structural elements of the Spanish colonial regimes. Peasant-village economies, for example, had

multiple structural roles. The surpluses they produced were sold in regional and local markets and were siphoned off through tribute systems to maintain the administration of empire, as under pre-Hispanic regimes. Village surplus production could also be “managed” by merchant/bureaucrats, thereby indirectly paying the bureaucrats’ salaries as well as generating wealth. And peasant villages formed a labor pool for the haciendas and, in some cases, a market for hacienda production. But whereas the peasant villages invariably dated from the pre-Hispanic era, the hacienda was the pre-eminent “colonial” unit of production. Indeed, for most historians of the conquest the appearance of the great estates at the end of the sixteenth century in the viceroyalties of New Spain and Peru signals the end of the conquest era and the beginning of the mature colonial regime. The great estates have been seen as part of a process by which land and labor were increasingly dominated by colonial elites responding to both the commercialization brought about by the Spaniards’ presence, and growing local and long-distance trade. The successful rise of the hacienda was not simply a process by which the colonial elites gained control of land and labor for commercial agriculture, however; it also depended on their ability to access local knowledge, and that knowledge included the production of introduced as well as traditional species.

It is often assumed that indigenous peasant laborers obtained expertise in livestock management by working on haciendas. But in fact they had contact with these animals through a variety of Spanish production systems such as *encomiendas*, *estancias*, *labores*, and *chacras* well before the appearance of the classic hacienda. And as we have already noted, the indigenous peoples were remarkably quick to adopt these animals into their own systems of production – encouraged by viceroys such as Mendoza and Velasco who were keen to develop hispanicized peasants. These experiences gave the indigenous peasants a distinct form of expertise: the knowledge and skills to combine alien animals and alien systems of land management with traditional indigenous forms of agriculture and to juggle competing requirements of land use and labor. This was true whether the indigenes were accustomed to dealing with grazing animals or not: different forms of livestock and range management specific to each species, as well as the new manufacturing skills, meant that even the Andean pastoralists would have had to adapt their practices. Where the care of domesticated animals was new, the adoption of even small numbers of Eurasian domesticated grazing animals by indigenous peoples brought about change in all aspects of life. Take, for example, the fact that domesticated livestock management

required changes in the organization of labor simply to keep track of mobile four-legged resources, to say nothing of feeding and watering them. When we add the processes (often skilled) of butchering these animals for their meat, extracting fat, tallow, and lard, curing leather, milking cows and ewes and preparing cheeses, shearing sheep and preparing and weaving wool, and so on, the changes multiply. Of course, indigenous peoples hunted animals and used their meat, hides, and bones prior to the arrival of the Eurasian domesticates – and thus had knowledge of the processing of animal products. But game animals do not live within the human household, whereas domesticated animals do – or at the very least are cared for by humans – and by adding these animals to their physical, social, and cultural worlds, the indigenous agriculturalists now had to care for animals that (like sheep) could not easily survive without human help, or that were large (like cattle and horses) or aggressive (like pigs). And they had to learn what type of vegetation these animals preferred, and how often they had to be watered. Most critically, they had to develop systems whereby pastoralists could have access to vegetation and water without prejudicing croplands. All this took time, but by the last quarter of the sixteenth century (probably much earlier), indigenous peasants had gained the knowledge and skills necessary to manage domestic grazing animals in association with their traditional forms of agriculture, and peasant-village production systems in the viceregal centers were agro-pastoral in nature.

It could be argued that working on haciendas introduced peasants to large-scale livestock management within the context of commercial agriculture and pastoralism – as distinct from the small-scale pastoralism of peasant households. But there is clear evidence from both Mexico and Peru that indigenous elites developed large herds and flocks before the appearance of haciendas. And, in the case of highland Mexico at least, the era of huge numbers of animals was actually past by the time Spanish landowners began the process of accumulating land holdings and the hacienda proper appeared – indeed, the collapse of the flocks and herds was a major stimulus for the monopolization of land: pastoralists, faced with the deterioration of the range, began to force exclusive access to the vegetation on their holding (in contradiction to the custom of common grazing) and to accumulate as many holdings as they could in order to maintain large numbers of animals – thereby controlling the markets for their products. Thus peasants already had knowledge of large-scale livestock management before the appearance of the hacienda – which means that haciendas drew on a labor force with knowledge of local ecosystems (soils, plants, climate,

hydrological regimes, etc.) and the knowledge and skills required to manage livestock of various types and herds of varying sizes.

We have used the example of the development of agro-pastoralism because it so clearly involves the active participation of indigenous peasants. But all the introduced species of plants and animals required specialized knowledge to ensure not just their survival, but production on a commercial scale. The development of wine production in Arequipa on the southwest coast of Peru, for example, demonstrates the problems faced by Spanish wine growers in their search for a stable and knowledgeable labor force. Wine production required considerable skill to make sure that the vines survived and the grapes attained the required level of sugar content, and that they were picked at the optimum time and correctly treated to produce wine, and not vinegar. The fact that indigenous peasants did not adopt this plant and become knowledgeable in the cultivation of wine had implications for the structure of the colonial economy as important as the fact that they did become knowledgeable in livestock management (this point to be taken up below).

THE PORTUGUESE WORLD OF THE SOUTH ATLANTIC

The Portuguese settled initially on the Atlantic coasts of South America between latitudes of 1° and 30° south. They appear to have been reluctant settlers, content at first to set up what they hoped would be self-sustaining plantations producing goods they could carry away in their ships. Although they did bring Eurasian animals, mostly cattle, for use as oxen on the plantations, and horses, the Portuguese did not immediately develop the range of agro-pastoral systems found on either the great estates or in the villages of Spanish America. Feral cattle moved out of the coastal lands into the interior highlands ahead of settlement, but large-scale cattle management did not develop in the interior highlands until cattle were expelled from the coastal regions. The Portuguese focused, initially, on growing sugar cane and manufacturing sugar for export from the region. They used local labor when they could catch or cajole the indigenous peoples into working the fields. But when the indigenous peoples melted away into the forests, died of contagious diseases, or fought back, the Portuguese imported African labor, that is, the same labor for the same production systems they had planted on islands off the west coast of Africa.

Because the sugar plantations were producing the same product, in the same manner, and with the same labor force in Brazil as in Africa, we take it for granted that the Portuguese brought with them sufficient knowledge to

cultivate this crop in an alien land. And indeed they did bring people who knew how to grow sugar cane and extract sugar. But although much has been made of the technology and knowledge required in the production of sugar, the implications for the initial development of plantation society of the “land knowledge” of the planters and their work force in Brazil has not been explored – other than noting what sort of soil and water conditions colonial planters came to recognize as suitable for growing sugar. I have suggested that the indigenous peasants in the central Spanish regions added experiential knowledge of livestock management, and of the relationship between the alien animals and local ecosystems gained through managing the animals on their own and Spanish holdings, to their knowledge of local ecosystems and climate. Further, I have suggested that haciendas utilized the knowledge and expertise of agro-pastoral peasants, as well as their labor and often their land. The development of the *engenhos* and *fazendas* in Brazil reflected very different processes of labor acquisition and, I suggest, access to local knowledge. Providing evidence to back up this claim is difficult, however. Documentation for the early years of the Brazilian plantations is sparse, and we do not have a clear idea of the acquisition of land knowledge and its use in the development of the *engenhos* and *fazendas*. We do not know, for example, whether the Portuguese drew on local knowledge – as well as local labor – to set up their sugar plantations. Because the peoples the Portuguese initially drew on for labor were often sedentary agriculturalists, it is most likely that the planters did draw on indigenous knowledge of local ecosystems in order to develop sugar cultivation on the coast of Brazil. And indigenous slaves worked side by side with African slaves in to the eighteenth century. But apparently the indigenous peoples did not take up sugar planting in the same way that the indigenous peasants added pastoralism to their subsistence strategies in the Spanish regions; and there is no evidence of indigenous plantation agriculture. Thus the Portuguese could not draw on the accumulated knowledge of sugar grown in America by an indigenous population; and this had implications for the future development of the region when the indigenous populations declined. In place of an indigenous peasantry supplying knowledgeable seasonal labor, there were slaves from another continent. And African slaves did not become peasants in America, much less peasants of the sort that existed in the Spanish colonies, and this produced a different context for production for export and long-distance trade.

When the Portuguese shifted to African labor, Brazilian production became dependent on a slave labor force that was carried from Africa in ships. That their movement was involuntary, and that they were moved far

from their place of origin, had profound implications for land use as well as the formation and maintenance of the colonial regimes. Many African slaves carried with them knowledge of specific African plants (especially female slaves, who were the primary agriculturalists in Africa) and of grazing animals like cattle and horses. But in America, Africans did not, at least at first, have knowledge of local ecosystems. Africans undoubtedly gained local knowledge by working with Indians on the plantations, and undoubtedly they passed it on to incoming slaves, and to their children. But the people who seem to have accumulated the knowledge of local ecosystems and climates necessary to ensure the initial success and profitability of sugar production were the *senhores de engheno* (who, in contrast to the Spanish American *haciendados*, tended to live on their plantations year-round) and the *lavradores*, as well as sharecroppers and tenants. And we have very telling descriptions of the *senhores de engheno* stamping their feet into the ground to see if it had the right consistency for growing sugar cane.

By around 1600, three “worlds” had evolved out of the interaction between, on the one hand, the Spaniards, Portuguese, and Africans and their portmanteau biota, and, on the other, the indigenous societies and environments: the Portuguese world of the South Atlantic, the Spanish world of the Pacific, and the indigenous world of the interior. A tendency to include the entire continent of South America in the term “Latin America” from 1531 on obscures the really quite extraordinary fact that both the Spanish and the Portuguese worlds were limited to the edges of the southern continent for the entire colonial era; that the center remained effectively in indigenous hands. That said, it is incorrect to think of this interior world as an isolated refuge, remaining somehow unchanged while the lands and peoples of the Andes and the eastern coastal regions were transformed. Indeed, the inhabitants of the interior were intimately affected by the European presence. They engaged in trade with the regions around them, and exotic items moved through the trade routes that linked the indigenous populations of the Americas in a web of exchange. Their lands were invaded by exotic animals that moved from the coast to interior along natural corridors in the landscape such as rivers, and by plants that were carried inland by these animals and by humans. Their populations were invaded by diseases carried by Europeans who came in search of trade and labor, or by indigenous peoples fleeing epidemics in the colonial centers – in some places the native populations were depleted in advance of the European invasion. And finally, this interior world was gradually invaded by the Spanish and the Portuguese as they moved out of the temperate highlands and coastal

lowlands into different environments in search of land, labor, and trade goods.

Intimations of a fourth world were also present by 1600: the African world of the Caribbean. The Caribbean as African is an idea that has come slowly to historical consciousness, and the case for the Caribbean as an African world analogous to the Pacific world of the Spaniards and the South Atlantic world of the Portuguese is far more difficult to defend. Revealingly, it is easier to make a case that the interior of the South American continent remained under indigenous control for most of the colonial era than it is to defend the idea that the Caribbean was, ultimately at least, African. It appears to be easier to accept the idea that the indigenes, though decimated and marginalized, were ultimately successful in defending and shaping their worlds than it is to accept the idea that millions of Africans were more than the tools of their owners. Normally, of course, we would designate the Caribbean as the place of northern Europeans; but because contemporary understanding of the name Latin America is in great part recognition of modern power relations and the continuing dominance of Spanish and Portuguese creoles, we have designated the Caribbean an African world. This is not a debate that should delay us here, although we should note that the logic that sees the Caribbean as a neo-Africa would make Brazil more African than Portuguese; and indeed the power of Africans to shape Brazilian life is reflected in contemporary Brazilian historiography.

Over the centuries, the Spaniards and the Portuguese settled in very different regions and among very different societies from those they first encountered, but their worlds – their spheres of influence – in the Americas were, to a remarkable degree, shaped by those first experiences. Despite early explorations of the *bandeirantes*, it took Portuguese settlers a remarkably long time to move inland away from their dependence on the sea and on coastal plantation agriculture. And the Spaniards remained primarily agro-pastoralists of the temperate highlands and latitudes; they avoided the humid tropical lowlands where possible – and complained endlessly about hot humid places such as Veracruz.

THE NEW ECONOMIC ORDER

In the previous section we set up an opposition between a Spanish American world centered on temperate highlands and latitudes and a Portuguese Atlantic world centered on tropical lowlands. We suggested that

the different aims and requirements of the Spaniards and the Portuguese, and the requirements of the species that formed the focus of their colonial projects, were matched by the environments of the regimes they invaded, and that this coincidence formed the context for marked differences between the Spanish and the Portuguese colonies from their inception. In our examination of these differences we focused on the expertise required for the successful introduction of the companion species of the Spaniards and the Portuguese, and, most importantly, the knowledge and expertise needed to develop thriving colonial regimes. In this section we shift our focus from the formation to the maintenance of the colonial regimes.

The models developed by historians to explain the Latin American colonial regimes have changed in response to an extended discussion over the nature of the conquest of the Americas; hence we will begin by examining how assumptions concerning the nature of the conquest shape models of the Spanish colonial regimes, and demonstrate the implications of the environmental approach for this debate. We then turn to the model of Brazil as periphery and discuss the implications of using models developed for the colonial regime of the Spanish colonies to explain the formation and maintenance of the Portuguese colony.

THE SPANISH CONQUEST AND THE FORMATION OF COLONIAL REGIMES

One of the most durable explanatory models of the Spanish-American colonial economic regime is the dual-economy model. In this model, dominant Spanish economic systems are separated and contrasted with marginalized and subordinate indigenous systems of production and distribution: writers assume a convergence between, on the one hand, production of commercial products in bulk on colonial units of production (*haciendas* and plantations) for distribution through commercial trading networks (the internal markets); and, on the other, production and distribution of noncommercial products through indigenous trading systems. The degree of inter-penetration of these two systems has been debated over the years, but the hierarchical ordering of the two remains virtually unquestioned and reflects an understanding of the conquest as a process by which traditional agrarian regimes were dominated by the representatives of a modernizing political economy.

Soon after the dual-economy model appeared, however, it became clear that the conceptual separation of the colonial economies into two spheres

(Spanish and Indian) gave a false impression of simplicity of the colonial regime by removing the economy from its social context. One very obvious difficulty was that the dual-economy model ignored the presence of increasingly large numbers of the so-called “new peoples”: the mestizos and mulattos and all the other people who made up the group collectively known as *castas*, thereby obscuring their role in the formation and structure of the colonial regimes. Despite this difficulty, the dual-economy model has survived precisely because it focuses on a critical equation of colonial societies: that is, the relations between the indigenous colonized population and the colonizers. But the colonial regime is no longer understood in terms of simple domination of Native by European, or even in terms of transformation of a simple “Indian” world into a complex European colony. Rather, the trend is toward the acceptance of indigenous complexity; and many of the points of discussion and debate in the historiography of the colonial economies reflect difficulties in conceptualization of the changing relations between complexities, whether indigenous or invader.

The recognition that the Spaniards entered already complex worlds – and, more importantly, had to live in those worlds – has important implications for our understanding of the formation of the colonial political economies; and models of the colonial regimes now take into account that the Spanish colonial regimes evolved within a context already structured by systems of local and long-distance trade. Commercialization increased after the Spanish invasion and settlement; landowners and merchants produced for, and exchanged goods in, the international market; and more often than not Spaniards controlled access to this market; but the long-held notion that Europeans dominated production and trade because the aboriginal peoples were innocent of markets and money has been disproved. Archaeological research demonstrates that goods were moved immense distances over land and sea within and between the American continents. These exchanges linked distinct societies and very different political economies in an extended network of trade, and the presence within this network of highly integrated and sophisticated systems, such as the complex interlocking market system of the Aztec empire, meant that the indigenous merchants of these regions were not necessarily at a disadvantage when dealing with European trading practices. The Aztecs, for example, used media of exchange to facilitate commerce within market places and elsewhere, goldsmiths used a “gold standard” to set prices daily in the central market of Tlatelolco, and at least four distinct levels of markets channeled the flow of goods into the imperial center. The Tlatelolco market was located next

to Tenochtitlan (the political center of the Aztec empire) and formed the pinnacle of a hierarchy of marketplaces; the second level of marketplaces were found in large and politically important cities such as Texcoco and Xochimilco; the third in city-states; the fourth in villages. These marketplaces were distinguished by the amount and type of goods exchanged, the number of buyers and sellers, and the frequency of their appearance: village markets were held infrequently, for example, and dealt in mostly local goods with some limited exotic goods; city-state markets were held weekly (i.e., every five days), and dealt in larger quantities and amounts of elite goods; the marketplaces in the top levels were held daily and exhibited the full range of goods available from within and outside the empire. The bulk and quality of the goods in the huge marketplace of Tlatelolco and the marketplaces of Texcoco and Xochimilco were augmented by tribute goods sold on behalf of the imperial government. However, trade and commerce were encouraged at all levels by the Aztecs, who demanded tribute in goods that were not easily obtained – thus forcing people to buy the goods needed to pay tribute.

Whether they were settled peasants or mobile hunter/gatherer/horticulturists, indigenous peoples were quick to take advantage of the opportunities opened up by the new species, new needs, new production methods, and, above all, new markets. Invader and indigene may well have defined the places where exchange took place according to very different value systems – nonetheless exchange took place, and the Spaniards were not automatically dominant in these exchanges. Indeed, Spanish systems of production, processing, manufacture, and distribution began as adjuncts to the dominant indigenous systems of production and distribution – producing strange exotic goods for a restricted market. Over a period of around sixty to eighty years, however, the relative positions of the Spaniards and the indigenous peoples did change in the centers of the Aztec and Inca empires; and by the end of the sixteenth century the Spaniards could with some degree of accuracy proclaim a Spanish empire (or empires) in the Americas. The question now most often asked is how this happened: that is, how did the Spaniards become more than administrators of alien empires; how were they able to settle and expand into places that were already densely populated by highly organized and highly militaristic societies?

The primary mechanism by which Europeans were able to settle and dominate in the Americas is generally understood to be the spread of Eurasian disease organisms and the associated demographic collapse of the indigenous populations. The evolution of colonial labor regimes in Spanish

America and the increasing control of indigenous labor by Spaniards over the sixteenth century, for example, has long been correlated with the pandemics that afflicted the indigenous populations. This thesis of defeat by disease has been expanded by Alfred Crosby, who suggests that the expansion of the Europeans' portmanteau biota and the associated transformation of local ecosystems provided the coup-de-grace for the indigenous populations of the Americas. Many students of the European invasion of the Americas (above all in the regions now encompassed by the United States) have followed Crosby's lead and shown how the alien species disrupted indigenous worlds. A much smaller number have studied the implications of these changes for the formation of colonial regimes. Because so few studies focus on the problems involved in expansion into alien environments for the development of colonial regimes – and conversely, so many focus on the transformation of indigenous worlds – there is a tendency to assume that the European invaders held the advantage from the beginning.

It does not follow, however, that the indigenous economies were disadvantaged simply by the presence of new species, or even the development of new systems of manufacture and trade. Nor can we assume that Europeans retained control over their portmanteau biota – even where these animals formed the basis of the new economic order. The Spaniards, for example, lost exclusive control of most of their portmanteau biota very early on: pigs, donkeys, sheep, cattle, and horses, as well as Eurasian fruit trees, flowers, and vegetables, rapidly became normal everyday elements of the American landscapes – especially in the viceregal centers. They also became important elements of indigenous systems of production and exchange, and the Spaniards quickly found themselves in competition with indigenous producers. Indeed, the only way the Spaniards could produce in bulk widely dispersed species such as cattle and sheep was by obtaining title to as much land as possible and setting up systems of labor recruitment that favored them over the indigenous land owners. These processes of attempted monopolization of land and labor are generally associated with the appearance of the hacienda; but attempted monopolization of the means of production was not limited to the Spaniards. It is true that by the end of the sixteenth century peasants in the centers of the viceroyalties were often restricted by law to small herds of mostly *ganado menor*, and very often to small-scale household production; but indigenous nobles owned very large flocks of sheep and herds of cattle and held title in the Spanish system of land tenure to extensive areas of land devoted to the commercial

production of indigenous species such as maize as well as introduced species such as wheat.

Revealingly, the only species (qua species) that the Spaniards were able to retain control over were plants that provided the raw materials for commodities that required very specialized knowledge in their manufacture: the cultivation of grapevines and sugar cane and the manufacture of wine and sugar. (And even here their control was not clear: wine more clearly fell under Spanish control in the colonial era; sugar less so, and there is some evidence that indigenous communities took up sugar cultivation and processing, for example, in the Veracruz region.) Indeed, if we focus on the relationship between knowledge and ethnicity more generally, we begin to see suggestive correlations between specialized knowledge, ethnicity, and species and/or their byproducts. And, rather than a clearly hierarchical system of control by Europeans of commercial production and distribution, the colonial economies exhibit a patchwork of ethnicities at the inter-regional level. Take, for example, the production and distribution of woolen textiles, cochineal, and mules.

Textiles, as commodities and as media of exchange, were critical elements of local and long-distance trade before the Spanish invasion; they were also a major element of the tribute paid to the imperial governments. Cotton cloth was a significant element in the tribute paid to the Aztec empire; and the production and distribution of the spectacularly beautiful and very complex textiles woven by women under the direction of imperial officials was a major sector of the political economy of the Inca empire. When the Spaniards took over the collection of imperial tribute in New Spain, the bulk of the goods required in payment to the King of Spain was in the form of cotton textiles that were, at least initially, sold at auction to Spaniards who appear to have used them to pay their workmen. In the Andes, the major tribute item paid to the King of Spain was labor – as critical for the extraction of silver by the Spaniards as it had been for Inca textile production.

Indigenous textiles remained critical to the functioning of the Spanish imperial system throughout the colonial era: using cotton production and textile manufacture and distribution in Central America and Mesoamerica as a case study, Robert Patch has demonstrated that the Spanish government was able to reduce the costs of administration by allowing merchant/bureaucrats to control the distribution of both the raw material (cotton) and the completed textiles – at the same time as they generated considerable personal fortunes. Starting in the 1550s, however, the Spaniards developed

another and parallel system of textile production and distribution. Spanish textile producers in New Spain developed a system of locked shops (*obrajes*) for the production of woolen textiles on a commercial scale, and moved their goods through a commercial network that was controlled by Spanish and later creole merchants. There is abundant evidence that indigenous people, both individuals and entire communities, eventually took up woolen textile production; but processing and manufacture of woolen textiles on a significant scale was first developed by the Spaniards and remained in their hands for the rest of the colonial era. The *obraje* system was developed initially during the period when the indigenous populations were learning about the management of sheep and the production of raw wool; and by the time indigenous weavers had the knowledge to produce large quantities of woolen textiles, the Spaniards had developed distribution systems – the so-called “internal markets” – that existed outside the indigenous system of markets and long-distance trade. The advantage of being first may explain why the Spaniards dominated the production and distribution of woolen textiles on a commercial scale. It should also be noted, however, that the textile manufacturers felt it necessary to lock their workers up. This practice is generally ascribed to the fact that the work was so unpleasant that the *obraje* owners were reduced to using forced labor. Woolen textiles have been produced in other places without having to lock the workers up, and if the *obraje* owners needed to use forced labor they could have used slave labor. We suggest that they locked the workers in the *obrajes* because wished to retain control over what was, in the circumstances of sixteenth century New Spain, a new process; that they wished to prevent the spread of specialized knowledge. When, later, the *obrajes* were used as a convenient place to send criminals, the practice of locking the workers in the *obrajes* found another rationalization.

Cochineal, a red dye that found a ready market in Europe both for the brilliance of its hue and for its stability, differs from woolen textiles in that although it was distributed though the internal markets by Spanish and creole merchants, it was produced by indigenous communities. The reason most often given for the continued presence of indigenous production of a key export crop is the intensive nature of the production process; but this rather begs the question, because once again the Spaniards could have used slave labor. It seems more likely that indigenous knowledge of land, plants, and insects played a role in keeping production in indigenous hands. But if the indigenous producers managed to keep control of production, how and why did they lose control of the marketing of their product in

the colonial economy? And how did the Spaniards come to dominate the distribution of cochineal through the internal markets and the export trade? The decisive factor again appears to have been timing: by the time cochineal was recognized as a desirable commodity for export as well as internal trade, the Spaniards had successfully gained sufficient political control to access this product through tribute collection – and they effectively controlled access to international trade.

Given our understanding of the political economies of colonial Latin America as ultimately controlled by Spaniards (whether *peninsulares* or creoles), it is not perhaps terribly surprising that the production and distribution of woolen textiles was dominated by Spaniards, and that cochineal (although produced by indigenous communities) was distributed through the internal and export markets by Spaniards and creoles. When we turn to the production and distribution of one of the most critical commodities produced within Latin America, however, this neat pattern of ultimate European control seems to break down. The production and distribution of mules provides the most intriguing correlation between an “ethnic” group, specialized knowledge, and a species: that is, between mulattos and the production of an animal that formed the most widely used form of commercial transport during the colonial era.

The mule is really not a species at all, but is an artificial animal produced by humans who cross two species – horses and donkeys. Mules are infertile and cannot reproduce themselves (except very rarely); therefore every single mule is the product of human action, and requires considerable knowledge and expertise. Nonetheless, despite the difficulties in breeding two species, mules were produced in truly extraordinary numbers in the Americas and were used for the carriage of goods in an extremely rugged region with very few navigable rivers. It is well known that the muleteers were invariably drawn from the mulatto and mestizo populations. But rather than being simply the work force in the movement of goods, mulattos and mestizos learned skills such as mule-breeding and were the specialists who produced the mules; more, they appear to have also owned mule trains. That is, the mulattos and mestizos – very often restricted in land ownership – were critical elements in the articulation of the internal markets of the Spanish American world.

KNOWLEDGE AND AGENCY

The focus on the importance of knowledge in this and the foregoing sections reflects one of the most important trends in the historiography of the

colonial era: people formerly treated as undifferentiated masses dominated and controlled by Spaniards are now treated as historical agents; more importantly, they are increasingly treated as intelligent human beings. The presence of indigenous empires meant that the Spaniards were able to continue their career as imperial administrators begun in the reconquest of the Iberian peninsula from the Moors; and this continuity has, until recently, shaped the historiography of the so-called "Spanish conquest." The apparently very rapid development of the Spanish colonial regimes, for example, has been treated as a natural outcome of their prior experience. But recent research demonstrates that even in the viceregal centers Spanish control was hard-won and somewhat illusory for a considerable period, and that the Spaniards used the indigenous institutions for tribute collection and labor recruitment – thereby building on indigenous rather than purely Hispanic traditions. And as historians examine more closely the processes of domination and note who controlled what, where, and when, a model of Spanish conquest and colonization is developing that does not assume the automatic marginalization of the indigenous peoples; indeed, it forces us to explain why marginalization occurred and where.

Evidence that the Spaniards built on indigenous institutions has had the effect of extending the conquest era beyond the initial battles into the mid-to late sixteenth century as the Spaniards gathered information about the indigenous social structures and learned how they could use them to their advantage. And the shift from a rapid conquest (often equated with the initial battles with the Aztec and the Inca military) to a lengthier and more gradual process of colonization has focused our attention on the indigenous peoples as agents: as intelligent human beings who were not passive victims of Spanish aggression. Our focus in the previous section on the importance of knowledge and skills in explaining the successful development of colonial economies based on the introduced Eurasian grazing animals, for example, grew out of a recognition that the transfer of alien species and the development of specialized ecosystems in an alien land requires skill and knowledge of local conditions. We assumed that the people who worked with these animals and plants were invariably other than Spaniards; and we took it as given that the indigenous peasants were intelligent farmers who learned how to manage new animals and plants and successfully added them to their systems of land use. And we suggested that the Spanish landowners drew on both traditional and acquired knowledge of the indigenous laborers.

But the colonial society contained far more than Spaniards and Indians, and when we look inside the colonial worlds we find that the rigid

hierarchies of class and caste were disappearing, leaving hybrid societies and fluid ethnicities. As the increasing size of the populations that were neither Spaniard nor Indian has been recognized, the potential importance of their contributions has driven research. And as the diversity of roles played by all the very different peoples that made up the colonial societies are exposed and clarified, and as evidence surfaces that the *castas* played significant roles in the formation and maintenance of the colonial societies, the colonial world has changed from being a mythical place populated by stereotypic figures to something approaching the messiness of reality. In the present section we have attempted to reflect the acceptance of complexity that underlies current historiography by focusing on the importance of specialized knowledge for understanding the patchwork nature of the Spanish colonial economies.

ORIENTATIONS

The early settlements in Brazil are often treated as structural equivalents of the regimes that developed on the fringes of the Spanish empire – places where the lack of centralized states at contact (and most especially the lack of peasants already organized to produce surplus and labor) meant that the political economies of these regions were not as complex as those that developed in the imperial centers. An early expression of this functional/institutional model of Iberian colonization was set out by anthropologist Elman Service in the 1950s. Service argued that modern Latin American population patterns are the result of the responses made by the invading Iberians to a diversity of indigenous societies and cultures. He divided Latin America into three broad regions, and demonstrated how they correspond to specific local indigenous societies at contact: modern Euro-America corresponds to those lands that were sparsely populated by hunters and gatherers; Mestizo-America to the forested lowlands of settled village populations; and Indo-America to the densely populated and highly integrated indigenous empires. He argued further that the processes of extermination, assimilation, and survival of the indigenous populations that produced Euro-America, Mestizo-America, and Indo-America, respectively, ultimately depended on the ability of the Iberians to gain access to and control labor. The form that control took, in turn, depended ultimately on the indigenous social structures. At the same time, Service denied the influence of the invading cultures to generate differences between the Spanish American societies and Brazil, stating flatly that the cultural differences

between the Spaniards and the Portuguese were not sufficient to explain the regional differences in modern Latin America. Given the premise that the colonial societies were shaped ultimately by the form of the indigenous societies – and most especially their social organization of labor – and the premise that the Portuguese as Iberians had the same aims and requirements as the Spaniards, the early Brazilian regimes could not be viewed as anything other than fringe regions along the Spanish model. And “Latin American” historiography (though not, interestingly, the historiography of Brazil) has portrayed the Portuguese in America as settlers of the fringes – developers of places that were already “underdeveloped” in comparison to the brilliant civilizations of the Aztecs and Inca, and by extension the Spanish.

The idea that colonization was shaped by local realities has been confirmed by myriad studies and no longer surprises. What is surprising is the longevity of the idea of a homogeneous “Iberian” culture. Lockhart and Schwartz, for example, in their immensely influential analysis of the Latin American colonies, proposed that as Iberians Spaniards and Portuguese would have set up much the same sort of colonial regime if they encountered similar indigenous societies. But the idea of a homogenous Iberian culture exists somewhat uncomfortably with an informal recognition on the part of Latin Americanists that Brazil really is very different from Spanish America. The question is where the difference lies: With the Portuguese? With the aborigines? Or with the Africans? In the history of Brazil, or in the historiography? The answer to this question seems to have been mystified by the coincidental harmony between American environments and the aims of the Portuguese and the Spaniards. We noted, for example, that whereas the major Spanish settlements were located in regions where their temperate zone species thrived, the Portuguese settled along the hot humid coasts that were ideal for the production of sugar; and we suggested that these coincidences have mystified European settlement of the Americas – making the Europeans appear powerful and omniscient, rather than simply fortunate. In this chapter, we take the position that the quite different histories of the Spaniards and the Portuguese were reflected in distinct aims and requirements; that these cultural and institutional differences interacted with the diverse indigenous social systems and, above all, the environments of the Americas to produce different colonization processes – and quite different worlds.

Perhaps the most critical distortion engendered by the model of the Portuguese settlements as functionally similar to the Spanish peripheries is that it focuses our attention on the land, when the Portuguese were

interested above all in the sea. The Portuguese were sea-traders, and the orientation of Portuguese society toward the sea, together with their primary interest in India and Africa, combined with the climate and location of their founding settlements on the humid tropical coasts of Brazil and the social structures of the indigenous communities found along the Atlantic Coast to produce a regime very different from that of the land-based Spanish world. The importance of the sea and sailing to the Portuguese is so clear that their empire has been dubbed the sea-borne empire. But although Portuguese activities as sea-traders in the Indian Ocean and China Seas are well known, in the South Atlantic the Portuguese have come to be viewed primarily as sugar and slave producers and only secondarily as sea-borne traders – possibly because their settlements in Brazil and Angola extended inland and eventually formed part of distinctly territorial empires in Brazil and Africa. That they carried slaves and sugar in their ships is not denied, but the extent to which their interests focused on sea-borne trading in the South Atlantic outside the movement of sugar and slaves has only fairly recently begun to be explored.

Portuguese ships caught the winds of the South Atlantic and sailed in a vast circle linking regions of supply with regions of demand in both Africa and Brazil. The islands and coasts where they dropped anchor were attached to different continents, but this does not change the fact that the Portuguese, and later the Luso-Brazilians and Luso-Africans, treated the South Atlantic like an internal sea: Stuart Schwartz captured the essence of this sea world when he referred to the early towns and ports along the Brazilian northeast coast as an archipelago. The plantations in both Brazil and Africa were thus integral elements of an internal market that encompassed the South Atlantic sea basin, and only very gradually came to include Portuguese-controlled hinterlands. And the ships that sailed these sea routes carried the byproducts of sugar and tobacco production such as *cachaza* and sugar-soaked rolls of tobacco, as well as horses and cattle and later gold, from Brazil to Africa. They returned with slave labor, paid for by Brazilian alcohol, tobacco, and (later) gold, as well as materials needed in plantation agriculture such as iron, specialists such as ironworkers, and goods for sale to Africans in Brazil such as textiles.

In Brazil, a new economic order was set up that displaced indigenous political economies. Alien systems of production and distribution were controlled by the planters, and a regime was formed that in its initial stages was an example of the classic form of the colony as settlement in a foreign land. Such settlements did not necessitate control over the indigenous populations (slave raiding implies a lack of direct control over a stable labor

force) and only slowly came to be colonies in the modern sense of foreign domination. The need for food and large numbers of cattle for the Brazilian plantations (for traction, meat, and hides) meant that mixed farming and variants of agro-pastoralism developed in the orbit of the plantations; and eventually pastoral activities (primarily cattle running) developed in the temperate highlands and latitudes. But, as already noted, agro-pastoralism did not drive the local economies here in the same way that it did in the Spanish world. The Spaniards and the Portuguese brought the same species with them, but differed in which species formed the primary focus of their colonial projects – and hence the relative importance of each species to the internal markets. Sugar was king in Brazil, at least initially, and pastoral activities were, at least at first, adjuncts to plantation agriculture. As the settlements in Brazil grew, however, the hinterlands of the ports became increasingly integrated by land routes. Perhaps the clearest indicator of the expansion inland, and the development of land-based markets in Brazil, was the growth of mule breeding. By the eighteenth century thousands of mules were bred in the southern grasslands, sold in central Brazil, and used to move products through the increasing network of roads that articulated the internal market. The question is, when did the hinterland grow to such an extent that it turned the focus of the Brazilians inland and away from the sea?

MARKETS

The internal markets of the Spanish American world were also articulated by sea and land. But where the internal market of the South Atlantic was integrated primarily by sea routes, with the growth of a network of roads a later development; the internal markets Spanish America were, from the first, primarily land-based. And the integration of the internal markets of Spanish America by sea routes seems to have been of secondary importance, at least in the volume of goods carried. Even where the internal markets were articulated by sea routes, however, the Spanish American world differed from the Portuguese in yet another way. The Spanish world has access to the Pacific as well as the Atlantic and the Caribbean. Brazil, by contrast, has one coast, and the Portuguese world of the South Atlantic was necessarily oriented east toward the Atlantic.

Despite having two coasts, the orientation of Spanish America was traditionally understood to be east toward the Atlantic, with Europe as the focal point of trade; and until recently the Pacific sea-borne trade was neglected. Closer examination of the Spanish American colonies has demonstrated that although American-based merchants moved goods into the Caribbean

sea and across the Atlantic ocean, the major sea routes of the Spanish world were found along the Pacific coast until the late eighteenth century. These routes provided the means to move goods relatively cheaply between the viceroyalties of New Spain and Peru and points in between, and they provided the means to channel silver to Acapulco for shipment to Manila, and to redistribute the returning silks and ceramics for sale inland. Our suggestion that Spanish invasion and settlement led to the development of a world centered on the Pacific, then, refers not only to the fact that the centers of Spanish settlement were founded along the spine of the Andes and the temperate highlands of Central America and Mesoamerica, but also to the orientation of the colonial world toward the Pacific Ocean.

THE RISE OF THE NORTH ATLANTIC SYSTEM

It is undeniable that invasion and settlement integrated the western hemisphere into a global market in formation in ways that would have been inconceivable before 1492; but research focusing on colonial realities in various parts of the world has changed the way we view the colonial regimes. We no longer accept without question that Europe was necessarily the central focus of colonial life, or that Europeans were the sole agents of change. Indeed, few of the old certainties regarding the relations between the Latin American colonies and their metropoles remain: the flow of goods from the colonies to the metropole, for example, has been stemmed and the wealth invested in America; peripheries have become centers – even the seemingly monopolistic and powerful Spanish empire has been replaced by a collection of empires with multiple metropoles.

In a reversal of traditional historiography, economic historians of Latin America have demonstrated the really remarkable degree to which Americans were prepared to go to make sure the wealth that was generated in America was reinvested in America to the ultimate benefit of Americans. Take, for example, the case of Spanish America. The Spanish Crown passed laws controlling what was produced and where, and who moved goods and where they were moved, in order to control production and exchange in all the regions under its control. And Spain seems to have been quite successful in controlling what was produced in the various regions of its empire – if only in a negative fashion, by denying the colonies the right to produce certain commodities. But it had singularly little success in controlling the movement of goods. Instead of moving their goods through the government-controlled channels, a significant proportion of producers

and merchants moved what was, by all accounts, an immense volume of goods through an alternative system of trails and markets. Because it existed outside the trading networks proclaimed by the Crown, and because it functioned according to principles that were not embraced by the Crown, this trading network was outlawed as contraband. The Spanish Crown certainly lost revenues to contraband, and this was of considerable concern. But, ultimately, Spain lost much more than revenue from taxes and tariffs.

The development of contraband reflected a very different colonial system from that envisioned by the Spanish Crown and the Council of the Indies. The ideal was a centrally controlled colonial system that considered the well-being of all regions within the empire – thereby contributing to the greater glory and power of Spain. This colonial system was to have its center of gravity in Spain, and was to function according to Spanish logic and interests. The reality was quite different. What developed very quickly was a colonial system with an American center of gravity, a Pacific rather than Atlantic orientation, and an American logic. Merchants in the Spanish American colonies moved goods illegally from region to region within the empire; they also shipped goods to the American colonies of other European powers. They constructed vessels that carried goods (illegally) up and down the Pacific coast of the Americas, and between the mainland and the islands of the Caribbean; and they shipped silver west to Manila and ultimately to China. Contraband provided a network of exchange that linked the American economies both within the Spanish imperial system and without. That is, this exchange system had more to do with American supply and demand than it had to do with imperial concern, and functioned according to American logic for the benefit of Americans, something that the late colonial Bourbon rulers recognized only too well when they instituted reforms that not only were aimed at a tighter economic control by the center, but also changed the orientation of the American political economies from the Pacific coasts and highlands to the Atlantic. The Bourbons aimed at nothing less than to reconquer the Americas for Spain. Following Lockhart and Schwartz, who demonstrated that the reorientation of this world from the Pacific to the Atlantic underlay many of the events that led up to the Wars of Independence, we argue that the Pacific orientation shaped the integration of the Spanish American world into the global market; that the reorientation toward the Atlantic had profound implications for the integration of the region into a global economy in the nineteenth century; and, finally, that this reorientation had profound implications for the environments of the region.

The products that were grown on haciendas and plantations, extracted out of rocks and forests, and siphoned out of indigenous production systems were moved through the internal markets of the South Atlantic world of the Portuguese as well as the Spanish American world of the Pacific. Examination of internal markets and demonstration of their role in the growth and development of the American colonies is not limited to Spanish American historiography – although it is certainly more developed in this literature – and each year more and more evidence indicating the importance of internal markets for the Portuguese colonies is uncovered as well. And it is becoming clear that Europe was not the only end point of the South Atlantic export trade: Luso-Brazilians and Luso-Africans shipped products out of the South Atlantic eastward to the Indian Ocean and the China Sea. Nonetheless, it is also becoming clearer that although the South Atlantic was of critical importance to Luso-Brazilian and Luso-African traders for most of the colonial era, the center of gravity of their world shifted to the North Atlantic in the nineteenth century – despite, or perhaps because of, the presence of the Portuguese court in Brazil in the opening decades of the nineteenth century.

That is, Latin American historians, like the historians of other “peripheral” regions, are part of a movement to write a history of the world that reflects serious consideration of colonial realities – to replace imperial histories with a new global history. But although we tend to support Eric Wolf’s thesis that international trade prior to the late eighteenth century linked independent producing regions and that the integration of the peripheral regions into global trade as dependent source regions is a phenomenon of the nineteenth and twentieth centuries, the old model of colonial/metropolitan relations still shapes our thinking in some areas. For example, we are left with the notion – not very clearly expressed, perhaps – that there was a direct correlation between the land-use changes initiated by the Spanish and the Portuguese, and production for export to the metropole, on the one hand; and, on the other, that production for export led to environmental degradation.

As noted at the beginning of this chapter, production for export is often automatically associated with environmental degradation in Latin America; and there is a pervasive understanding that because silver mining and sugar production had such a profound influence on the evolution of the colonial regimes of Spanish America and Brazil (and, of course, their metropoles) they must have had an equally profound impact on the environments of these regions. But although silver and sugar undoubtedly profoundly

affected local environments, their impact was spatially quite restricted. Sugar production in Brazil was limited for a surprisingly long time to the coastal lowlands; silver production in Spanish America was limited to the location of the lodes; and the wood so necessary to the extraction of both silver and sugar was drawn from hinterlands that were limited by transportation costs. The changes in land use that did bring about spatially extensive environmental change, especially in the temperate zones – that is, the introduction of Eurasian grazing animals – did not form the basis for large-scale export out of the region until the late eighteenth and nineteenth centuries, when wool, leather, and dried meat were exported in bulk. Rather, these systems of land use underwrote the formation of rich internal markets and long-distance trade within the Americas, and only indirectly export. Hides were exported, but the amounts were relatively small: a tiny proportion of the vast number of beasts available, and a very small proportion of the value of the major export commodities.

There is no question that the Spaniards and the Portuguese initiated remarkable changes in trade and commerce in the Americas; and most importantly for the future history of the entire region, they integrated the region into a system of blue-water trading that eventually encompassed the globe. But it is an intriguing fact that export trade was not based – initially, at any rate – on their own companion species. Sugar is an apparent exception, but sugar cane did not originate in the Iberian peninsula – not even in the Mediterranean. The origins of the major commodities exported out of the Latin American regions before the end of the eighteenth century are quite surprising. The export crops included a Southeast Asian grass, sugar; an African tree crop, coffee; American plants, indigo, cochineal, cacao, and tobacco; pearls and precious metals, silver and gold and later platinum; and, if we follow the logic of our own argument about the nature of the internal market of the South Atlantic, humans from another continent. That is, extensive environmental change in the colonial era (whether that environmental change resulted in the degradation of American environments or not) was associated with American markets rather than export trade. And although export production could certainly degrade local environments, it was spatially restricted in its effects – something that was not to change until the nineteenth century.

The appearance of liberal ideologies at the end of the eighteenth century has been singled out as a major factor in the transformation of human/land relations in Latin America. We would add the reorientation of the Latin American economies toward the North Atlantic that began in the latter

half of the eighteenth century; and we suggest that the importation of liberal ideologies – and imperial policies based on those ideas – was the beginning point of the transformation of environmental/human relations; the appearance of railroads in the middle of the nineteenth century is an end point or perhaps better said a new beginning point. Railroads signaled a shift in international relations: they enabled Latin Americans to carry an ever-increasing volume of natural resources (e.g., rubber, guano, chicle) and the products of agro-pastoralism (e.g., hides, henequen, coffee) from deep in the interior to the coasts for sale on the international market. They also enabled the penetration into the continent of foreigners (who had heretofore been restricted pretty much to the coasts) along with their goods, ideas, and political and economic influence. This combination of raw materials flowing out of the continent and direct external influences flowing in along the lines of communication opened up by the railways helped to shape the relations of the new nation-states with a new world order in formation.

The construction of railroads on all the continents at around this time signaled the development of increasingly reticulated and efficient systems of communication on a global scale. Goods and money, people and ideas were moved about the earth in a volume and on a scale that had never been seen before, with extraordinary consequences for local and global development, and local and (ultimately) global environments. Though often built with local capital, railroads were not always the avenue to industrial development so desired by the governments of the nineteenth-century states. In Latin America, as in other regions of the world outside the “central” industrializing regions, railroads often carried out raw materials far in excess of manufactured goods. Indeed, local manufacture was actually retarded by the possibility of importing manufactured goods – and by the profits to be made by exporting raw materials in bulk. At the same time, manufacture in the industrializing regions was enhanced by both the vast amounts of raw materials available, and by the markets opened up by declining local manufacture in what became source regions. That is, as industrialization took off in Europe, a global division of labor evolved between the industrializing regions and source regions. As region after region of the former colonial system were locked into the global system of production by debt, they lost their autonomy of development and instead became both the dependents and the support of the industrial regions. And, as they struggled to sustain both their own development and that of the industrial regions, they became ever more underdeveloped and ever more likely to practice “unsustainable” methods of extraction of the raw materials needed to sustain the center.

5

THE DEMOGRAPHIC IMPACT OF COLONIZATION

LINDA A. NEWSON

The arrival of Europeans in the Americas resulted in what was perhaps the greatest demographic collapse in history. In 1492 the native population is estimated to have been between fifty and sixty million; by the mid-seventeenth century it had fallen to between five and six million. Subsequently, it recovered slowly. But even today the indigenous population is only about half of its pre-Columbian size.¹ However, not all groups declined equally or have shared in the recovery; many have become extinct, and others have been transformed through cultural change and racial mixing. For many Indians, biological survival has been achieved at the expense of cultural change.

The decline in the native population and the expansion of other social groups was a consequence of the introduction of Old World diseases and the arrival of immigrants who set in motion economic, social, and political changes that fundamentally altered the character and distribution of the population. According to Alexander von Humboldt, by the beginning of the nineteenth century Indians accounted for only about 37 percent of Latin America's total population of twenty-one million, whereas the mixed races accounted for about 30 percent. However, these overall proportions varied widely according to the extent of the native population's decline, the intensity of Iberian and African immigration, and the types of institutions and enterprises used to control, "civilize," and exploit native peoples. These interactive processes reflected not only colonial objectives, but also the

¹ In 1994 a special report published by Latin American Newsletters estimated that the Indian population was 25.6 million. Latin American Special Report, "Indians: A New Factor on the Latin American Scene."

nature of the societies that Europeans encountered. Demographic trends were a barometer of economic and social change as well as a formative influence upon it. The relationship was reciprocal and complex.

ESTIMATES OF THE ABORIGINAL POPULATION

Estimates of the size of the native population in 1492 have generated some of the fiercest debates in colonial history in recent years. Population estimates for the hemisphere currently range from Alfred Kroeber's estimate of 8 million to Henry Dobyns's estimate of between 90 and 112 million. At the heart of the controversy lies the inadequacy of the evidence available, especially the need to adopt methods of estimation that, whether consciously or not, are influenced by ideological positions with respect to the nature of native societies and the impact of colonial rule. Several authors have gone so far as to suggest that differences in estimates reflect differences in method rather than the acquisition of new knowledge, and some even argue that the whole quest to establish the size of the native population in 1492 is futile and should be abandoned. However, no true understanding of pre-Columbian societies or the changes they experienced in the colonial period can be achieved without considering population size and demographic trends. Among other things, population size played a formative role in influencing where the Spanish and Portuguese settled, what mechanisms they used to incorporate native groups into the empire as "civilized" Christian subjects and tribute payers, and what labor systems they employed. The size of indigenous populations will never be known exactly, but the establishment of a baseline offers some insight into the scale of subsequent transformations that occurred and facilitates comparative analysis. Furthermore, as the events that accompanied the Columbus quincentennial in 1992 illustrated, establishing the size of native populations in 1492 is not just an academic question but one that continues to have important political implications.

In all cases the evidence available for estimating the indigenous population in 1492 is extremely fragmentary. Archaeological evidence for settlements and subsistence patterns can provide some insight into the populations of small areas, but it is difficult to extrapolate from such estimates to larger regions. Most estimates are based on documentary evidence. Some fragments of demographic information can be gleaned from Mexica (Aztec)

codices and Inca *quipus*, but most documentary records date from the colonial period. The accounts of the first explorers, *conquistadores*, and missionaries constitute the earliest eyewitness accounts of native populations. However, early scholars often dismissed them as exaggerated on the grounds that they represented attempts to stimulate higher authorities into some required action – such as sending reinforcements or more missionaries – or dispensing privileges – such as titles and *encomiendas*. Undoubtedly, exaggeration occurred, but in many cases the validity of early accounts has been substantiated by more recent scholarship.

A major difficulty in estimating native populations is that for many areas there is often a hiatus of several decades before systematic records are kept. For central Mexico such sources exist from the 1520s. But due to the more protracted conquest and civil war in Peru, they are not available for the Andes until the 1560s, and for many peripheral regions even later. Another limitation is that the early sources are primarily tax records from which demographic changes have to be inferred. Parish records of baptisms, marriages, and burials, which provide direct insight on vital events, are not generally available before the end of the sixteenth century. The tax records pose enormous problems of interpretation. Sherburne Cook and Woodrow Borah's pioneering work on the tribute records for central Mexico² has been heavily criticized for the assumptions it makes about the civil categories recorded, such as *casados* or *vecinos*, the ratio of tribute payers to the total population, and the proportion of villages for which information is available. This is not the place to debate the problems of using tribute records, but rather to point out the difficulty in interpreting even those accounts that do exist for the first few critical decades after the conquest. Estimates of the native population in 1492 thus rely on individual judgments of the extent of decline during this initial contact period and of the relative importance of the different factors involved, and especially the role of Old World diseases.

Most scholars agree that a significant factor in the decline of American populations was the introduction of Old World diseases to which, due to centuries of isolation, they had not been previously exposed and acquired immunity. Hence, diseases such as smallpox, measles, typhus, influenza, and possibly plague might have carried off one-quarter, one-third, or even one-half of the population of any given region. Population losses of this magnitude are often referred to in early colonial sources, and they have

² For references to authors mentioned in this chapter, see the bibliographical essay that follows.

been reported in studies of more recent epidemics in nonimmune populations in the Amazon Basin, North America, and Iceland. During the sixteenth century, communities were often hit by several epidemics, each carrying off a significant proportion of the survivors, so that populations could easily be reduced to a fraction of their size. N. David Cook has shown how the six major epidemics that afflicted Peru up to 1620 might have reduced the population by between 72 and 91 percent. A similar epidemic chronology would have characterized other regions where there was significant Spanish settlement. But even where there was no recorded contact, diseases might run ahead of Europeans through native population chains. There is good evidence that this occurred in the Andes in the 1520s when native communities were devastated by an epidemic of smallpox in which the Inca emperor, Huayna Capac, died, thereby precipitating the dynastic war between Huascar and Atahualpa, which further weakened Inca resistance to the Spanish invasion. Elsewhere the evidence is more circumstantial and there continue to be significant disagreements over the possible spread of Old World disease to areas such as the Amazon Basin and the southern United States, whose exploration or settlement by Europeans occurred decades later. Nevertheless, it remains the case that native peoples of the Americas experienced a major demographic collapse that was not associated with colonial expansion in most of Africa and Asia, where native populations had acquired immunity to these diseases and tropical fevers had become established. In these regions, it was the Europeans and not the indigenous people who died in large numbers.

Inadequacies in evidence lie at the heart of controversies over the size of indigenous populations, but the varying estimates also reflect researchers' views on the nature of native society and the impact of colonial rule. Some early estimates were made in the context of evolutionary ideas of progress whereby the superiority of civilized societies was demonstrated by their large urban populations. If Spain had a population of only about nine million in 1492, how could Mexico have possessed a larger population that included cities whose size far exceeded that of the cities of medieval Europe? How could it be that so few Spaniards subjugated civilizations considerably larger than theirs? During the Second World War imperialism came to be regarded as morally undesirable. Subsequently, colonies were seen as obstacles to free trade, and increasingly expensive to maintain – particularly in the face of increased colonial agitation for independence. Colonial rule was increasingly condemned as having destroyed native civilizations and brought about the poverty and marginalization of indigenous peoples. In this political climate larger population estimates became acceptable and,

for some, even desirable. Notwithstanding these comments, some scholars from regions such as Argentina, Chile, and Brazil – where native populations were relatively small, and where the most fundamental transformations to the economies occurred in the nineteenth century – have tended to minimize the impact of colonial rule and promote low estimates. But the disagreement exists not only over the overall impact of colonial rule, but also over the factors involved. Those wishing to condemn colonial rule emphasize the brutality of conquest and play down the role of epidemics, and vice versa.

Prior to the 1960s, many authors commented in passing on the impact of Old World epidemics. But it was Henry Dobyns who focused on the issue in the context of estimating indigenous populations. He concluded that previous estimates, such as those of Alfred Kroeber, Julian Steward, and Angel Rosenblat, were too low because they had taken insufficient account of the impact of Old World diseases. Instead, he proposed that native populations had declined (from contact to population nadir, which for many societies was in the mid-seventeenth century) by a ratio of 20:1 or 25:1; or, put another way, by between 95 and 96 percent. On the basis of these depopulation ratios he estimated that the indigenous population of the continent was between 90 and 112 million. This seminal paper stimulated much new research that has led to the revision of old estimates and produced new ones for some regions, such as Central America. William Denevan's review of the progress of research up to 1992 concluded that the combined estimates of scholars suggested that the native population of the Americas was about fifty-four million (see Table 5.1). However, these scholars used different sources, methods, and assumptions, so that this figure necessarily has wide margins of error. Nevertheless, it does suggest estimates rather lower than those suggested by Dobyns and by the "Berkeley School" composed of Sherburne Cook, Woodrow Borah, and Lesley Byrd Simpson.

Assuming an aboriginal population of between fifty and sixty million in 1492, it would appear that about 32 percent were living in Mexico and about 30 percent in the Andes (including Colombia and Venezuela). These dense populations were supported by intensive forms of agricultural production and were socially stratified, with leaders able to exact tribute in the form of labor and goods. In particular, Mexica society was highly urbanized. Its capital, Tenochtitlán, possessed about 200,000 inhabitants (by comparison, in the early sixteenth century, London's population was less than 100,000). The Caribbean may have had a population of about three million, and Amazonia about five million. These regions were occupied by societies whose livelihood was based on swidden cultivation, hunting,

Table 5.1. *Estimated native population in 1492*

| Region | Estimated population in 1492 | Percentage of total |
|---|---------------------------------|------------------------|
| North America | 3,790,000 | 7.0 |
| Mexico | 17,174,000 | 31.9 |
| Central America | 5,625,000 | 10.4 |
| Caribbean | 3,000,000 | 5.6 |
| Andes ¹ | 15,696,000 | 29.1 |
| Amazonia ² | 5,664,000 | 10.5 |
| Chile and Argentina | 1,900,000 | 3.5 |
| Paraguay, Uruguay, and southern Brazil | 1,055,000 | 2.0 |
| Total | 53,904,000 | 100.0 |

¹ Highlands and coast of Venezuela, Colombia, Ecuador, Peru, and Bolivia.

² Includes eastern lowlands along the eastern and southern flank of the Andes.

Source: William M. Denevan, ed., *The Native Population of the Americas in 1492*, 2nd ed. (Madison, WI, 1992), xxix.

fishing, and gathering. They were not markedly stratified, though shamans and war leaders could achieve some status. And in Hispaniola, Puerto Rico, and eastern Cuba chiefdoms had emerged. Peripheral regions such as northern Mexico, southern Chile, and Argentina were characterized by low population densities that were associated with nomadic groups that subsisted on wild food resources. Although many authors would dispute the precise numbers living in each region, there is more general agreement over the broad proportions they contained. The size and character of societies in different regions would have a significant influence on demographic trends in the colonial period, but before examining these processes it is worth noting that many of these societies were undergoing major changes. The Europeans entered a dynamic demographic landscape; whether populations were increasing, declining, or stable had significant influence on their subsequent survival.

PRE-COLUMBIAN POPULATION DYNAMICS

The year 1492 was a turning point in the demographic history of native peoples of the Americas because, for the previous 15,000 years, it had been

on an upward trajectory. However, this general trend masked considerable population fluctuations over time and space, with many societies reaching their apogee only to collapse. Most is known about major civilizations, such as the Maya. But change was also a feature of other, less well-known societies. At the time of conquest both the Mexica and Inca empires were continuing the expansion they began in the 1460s, but they were overextending themselves politically, and in the case of the Mexica, were subject to food shortages and famines. Hence, some authors suggest that they would have collapsed even if the Spaniards had not arrived. The Mexica empire – or more correctly the Triple Alliance of the city-states of Tenochtitlán, Texcoco, and Tacuba – was not an integrated empire, but one in which outlying groups were made tributary to the state through conquest and coercion. Conquest was driven not only by the desire to acquire tribute in exotic products and basic staples, but also through the need to obtain captives for sacrifice to the god of war, Huitzilopochtli. Sherburne Cook has estimated that about 15,000 captives were sacrificed annually, and many more were killed in military campaigns that subdued rebellious groups and acquired the captives. Although the Inca Empire has often been portrayed as a welfare state, or even a socialist empire, which was established through peaceful means on the basis of reciprocity and redistribution, its expansion involved major military campaigns that brought considerable loss of life. In Ecuador alone, Inca military campaigns cost the lives of about 100,000 people.

Some authors see the expansion of the Mexica and Inca empires as driven by the need to acquire new lands as a result of population pressure on resources. They point to evidence of terracing on almost all vertical slopes, and the construction of elaborate irrigation systems and raised fields that all served to expand and intensify production. There are about 600,000 hectares of terracing in the Andes, mostly pre-Columbian in origin, and about 12,000 hectares of *chinampas* (raised fields) around Tenochtitlán. However, the Incas did not use land acquired through conquest to produce basic staples; new land was used to produce sumptuary goods that were consumed by the political and religious elite, used to buy the allegiance of subjugated chiefs, and used to maintain the religious cults that were necessary to the expansion of the state. Although the Mexica also demanded sumptuary goods as tribute, staples figured significantly among the items imported into the Valley of Mexico. Some authors argue that population pressure in the Valley of Mexico was behind the initial expansion of the Mexica, but others suggest that food supply problems occurred much later,

when its population was swollen by large numbers of immigrant craftsmen and laborers. There appears to be growing evidence for soil erosion in some parts of the Valley of Mexico just prior to the Spanish invasion, but other authors argue that the food shortages experienced were problems of distribution rather than supply. The Mexica empire was highly urbanized and did not have the Inca advantage of either large storehouses or a highly durable food in the form of freeze-dried potato, called *chuñu*, which could be used to meet shortages. Nor did the Mexica possess llamas that could be used to transport bulky staples, although around Tenochtitlán effective use was made of canoes.

Whether or not either empire was suffering from demographic stress caused by population pressure on resources, neither had begun to limit population growth. Far from it, both societies had population policies that encouraged growth. Age at marriage was low, premarital intercourse was encouraged, large families were provided with more land, and the Inca state even participated in the arrangement of mass marriages. Most people married between the ages of sixteen and twenty, and if a spouse died remarriage was the norm. Despite the precocity and frequency of marriage, population growth was held back by high mortality and low life expectancy.

Even though most acute infections were absent from the New World prior to 1492, this does not mean that native peoples lived in a disease-free environment or that they were uniformly healthy. A major study of skeletal remains from the Americas dating from about 6000 B.C. has revealed that through prehistory nutrition and health generally declined with the development of sedentary agriculture.³ Human diets became less diverse, food shortages more common, and the concentration of population in nucleated settlements encouraged unhygienic conditions and facilitated the spread of disease. Societies that became dependent on maize suffered from iron-deficiency anemia. Gastrointestinal and respiratory infections were the most common, particularly in areas of dense population. Acute infections, such as typhus and tuberculosis, may have been present in some regions. Labor, dependent on human power alone, was hazardous and arduous, resulting in fractures and degenerative joint disease. Mortality levels, particularly among infants and children, were very high. At the time of the Spanish invasion, Mexica life expectancy at birth was only about

³ Richard H. Steckel and Jerome C. Rose, eds., *The Backbone of History: Health and Nutrition in the Western Hemisphere* (Cambridge, 2002).

fifteen to twenty years, and even the most fortunate who survived to that age might live at most for another twenty years.

The Mexica and Inca thus appear to have been characterized by very high fertility, but also high mortality. This high-pressure demographic regime meant that population growth was slow and highly variable. In some cases the balance would be favorable and in others it might result in severe depopulation. Thus, although population growth in the Central Basin of Mexico may have averaged 0.5 to 0.7 percent a year between 1250 and 1500, it could not be sustained in the early colonial period in the face of exceptionally high mortality, despite high fertility. However, as will be shown, these high-fertility regimes, particularly among the Mexica, may have facilitated their early demographic recovery.

Demographic change was no less a feature of other societies in Latin America. Tribal and hunter-gatherer societies were subject to fluctuations in food supply caused by adverse weather conditions, flooding, or other natural disasters, or through the overexploitation of land or game. Competition over access to resources might lead to conflict that was also inspired by the need for revenge or by other ideological reasons. Whether by design or not, warfare could reduce population levels significantly. Among the Tupinambá a man was required to kill a captive prior to marriage – a custom that in theory meant that each generation had to lose a quarter of its population in order to reproduce. This practice maintained high mortality levels, delayed marriage, created unbalanced sex ratios, and reduced fertility. Such practices were clearly inappropriate for survival in the colonial period, when a group's reproductive capacity needed to be maximized in the face of even higher levels of mortality.

COLONIAL DEMOGRAPHIC TRAJECTORIES

The debate over the aboriginal population of the Americas in 1492 is likely to continue, although most scholars are more interested in the role it plays in social and environmental change than in numbers per se. Scholars generally agree that European contact brought demographic disaster, although the extent of the decline and the factors involved continue to be areas of dispute. However, there is growing recognition that the process of demographic change was affected by factors other than conflict and epidemic disease. Racial mixing and changes to native production systems, social structures, and ideologies, though less quantifiable, played increasingly

important roles in determining demographic trends. Most scholars agree that native societies differed widely in the level of depopulation and recovery they experienced, but three general trajectories can be distinguished. First, indigenous peoples of the Caribbean and the coast of Brazil, who were the first to encounter Europeans, suffered the worst fate. They were virtually extinct within a few generations, and mostly replaced as a labor force by African slaves. Second, in the political and economic cores of the Spanish empire – the highlands of Mexico, Central America, and the Andes – native populations were able to achieve a level of recovery, the extent and timing of which varied. Third, there were other groups, particularly in the lowlands (including Amazonia), which continued to decline until this century, when some have experienced a degree of recovery. There were often marked differences in demographic trends within these broad areas, but these three general trajectories provide a useful framework for more detailed discussions of the demographic impact of colonial rule in different regions. The underlying assumptions are that the size and character of native societies played a significant role in determining where the Spanish and Portuguese settled, and how they sought to achieve the contradictory aims of generating wealth, while at the same time bringing about the “civilization” and conversion to Christianity of native peoples. State societies accustomed to paying tribute and being subject to forced labor drafts posed very different opportunities and administrative problems for the invaders than did nomadic hunter-gatherers or tribal groups. Less often recognized is the fact that the size, distribution, and character of native societies also played significant roles in determining the impact of epidemics and, in the long run, the ability of native societies to achieve demographic recovery by acquiring some immunity to Old World diseases and by adjusting to the new colonial order.

IMMIGRATION AND RACIAL MIXING

IBERIAN IMMIGRATION

Demographic change among native peoples was strongly correlated with the intensity of Spanish immigration and settlement. This was because of the restructuring of native societies that accompanied Spanish demands on native lands, labor, and production, and because they influenced the spread of disease and the level of racial mixing. During the sixteenth century,

between 250,000 and 300,000 Spaniards migrated to Spanish America, maybe half of them illegally. The destination and gender of over 50,000 are known (see Table 5.2). Only a small proportion of the immigrants were women. In fact, the proportion may have been even smaller because most of the illegal immigrants – mainly soldiers and sailors who jumped ship – were men. However, the unbalanced sex ratio was corrected toward the end of the century as permanent Spanish households were established in the Americas, and as male emigration resulted in a shortage of marriageable men in Spain that encouraged more women to migrate. By 1600, natural increase, fostered by good standards of living, contributed more to the growth of the white population than immigration. In the earliest years of settlement, the growth of the mestizo population contributed to demographic decline, but it was a far less significant factor than conflict and epidemics. Subsequently, the numbers of mestizos continued to grow. But because whites were the most endogamous of ethnic groups, albeit only where there were sufficiently large marriage pools, the increase was primarily due to ethnic passing.

The trajectory of Spanish settlement followed exploration. Once the riches of Mexico had been revealed, many settlers in the Caribbean abandoned the islands for the mainland, whereas those who failed to receive *encomiendas* or other privileges there were in turn motivated to try their luck on expeditions to Peru and then to Chile. Therefore, during the first half of the sixteenth century, the peaks of immigration for each region followed their initial exploration. This is clearly illustrated in Table 5.2, which is based on Peter Boyd-Bowman's study of the destinations of about 56,000 immigrants from 1493 to 1600, who he estimates composed about 20 percent of the total number of immigrants. The table also shows how once the process of exploration was largely complete, the field of immigration contracted as newcomers increasingly focused on what became the core regions of the empire, Mexico and Peru. Fewer went to areas where limited opportunities existed for economic and social advancement and, as was the case in Chile and Rio de la Plata, regions where remote colonists often faced hostile Indians. Hence when Vázquez de Espinosa compiled his *Compendio y descripción de las Indias Occidentales* in 1628, over 70 percent of the 77,400 *vecinos* in Spanish America were to be found in Mexico, Peru, and Bolivia (Upper Peru). And within those areas Spaniards were highly concentrated in the major cities, especially the viceregal capitals and the principal mining centers such as Potosí.

Immigration from Spain averaged about 4,000 a year towards the end of the sixteenth century and it probably continued at about this level through

Table 5.2. *Known destinations of Spanish emigrants, 1493–1600*

| | 1493–1519 | 1520–1539 | 1540–1559 | 1560–1579 | 1580–1600 | Total | Percentage |
|---|-----------|-----------|-----------|-----------|-----------|--------|------------|
| Caribbean Islands | 1,254 | 1,675 | 472 | 1,458 | 490 | 5,349 | 10.6 |
| Mexico and Yucatán | 743* | 4,300 | 2,057 | 7,338 | 2,820 | 17,258 | 34.3 |
| Central America | | 604 | 181 | 954 | 255 | 1,994 | 4.0 |
| Tierra Firme (Panama) | 590 | 958 | 506 | 928 | 431 | 3,413 | 6.8 |
| Nueva Granada (Colombia, Venezuela, Quito) | | 1,293 | 892 | 2,044 | 729 | 4,958 | 9.8 |
| Peru | 92* | 1,342 | 3,248 | 3,882 | 3,451 | 12,015 | 23.9 |
| Rio de la Plata (including Paraguay) | | 1,088 | 600 | 733 | 169 | 2,590 | 5.1 |
| Chile | | 180 | 819 | 488 | 343 | 1,830 | 3.6 |
| Florida | | 701 | | 239 | 28 | 968 | 1.9 |
| Total | 2,679 | 12,141 | 8,775 | 18,064 | 8,716 | 50,375 | 100.0 |
| Number of women | 308 | 845 | 1,480 | 5,013 | 2,472 | 10,118 | |
| Number of emigrants for which sex is known | 5,481 | 13,262 | 9,044 | 17,587 | 9,508 | 54,882 | |
| Percent women | 5.62 | 6.37 | 16.36 | 28.50 | 26.00 | 18.44 | |

*Colonists in the Americas before the conquest of these regions began.

Source: Peter Boyd-Bowman, *Patterns of Spanish Emigration to the New World, 1493–1580* (Buffalo, NY, 1973), 599–602.

the seventeenth and early eighteenth centuries (or perhaps at a slightly lower level due to fewer ships sailing to the New World). However, it increased again toward the end of the eighteenth century. But this time few immigrants went to Mexico and Peru, where the white population grew primarily as a result of natural increase; rather they focused on Rio de la Plata, Chile, Venezuela, and Cuba as the European demand for their products increased, and as the administrative and economic reforms of the late eighteenth century boosted their economies. These relatively sparsely settled areas had little in the way of labor, so they also became the prime focus of African immigration. Hence, the population of Venezuela almost quadrupled from a population of 225,000 at the beginning of the eighteenth century to 898,000 in 1800, when 20 percent was classified as white and over 60 percent were African slaves, free blacks, or *castas*.

The chronology of Portuguese immigration during the colonial period was almost the reverse of that described above for Spanish immigration, for it was not until the eighteenth century that Brazil witnessed immigration on a scale greater than Spanish America in the sixteenth century. Whereas from an early date the white population in Spanish America grew as a result of natural increase, in colonial Brazil it was largely sustained by immigration. In the early colonial period Portuguese interest focused on trading posts in Asia and few immigrants were attracted to Brazil; many of the earliest settlers were convicts, deserters, or survivors of shipwrecks. In 1549, when the first Governor-General arrived, Brazil possessed only about 4,000 to 5,000 white settlers, but their numbers increased with the establishment of sugar plantations so that by 1600 there were about 30,000. Most settled on the coasts of Pernambuco, Bahia, and Rio de Janeiro. But in contrast to Spanish America, only about 10 percent resided in the towns – the rest lived on estates in the urban hinterlands, where they employed slave labor. It has been estimated that in 1612 Brazil possessed 120,000 slaves, half African and half Indian. Men predominated among migrants to Brazil even into the eighteenth century, a circumstance that led to widespread racial mixing.

During the early seventeenth century immigration continued at a relatively low level. Between 1580 and 1640 some Portuguese took advantage of the freedom to settle in Spanish colonies afforded by the unification of the Crowns of Spain and Portugal. Later in the century deteriorating economic conditions in Portugal and the decline in trade with Asia also encouraged emigration. But it was the discovery of gold in Minas Gerais that led to immigration on an unprecedented scale. During the early eighteenth century about 8,000 to 10,000 emigrants left Portugal annually, and

in 1720 the Portuguese Crown was forced to impose emigration controls. The discovery of gold not only stimulated immigration, but led to a shift of population into the interior. In the eighteenth century – in order to consolidate political control of Santa Catarina and Rio Grande de São Pedro, later known as Rio Grande do Sul – Portugal encouraged immigration, especially from the Azores and Madeira. Here, immigrants established ranches based initially on the exploitation of feral cattle using family labor rather than African slaves. Hence, by 1802 about 55 percent of Rio Grande do Sul's total population of just over 20,000 was white, and due to family immigration there were few people of mixed race.

It has been estimated that during the eighteenth century about 300,000 to 500,000 immigrants arrived in Brazil, which, coupled with high rates of natural increase, meant that according to one census in 1822 the white population accounted for about 35 percent of the total population, a significantly higher proportion than in most parts of Spanish America. Despite rapid population growth in the eighteenth century, the distribution of the population did not alter significantly; rather it remained concentrated in the old colonial heartlands of Bahia, Pernambuco, and Rio de Janeiro. One difference was that the population had become more urbanized, with some cities, such as Salvador da Bahia, which possessed a population of about 170,000 in 1780, surpassing the size of most cities in North America and many in Europe at the time.

AFRICAN SLAVERY

The origins, volume, and timing of the African slave import trade have been considered fully in Chapter 3, so only brief comments will be made here. Philip Curtin has estimated that nearly 1.6 million African slaves were imported legally to Spanish America up to 1870, about 40 percent of whom were imported in the nineteenth century, primarily to Cuba. During the same period over double that number, about 3.6 million, were imported legally to Brazil. There was more balance between the regions than these figures suggest because contraband trade was more prevalent in Spanish America. Hence, total imports to Spanish America probably exceeded 3 million and those to Brazil maybe 5 or 6 million. Many scholars would consider these figures conservative. African immigration not only was essential to the economies of some regions, but fundamentally altered the racial composition of their populations and often shifted their overall distribution to include areas that had formerly been sparsely settled. Slave

resistance also spawned maroon communities. The demographic impact of African immigration was highly uneven.

The importation of African slaves was a response to the shortage of Indian labor, which derived from the absence of a substantial native population in pre-Columbian times or its decline in the early colonial period. However, because African slaves were costly to import, they were found primarily in areas where enterprises generated sufficient profits to cover their costs. In the colonial period these activities included mining and the production of tropical crops for export – notably sugar and, to a lesser extent, cacao. More temperate regions, where labor was short, did not experience an influx of European and African immigrants until the nineteenth century, when the nature of demand for agricultural products changed. In the colonial period African slaves were found predominantly in the sugar-producing regions of northeast Brazil and the Caribbean, and in some mining areas that included Minas Gerais, northern Mexico, and the Colombian gold fields of Antioquia, Popayán, and the Chocó. The slave trade later became associated with other profitable commodities such as coffee, cotton, and tobacco. However, African slaves were also employed in small numbers even in areas of dense native population. In Spanish America they undertook tasks that in law were deemed too arduous for Indians, such as sugar milling, pearl fishing, portage, and working hand pumps that kept the mines free of water. More significantly, employers purchased them when they needed to develop a skilled and reliable workforce, and often preferred them because they were considered more adaptable to new methods of working. African slaves were commonly employed as artisans, particularly in carpentry, metal working, construction, and clothing. In addition, for reasons of social prestige, wealthy families in the major cities and ports often had African slaves rather than Indians as their household servants. Despite their high cost, they were particularly prominent in coastal Peru, where the native population suffered a severe decline in the early colonial period. Hence, by 1636 African slaves composed 50 percent of Lima's population of about 27,000, and in the last decade of the eighteenth century there were about 90,000 African slaves in the country as a whole. In the sixteenth century African slaves were also common in Mexico City, but the earlier recovery of the native population reduced the demand for slaves and the African population became absorbed into the growing population of *castas*.

Meanwhile, in Brazil the absence of a large pool of Indian labor meant that from the sixteenth century Africans composed the dominant racial group. In 1818 Alexander von Humboldt estimated that Africans accounted

for about 54 percent of the total population of 3.7 million. Imbalances in age and sex ratios and high levels of infant mortality meant that these numbers were maintained by fresh imports rather than reproduction; it was cheaper for employers to import new slaves than to bear the costs of raising slave children from birth. Only in the mining region of Minas Gerais in the late colonial period did reproduction maintain African slave populations. Scholars have attributed this to the region's more diversified economy, which created a demand for female as well as male labor, and to more balanced sex ratios due to the decline of slave imports.

RACIAL MIXING

From the first arrival of Europeans racial mixing was a feature of colonial society. It was encouraged by unbalanced sex ratios and initially by intermarriage between Spaniards and Indian noblewomen as a mechanism for achieving political control. Nevertheless, the Spanish Crown wished to discourage contact between the races, partly to protect the Indians from ill treatment and abuse, and partly to separate the races clearly for the purposes of identifying tribute and labor obligations. It thus pursued a policy of residential segregation that envisaged the creation of two republics – the *república de indios* composed of Indians, and the *república de españoles* composed of all other racial groups. This policy was impracticable because Indian labor was essential to the functioning of the colonial economy. Therefore, within areas of relatively dense Indian population it was the towns, mines, and haciendas (where labor demands were highest) that were characterized by the highest levels of racial mixing. Here, Indians came into contact not only with whites, but also with small numbers of Africans, who were often employed in Spanish households or as overseers, and with the growing numbers of people of mixed race who did not have access to land. Mixed racial populations also characterized areas of sparse Indian population where economically profitable enterprises could be established based on imported labor. In the early colonial period these areas were few, and they were associated primarily with mining – notably in northern Mexico and Colombia. However, in the eighteenth century changes in the nature of demand in Europe meant that formerly economically peripheral regions – such as Venezuela, Chile, Rio de la Plata, and Cuba – also attracted whites and African slaves, whose large numbers effectively swamped and incorporated the small Indian populations that remained in those regions.

Over time the numbers of people of mixed race grew. Mestizos predominated in Indian areas and mulattos where labor shortages had led to the importation of African slaves. Because the distributions of Indians and Africans were largely complementary, contact between these races was less and zambos were far fewer. Despite their often marginal economic and social status, Indians often sought non-Indian partners, because marriage or conjugal relationships with a non-Indian might mean freedom from forced labor and other obligations, either for themselves or their offspring, and thus constitute a movement up the social ladder. Women tended to be more upwardly mobile than men. Concubinage and illegitimacy were higher among persons of mixed race than among whites or Indians. Levels of illegitimacy varied over time and space, but commonly over 40 percent of *casta* births were illegitimate. The fact that mixed race families were larger than those of Indians, and that they had a greater propensity to marry exogamously, meant that over time the population of mixed races expanded. The growth may also have been aided by the acquisition of hereditary immunity to some diseases, such as malaria. Although fertility rates among the mixed races appear to have been higher than those for Indians or African slaves, a significant proportion of the marked increase in their numbers, particularly in the eighteenth century, came not from miscegenation, but from Indians "passing" as people of mixed race by speaking Spanish and changing their dress, appearance, and lifestyle. By 1810 *castas* accounted for about 22 percent of the Mexican population, a percentage almost identical to that found in late eighteenth-century Peru (Table 5.3). However, there were marked regional variations in both areas. In Mexico's northern mining *intendencias* of Zacatecas, San Luis Potosí, and Durango *castas* composed 35 percent of the population, whereas in Oaxaca and Yucatán, which were economically peripheral regions of dense native population, they accounted for only 5 and 12 percent, respectively. On the other hand, the mixed races came to compose a significant proportion of populations in sparsely settled areas that, as noted above, saw significant Iberian and African immigration in the late eighteenth century. Hence in 1800 *castas*, most of whom were *pardos*, accounted for 45 percent of the Venezuela's population of about 900,000.

In the sixteenth century the mixed races in Brazil were primarily *mamelucos* – the Portuguese equivalent of the mestizo – and this group remained dominant in the southeast. Later, with the African slave trade and the development of sugar estates in the northeast and gold mining in Minas Gerais, mulattos came to dominate the population of mixed races. In 1810 free mulattos and blacks accounted for over 30 percent of the populations

Table 5.3. *Racial composition of selected countries at the end of the colonial period*

| | | Indians | Mestizos | Castas | Mulattoes | Blacks/ slaves | Spaniards/ whites | Total | Source |
|-----------|----------------------|---------|----------|--------|-----------|-------------------|----------------------|-----------|---|
| Mexico* | 1810 | 60 | 21.7 | | | 0.1 | 18.1 | 6,122,354 | Navarro y Noriega, 1943, 30 |
| Guatemala | 1804 | 58 | 37.5 | | | | 4.5 | 1,000,000 | Pinto Soria, 1989, 131 |
| Honduras | 1777 | 41 | | 53.1 | | | 6 | 89,420 | Newson, 1985, 325 |
| Venezuela | 1800 | 18 | | 45.3 | | 16.2 | 20.6 | 898,043 | Villamarín and Villamarín, 1976, 113–4 |
| Colombia | 1778 | 19.5 | | 47.5 | | 7.7 | 25.3 | 800,044 | Villamarín and Villamarín, 1976, 84 |
| Ecuador | Late 18th century | 65.2 | | 6.7 | | 1.2 | 27 | 426,834 | Andrien, 1995, 36 |
| Peru | 1795 | 58.2 | 21.9 | | | 7.3 | 12.6 | 1,115,207 | Fisher, 1970, 253 |
| Bolivia | 1788 | 47.7 | 31.3 | | 4.8 | 0.2 | 16 | 125,245 | Larsen, 1985, 175 Cochabamba only |
| Chile | 1777–81 | 9.5 | 7 | | 7.6 | 1.4 | 74.5 | 258,802 | Carmagnani, 1967, 179–91 |
| Brazil | 1798 | 7.8 | | | | 61.2 | 31.1 | 3,250,000 | Merrick and Graham, 1979, 29 |

* There is considerable debate over population estimates for Mexico at the end of the colonial period. The total figure is likely to be an overestimate.

of these regions, of which 60 percent to 70 percent were mulattos, who were the most rapidly growing racial group in Brazil.

COLONIAL CORE REGIONS: FIRST ENCOUNTERS

THE CARIBBEAN CRUCIBLE

The demographic impact of colonial rule was most devastating in the Caribbean, where most native groups became extinct within a generation. A wide range of estimates have been proposed for the aboriginal population of Hispaniola, which extends from 60,000 to 7.9 million, but there is little dispute that by 1514 it had fallen to less than 30,000, and by 1542 fewer than 2,000 remained. The same demographic trend was repeated in the other large islands in the Caribbean, notably Puerto Rico, Jamaica, and Cuba. Although Bartolomé de las Casas's passionate denunciation of the "destruction of the Indies" may have overstated the extent of the decline, there is no doubt that the Black Legend was a reality that was seized upon by Spain's critics to discredit its rule in the New World. Although the Crown sought to control the activities of *conquistadors* and soldiers, it initially depended upon them to consolidate its claim to the newly found territories. Thus, the first thirty years of Spanish colonial rule were characterized by power struggles between the Crown, clergy, *conquistadors*, and settlers for control over native peoples and resources. During this time there were numerous political and economic experiments that attempted to reconcile the need to protect the Indians from exploitation with the practical needs of empire. By the mid-sixteenth century the Crown had been able to exert its authority, but not before the native population of the Caribbean had become virtually extinct.

The enormity of the demographic collapse in the Caribbean has generally been attributed to the rapacious activities of Spanish *conquistadors*, soldiers, and settlers. They drafted native Taino peoples – who were unaccustomed to forced labor – to pan alluvial gold, construct their towns, and provide them with food, while subjecting them to overwork and brutal ill treatment, crushing any resistance and hunting down those who escaped like animals. During the early colonial period, the obligations placed on *encomenderos* to protect the Indians from abuse were largely ignored, as was the legislation that the Crown introduced in a desperate attempt to stem

the tide of population decline that threatened its continued presence in the Americas. High mortality rates associated with conflict and labor in the mines were exacerbated by food shortages and famines. Food production declined with the native population and as labor was diverted into mining, while the burden of supplying a dependent population of Spaniards and miners increased. By 1508 there were about 10,000 Spaniards living in Hispaniola. These demands were made in the context of a native economy based on the production of manioc that generated limited surpluses and where diets needed to be supplemented by hunting and fishing, for which there was now little time. Meanwhile fertility levels fell as labor drafts and high death rates led to family breakdown and as the psychological impact of conquest induced infecundity and instilled a "loss of will to survive."

The Spanish remained in Hispaniola for sixteen years, but with the exhaustion of the best gold deposits, the decline in sources of labor, growing native hostility, and food shortages, they extended their settlement to Puerto Rico. Here the same scenario was repeated. Then they moved to Jamaica, and subsequently to Cuba. As populations on the larger islands were destroyed, the Spanish resorted to conducting raids on smaller islands, notably the Lucayas Islands (the Bahamas) and the Lesser Antilles, but also Trinidad and the Venezuelan littoral. Although in 1500 the Crown banned Indian slavery, three years later it was permitted in the case of cannibals, those who resisted Spanish rule, and those who were slaves in their own societies. The fact that cannibalism was practiced on a small scale by some Carib groups led to the widespread labeling of native groups as Carib in order to justify their enslavement. In response to Spanish slave raids, natives from the Lesser Antilles began raiding Spanish islands, which to Spanish eyes further justified their enslavement. Transferred to the Greater Antilles, the captives survived no longer than the Taino they had replaced. Thus by the time Indian slavery was abolished in 1542, not only native populations in the islands where Spaniards had settled, but also those in neighboring islands, had become virtually extinct.

No one disputes the devastating impact that the first settlers had on Caribbean populations, but it is less clear whether they were also afflicted by epidemic disease. Until recently it was thought that the first epidemic of smallpox to hit the Greater Antilles did not occur until 1518, which was considerably after most of the native losses had been sustained. However, Francisco Guerra has suggested recently that influenza was carried to Hispaniola by pigs on Columbus's second voyage in 1493, whence it spread to

other islands with exploratory expeditions. N. David Cook has also identified several major outbreaks of disease that caused high mortality prior to 1518, though they are only vaguely described as "sickness" or "fever," and were probably associated with shortages of food or unhygienic conditions.

Following the Spanish encounter with the Mexica empire, Spanish explorers and immigrants increasingly bypassed the Caribbean islands. The importance of the Greater Antilles to Spain subsequently derived from their strategic location and the role that ports such as Havana, Santo Domingo, and San Juan played in the Spanish trading system. Although some hides, sugar, and tobacco were produced, along with foodstuffs for passing ships, agricultural production focused primarily on subsistence. It was not until the nineteenth century, when the commercial production of sugar and tobacco began in earnest, that large numbers of Spanish immigrants and African slaves arrived in Puerto Rico and Cuba.

Meanwhile other depopulated Caribbean islands were occupied or seized by the English, French, and Dutch, who established sugar plantations using African slave labor. The remaining native groups generally retained their opposition to colonial rule and to varying degrees went through a process of ethnogenesis, whereby not only were their political and economic structures reworked, but other ethnic groups, including runaway African slaves and European captives, were incorporated. A notable example is the Black Caribs of St. Vincent, who were transported to Central America at the end of the eighteenth century, and who now form distinctive communities in Honduras, Guatemala, and Belize.

COASTAL BRAZIL

In many respects demographic trends on the coast of Brazil in the sixteenth century paralleled those experienced by native societies in the Caribbean, although the timing and relative significance of the factors involved differed. The coast from the Amazon to Rio de Janeiro was relatively densely settled and dominated by Tupi groups collectively known as the Tupinambá. These societies comprised multifamily villages of several hundred to a few thousand people who subsisted on the cultivation of bitter manioc and other roots and intensively exploited fish, shellfish, and game. William Denevan suggests that coastal Brazil possessed an aboriginal population of just under one million. Of that number about 100,000 were living on the coast between São Paulo and Rio de Janeiro, but by 1600 maybe only about 7,000 remained.

First contacts with the Portuguese were fairly amicable and the natives readily traded dyewood for metal tools and arms, but conflicts soon arose when in the 1530s demands for labor emerged with the establishment of sugar plantations. The Tupinambá were unaccustomed to forced labor, but agreed to supply slaves in return for metal tools and arms. The Tupinambá were characterized by intertribal warfare in pre-Columbian times, but colonial demands for labor heightened these conflicts as villages competed with each other to capture slaves for sale, as well as for revenge and sacrifice, resulting in high mortality and the social dislocation and ill treatment of those captured. Unlike in Spanish America, there were no attempts to ban Indian slavery in Brazil until 1570, and even then the legislation was ineffective because of significant loopholes that permitted Indians be taken in “just war” and for the ransom (*resgate*) of captives in native societies.

Persistent demands for slaves provoked Indian resistance that prompted the Portuguese to adopt a more aggressive policy, which involved subjugation by military force and missionization. From the late 1550s military campaigns were conducted – especially under the Governor-General, Mem de Sá – that aimed to pacify the Tupinambá and settle them in *aldeias*. In the process, resistant groups – such as the Caeté – were brutally suppressed, and thousands of captives taken. By the early 1560s the Jesuits had established twelve mission villages or *aldeias* containing 40,000 Indians in the vicinity of Salvador alone, and others had been founded in the captaincies of São Vicente and Espírito Santo. The congregation of Indians into settlements of 4,000 to 5,000 facilitated the spread of epidemic disease, undermined subsistence systems, changed residential patterns and marriage practices, suppressed native rituals, and restructured daily life. These changes in turn provoked resistance and flight, so that despite some new captives being settled in the *aldeias*, by 1580 the population of those around Salvador had fallen to 10,000.

Alongside the devastation caused by the military campaigns and missionization, and facilitated by both processes, was the impact of epidemic disease. Although there is no direct evidence of epidemics prior to 1550s, most scholars consider it likely that some pathogens reached Brazil because of the frequency of contacts with Europeans, including the French and English, and the policy of abandoning sick crewmembers ashore. However, there are vivid accounts of epidemics later in the century, including one of hemorrhagic dysentery combined with a pulmonary infection in 1559 that caused 20 percent mortality in some *aldeias* near Espírito Santo. The first epidemic of smallpox occurred between 1562 and 1565, and in three to four

months was said to have killed 30,000 Indians in the recently established missions near the Bahia de Todos Santos. The population of coastal Brazil was too small to enable smallpox to become endemic, but as the African slave trade expanded contacts with Africa its regular re-introduction was ensured. Major epidemics not only caused high mortality, but through exacerbating labor shortages on the plantations and providing grounds for revenge they also stimulated slave-raiding activities.

Declining coastal populations and increasing hostility meant that slave raiders brought fewer slaves from more distant locations. Nevertheless, in the late sixteenth century the expansion of the sugar industry served to prolong and extend enslaving activities further north and into the interior. Ultimately, Indian slaves proved too few and too intractable to form the basis of the labor force, so that wealthy planters turned to the importation of African slaves. However, in the less prosperous southeast, native slaves remained an important stay to the economy. As in the Greater Antilles, by 1600 conflict, slavery, and epidemics had brought about the near extinction of native peoples of coastal Brazil.

COLONIAL CORE REGIONS: THE SPANISH AMERICAN MAINLAND

Indian populations in the highlands of Middle America and the Andes that had once constituted populous state and chiefdom societies were able to survive colonial rule to a greater degree than other native groups. Although they suffered severe depopulation in the sixteenth century, for the most part colonial rule did not bring about their extinction or spell the complete destruction of their cultures. Rather, sufficient populations remained to enable them to adapt and restructure, and thereby achieve a degree of recovery. However, there were considerable spatial and temporal variations in the levels of decline and recovery.

As already noted, Henry Dobyns postulated that the native population of the Americas declined by a ratio of 20:1 or 25:1 from first contact to nadir, but the labors of a large number of scholars have indicated lesser or greater declines for some regions (see Table 5.4). What appears to be consistent is that levels of depopulation were generally lower in the highlands of Middle America and the Andes, but higher on their adjacent coasts. Hence, Sherburne Cook and Woodrow Borah have estimated that between 1532 and 1608 the population of Central Mexico fell from 16.8 million to 1.1 million,

Table 5.4. *Depopulation ratios for selected core regions of colonial Latin America*

| | Region | Initial population | Population nadir | Dates | Ratio | Source |
|----------------|------------------------------|--------------------|------------------|--------------|---------|---------------------------------|
| Central Mexico | Highlands | 11,226,336 | 852,244 | 1532–1608 | 13.18:1 | Cook and Borah, 1971 |
| | Lowlands | 5,645,072 | 217,011 | 1532–1608 | 26.02 | Cook and Borah, 1971 |
| Oaxaca | Alcalde Mayor | 346,900 | 20,800 | 1520–1622 | 16.7 | Chance, 1989 |
| | Villa Alta | | | | | |
| Guatemala | Whole region | 2,000,000 | 128,000 | 1520–1625 | 15.6:1 | Lutz and Lovell, 1994 |
| | Totonicapán | 60,000–150,000 | 13,250 | 1520–1570/80 | 7.9:1 | Veblen, 1977 |
| | Cuchumatán | 260,000 | 47,000 | 1520–1570/80 | 5.5:1 | Lovell, 1981 |
| Honduras | | 800,000 | 47,544 | 1520–1700 | 16.8 | Newson, 1986 |
| Nicaragua | Includes Nicoya | 826,248 | 61,106 | 1520–1700 | 13.5:1 | Newson, 1987 |
| Colombia | Tunja | 232,407 | 24,950 | 1537–1755 | 9.3:1 | Friede, 1965 |
| | Sabana de Bogotá | 120,000–160,000 | 25,628 | 1537–1778 | 5.5:1 | Villamarín and Villamarín, 1975 |
| Ecuador | Highlands | 838,600 | 164,529 | 1520–1600 | 5.1:1 | Newson, 1995 |
| | Coastal lowlands | 546,828–571,828 | 26,491 | 1520–1600 | 21.1:1 | Newson, 1995 |
| Central Andes | Sierra | 4,641,200 | 1,349,190 | 1520/5–1571 | 3.4:1 | Smith, 1970 |
| | Coast | 7,498,298 | 129,281 | 1520/25–1571 | 58:1 | Smith, 1970 |
| Upper Peru | Central and southern regions | 280,000 | 93,331 | 1530?–1683 | 3:1 | Sánchez Albornoz, 1978 |

but whereas the depopulation on the Central Plateau was 13.18:1, on the coast it was 26.02:1. More marked altitudinal differences in depopulation have been noted in the Andean region for Peru by N. David Cook and Clifford Smith, and by the author for Ecuador. Apart from these significant differences in levels of decline according to altitude, there were important variations within the highlands themselves that largely reflected differences in the degree of economic and social transformation brought to native societies by colonial rule. This applies not only to the demographic collapse of the sixteenth century, but also to the extent and timing of any recovery.

Recovery appears to have been most precocious in Ecuador, where there are signs that the population was beginning to increase in the 1590s, although this apparent recovery, which was not sustained, may reflect better record-keeping and/or immigration from other regions. In Mexico the recovery was also early, with the bishoprics of Mexico, Puebla, and Michoacán registering increases in the 1620s, whereas native populations in many parts of Central America and Peru only began to recover toward the end of the century. Meanwhile, the Indian population in the Sabana de Bogotá, Colombia, experienced only a brief recovery in the mid-eighteenth century. Such variations in demographic trends were also apparent at the regional and local levels, and they reflected not only the balance of mortality and fertility, but also in some cases significant population movements.

Conquest and the subsequent overwork, ill treatment, and enslavement of the Indians contributed significantly to demographic decline in the first half of the sixteenth century. Many lives were lost not only in the conquest and on expeditions that conscripted Indians to serve as auxiliaries, but also in the heavy labor involved in portage and the construction of the major cities. In the 1520s and 1530s maybe as many as half a million Indians were exported as slaves from Central America, mainly from Nicaragua, to serve in the conquest of Peru, whence most never returned. Food shortages became common as labor was withdrawn from subsistence, and as expeditions plundered native villages for food and overran their lands. Fertility declined as families were broken up by the death or absence of a partner, and as the psychological impact of conquest and epidemics and the appalling economic and social conditions that followed encouraged smaller families.

Although conquest and the struggle to establish political order were associated with significant population losses, compared to nomadic hunter-gatherer and tribal societies, the conquest of the Mexica and Inca empires was achieved relatively quickly. Spanish conquest was facilitated by epidemic disease and internal political conflicts that weakened native resistance

and by superior Spanish military technology. The Spanish possessed horses and steel swords that could cut through quilted cotton armor, whereas native stone weapons, slings, and wooden clubs made little impression on steel armor. Horses contributed little to the defeat of the Mexica, but in the Andes about one-third of the troops were mounted, and the Spanish made effective use of the Inca highways for the rapid movement of troops, supplies, and information.

Conquest was most rapid in the regions that at first glance would appear to have been better placed to resist domination by virtue of their technological, organizational, and numerical advantages. Yet the highly structured nature of the Inca and Mexica empires provided the opportunity for control through political alliances and, once the regions were subjugated, facilitated their administration and minimized losses. In contrast, the lack of an overarching imperial structure among the Maya made their swift subjugation more difficult to achieve. Conquest was also protracted in the Andes, where there was greater allegiance to the Inca cause; revolts continued for forty years until the execution of Tupac Amaru in 1572. Partly because of this prolonged resistance, but also due to civil wars between the Spanish into which native peoples were drawn as conscripts, casualties in conflict were greater in the Andes than Mexico.

Conquest itself contributed to population decline, but greater losses were sustained as a result of the economic and social changes that accompanied it, and in epidemics. The devastating impact of epidemics in the sixteenth century has already been described, so comments here will be limited to a discussion of temporal and spatial variations in their impact in densely settled regions. Areas that had large native populations attracted settlers and traders, who brought with them new infections, while the existence of large nucleated settlements facilitated their spread. Indeed, it is argued that the impact of epidemic disease was greater in the Basin of Mexico – where there was a dense native population that was served by a well-integrated transport system – than in the Andes – where, although disease might spread rapidly along the Inca highways, many towns were located in narrow valleys separated by mountain ranges that acted as barriers to their spread. In general, however, the frequency and ease with which diseases were introduced to and spread within these densely settled regions meant that here the heaviest losses were sustained. Nevertheless, sufficient people remained to enable some diseases to become endemic, and for native populations to develop some immunity to them. Epidemiologists have estimated that a population exceeding 200,000 is needed for smallpox to become endemic,

and between 300,000 and 500,000 is needed for measles, which spreads more quickly. Thus, for many highland areas, by the early seventeenth century there is evidence that diseases such as smallpox and measles were largely affecting children and thus becoming endemic. Although endemic diseases, which take a regular toll of infants and children, might kill larger numbers of people than infrequent epidemics accompanied by high mortality, the fact that they do not result in adult mortality means that they do not pose such a threat to subsistence activities or the reproduction of the group. However, periodically major epidemics of smallpox, measles, and typhus erupted, which took a heavier and wider toll of populations. Major epidemics occurred in Mexico in 1659, 1692–7, 1736–9, 1761–4, 1772–3, 1779, and 1797–8. The epidemic of *matlazáhuatl* (typhus) between 1736 and 1739 resulted in 140,000 deaths in Puebla alone. In the Andean region, particularly devastating epidemics occurred in 1692–4, in 1718–20, and in the 1780s. Smallpox only ceased to be a major killer after the introduction of vaccination in 1780 and, in particular, the mass vaccination program of the physician Francisco Javier de Balmis in 1803.

Not only did the introduction of Old World diseases play a major role in the decline of the native population, but the differential occurrence of particular diseases has often been used to explain differences in levels of depopulation between the highlands and lowlands. The most often stated explanation for the higher level of decline in the lowlands is the introduction of tropical fevers, especially malaria and yellow fever, which only occur in tropical climates where the average temperature is above 20 °C. However, the first definitely identifiable outbreak of yellow fever only occurred in the Caribbean and Yucatán in 1647–9, which was long after the coastal populations of Mexico and Peru had been decimated. The case for malaria is more probable, though the disease would have taken some time to become established, and then only where environmental conditions were suitable and there were sufficiently large populations for the *Anopheles* mosquitoes to infect and maintain the chain of infection. Many fevers experienced on early expeditions are now thought to have been the result of starvation or caused by insects such as sandflies rather than mosquitoes. Although malaria may have contributed to the decline of lowland native populations, it is worth noting that typhus and pneumonic plague are more commonly associated with cool dry climates, and that smallpox prefers cooler, drier conditions and loses its infectivity at temperatures over 30 °C and above 55 percent humidity. During the colonial period, at least, there was no simple division between the healthy highlands and the unhealthy lowlands.

Demographic trends in the highlands were highly correlated with the intensity of Spanish settlement, the types of enterprises they established, and the labor systems they employed. However, differences in demographic trends were essentially differences of degree rather than substance. For the early conquest period there are many references in documentary sources to abortion, infanticide, and abandonment. But over time these practices appear to have been generally less common, although they could operate in particular adverse conditions. Once political order had been established, fertility and mortality rates generally remained high. Marriage was contracted at an early age and was more or less universal; and, where possible, widows rapidly remarried. This continued pre-Columbian marriage practices, but early marriage was also encouraged by the Church and State to prevent immoral behavior, to expand the labor force, and to maximize tribute income. Most women married in their mid- to late teens, which was considerably lower than in Europe or North America at the same time. In any case, age at marriage does not appear to have been an impediment to fertility, for even among migrants, where unstable living and working conditions encouraged later marriage, couples often had children before they married. Demographic trends in the colonial period continued to be controlled largely by mortality.

During the colonial period levels of mortality continued to be high. Evidence from the 1683 *Numeración General* of Upper Peru suggests that life expectancy was only about twenty-five years, with nearly half of the population dying before the age of ten, and maybe only 5 percent surviving to over sixty. In normal years infant mortality in eighteenth-century Mexico was probably over 250 per 1,000. High levels of infant and child mortality meant that, despite high fertility, family sizes were small (though there is some evidence that they increased after the sixteenth century). Woodrow Borah has calculated that in the mid-sixteenth century families in Mexico averaged only 3.2 persons, whereas by the end of the seventeenth century the average had risen to 5. Although there are indications that toward the end of the eighteenth century the native population was increasing, there were marked fluctuations caused by epidemics and food crises that occasionally wiped out any recovery achieved. The following discussion will suggest ways in which this high-fertility and high-mortality regime may also have varied according to different economic and social conditions.

Within the highlands, demographic trends varied according to the extent of Spanish settlement, the economic activities they established, and the labor systems they employed. Spanish economic interests centered on areas

where there were dense native populations and rich mineral deposits. To a lesser extent, Spaniards focused on regions that could produce tropical crops for export – such as sugar, cacao, cotton, and dyes – but increasingly they became involved in ranching or the cultivation of wheat and maize to support expanding markets in the towns and mining areas. These diverse activities affected levels of mortality, fertility, and migration differently.

Located closer to Spain, Mexico not only attracted more immigrants, but also produced crops for export as well as minerals. The main center of silver production was in northern Mexico, notably at Zacatecas and San Luis Potosí. These areas not only attracted mine owners and workers, but also stimulated the growth of agricultural enterprises to provide mules, hides, and tallow for the industry and food for its workers. Expanding markets for food in the towns, especially Mexico City, also encouraged the development of wheat in the highland basins of the Mesa Central and later in the Bajío and the Valley of Guadalajara. The production of tropical crops for export was relatively localized and of decreasing significance. Sugar production first developed in a region extending from Cuernavaca to Veracruz, but due to shortages of labor it was abandoned in some areas in favor of livestock raising. Similarly, the production of cacao in Tabasco and Colima, which was largely in native hands, collapsed as the native population declined.

Mining initially dominated the colonial economy of the Andean region to a far greater extent than in Mexico, partly because the greater distance from Spain limited the export potential of most agricultural products. Large-scale commercial agricultural production was also limited by the lack of extensive stretches of cultivable land in the narrow Andean valleys, so that the mining industry obtained mules and cattle products from northwest Argentina and wheat from Chile. Even on the Peruvian coast, where native depopulation resulted in the widespread abandonment of intensive cultivation based on irrigation, Spanish landholdings remained relatively small, restricted by shortages of labor, the lack of large local markets, and difficulties of transport. Although in the seventeenth and eighteenth centuries landed estates on the coast increased in size through consolidation and production expanded as shortages of labor were overcome by the importation of African slaves, they were still measured in terms of hundreds of *fanegadas*. This contrasts with estates in central and northern Mexico where estates were measured in tens or hundreds of thousands of *fanegadas*.

The link between mining and Indian depopulation has long been recognized. Mining was by its nature arduous and hazardous. Gold panning took a heavy toll of lowland populations, but the working of vein ores

was associated with even higher levels of mortality, because it required the mobilization of a larger labor force and thus severely undermined native subsistence and family life. At Potosí laborers undertook arduous work several hundred feet underground in poorly lit and ventilated conditions where they were often threatened by dangerous gases. They were also required to scale tiers of poorly constructed ladders to bring backbreaking loads of ore to the surface, where they emerged from hot and damp conditions into the dry freezing climate of the *altiplano*. Several hundred died in accidents each year and many more became ill with respiratory infections, such as tuberculosis and pneumonia. Those working at Huancavelica and in the processing of silver ores often suffered from mercury poisoning. Despite high mortality rates in the mines, most researchers agree that the demographic impact of mining derived more from the disruption it caused to Indian communities through stimulating migration and promoting racial mixing. Mining was localized and the numbers employed directly in mining were only a tiny fraction of the total population, even in the major mining centers. At the end of the sixteenth century just over 9,000 Indians and African slaves were employed in mining in the whole of Mexico. Meanwhile, in 1603 there were about 60,000 Indians resident in Potosí, but only about 19,000 were employed directly in mining – the rest were providing food and other supporting activities. As labor was drawn into mining and the commercial activities that supported it, the burden of food production in their native communities increased, leaving them with high dependency ratios.

Another activity that was noted for its harsh working conditions was the manufacture of textiles, which took place primarily in Mexico, Peru, and Ecuador. Woolen manufacture was backbreaking, filthy work, and Indians were often chained to the looms or locked in the mills to prevent them from escaping. The mills themselves were often barn-like structures that were poorly lit, badly ventilated, and bitterly cold in winter; the cramped conditions, indoor latrines, and poor ventilation combined to encourage the spread of disease and make the mills unhealthy places of work. Although the mills developed harsh labor regimes, the numbers dying of work-related illnesses or accidents was probably small. Also, in the *Audiencia* of Quito, many of the mills were founded in Indian towns, and workers went home at night so that food production and family relations could be maintained; the social dislocations associated with the woolen textile industry do not appear to have been as great as for other enterprises. The same might be said of cotton production, which was not so onerous and was often run

on a putting-out system. Indeed, the profitability of textile production as a whole depended on the persistence of Indian communities, which by bearing the costs of reproduction and maintenance of the labor force kept wages low and enabled cloth to be produced at competitive prices.

Most agricultural activities were not associated with high mortality rates, and from an early date some of the most hazardous activities – such as sugar milling and indigo manufacture – were banned from using forced Indian labor. However, the expansion of commercial agricultural production had major effects on native communities, because it generated demands for land and labor. Indian communities in the hinterlands of the major towns rapidly lost access to their lands through a variety of processes that included simple seizure, purchase, or receipt for tribute debts. It was also facilitated by major resettlement programs – for example, the programs conducted by Viceroy Toledo in the 1570s and 1580s that resulted in the congregation of 1.5 million Andean Indians in 600 *reducciones*. A similar program was conducted in Mexico between 1598 and 1605, and more protracted and less complete schemes were implemented in Guatemala and among the Chibcha of Colombia. These programs often undermined food security and dietary variety as communities lost access to lands distributed in a variety of ecological zones, and as systems of redistribution and reciprocity were weakened by population losses and migration.

In the early colonial period the impact of the loss of land has to be viewed in the context of declining populations. Per capita surplus may have actually increased, because smaller communities would have required less land and enabled cultivation to focus on the most fertile lands, whereas their dependency ratios would have fallen as epidemics carried off their most vulnerable members. However, population decline and loss of land did not always proceed in parallel and, in terms of the demands on production, there was often a significant lag in the adjustment of tribute demands to take account of population losses. Furthermore, population losses might not only result in a decline in per capita production but also threaten the collapse of whole systems of labor-intensive production. Hence, there is abundant evidence of abandoned irrigation systems, terracing, and raised fields (including some 500,000 hectares of raised fields in the San Jorge Basin of northern Colombia alone).

Perhaps more significant to native subsistence were differences in the labor demands generated by different agricultural activities. Sugar and cacao production were labor-intensive; and, in the highlands, the cultivation of wheat and maize also required high labor inputs (often at times when

Indians needed to plant or harvest their own crops). It is sometimes argued that livestock raising was less disruptive to native subsistence activities because it required less labor and was undertaken on grasslands that had not been used intensively in pre-Columbian times. Indeed, as was the case with the Gulf Coast of Mexico, as native populations declined, livestock often expanded onto formerly cultivated lands as the only economically viable alternative. Although ranching may generally have been less disruptive to native subsistence, it often deprived communities of access to game and other wild food resources, and resulted in environmental degradation (see Chapter 4).

It might be concluded from this discussion that the alienation of Indian lands and the withdrawal of labor from subsistence activities led to food shortages, famines, and reduced nutritional levels. However, these societies were accustomed to producing food surpluses, and initially, at least, declining populations made land more available. In addition, the introduction of new crops and animals, especially chickens and pigs, made new sources of protein available. For these reasons, some authors, including Woodrow Borah and John Super, argue that in the colonial period nutritional levels did not decline. Indeed, they suggest that because rations paid to forced laborers were based on Spanish patterns of consumption, nutritional levels may have improved. However, their evidence is drawn primarily from central Mexico and the Quito Basin, where some of the richest farmlands were to be found; nutritional levels in other parts of the empire might not have been so good. Despite the establishment of storehouses (*pósitos*) and regulated markets (*alhóndigas*), the Valley of Mexico suffered from periodic famines and food shortages throughout the colonial period.

The demographic impact of declining nutrition was largely indirect; relatively few people would have starved to death. Rather, the impact was felt through enhanced susceptibility to disease (judged by some to be the most significant effect), increased levels of infant and child mortality, and possibly reduced fertility. Herbert Klein has related larger family sizes among *originarios* in Chulumani and Pacajes in Upper Peru in 1768 to better access to land, and therefore food, which enabled families to maintain children alive past infancy. Even minor reductions in food quantity or quality might have significant impacts on mortality in circumstances where nutritional levels were close to the level of need. The direct link between nutrition and fertility has been the subject of some debate. Some believe that poor nutrition may shorten childbearing years, lead to the greater frequency of anovulatory cycles, prolong amenorrhea following childbirth, reduce libido,

and lower both sperm quantity and quality. However, others consider that these physiological and psychological effects have relatively little impact on fertility compared to those associated with social responses to food shortages, such as delayed marriages, the separation of spouses in search or food or work, or the introduction of forms of birth control.

Nutritional levels and the general standard of living have been related not only to access to land, but also to the level and nature of labor demands. The transition from labor under the *encomienda* to forced labor under the *mita* or *repartimiento*, and finally to free wage labor or debt peonage, has been viewed as a progressive response to the shrinking supply of labor. However, it was not only the availability of labor that was important, but also the level of the demand. Demands for free wage labor were highest where employers needed to develop a skilled and permanent labor force – as was required for many tasks in mining and textile manufacture – and where the enterprises were sufficiently profitable so that they could bear the higher costs involved. Following the abolition of labor under the *encomienda* in 1549, various forms of forced labor emerged, known as the *repartimiento* or *mita*, which were loosely based on pre-Columbian drafts. These state-sponsored systems of forced labor required Indian communities to provide a quota of their adult members to work on approved tasks for specified periods and fixed wages. These rotational labor systems operated on the assumption that the costs of reproduction would be borne by native communities. Hence, the wages paid to workers were low and the rations provided were often insufficient to survive on. Because employers were allocated individual workers only for limited periods, there was no incentive for them to preserve the labor force or develop its skills. Thus forced laborers were assigned the least skilled and most arduous tasks and were often ill treated. Low pay and harsh working conditions, particularly in mining, acted as major stimuli to Indians to evade the *mita* and *repartimiento* and seek livelihoods outside their natal communities. By 1683, when Viceroy Palata conducted a general census of Upper Peru, no less than two-thirds of its 59,000 tributary Indians had left their home villages and were living in Spanish towns or estates, or as *forasteros* in other Indian communities.

Shortages of labor, and particularly skilled labor, encouraged some employers to attract free workers by offering them higher wages and improved working and living conditions, and even *de facto* exemption from tribute payments or forced labor. Those who were not members of native communities but worked for Spanish employers were known in the Andes as *yanaconas* and in New Spain as *naborías*. In the early seventeenth century

wages for free workers, known as *mingas* in Potosí, were five times those of forced laborers, and in the Mexican mines they were about eight times higher. Paradoxically, many who sought to evade mining *mitas* in the Andes did so by staying on as *mingas*, and in Mexico many migrated from central Mexico to work as free laborers in the northern mines. Where employers needed to reduce labor costs, they often offered workers marginal lands on which they could grow crops to support themselves and their families. Compared to deteriorating conditions in many Indian communities, free labor offered some material improvements in working and living conditions that might include medical care and access to credit. These benefits were particularly attractive in times of crises, such as during a famine or epidemic, when many Indians migrated to Spanish estates.

It has been argued that the transition from forced labor to free labor brought improved living standards that were reflected in reduced mortality, and possibly increased fertility. These changes may have been marginal, but in particular cases could have been sufficient to turn a demographic trend from one of decline to one of increase. It may be significant that the native population of central Mexico, where the transition from forced to free labor occurred the earliest (the *repartimiento* was abolished in 1632), was the first to show signs of demographic recovery. Likewise, the persistence of forced labor in Peru, Sabana de Bogotá, and Yucatán throughout much of the colonial period might be a factor behind the delayed recovery of populations in those regions. However, at the end of the eighteenth century the recovery of native populations was often not sustained. Free labor brought different races into sustained contact and led to an expansion in the number of landless *castas*. At the same time, the expansion of the market economy promoted by the Bourbon Reforms created additional pressure on Indian lands. As the supply of labor increased and demand for land grew, employers no longer had to provide incentives to attract labor, and thus wages were often reduced and rents for land introduced or increased. As conditions deteriorated, the growth in the native population that had characterized many regions in the mid-eighteenth century stagnated or was converted into a decline.

Not all those seeking to escape the burdens of tribute payment and forced labor and improve their standard of living sought employment in Spanish enterprises. Some fled beyond Spanish administration, notably east of the Andes and to interior Yucatán. And many more moved to other native communities where, as *forasteros*, although they did not have rights to land, they enjoyed *de facto* exemption from tribute payment and the

mita. Indian leaders who sought to enhance their political and economic power base encouraged *forasteros* to rent land in their communities. It would seem that in particular circumstances *forasteros* may have enjoyed a better standard of living than *originarios* living in the same village and that this difference was reflected in larger family sizes. Ann Wightman has shown that adult-to-child ratios for *forasteros* and *originarios* in Abancay, Aymares, and Chilques in the 1690s were 1:0.60 and 1:0.45, respectively. However, *forasteros* were vulnerable to exploitation by native leaders and were exposed to changes in the market, so that in times of crisis they generally fared less well than *originarios*, who had more direct access to land. Although Indians in Mexico also migrated to other Indian villages, movements there appear to have been more commonly to Spanish enterprises. It is not clear why this should be the case, but it could relate to the existence of greater employment opportunities on local estates or in mining in Mexico. It has also been suggested that Indians in the Andes wished to remain identified with the native way of life and were using migration as a survival strategy as they had done in pre-Columbian times.

COLONIAL PERIPHERIES OF LATIN AMERICA

Regions that offered limited opportunities for the development of profitable enterprises, either because they did not possess mineral deposits or because they did not have significant sources of labor, attracted fewer European settlers. Where silver ores were found in areas of sparse population, such as northern Mexico, shortages of labor were met through the importation of workers from other regions – in this case, free workers from central Mexico and African slaves. For the most part, however, areas occupied by hunter-gatherer and tribal groups attracted few settlers. Although more limited contacts in these regions should have moderated the demographic impact of colonial rule, in general the nature of the native societies themselves and the methods employed by the Iberians to control them meant that they often experienced higher levels of depopulation.

Despite their smaller numbers, the subjugation of tribal and hunter-gatherer groups was more protracted. Control of these societies could not be achieved easily by political means because these societies often lacked strong native leadership and in some cases were semi-sedentary or nomadic. At the same time, the lack of any economic or political imperative for the Spanish or Portuguese to control them meant that fewer resources were

committed to the task. Largely for this reason, the Araucanians in southern Chile and Argentina remained outside Spanish control at the end of the colonial period; only in the nineteenth century did the desire to open up lands for new European colonization result in major campaigns to subjugate them. On the fringes of the core areas – such as Paraguay, Venezuela, and central Chile – the *encomienda* persisted as a labor institution, with Indians being forced to work in the personal service of *encomenderos*, on haciendas, or in the collection of *yerba maté*. Distance from official surveillance meant that labor regulation was ineffective. This resulted in excessive labor demands that disrupted native subsistence and social systems, and in sustained contact between Spaniards and Indians that resulted in greater *mestizaje*. For the most part, however, peripheral areas were not controlled and exploited through the *encomienda*; their subjugation was achieved through long-term, low-intensity warfare, or through missionization that resulted in the radical restructuring of these societies, and in the long term in their almost complete disappearance.

Warfare was endemic to many tribal groups, and the Spanish were not alone in their failure to incorporate these groups by military means; the Inca had also been unsuccessful in extending their empire into the eastern lowlands to incorporate such groups as the Chiriguano or Shuar. The lack of any economic or political incentive to bring about the swift defeat of these groups meant that domination was achieved piecemeal by small bands of soldiers who killed and enslaved Indians in small numbers. Although Indian slavery was banned under the New Laws in 1542, the enslavement of Indians for limited periods was permitted in the case of particularly hostile groups such as the Mapuche of Chile, the Chichimeca of northern Mexico, the Carib of Venezuela, and the Pijao of Popayán in Colombia. Their subjugation was often made more difficult because they enhanced their military capability by rapidly adopting Spanish weapons and horses, and by making effective use of refuge zones to which they could retreat and regroup. Thus, in 1598 the Mapuche were able to defeat the Spanish and force them to retreat north of the Bío Bío River. The failure of the Spanish to commit major forces to the suppression of these hostile groups served to prolong conquest throughout much of the colonial period.

Protracted conquest had devastating effects on the native societies. Even though the number of casualties and slaves taken in any one campaign might be small, it could still reduce a group below the critical threshold needed for its maintenance and reproduction. Subsistence activities and nutritional levels might be severely affected by the loss of adult labor and

by restricted access to resources in zones of conflict. Among the Mapuche, the state of constant warfare severely disrupted planting and harvest, and resulted in a shift from crop production in the valleys to livestock raising on more marginal lands in the sierra. At the same time, death and enslavement broke up families. Those captured were often sold individually or in small numbers in the towns – the Mapuche in Santiago or Lima, and the Chichimeca in the mining centers and haciendas of northern Mexico. Here, isolated from their communities, they were unable to maintain their culture and identity and rapidly became absorbed into the general workforce, which comprised many persons of mixed race. Warfare and slavery persisted longer in Chile but with decreasing intensity as miscegenation weakened Mapuche resistance. Clearly, there were other factors that contributed to depopulation, the most significant of which was epidemic disease. But warfare played a more important role in these peripheral regions than in former State and Chiefdom societies, where conquest was more quickly achieved.

In areas that were under threat of foreign occupation the Spanish and Portuguese Crowns supported missionary activity. The main mission fields, spearheaded by the Franciscans and Jesuits, were located along the eastern flank of the Andes, in northern Mexico, and in the eastern lowlands of Central America. Although the prime aim of the missionary orders was religious conversion, they also sought to “civilize” the Indians by congregating them into nucleated settlements, instructing them in agricultural and craft skills, and introducing them to forms of political government. These processes signaled the complete transformation of native societies, which (although intended to aid their survival) in most cases contributed to demographic decline, and ultimately to the destruction of their distinct cultural and ethnic identity. Despite this generalization, there were variations in the impact of missionization – mainly in timing rather than substance – according to the different political and economic contexts in which it occurred.

The initial establishment of the missions – especially to the east of the Andes and in eastern Central America – often met resistance from Indians who lived in dispersed settlements and were often semi-sedentary or nomadic. As such they often had to be settled in the missions by force, a process that resulted in loss of life, broke up native communities, and enhanced intertribal conflict. There was less resistance to missionization in parts of northern Mexico where it occurred among already sedentary agricultural peoples, and among the Guaraní in Paraguay and the Omagua in the Amazon Basin, who actively sought Jesuit protection from Portuguese slave raiders. Thus, losses in conflict varied between regions, but they were

greatly overshadowed by the numbers killed in epidemics. Greater geographical variations in mortality probably derived from the environments in which missions were founded.

Many groups subject to missionization practiced shifting cultivation supplemented to varying degrees by hunting, fishing, and gathering. But the missionary orders considered a sedentary existence based on permanent agriculture to be more civilized than one dependent on wild food resources. Therefore, they attempted to establish permanent cultivation and livestock raising by introducing new techniques, tools, crops, and domesticated animals. The introduction of metal tools greatly aided forest clearance and new techniques of storage may have helped in times of crisis. But most historical and archaeological evidence suggests that in the missions nutritional levels declined. Missions were often established in areas where the soils were insufficiently fertile to support permanent cultivation, so that crop yields were low. In addition, protein availability may have declined as hunting and the exploitation of other wild resources were suppressed because of the opportunities they offered for fugitives. Food shortages and famines were particularly severe in missions among the hunters, fishers, and gatherers of the Central Desert of Baja California, but were also common in missions established in tropical lowland environments. In areas where agriculture was well established – for example, among the Tarahumara, Opata, and Endeve of northern Mexico, and the Guaraní – changes to native subsistence may not have been so radical. Indeed, nutritional levels in the Guaraní missions were sufficiently good to bring about an increase in the population through reduced infant and child mortality.

Many native societies subject to missionization were probably afflicted by epidemics prior to the appearance of missionaries, but their arrival established new channels for the introduction of Old World diseases. It is worth noting, however, that a smaller number of diseases would have reached outlying regions, especially diseases dependent on rodent vectors for their propagation, such as typhus and plague. The impact of epidemics in these regions was heightened by the congregation of Indians into larger settlements and by the continual addition of new converts, who replenished the pools of susceptible individuals. Despite missionization, populations were still too low and dispersed to sustain acute infections, and “fade outs” were common. The result was that diseases were unable to become endemic, so that every twenty years or so each mission would be afflicted by a major epidemic that resulted in such high adult mortality that it wiped out any prospect for recovery. In the Amazon region, the impact of epidemics was

often enhanced by intertribal warfare, because sickness and death were often attributed to sorcery that required revenge. Due to poor nutrition and unhygienic and cramped living conditions, which resulted in high levels of infant, child, and adult mortality, recovery from epidemics was slow in the missions. Studies of missions in Alta and Baja California, Pimería Alta, and Texas by Sherburne Cook, Robert Jackson, and Mardith Scheutz suggest that between 80 and 90 percent of the population died before the age of ten. Mortality levels appear to have been critical to demographic trends within the missions. Ernesto Maeder's studies of the Guaraní missions over the long period between 1641 and 1807 indicate that fertility levels remained fairly constant at about 50 per 1000, but that mortality fluctuated from an unusual low of 25 per 1,000 to 200 per 1,000 in times of epidemics or other crises. Such crises would not only have devastating short-term effects but also affect demographic trends over longer periods.

The missionization process, poor nutrition, and epidemics contributed to high mortality rates. But low fertility rates also contributed to the failure of the majority of mission populations to expand – the Guaraní missions were the exception rather than the rule. During the missionization process families were often broken up and reproduction interrupted. And once in the missions, negative responses to mission life – in particular the strict regulation of daily activities that embodied new cultural practices – served to reduce fertility rates. The seventeenth-century Jesuit Francisco de Figueroa observed that Indians in missions in the province of Mainas in eastern Ecuador like “wild birds when captured or caged become sterile.”⁴ The causes are likely to have been stress-induced amenorrhea, abstinence from sexual intercourse, abortion, and infanticide. Nearly all studies of mission populations indicate that adult: child ratios were low and that the missions were essentially sustained by the recruitment of neophytes rather than through natural increase. This was despite missionary attempts to encourage early marriage and impose monogamy, which should have encouraged higher fertility.

There is some debate in the literature as to whether or not missions aided the survival of native peoples. Although Herbert Bolton's classic study of the mission as a frontier institution did not comment on its demographic impact, he nevertheless saw it as a civilizing force that enhanced the skills of the native population and helped to preserve it. It has also been argued

⁴ Francisco de Figueroa, *Relación de las misiones de la Compañía de Jesús en el país de los Maynas* (Madrid, 1904), 23.

that mission Indians were generally better treated than those subject to forced labor and tribute payments. For a time, many mission populations seemed to increase, albeit more by recruitment than natural increase. But biological survival was often achieved at the expense of the destruction of their culture or ethnocide. Not only was daily life transformed, but the strict regime imposed created a dependency on the missionaries – a process David Sweet has termed “infantilization” – that made it difficult for mission populations to regulate their own lives and maintain their own traditions and for the missions to survive as viable communities once the missionaries had left. When the missions were secularized some Indians returned to their former communities, but most became workers on local estates, or drifted to the towns, where they were rapidly assimilated into colonial society.

Not all native peoples in peripheral regions were incorporated into colonial society through enslavement or missionization. Nevertheless, these processes affected them indirectly. In the face of missionary *entradas*, enslaving raids, wars, or epidemics many Amazonian groups retreated to interior interfluvial areas where soils were less fertile and wild food resources less abundant. Ultimately, as occurred with a number of Tupi-Guaraní groups such as the Aché, Guajá, and Héta, population decline led to the abandonment of agriculture altogether. More generally, population losses reduced labor inputs into subsistence, resulting in food shortages that could not be offset by accumulated supplies, due to limited familiarity with methods of storage. Adult losses also had a significant impact on fertility. Not only did they result in an immediate reduction in reproductive capacity, but in small communities this could be prolonged, sometimes indefinitely, due to the limited size of marriage pools, by sometimes marked differences in sex ratios, and as a result of cultural restrictions on marriage and remarriage. As Charles Wagley has shown for two Tupi tribes, in order to ensure biological survival groups might have to modify their social practices and population policies. These societies were particularly vulnerable to even minor population losses and changes to economic and social practices, so that despite their more limited contact with Europeans and other outsiders they suffered some of the highest levels of depopulation.

A DEMOGRAPHIC WATERSHED

The end of the eighteenth century and the beginning of the nineteenth century was a watershed in the demographic history of Latin America.

Demographic trends within Latin America itself had begun to change as the first effects of the economic reforms and the liberalization of trade began to be felt. The commercialization of agriculture – particularly associated with sugar and later with coffee – saw the consolidation of holdings and increased pressure on Indian lands. These commercial enterprises failed to absorb the surplus labor caused by the alienation of land and by the expanding landless population, which included many persons of mixed race. For many rural communities economic and social conditions deteriorated and in some cases, such as Mexico, the native population began to decline. In the early part of the nineteenth century, the wars of independence and the conflict that followed brought high mortality and severely disrupted local economies, notably in Venezuela, Uruguay, and Mexico. However, there is some evidence that the population was beginning to increase, although growth was sluggish compared to the late nineteenth century, and it was associated primarily with non-Indian groups. Improved conditions for emancipated slaves were reflected in their higher levels of natural increase, but growth was most marked in areas of high immigration. Vaccination may have brought some reduction in smallpox mortality and racial mixing may have resulted in some genetic immunity to hitherto deadly diseases. However, mortality rates still remained high. It was not until much later in the century that the impact of public health measures and the beginnings of the introduction of scientific medicine was felt, and then primarily in the urban areas.

A significant proportion of the demographic growth in the early nineteenth century was due to immigration, but it was at a low level compared to the second half of the century, when there was greater political stability in Latin America and economic conditions in Europe had deteriorated, making emigration more attractive. Demographic changes in Latin America were related in part to changes in economic conditions in Europe. The governments of newly independent nations were anxious to attract migrants to develop their economies, and this was particularly true of regions that had been on the colonial peripheries, where political consciousness had been awakened by the Bourbon Reforms and there were greater opportunities for settlement. Some of the regions most anxious to attract settlers were also those that appealed to Europeans, partly because of the apparent availability of land, but also due to their export potential, given the changing nature of the demand in Europe. Whereas during the colonial period Iberian interest had centered on precious metals and tropical crops, from the late eighteenth century foreign interest, which now included other

Europeans, began to focus on regions that could supply raw materials for expanding factories or foodstuffs to support growing urban industrial populations. Many of these commodities were produced in more temperate regions – especially Brazil and Argentina – although sugar production and coffee also expanded enormously, most notably in Cuba.

Despite the coincidence of circumstances, in the early nineteenth century political turmoil and unstable economic conditions discouraged immigration on a large scale, although some immigrants from a wide range of European countries did settle in parts of Brazil, Uruguay, Argentina, and Chile. Here they often came into conflict with native populations as governments attempted to drive them from their lands and make regions safe for European settlement, a process that was to culminate in Argentina in the second half of the century with General Roca's Conquest of the Desert and in Chile in similar programs for the pacification of the frontier. Despite their far-reaching effects, in the early nineteenth century the small number of European immigrants was greatly overshadowed by the number of African slaves imported. Most independent governments in Spanish America abolished slavery by midcentury. Slavery continued in Brazil, where between 1800 and 1860 1.7 million African slaves were to support the expansion in the sugar and coffee industries. Likewise, the expansion of sugar production in Cuba resulted in the importation of 387,000 slaves.

The early nineteenth century thus saw the beginnings of a significant growth in the population and a shift in its distribution within Latin America. Brazil, Chile, Argentina, and Uruguay more than doubled their populations between 1800 and 1850, whereas growth was much slower in the older settled regions of Mexico and South America. These trends and processes, which were reinforced in the second half of the nineteenth century, thus constituted a break with the demographic patterns and trends that had been initiated by the Iberians. What was clear, however, was that colonization had not come to an end, and that many regions were still to experience its full demographic impact.

6

LABOR SYSTEMS

JOHN M. MONTEIRO

Historians have long recognized that the development and transformation of labor systems played a key role in Iberian expansion to the New World, with long-term effects on postcolonial Latin American economies, societies, and cultures. Much of the modern analytical literature hinges on particular understandings of the nexus between labor supply and colonial extraction, often underscoring the importance of extraeconomic coercion as a necessary condition for the large-scale transfer of economic surplus from the Americas to Europe. Over the past quarter century, however, serious challenges to earlier dependency, modes-of-production, and world-systems approaches have introduced a considerable shift in focus, revealing an increasingly diverse agenda of issues and evidence. The new composite picture that emerges, although far from denying the significance of colonial extraction or of extraeconomic coercion in shaping labor arrangements, sheds light on complex regional systems enveloping distinct practices and institutions, whose overlapping and interconnected existence lays to rest the conventional schema of a linear, evolutionary sequence from early forms of compulsory service to a full-fledged wage labor market.

In redirecting attention to local, regional, and interregional labor and commodity markets, current historiographical trends have introduced important new perspectives on the factors determining patterns of labor recruitment and management. Differences in indigenous social structures, political institutions, and cultural practices constitute an important starting point. Not only did precolonial institutions in many cases play a central role in shaping distinct outcomes, but also postconquest transformations within indigenous polities and societies placed constraints on entrepreneurial options and influenced colonial institutional development.

Population change was an important part of this panorama, first through the more obvious effects that the demographic collapse had on the labor supply, and subsequently through patterns of forced and voluntary migration, which have been the subject of a growing number of studies. At the same time, much of the current literature ascribes a greater weight to subaltern strategies of resistance and survival as a critical variable in determining the extent of indigenous participation in colonial labor markets. This approach, which according to Brooke Larson can be described as being “more attentive to the possibilities of social agency, while keeping in mind the constraints of structure,” has cast “serious doubt on the historical determinism of commercial capitalism and the colonial state to effectively harness the labor power of indigenous economies to the mining export sector or to the colonial Exchequer.”¹

Although Larson’s comments refer specifically to the Andean context, they reflect a broader shift in emphasis that casts light on a second set of issues and actors. As Steve Stern argues in his seminal critique of the world-systems approach, the dynamic sectors of the colonial economy engendered significant “regional and supraregional economic spaces.” Rather than constituting colonial “enclaves” simply appended to metropolitan trade, mines and plantations stimulated the development of internal agrarian, pastoral, and urban commercial circuits and thus emerged as “centers of gravity,” whose mercantile and property-owning elite often competed directly with metropolitan-based interests. These New World entrepreneurs had a central, if not dominant, role in shaping labor arrangements. According to Stern, they “fused a diverse array of labor relations, including approximations of wage labor, complicated tenancy, share and debt-credit arrangements, and forced labor drafts and slavery, into a single productive process.”² The precise configuration of this “diverse array” varied greatly in time and space, but we do know from an increasing number of studies that workers shifted into and out of the labor market and between categories, often in a very fluid manner. In addition to a core of permanent workers, employers in almost every sector also relied a great deal on temporary, seasonal, and casual labor, recruited from peasant communities near and far, from urban areas, and even from slave plantations. These hybrid systems also developed

¹ Brooke Larson, “Introduction,” in Brooke Larson and Olivia Harris, eds., *Ethnicity, Markets, and Migration in the Andes* (Durham, NC, 1995), 17–19.

² Steve Stern, “Feudalism, Capitalism, and the World-System in the Perspective of Latin America and the Caribbean,” in Frederick Cooper et al., eds., *Confronting Historical Paradigms* (Madison, WI, 1993), 54.

on a significant scale in regional economies with tenuous ties to the Atlantic world, where institutional arrangements that had died out in the sixteenth and early seventeenth centuries in the more developed regions persisted well into the eighteenth and even beyond Independence in some cases. Indeed, these colonial “peripheries” have provided one of the most vibrant areas of recent colonial and early postcolonial studies in both Spanish and Portuguese America.

A third basic problem addressed in the literature has to do with the relative importance of extraeconomic coercion and of wages in determining the labor supply. Many authors have highlighted the role of the colonial state in designing an institutional framework through an elaborate sequence of legislation, inspired by moral considerations and fiscal imperatives. From the outset, royal policy in both Castile and Portugal insisted that free (that is, nonslave) workers were to receive wages for their services, but they quickly noticed that free Indians, freed slaves, and, later, mestizos often refused to volunteer their services for wages alone, no matter how high these may have seemed to employers and authorities. Several studies have shown that wage labor often entailed the negotiation of other benefits, including ore shares in silver mining, access to land in agricultural zones, and access to credit (which involves an alternative interpretation of “debt peonage”). Although what some scholars have called the “leverage of labor” varied from place to place and over time, the Iberian crowns and the nation-states that succeeded them frequently intervened to force free persons into the wage labor market, either through direct coercion (labor draft quotas, punishment for crimes or rebellion, and vagrancy laws, among other forms) or indirectly through the assessment of cash tribute or the forced consumption of commodities. At the same time, in spite of strong legal restrictions on Indian slavery, both crowns actively promoted the trans-Atlantic slave trade as a solution for New World demand, and although African slavery developed more fully in association with tropical staples and gold mining, its impact on colonial and nineteenth-century labor markets was widespread. The intricate relationship between slavery and wage labor constitutes an important issue in the current literature, not only in the traditional sense of a transition from slave to wage labor, but more importantly in terms of the overlapping and often ambiguous labor relations that blurred the distinction between slave and free in the production of goods and services.

Drawing inspiration from the recent literature, this chapter offers a broad survey of the principal patterns of labor recruitment, distribution, and

management that drew indigenous, African, and mestizo peoples into the colonial and early postcolonial economies, from the early sixteenth century to the extinction of the Atlantic slave trade in 1850. The first section examines different forms of compulsory indigenous labor in postconquest economies. The main focus falls on sixteenth-century developments in the Caribbean, New Spain, and Peru; because of space limitations, this chapter does not discuss patterns of indigenous labor in other regions extending into the seventeenth and eighteenth centuries, areas that were substantially different not only because of divergent colonial projects (missions, ranching, and military frontiers, for example), but also due to the specific conditions of interethnic relations. The second section treats the development of hybrid systems based primarily on slave labor, focusing mainly on Portuguese America but also drawing cross-regional comparisons with distinct parts of Spanish America in different periods. In addition to reviewing crucial aspects of recruitment and management on plantations and in mining zones, this section also examines the expansion of slavery in nonplantation agriculture as well as the engagement of the nonslave population in urban labor markets. The third major component of this chapter addresses the development of hybrid systems based primarily on wage labor, with a special emphasis on silver mining areas, colonial agricultural estates, and urban centers from the late sixteenth century to the eclipse of the colonial period. One of the more important features of the current literature that is stressed here lies in the patterns of spatial, ethnic, social, and occupational mobility that characterized the development and transformation of regional labor systems over the course of this period. The conclusion provides a retrospective balance from the vantage point of 1850, sketching the colonial legacies and structural continuities that made labor recruitment and control a central issue in the formation of the new nation-states, in a context marked by far-reaching institutional reforms, political uncertainty, and economic change.

AMERINDIAN LABOR SYSTEMS IN POSTCONQUEST ECONOMIES

CARIBBEAN ORIGINS OF NEW WORLD INSTITUTIONS

The first stage of Spanish expansion into the Caribbean introduced labor practices and policies that were to shape the relations between Europeans and Amerindians in many ways, with important ramifications

for the subsequent conquests of dense, mainland populations. Much of the prevailing literature underscores how the relatively low rates of return that the labor regime turned over at an extremely high cost in human lives contributed to making this experiment, in the words of Lesley Simpson, “one of the most dismal episodes in the history of exploitation.”³ Recent reassessments, however, although confirming and even refining the contours of the demographic catastrophe, also show that the early history of labor in the Caribbean goes far beyond the destructive impact so dramatically described by Las Casas. On the islands, the Spaniards discovered that the successful recruitment, distribution, control, and extraction of value from indigenous labor would require a delicate mix of force, negotiation, material incentives, and institutional engineering.

During the decade that followed Columbus’s first voyage, a few Spanish adventurers initially attempted to develop a slave trade, sending a number of hapless Arawak and Carib captives back to the Iberian peninsula. As many as 1,700 Amerindians were shipped to Spain between 1492 and 1511, but this early trans-Atlantic traffic failed to unfold on a larger scale for a number of reasons, foreshadowing the obstacles that were to challenge the development of indigenous slavery within the Americas as a whole. Perhaps most importantly, the arrival of Amerindians in chains immediately raised doubts concerning the moral underpinnings of slavery, inaugurating a long, drawn-out discussion that was to involve jurists, ecclesiastics, and crown officials for many decades. Until Isabella’s death in 1504, the crown took a firm stand against the indiscriminate enslavement of these potential vassals and tribute payers, and many of the captives taken in the early years were set free. By 1501, as a major expedition under the *Comendador Mayor* Nicolás de Ovando set out to develop a more permanent settlement on Hispaniola, the crown began to establish guidelines outlining the conditions for apportioning indigenous workers among the colonists. The Catholic Monarchs’ instructions remained vague on how these distributions were to take place, but they did provide an opening statement on the principle underlying compulsory wage labor: “Since it will be necessary, in order to mine gold and to carry out the other works which we have ordered, to make use of the services of the Indians, you will compel them to work in our service, paying them the wage which you think it is just they should have.”⁴

³ Lesley B. Simpson, *The Encomienda in New Spain*, rev. ed. (Berkeley, CA, 1966).

⁴ Quoted in Simpson, *The Encomienda in New Spain*, 9–10.

Arriving on Hispaniola in 1502, Ovando, along with some 2,500 members of his expedition, found that the task of compelling the Amerindians to work for them was not so simple, as they encountered the organized resistance of several Taino *cacicazgos*, whose leaders refused to supply the Spaniards with either provisions or labor. During his tenure as governor, Ovando promoted two basic forms of supplying workers to the colonists, both of which already had been adopted as early as the mid-1490s: through the capture and enslavement of rebellious groups, and through the distribution (*repartimiento*) of the crown's vassals. The first form of recruitment garnered legal support from a sequence of crown legislation, first excluding the Caribs (deemed "cannibals") from the general prohibition of slavery (1503), then upholding the ideal of Just War as a form of punishing groups that openly rejected Catholicism (1504), and finally accepting that individuals purchased in *rescate* (ransom) operations could be held as legitimate captives (1506). These measures by the crown in effect adjusted to the demands and practices already under way in the Indies. In order to meet the immediate needs of the settlers who crossed the Atlantic with him, Ovando authorized and outfitted expeditions against the *cacicazgos* of Xaragua, on the west coast of Hispaniola, and Higüey, on the eastern end of the island. The raids on Higüey involved an element that was to play an important role in labor recruitment in frontier areas throughout Latin America for centuries to come: the expeditions took the form of private ventures, called *entradas* or *cabalgadas*, organized in paramilitary outfits reminiscent of the militias that conducted raids during the Reconquest and similar to the contemporaneous expeditions that plied the Canaries and the Barbary Coast for captives.

The second and most important form of labor recruitment and distribution grew into the institution known as *encomienda*, which also had medieval precedents that were reconfigured under these historically new circumstances. The origins and early development of the encomienda as a social institution and as a labor regime remain somewhat unclear, as there is some confusion in the literature between the terms "repartimiento" and "encomienda" as they appeared in the Caribbean at the beginning of the sixteenth century. Although Las Casas asserted that Ovando had "invented the cruel and tyrannical repartimiento," the *Comendador Mayor* in effect institutionalized a practice first introduced by Columbus himself around 1496, when he had assigned caciques to certain Spanish settlers. The details of these arrangements remain nebulous, but most likely this form of recruitment rested primarily on alliances between Spaniards and indigenous

leaders, who channeled workers on a temporary basis to the yucca grounds (*conucos*) and prospecting areas of the newcomers. By delegating these privileges to the first generations of Spanish settlers in the New World, the crown sought, in effect, to reward the adventurers for their efforts, to convert the Indians to Christianity, and to generate wealth through their labor. However, perhaps the main reason leading to this alternative mode of distribution was to be found on the islands, for as Spanish demands upon indigenous resources increased with the sudden invasion of 2,500 fortune-seekers in 1502, native leaders became less and less cooperative in channeling workers to the colonial productive sphere. The Spaniards came to understand early on that the cooperation of the caciques was a key to the extraction of native labor, a realization that was to pattern later attempts to organize an indigenous workforce in both Spanish and Portuguese America.

The first concerted effort to assess and distribute the human resources of the island came only in 1505, when Ovando supervised the first *repartimiento general*. At some point, however, possibly during the assignment of the repartimiento Indians in 1505–6, colonial authorities began to grant these Indians expressly “in encomienda” to individual Spaniards. Quite different from the sporadic access to workers assigned to specific tasks for limited time periods, the encomienda entailed a broader set of rights and responsibilities that formally entrusted groups of Indians to Spanish guardians. In return for the privilege of collecting tribute in specie, in kind, or in labor from the crown’s newest vassals, encomenderos were charged with seeing to the conversion and protection of the Indians. This practice was consolidated under the *repartimiento general* conducted by Rodrigo de Albuquerque in 1513–14. As “*repartidor* of the Caciques and Indians of this island Hispaniola,” Albuquerque distributed 729 encomiendas with a total of 26,289 Indians among Europeans who had petitioned for grants. Each grant specified the cacique’s name and gave some details on the number of Indians subject to labor obligations, whether as *naborías* or as *indios de servicio*. The designation *naborías de repartimiento* inaugurated another important labor procedure, which involved the reconfiguration of precocolonial categories to fit the demands of the emerging Spanish economy. In the early distribution, *naborías* were to be held by their Spanish beneficiaries until a new repartimiento took place. With Albuquerque, however, they were subject to the same stipulation as other Indians held in encomienda, which directed them to serve the encomendero and his heirs for two lifetimes, after which the encomienda would revert to the crown

to be redistributed to another beneficiary. Needless to say, under the terrible conditions contributing to the demographic catastrophe, including the massive smallpox epidemic that broke out in 1518, very few if any *naborías* or *indios de servicio* outlived their initial encomienda obligations.

From the Spanish perspective, grants in encomienda severely restricted both the distribution and the mobility of the indigenous labor force. Encomiendas were distributed according to the beneficiary's status, privilege, and service to the crown, which meant that some royal officials and prominent settlers received much larger shares than most other grantees. In the 1514 distribution, less than 12 percent of the encomiendas included over 44 percent of the total number of Indians. The crown retained a moderate share of available Indian labor, presumably for service in public works: four encomiendas with a total of 1,503 Indians went to El Rey, including the largest single grant in the Albuquerque distribution, the 967 Indians of Santo Domingo. The Columbus family also held an important share, with 1,148 Indians in four encomiendas. Most colonists received much smaller stakes in the labor force, with an average size of around twenty-three Indians per grant, less than one-tenth the size of the average distributed to the Columbus clan.

Although the encomienda has been analyzed as an institutional alternative to slavery, it in fact contributed to the growth and expansion of an interregional Amerindian slave trade and the development of different forms of bondage. Indeed, the unequal distribution of grants conspired with population decline to stimulate the organization of raiding ventures that acquired captives by legal and illegal means. Recognizing this problem following the first *repartimiento* of 1505, Ovando sent a petition to the crown requesting permission to outfit expeditions to the Lesser Antilles ("useless islands nearby") to bring Indians back to replenish Hispaniola's already dwindling population. The *entradas* and *cabalgadas* gained the stature of *armadas de rescate*, and as the demographic catastrophe was replicated on Puerto Rico and Cuba, colonists on these islands also outfitted expeditions of their own. By 1515, in addition to the smaller islands, Spanish raiders began to ply the coasts of Central and South America in an effort to restock depleted labor forces. Eight *armadas de rescate* set out from San Juan in 1516 alone, most to the mainland and some producing hundreds of slaves. Not all captives became chattel slaves, however, because ecclesiastical and administrative officials drew a distinction between slaves and *naborías perpetuos* based on the legality of their capture. Even colonial authorities had trouble understanding the difference between *naborías perpetuos* and

slaves, and at one point a royal magistrate ordered the *naborías* of Cubagua Island to be branded in order to be identified, although unlike slaves, who were branded on their cheeks, *naborías* were to be branded on their arms. There was, however, a very significant distinction in that *naborías* could not be sold, which foreshadowed other forms of native bondage that appeared throughout the Americas in the centuries to come.

This initial Amerindian slave trade to the Caribbean lasted to the middle of the sixteenth century, after the Spanish crown had taken various measures to proscribe Indian slavery in the 1540s, in part as a response to humanitarian pleas but also because of the reformulation of policies intended to distribute labor to a broader base of colonists. Although many slave traders obtained substantial profits in these ventures, the Spanish soon found the Indian slave trade to be an unattractive economic proposition, because the survival rate of slaves taken from one disease environment to another proved disastrous and the possibility of importing African slaves showed greater promise. By 1530, Indian labor – indeed, the indigenous population as a whole – had lost its importance on Hispaniola. As Spanish entrepreneurs developed the New World's first sugar mills, which flourished until the Brazilian sugar boom of the late sixteenth century shut them out for almost two centuries, the composition of the island's labor force shifted rapidly to African slaves. Although some 200 indigenous workers toiled on Hispaniola's eighteen largest mills, they were outnumbered by African slaves (1,870) and even by Spanish wage earners (427). The situation on Cuba and Puerto Rico showed a similar tendency, although a greater number of Indian slaves and *naborías* appeared in the comprehensive list of San Juan's labor force compiled by the Lieutenant Governor that same year: the report ennumerated 1,998 blacks (1,656 males), 751 Amerindian slaves, and 333 *naborías*, possibly including encomienda charges.

The publication of the New Laws in the early 1540s had a bittersweet impact on the Caribbean, as this initial triumph of Spanish justice over settler excesses came too late for the countless thousands of slaves, *naborías*, and encomienda Indians who had perished in the preceding half-century. By that time, the focus of colonial extraction had shifted radically following the conquests of the Triple Alliance and of Tawantinsuyu, but the early Caribbean phase had laid bare the painfully clear correlation between labor systems and population decline. It also provided a map for subsequent colonial initiatives, some achieving positive and constructive results, but others producing the same disastrous consequences as this truly dismal episode in Latin American economic history.

ENCOMIENDA, INDIAN SLAVERY, AND MANDATORY LABOR
DRAFTS IN NEW SPAIN

The fall of Tenochtitlán in August 1521 signaled a new phase in Spanish activities in the New World, which was to involve the struggle for control over vast human and material resources. From Mexico to the Andes, the conquistadors and their indigenous allies toppled empires, city states, and chiefdoms with surprising swiftness, but the transformation of early post-conquest “economies of plunder” into systems designed to extract colonial wealth proved a much more daunting task. Early on, the vanquishing armies drew heavily on their Caribbean experience, because encomienda grants, along with the Indian slave trade, remained the primary means of access to indigenous labor. Indeed, once the Aztec capital had been subordinated to Spanish control, Hernán Cortés immediately proceeded to distribute encomiendas among his most prominent soldiers, entrusting conquered *señoríos* (lordships) and their respective subordinate populations to individual Spanish guardians, reserving “the best and most important provinces and cities” for the crown. Although wary of the emergence of an excessively powerful and independent group of encomenderos, the crown found it convenient – perhaps even necessary – to transfer the costs of controlling substantial native populations and of enforcing tribute collection through the delegation of property rights and privileges to the conquistadors.

Unlike their Caribbean precedents, however, encomienda allotments in the Valley of Mexico and, later, in the heart of Tawantinsuyu were impressive in size, with many individual grants involving thousands of tributaries, in spite of royal legislation establishing a much lower limit. At the same time, recipients of encomiendas had to adjust this institution to existing structures of tribute exaction and mass labor recruitment. Although many of the constituent units of the precolonial system were deeply affected by the violent upheaval of the conquest and by subsequent outbreaks of epidemic disease, they provided a basic framework supporting the burgeoning Spanish demand for porters, construction workers, agricultural laborers, miners, and domestic servants. To an even greater degree than on the islands, mainland encomenderos depended on the traditional authority of native rulers to guarantee tribute payments and to channel labor to European economic activities. Although this meant that many indigenous communities maintained a certain measure of control over their resources, in effect the encomienda introduced arbitrary alterations in the form, periodicity, and amount syphoned from subject communities. As Enrique

Florescano has emphasized, the centralized system of labor and tribute extraction developed by the Aztecs and their allies underwent “profound qualitative changes,” not only with its fragmentation into individual units commanded by Spanish captains for their private benefit, but also in transforming the scope and meaning of work.⁵ The encomienda also redefined the tributary population: in New Spain, it included the conquered *pipiltin* (hereditary nobility), merchants, artisans, and widows, among other social categories that for the most part had remained exempt under Aztec rule.

Indeed, as a mercantile economy became entrenched, the demand for labor expanded rapidly. In Mexico, the decades immediately following the conquest witnessed an intense and chaotic dispute over the services of the *macehuales*, or tributary commoners, involving encomenderos, ecclesiastical interests, crown functionaries, native lords, and corporate communities. Personal service obligations of encomienda tributaries proved insufficient to meet colonial demands, in part because of the unequal distribution of the grants in the hands of a privileged few, in part because of institutional constraints limiting the commutation of tribute into labor, but also because of the restrictions that caciques and their communities placed on the unbridled exploitation of the tributary population. As the demands for tribute and labor became increasingly burdensome in the years following the conquest – a problem magnified by population loss – Indians sought to contest the assessments in court and to demand revisions in the tribute rolls. Spaniards, for their part, began to explore alternative forms of labor recruitment already in the 1520s, including the enslavement of Indians and Africans, as well as the demand for a repartimiento that would extend access to the labor of Indians directly under crown control.

Although Indians continued to be shipped to the islands during this period, Indian slavery also developed on a significant scale in the principal mainland colonies well into the 1540s, when royal sanctions significantly curtailed the institution. The internal slave trade provided a source of labor not only for settlers who did not receive encomiendas, but also for the encomenderos themselves, as they sought to expand their command over available labor resources. Large encomenderos, such as Cortés, owned hundreds of Indian slaves who toiled alongside Africans, encomienda Indians, convicted criminals, and free wage workers in mines, sugar mills, and textile

⁵ Enrique Florescano, “La formación de los trabajadores en la época colonial, 1521–1750,” in E. Florescano et al., eds., *La clase obrera en la historia de México: De la Colonia al Imperio* (Mexico City, 1980), 25, emphasis added.

workshops. In New Spain, the legal enslavement of native peoples derived basically from two sources: Indians purchased in the form of *rescate* (ransom) from their native masters and captives taken in warfare. Royal legislation strictly regulated the enslavement of war captives, seeking to enforce Just War precepts and to guarantee the crown's share of one-fifth of the captives. Authorities branded slaves on the cheek, with marks distinguishing whether they had been redeemed from indigenous masters or taken in punitive expeditions on the frontier. However, because frontier wars were carried out primarily by private bands with their indigenous allies, the capture and sale of slaves often generated dubious situations. Even in the more densely settled regions of Central America, Spaniards who were disappointed with the poor prospects of obtaining instant wealth organized private ventures to raid peasant villages, capturing and branding Indians. The severe population decline suffered by several areas of Chiapas, Guatemala, Honduras, and especially Nicaragua most likely derived more from illegal and indiscriminate enslavement than from disease.

In New Spain, the specific demand for Indian slaves increased with the exploitation of gold and silver deposits beginning in the late 1520s. In principle, encomienda tributaries could not be sold, rented, relocated, or used in specific kinds of service: the crown repeatedly sought to curb certain practices, including the overexploitation of *tamemes* (porters), often associated with high mortality rates. Slavery did not present such formal restrictions. Cortés, for example, transferred the work force from his failing Tehuantepec enterprise to the more promising Taxco deposits, which was possible to do because these workers were slaves. As Robert Haskett has shown in his study of the Taxco mines, Cortés and other slaveowners acquired captives from a wide range of locations, some from the Gulf Coast and others from as far away as Guatemala. However, in examining an inventory of Cortés's *hacienda de minas* from 1549, Haskett demonstrates that most slaves working in those mines had been sold into bondage within central Mexico, and very few had been captured in anything resembling Just Wars, except, perhaps, the Indians of Texcoco, who were branded and sold following the capitulation of the Triple Alliance. Furthermore, over half of the Indian slaves listed in the inventory were women, which raises interesting questions not only about the origins of these slaves, but also about the organization of production in the mines and on the estates during this early period. Unfortunately, relatively little information on slave prices and markets has survived for this period. In the existing records of slave transactions that have been studied by Silvio Zavala and others, values fluctuated wildly,

though Indians were usually assessed low prices. Rather than reflecting abundant supply, the comparatively low values attributed to Indian slaves in effect often revealed slaveowners' modest expectations in terms of productivity and, especially, longevity. Indian slaves entailed significant risks, especially when transferred from one disease environment to another. In addition to this negative "relocation cost," other factors increased risk and affected prices, including ethnic origins as well as propensity to flee or to rebel.⁶

Mandatory labor drafts, sanctioned by the crown and commanded by royal authorities, constituted a third strategy for supplying indigenous labor to Spaniards in the wake of conquest. Even before the formal establishment of New Spain's repartimiento in 1549, tributary communities directly subordinated to the crown provided substantial inputs in the form of labor services, channeling *cuadrillas* (gangs) to public works projects and distributing *indios de servicio* to private interests for specified periods of time. Collective labor drafts drew on pre-Hispanic forms of distribution and organization, readapting the Nahuatl term *coatequitl* to the colonial setting. Under Aztec rule, *coatequitl*/labor obligations formed a complex system of rotating drafts based on vigesimal tribute counts, as gangs from different *tlaxilacalli* (neighborhood units) rendered services either to the ruling group or for public works, toiling on roads, buildings, hydraulic projects, or agricultural plots. In short, the system sought to maximize collective labor power while affecting villages minimally. Spanish authorities and employers retained some of the essential collective and corporative features of the system, adopting vigesimal counts and deploying community craft specialization, especially in the construction of cathedrals, monasteries, and even private residences. In Tlaxcala, the most populous *señorio* that was never entrusted to encomenderos, royal authorities and native lords established that in exchange for the annual tribute payment of 8,000 fanegas of maize, the *tlaxilacalli* units would provide 800 workers each week on a rotating basis, to be distributed among the Spaniards or to execute public works in the early 1530s.

Tlaxcala's special status, which derived from its role in the Conquest, made this early experiment possible, but by the 1540s several factors had conspired to favor this system of labor recruitment and distribution over the

⁶ On relocation costs, also an important element in the African slave trade, see Ralph Schlomovitz, "Forced Labor: An Overview," in Seymour Drescher and Stanley Engerman, eds., *A Historical Guide to World Slavery* (Oxford, 1998).

others. Opposition to Indian slavery and to abuses associated with forced labor under the encomienda raised the intensity of the labor issue, as the weighty opinions of Bartolomé de las Casas and Vasco de Quiroga moved the crown to introduce a broad range of institutional reforms. Beginning with the New Laws of 1542 and culminating with the establishment of the repartimiento in 1549, the crown cut deep into the privileges appropriated by the first generation of conquistadors, by abolishing Indian slavery and stripping encomenderos of their unbridled access to the labor of their charges. By the 1550s encomienda benefits in New Spain in effect had been reduced to an increasingly modest annuity based on a head tax set by a crown inspector. However, although the “struggle for justice” certainly played an important role in guiding Spanish policy, it does not explain the full range of the crown’s intentions. The New Laws also responded to pressures by the encomenderos, who revindicated the perpetuity of their grants (which were restricted to two lifetimes), and to the growing needs of nonencomenderos, who clamored for access to native labor, especially in the expanding mining and agro-pastoral sectors of the colonial economy. Furthermore, two critical contingent factors also shaped the outcome of this process of projected reforms. First, between 1545 and 1548, the native peoples of central Mexico fell victim to the *hueycocoliztli*, a “great sickness” that claimed countless lives and had an immediate impact on land, labor, and production, far more striking than the institutional adjustments the crown was promoting. Around the same time, the discovery of major silver deposits on the sparsely settled frontier to the north and northwest of Mexico City created an even greater demand on increasingly strained human resources.

Beginning around 1550, royal authorities began a major overhaul in the tribute and labor system in New Spain. Curiously, however, as Charles Gibson has suggested, the centralized repartimiento appeared first to restore ethnic boundaries and labor drafts according to patterns established before the arrival of the encomenderos. Indeed, whether to revise tribute schedules or to organize public works for flood control, governors and *corregidores* relied on the memory of ethnic *señoríos*. But the introduction of the repartimiento and other reforms also proved disruptive in significant ways. By establishing direct control over mandatory labor distribution and tribute collection at this critical juncture, the crown firmly asserted its political presence and authority in the Americas, while creating new possibilities for channeling wealth to the royal exchequer. At the same time, policies designed to protect the Indians from abusive treatment in the hands of private interests in effect promoted the development of the colonial

economy. The resettlement (*congregación*) of indigenous communities increased Spanish access to land, labor drafts selectively subsidized production, and tribute obligations in specie and in maize rather than in multiple commodities forced Indians into the wage labor market. The precipitous population decline and the mining bonanzas of the 1540s further sparked the rearrangement of productive resources, as European enterprises began to replace indigenous communities in supplying foodstuffs and textiles to Spanish towns and mining zones.

Instituted in 1549 to replace encomienda labor obligations, the repartimiento began to function on a significant scale already in the 1550s. Based on revised tribute schedules (*tasaciones*), local officials responsible for recruitment would present the designated number of workers on a weekly basis to the repartimiento district authority, the *juez repartidor*, who in turn was responsible for assigning work crews to serve different Spanish employers for specified tasks or periods. The objective was to provide a steady supply of labor to qualified mine owners and *labradores* (Spanish farmers) without affecting the Indian communities very much. As part of the crown's policy of protecting its indigenous vassals, the repartimiento system required employers to remunerate workers with cash wages, while limiting the length of time that Indians were to be forced to work. Workers served in weekly shifts, receiving wages at the end of each tour of duty at rates fixed by crown authorities. Agricultural quotas varied on a seasonal basis; communities were to cede 2 percent of their tributary population (a quota called *dobra*) during weeding, harvesting, and irrigating periods, and 1 percent (*sencilla*) for the other periods. The actual percentages fluctuated as a result of population changes and of specific arrangements with different towns, but remained fairly constant through the third quarter of the sixteenth century. Authorities summoned larger drafts on an emergency basis, but even then the immediate impact on indigenous communities probably was not significant. For example, during the flood of 1555, the viceroy drafted some 6,000 workers to construct an enormous dike, at a time when the potential tributary labor force was over 2 million.⁷ In urban areas, especially Mexico City, indigenous neighborhoods faced greater difficulties in meeting quotas, not only because of population decline but also because of a greater demand for skilled workers, especially in large-scale public works. Authorities rented African slaves and assigned condemned

⁷ These figures were derived from Charles Gibson, *The Aztecs under Spanish Rule* (Stanford, CA, 1964), 225.

criminals to make up for part of this demand, but they also diverted drafts from other communities in outlying areas.

The importance of repartimiento drafts for mining areas in New Spain varied greatly in space and over time. Some of the most prosperous silver mines were located in sparsely settled areas on the northern frontier, whose native populations proved difficult to recruit into a reliable source of labor. At the same time, unlike their Peruvian counterparts, royal authorities in New Spain restricted the range of repartimiento service, so mines such as Zacatecas fell beyond the legal geographical limit of the densely settled areas. Nonetheless, even in that region the repartimiento proved necessary to supply workers for the salt mines, which were essential to the patio process used to refine silver, but which failed to attract free labor as easily as the silver mines. Silver mines closer to dense populations, such as Pachuca and Taxco, relied on labor drafts to a greater extent than Zacatecas. But mine owners in these places also turned to African slavery and free wage labor early on as their principal source of workers, which meant that repartimiento inputs served primarily as subsidies, which were important enough to be part of the constant complaints voiced by mine owners to the crown, seeking greater concessions to help defray rising production costs. After all, repartimiento wages were set well below the rates paid on the free labor market. Finally, as Robert Haskett shows, indigenous communities were sometimes successful in revindicating adjustments and exemptions, which suggests that Indians spent more than sweat and blood in shaping the labor system. As we shall see below, these factors favored the development of a mixed system of wage labor and ore-sharing arrangements.

As Gibson notes, the agricultural draft functioned well so long as the Indian population remained sufficiently large and the number of Spanish employers sufficiently limited. However, when a second great sequence of epidemics struck a severe blow to the indigenous population of central Mexico between 1576 and 1581, the relative capacity of native communities to meet growing Spanish demands reached a critical point. By the end of the sixteenth century, labor quotas had increased dramatically, with the harvest period *dobra* requirement leaping from 2 to 10 percent of the tributary population in some communities in the Valley of Mexico. This new disruption in the supply of involuntary labor moved hacienda and mine owners to seek workers through other means. Although some of the larger estates could turn to African slavery – indeed, the number of slaves introduced into New Spain grew rapidly in the final years of the century – most employers sought to guarantee their share of Indian and

mestizo labor through private contracts, in spite of rising wage rates. At the same time, the crown sought to curb some of the more notorious abuses within the system at the beginning of the seventeenth century by prohibiting the use of repartimiento labor in agriculture and public works, maintaining the system as a source of supply for the mines. Although the crown expected a smooth transition to a labor arrangement governed by private contracts between Spanish employers and indigenous workers, many of the earlier practices continued to exist, and after more decrees the repartimiento was finally abolished in 1632, except in mining districts. Not unlike so many other abolitions that took place throughout Latin American history, the 1632 decree did not reorganize the labor system; rather it simply consolidated a process well under way since the late sixteenth century. As Charles Gibson shows, the supply of workers to private employers through the repartimiento drafts had declined to almost nothing by the early 1630s in the Valley of Mexico.

ENCOMIENDA, YANACONAJE, AND MITA IN THE RISE
OF THE ANDEAN MERCANTILE ECONOMY

The development of postconquest labor systems in the Andes followed a trajectory somewhat different from New Spain's, especially with respect to the reconfiguration of precolonial social categories and forms of recruitment. Prolonged civil strife between encomenderos, the relative weakness of royal authority in the region before the 1560s, and the persistence of indigenous control over key productive and distributive processes meant that the timing and impact of institutional change would take on distinctive characteristics. As in Mexico, the fall of Tawantinsuyu led to the immediate assignment of encomienda grants, which conferred authority over *kurakas* (native lords) and their subjects. During the early years, the encomienda in Peru constituted what Karen Spalding has called a "more institutionalized form of plunder," but by the 1540s, a structured mercantile economy began to blossom, rapidly increasing the demand for indigenous labor. The discovery of the Cerro Rico at Potosí in 1545 had an enormous impact on the development of a regional economy, one dedicated not only to silver production in itself but also to supplying a burgeoning European population with wheat, sugar, olives, wine, and livestock, as well as providing abundant supplies of coca leaves to the armies of miners who stripped the silver mountain. In the northern part of the former Inca empire, where the Spanish established their viceregal capital, control over indigenous resources

unfolded more rapidly than in the Andean heartland to the south, with the rapid development of rural estates specializing in European products and a more pronounced decline in the indigenous population. Facing the same legal restrictions as in Mexico and concentrated in the hands of relatively few Spaniards, encomienda labor proved insufficient to meet the growing needs of these fledgling enterprises. More importantly, *kurakas* placed further constraints through their critical role as mediators in colonial labor relations, not only controlling recruitment but also safeguarding the collective interests of their communities. As a result, successful encomenderos tapped into community resources and labor power through the preservation of reciprocal relations rather than through the use of force. Others, however, sometimes with the collusion of *kurakas*, subjected their charges to abusive practices and derived additional benefits by illegally renting Indians, especially to nonencomenderos competing in a labor-scarce market.

Population decline affected the Andean labor supply in differential patterns from north to south during the sixteenth century, although not on a scale comparable to New Spain, where the severe epidemics of the 1540s and 1570s constituted veritable watersheds. As Steve Stern points out in his study of Huamanga, during this critical period of readjustment “the colonial economy continued to depend for goods and labor almost wholly upon the Andean social system, managed and controlled by Andean social actors, relationships, and traditions.”⁸ Producers linked to regional and international markets explored other arrangements, including African slavery and early forms of wage labor, establishing private contracts with individual workers or with *kurakas* who recruited workers from their own communities. Although a regular flow of African slaves did not set in until the end of the sixteenth century when the *asiento* system was firmly in place, colonial entrepreneurs in most activities began to import modest amounts of relatively expensive African slaves already at mid-century, often for specialized or domestic functions. However, the main source for directly controlled workers derived from the reconfiguration of a precolonial category, that of *yanacona*. Before the Spanish, *yanas* composed, in the words of Ann Wightman, “a social group characterized by a special, inherited relationship of service and subordination to the state, as personified in the emperor or the local elite.”⁹ Following the conquest, many *yanaconas* and their families

⁸ Steve Stern, *Peru's Indian Peoples and the Challenge of Spanish Conquest*, rev. ed. (Madison, WI, 1993), 40.

⁹ Ann Wightman, *Indigenous Migration and Social Change* (Durham, NC, 1990), 17.

attached themselves to the Spanish, serving as retainers on expeditions or as workers on estates and in textile workshops, among other activities. The Spanish considered their status to be hereditary, and not unlike the Aztec bondsmen subject to *rescate* in New Spain, they became the dependents of Spanish lords, who often treated them as personal property, renting out their services and even selling them to others. Members of one special category, the *yanaconas del Rey*, remained as direct dependents of the crown, subject to labor drafts when summoned by royal officials. Over time, *yanaconaje* grew into a significant form of rural and urban labor, and as Indians began to avoid tribute and labor obligations by migrating from their communities, the presumed hereditary status of *yanaconas* became diluted and the category assumed a more generic meaning. Following Toledo's reforms, the term had become the equivalent of any noncommunity Indian who was not subject to the *mita* draft, although *yanaconas* did have to pay an annual tribute of one peso to the crown.

During the first phase of silver mining at Potosí in the 1540s and 1550s, *yanaconas* were cast in a somewhat less dependent role. Although Spanish entrepreneurs secured rights to mining claims, they did not control the productive process entirely, especially at the refining stage. Mine owners established contracts with *yanaconas*, who came to be known as *indios varas* (in reference to the veins – *varas* – they exploited). These contracts usually included specific quotas to be turned over to the mine owner, which meant that the miner retained a variable portion of the ore he carved from the mountain. The bulk of the mining workers was made up of unskilled carriers, called *apiris*, and the Spaniards relied primarily on *kurakas*, who organized drafts based on precolonial practices, to supply these workers. The refining process involved large inputs of skilled labor, because the prehispanic technique using *guayras* (wind ovens) to separate molten silver from ore prevailed. This technology proved effective as long as high-grade ore was easily accessible, and as many as 15,000 *guayras* remained active until the early bonanza showed signs of exhaustion in the 1550s. As Jeffrey Cole argues, by the early 1560s the downturn in production paradoxically led to a labor shortage, caused more by the refusal of workers to toil for lower wages and decreasing shares than by the decline in population. In 1561, according to Cole, some 20,000 Indians lived in Potosí but only 300 were employed in the mines. Some mine owners resorted to African slaves, with only partial success, however, because the cost of introducing slaves remained high and because the crown restricted the number of slaves to be brought through the *asiento*. Furthermore, a common belief held that African workers fared

poorly in the highlands because they were especially susceptible to respiratory diseases, a sort of mirror image of the poor performance of highland Indians as workers in the humid lowlands.

The labor crisis was at the heart of a larger movement, which Stern has identified as a “historical watershed”: the outcome involved the effective consolidation of the conquest, subordinating Andean communities to the colonial state. As in Mexico, the crown intervened at this point both to mediate conflicts and to take direct control over tribute collection and labor distribution. Wary of the growing dispute over scarce labor, encomenderos pressed the crown for greater privileges, seeking to transform their encomiendas into perpetual grants. Kurakas countered with proposals of their own, at one point offering to pay a handsome sum to Philip II to abolish encomiendas altogether, as Thomas Abercrombie has shown.¹⁰ Although this was an example of how native leaders sought to negotiate directly with the crown, *kurakas* also took a more direct confrontational stance by refusing to supply required labor, while at the same time the emergence of manifestly anticolonial resistance movements posed an even greater threat to the survival of Spanish Peru. Within this context, writers with extensive colonial experience, especially Juan Polo de Ondegardo and Juan de Matienzo, drafted detailed reports and suggestions in an effort to solve the labor problem, taking into account not only the demands of the colonial economy but also the resilience of Andean structures and traditions, which could provide useful keys for reinvigorating the stagnant silver mining economy. The most prominent feature of the new system entailed the expansion and centralization of rotating labor drafts, involving medium- to long-range migrations. Reminiscent of the preconquest term *mit'a*, denoting service rotations – literally “turns” – performed within communities or for the Inca, the hispanicized *mita* constituted a form of *repartimiento*, whose primary function was to distribute mandatory labor draft workers to private colonial entrepreneurs in unequal shares. Although the primary beneficiaries were mining interests, *mita* drafts also rationed workers among agricultural and urban manufacturing units, especially in areas beyond the reach of the major silver and mercury mines. However, the Andean *mita* differed considerably from New Spain’s *repartimiento* in terms of size, scope, function, and longevity.

Consolidated with the reforms instituted by the viceroy Francisco de Toledo in the early 1570s, the *mita* gave the mining economy an enormous

¹⁰ Thomas Abercrombie, *Pathways of Memory and Power* (Madison, WI, 1998), 223.

boost, providing abundant and inexpensive labor to a sector that was entering a boom phase. The new amalgamation process, which allowed the processing of lower-grade ores and introduced significant gains in productivity, required steady supplies of mercury as well as the construction of water-driven stamp mills. During the early years of the Toledan *mita*, a considerable portion of the mandatory labor force toiled in the construction of these mills and in associated hydraulic projects, although most entered the ranks of the *apiris*, ore carriers who faced dismal working conditions and heavy production quotas. The Potosí *mita* drew workers from a geographical range far greater than that permitted in New Spain, covering roughly the precolonial imperial quarter of Qullasuyu. Sixteen units, called *capitanías*, were to send one-seventh of their tributary population for annual tours of duty, replicating the broad outline of the *mit'a* system used by the Inca, but introducing radically different implications. Native lords served as *capitanes de mita* and were responsible for delivering workers to the mines and supervising the organization of work shifts. By 1578, slightly more than 14,000 workers composed the total draft labor force (called the *mita gruesa*), which was divided into three equal parts, with each shift (called the *mita ordinaria*) serving for one week and resting for two. Drawn from eleven *capitanías*, a smaller force served rotations in the Huancavelica quicksilver mines, with around 2,200 Indians assigned each year. These mercury mines, with high death and disability rates, became more dependent upon forced labor drafts than the silver mines, because they failed to attract sufficient numbers of voluntary migrant laborers no matter how high the wage, and – unlike Potosí – *mitayos* refused to stay on beyond their mandatory terms.

During Potosí's boom period (c.1575–c.1615), the *mita* afforded the mine-owners a cheap alternative to free wage labor for the heaviest and most dangerous tasks. The division of labor between *mitayos* and *mingas* (voluntary wage laborers) is sketched in the well-known “Descripción de la Villa y Minas de Potosí” of 1603. According to this anonymous report, of the more than 19,000 workers directly involved in the mining sector, 4,000 were listed as *mitayo* miners, mostly *apiris*, whereas only 600 *mingas* worked inside the mines, perhaps mostly as *barreteros* (pickmen). These numbers were directly inverted for refinery work; that is, only 600 *mitayos* are listed against 4,000 *mingas*.¹¹ This clearcut distinction between *mitayos* and *mingas* can be somewhat misleading, however, since individual workers often

¹¹ Figures extracted from Jeffrey Cole, *The Potosí Mita, 1500–1700* (Stanford, CA, 1985).

shifted between categories. Indeed, another important feature of the rotating draft was that it increased the pool of free laborers, insofar as *mitayos* often hired on as *mingas* during the rest period (*huelga*) between mandatory shifts. The presence of family members accompanying *mitayos* during their assignments further increased this “off-duty” *mita* labor force. Over the course of the seventeenth century, the *mita* declined steadily as a source for labor, although it retained its importance as a subsidy for mining operations. Although community obligations remained high, many *kurakas* either failed to deliver full quotas of workers or presented cash payments in lieu of *mitayos*. In some cases individuals hired replacements to serve their shifts, whereas in others, hacienda owners or mining entrepreneurs, who did not receive quotas, advanced cash payments to secure workers otherwise committed to *mita* obligations. Under these circumstances of evasion and commutation, the character of the *mita* shifted from a subsidy in labor to a money rent extracted from tributary communities, as Enrique Tandeter shows in his meticulous study of this system. The crown attempted to enforce, reform, or even abolish this institution on different occasions during the seventeenth and eighteenth centuries, as the Potosí *mita* survived into the nineteenth century. But the essential contours of a hybrid labor system had been established even before Viceroy Toledo had returned to Europe. Mandatory drafts directed by the colonial state played a strategic role in reorganizing the mining sector but colonial entrepreneurs – including beneficiaries of the *mita* – came to rely primarily on private arrangements to guarantee a steady and stable supply of workers.

AFRICAN SLAVERY

PATTERNS OF NEW WORLD DEMAND

African slavery became an increasingly attractive labor option for colonial entrepreneurs over the course of the sixteenth century, as several factors converged to fuel the expansion of a trans-Atlantic trade. The precipitous decline of Amerindian populations created the need to import workers from other regions, especially in areas where sugar, tobacco, cacao, and other tropical staples began to show promise as sources for colonial wealth. The forced relocation of indigenous peoples from neighboring regions, whether as slaves, drafted workers, or residents of missionary settlements, provided significant inputs, especially in the early stages of European expansion, but high mortality, indigenous resistance, and moral opposition to

dismal conditions rendered forced native labor an increasingly costly and unreliable expedient. Indeed, at certain critical junctures, African slavery held distinct advantages over other available forms of labor from the slave buyer's perspective. For example, as Stuart Schwartz demonstrates in the case of Brazilian sugar plantations in the late sixteenth and early seventeenth centuries, planters and mill owners turned increasingly to African slaves because slavery entailed a clear comparative edge over various forms of coerced and free native labor.

Although New World labor demands go a long way in explaining the origins, growth, and consolidation of African slavery in the Americas, the option of slavery also derived from other considerations. Slaves, after all, as Franklin Knight remarks, "were commodities of exchange as well as potential units of labor."¹² Buyers in the Americas acquired African bondsmen primarily as labor inputs, but slaves also provided an interesting alternative both as a rent-producing investment and as an outward sign of social distinction, especially in the urban areas of Spanish America. On a broader scale, the Iberian monarchies actively encouraged the slave trade, not only because of its potential as a source of fiscal revenues, but also because it ostensibly provided an acceptable alternative to the forms of forced native labor that had elicited growing waves of moral outrage. Although a few faint voices clamored against the immorality of this human traffic as well, African slavery raised few objections – except from the slaves themselves – until well into the eighteenth century, and remained a crucial labor arrangement in different parts of Latin America almost to the end of the nineteenth century.

The first African slaves in the Americas most likely arrived with Ovando's fleet in 1502, but this early generation was employed only sparingly in mining and agriculture. Most of the early slaves came to the Caribbean from the Iberian Peninsula, where they had acquired the linguistic and occupational skills that accompanied them to America, serving primarily as domestic servants, artisans, and soldiers. The first contract established between the Castilian crown and a private slave trader coincided with the outbreak of the disastrous smallpox epidemic around 1518, and although it is not clear whether the contract in effect involved direct shipments from West Africa to the Caribbean, by the 1520s pioneer sugar planters in Santo Domingo and Puerto Rico began to rely primarily on enslaved

¹² Franklin Knight, "Slavery and Laggard Capitalism in the Spanish and Portuguese American Empires, 1492–1713," in B. Solow, ed., *Slavery and the Rise of the Atlantic System* (Cambridge, 1991), 65–6.

Africans, who toiled alongside dwindling numbers of Amerindians and salaried workers from Europe. Following the conquest of the mainland empires and chiefdoms, which involved the significant participation of African slave-soldiers, Spanish American demand for African labor grew at a modest rate at first, but its scale and intensity picked up considerably during the final years of the sixteenth century, in part as a response to the decline of the indigenous population and to the changing forms of appropriating Amerindian labor, but also because it bolstered specific segments of the Spanish economy in the New World. African slaves and free blacks came to play a crucial role on sugar, wine, and wheat estates, in some of the silver and gold mines, in urban domestic service, in the shipbuilding industry, and in a wide range of specialized crafts. Toward the end of the sixteenth century, Africans outnumbered Europeans in most Spanish American cities, although they continued to account for only a modest proportion of the colonial population as a whole.

During the colonial and early national periods, the demand for African slaves shifted considerably in spatial terms and over time, primarily in response to the emergence of new economic sectors and to the relative availability and desirability of alternative labor inputs. In Mexico, different waves of sugar production were tied to imports of African slaves, and significant plantation zones emerged, especially in Veracruz. The slave population of New Spain reached its peak of about 35,000 (less than 2% of the viceroyalty's total population) in the mid-seventeenth century, and declined steadily thereafter, although the plantation economy of Córdoba, Veracruz, enjoyed a brief period of expansion in the eighteenth century. In the Viceroyalty of Peru, African slaves constituted an important part of the colonial population by the late sixteenth century, especially in urban areas near the Pacific coast, but also in the coastal valleys where sugar plantations and wine estates developed, involving around 100,000 slaves by the mid-seventeenth century. Unlike Mexico, the demand for slaves remained relatively constant through the colonial period, and at the end of the eighteenth century there were still some 90,000 slaves in the viceroyalty. Other regions in northern South America responded to more specific demands, such as the gold mining zones of Barbacoas and Chocó, or the cacao producing areas of Venezuela. Finally, in the La Plata region, African slaves constituted a significant part of the urban population even before the establishment of the viceroyalty, and played an important role in the early development of sugar estates, vineyards, and cattle estancias, offering an alternative to *encomienda* labor, especially in Córdoba and Tucumán. As the

region became more dynamically integrated into the Atlantic commercial circuit in the late eighteenth century, an increased supply of slaves bolstered the urban labor market and furnished some of the larger estancias on both sides of the estuary with a steady flow of bondsmen.

In the Spanish Caribbean, early slave imports had waned by the final quarter of the sixteenth century as the sugar industry lost markets to producers in Mexico and Brazil. Africans continued to be imported in fits and starts throughout the seventeenth century, when they performed mainly urban and military functions, but it was not until the second half of the eighteenth century that the islands became decisively integrated into the Atlantic economy once again. The rebirth and meteoric growth of the sugar industry in Cuba, Puerto Rico, and, to a lesser extent, Santo Domingo were characterized by the rapid expansion of the trans-Atlantic slave trade and the intensive exploitation of slave labor. From an entrepreneurial perspective, African slavery presented itself as the best alternative by far. The islands' population of free whites and mestizos, creole slaves, and *manumisos* (freed-men) could not be transformed into a plantation labor force easily, because most slaves were occupied in urban professions and much of the rural population was engaged in small-property agriculture. Sugar and, subsequently, coffee production received an additional boost from the outcome of the successful slave revolution on St. Domingue. Facing growing international pressure, the slave trade to the Spanish Caribbean reached its peak in the 1830s, and although slaves continued to be delivered clandestinely until the early 1860s, planters began to entertain alternatives to both African slavery and free labor. Following the pattern of neighboring sugar islands, they first attempted to fill their needs with contract labor brought from Asia, and as many as 100,000 Chinese workers entered Cuba in the middle decades of the nineteenth century. But they also drew from remote traditions harking back to the early years of the sixteenth century, as they received a few thousand Maya Indians, who had been reduced to bondage as punishment for their participation in the Yucatecan "caste war," which ended in 1847.

The greatest demand for slaves originated in Portuguese America, because Brazil received the lion's share of the slaves shipped across the Atlantic from the mid-sixteenth century to 1850. Recent revised estimates suggest that as many as 4,000,000 Africans were sold in Brazilian slave markets, with well over half of that number arriving during the final century of the trans-Atlantic trade and a disproportionate number (c. 1.15 million) in the final three decades alone. The expansion of the sugar industry in the

northeastern captaincies provided an initial impetus for slave imports; the discovery of alluvial gold deposits in Minas Gerais at the end of the seventeenth century and the development of coffee plantations in the nineteenth century also created a strong demand for slave labor. But slave purchases did not remain restricted to these sectors and as subsidiary economic activities emerged, including food production, cattle ranching, and urban services, slavery expanded accordingly. During most of the colonial period, buyers in Brazil enjoyed a great advantage over their Spanish American counterparts, because supply to the Spanish colonies remained under the constraint of *asiento* terms. Although the Portuguese crown imposed heavy duties on slaves and established monopoly companies in an effort to promote the use of African slavery in the northern colonies of Maranhão and Grão Pará, for the most part the trade remained open to any Portuguese subject who could outfit a voyage. The resulting elasticity of supply made slaves accessible to a broad range of buyers through the duration of the trans-Atlantic trade. By the mid-seventeenth century, many if not most of the slave ventures set out from Salvador or Rio de Janeiro rather than Lisbon, and this complementary integration of reproductive and productive zones configured Portuguese colonialism in the South Atlantic, as Luiz Felipe de Alencastro has argued.¹³

Although the structure of the trans-Atlantic slave trade has been carefully studied in terms of its entrepreneurial organization, its demographic characteristics, and the distribution of slaves over time and space, the actual functioning of slave markets within Spanish and Portuguese America is less well known. A long sequence of observers, from the Jesuit Alonso de Sandoval in the early seventeenth century to British and French travelers of the nineteenth century, described in detail the squalid conditions of waterfront warehouses and the inhumane practice of buyers inspecting their prospective purchases, but they were somewhat parsimonious in their reporting of prices and transaction procedures. In effect, slaves were bought and resold in a number of ways, ranging from the grotesque public auctions of newly arrived Africans in open marketplaces in Cartagena, Veracruz, Salvador, or Rio de Janeiro to the more private transactions between individual owners who processed their bills of sale in notary offices. Slaves purchased at the port of entry often faced a second journey, sometimes longer and even harsher than the Middle Passage, to distant mines, plantations, or urban areas where they were sold once again. Some larger enterprises, like the

¹³ Luiz Felipe de Alencastro, *O Trato dos Viventes* (São Paulo, 2000).

British St. John d'El Rey Mining Company in Brazil during the first half of the nineteenth century, sent their own agents to purchase slaves directly at the bayside warehouses.

In slave economies, the labor market responded primarily to the interests of plantation owners and mining entrepreneurs. Large slaveholders made decisions based not only on the constant need to replace incapacitated, runaway, or deceased slaves, but also on their assessment of market conditions for their product. A few mill owners and mine operators participated in slaving ventures, but most relied on commercial intermediaries, which involved an increasingly intricate credit system. In mining zones, traders usually sold slaves for cash, not only because it was readily available but also because of the relative difficulty of collecting debts in frontier regions. In the more settled zones of staple production, where mill owners and planters had considerable stakes in lands, improvements, future crops, and, especially, slaves, merchants proved more willing to sell slaves on credit. In addition, although the slave trade often followed commercial and political trends set in Africa, buyers in the Americas developed certain preferences in terms of age, gender, and provenance, which were often reflected in differential prices for slaves of distinct ethnic origins. In each region of the Americas, slaveowners established particular classifications based on ideas about resistance to disease, physical strength, productivity, skills, and general adaptability, often pitted against notions concerning the tendency of different slaves to flee, commit suicide, or rebel. During the first centuries of New World slavery, slaveowners accumulated experience in observing and categorizing differences, but by the nineteenth century, these perceptions also began to echo a growing body of scientific and pseudoscientific literature on race. A popular guide for coffee planters in nineteenth-century Rio de Janeiro, for example, classified different ethnic origins according to physical and behavioral traits, associating these with relative work capacity. According to Ira Berlin and Philip Morgan, “[s]uch mixtures of rational calculation and baseless stereotyping guided the construction of the labor force in various slave regimes.”¹⁴

With regard to slave markets, the best data for Latin America comes from Cuba and Brazil, although the most systematic collection and analysis of prices focus on the final years of slavery, between the eclipse of the slave trade around 1850 and the final abolition in the 1880s. Even so, much of the

¹⁴ Ira Berlin and Philip Morgan, eds., *The Slave Economy: Independent Production by Slaves in the Americas* (London, 1991), ii.

information fails to reflect real transactions, because it is based on appraisals made for probate inventories or tax purposes and adjudications in legal disputes over debts. This is significant, for as David Galenson has shown in his study of Barbados slave auctions, the enormously complex composition of slave prices in effective transactions responded to an intricate web of both conjunctural and contingent factors. A few studies have emerged, however, culling prices from sales transactions recorded in notary registers, the most complete of which covers some 23,000 sales between 1790 and 1880 in three Cuban districts. Although this is a meaningful sample with abundant information on ethnic origins and gender composition, the data presented by Bergad, Iglesias, and Barcia probably reveal more about urban slavery than plantation labor, because information on occupations was not sufficiently detailed to determine the destination of purchased slaves. In any case, the price series and its analysis do "represent general slave market conditions in colonial Cuba," as the authors assert, introducing a promising agenda for future research in other regional slave markets.¹⁵

For Brazil, part of this agenda has been carried out by Laird Bergad, in his study of slave price trends in Minas Gerais over a period of nearly 150 years. Relying primarily on data from probated estates, Bergad identifies three broad periods and offers different explanations for price behavior in each of the three. During the boom-and-bust cycle of gold and diamond extraction (1715–80), slave prices initially reacted to problems of supply and high transportation costs relative to other areas competing for slave labor, achieving a certain stability as the international slave trade readjusted its volume to meet mining demand. Indeed, whereas during the second half of the seventeenth century an annual average of around 7,000 Africans were shipped to Brazil, this number jumped to over 17,000 slaves per year by the 1740s. Following the decline of mining fortunes, slave prices during a second period from 1781 to 1817 experienced surprising stability, considering the great upheavals that took place in the international context. According to Bergad, this can be attributed to a lessened dependence on slave imports, due not only to the economic downswing in gold production but also to the internal reproduction of the slave population. Finally, a third period corresponded to the expansion of coffee production (although not in the areas studied by Bergad), which along with pressures to end the slave trade drove

¹⁵ David Galenson, *Traders, Planters, and Slaves: Market Behavior in Early English America* (Cambridge, 1986); Laird Bergad, Fe Iglesias García, and María del Carmen Barcia, *The Cuban Slave Market, 1790–1880* (Cambridge, 1995).

up prices, which doubled during the 1820s. Perhaps the most suggestive aspect of this analysis establishes a relation between prices and profitability, showing not only that high-profit enterprises (newly settled diamond mines or coffee zones, for example) correspondingly offered higher bids for prime slaves, but also that the competition between economic sectors or regions could drive up prices even in the less profitable zones. This dimension of the slave market has yet to be studied in greater detail, but much of the evidence suggests that regional and sectoral differences in the concentration and composition of slaveholdings may have as much to do with market and price variables as with questions of occupational specialization.

ORGANIZATION AND MANAGEMENT

New World slavery constituted an extraordinarily diversified and complex system of social relations, but in virtually all of its variations, work remained its central organizing feature. A substantial body of literature shows that many factors shaped particular arrangements under slavery in different places and at different times: the technical and organizational requirements of specific crops or minerals, the vicissitudes of the slave trade, relative factor proportions (especially in relation to land), the size of slaveholdings, and the life cycles of both masters and slaves, among others. At the same time, an increased focus on the importance of slavery in nonexport activities and on the slaves themselves has produced a much revised view of an institution that used to be measured by the dual images of the plantation complex and the master-slave dichotomy. Synthesizing current views, Dale Tomich writes: “Slave societies [...] involved two interrelated and overlapping economies: one organized by and for the master, although contested and constrained by the slaves; the other by and for the slaves, although contested and constrained by the master.”¹⁶

While masters enjoyed an obvious advantage through their near-monopoly of violence and through legal institutions that protected their often arbitrary control over their property, slaves gained increasing leverage in their unyielding defense of customary rights they had acquired over time. Indeed, more and more studies, whether on Brazil, the Caribbean, or the Old South, have recognized the existence of customary practices that moderated the pace and intensity of work rhythms in slave economies.

¹⁶ Dale Tomich, “Une Petite Guinée: Provision Ground and Plantation in Martinique, 1830–1848,” in I. Berlin and P. Morgan, eds., *The Slave Economy*, 68–9.

Profit-maximizing masters may have pushed their slaves hard, especially during periods of favorable prices for their product, but they always faced the slaves' refusal to produce beyond established conditions. With little institutional space for negotiation, these workers wielded other weapons that checked the excesses of most masters: frequent expedients included work slowdowns and stoppages, truancy, and flight. Less frequently they turned to outright violence, including the murder of overseers and even masters, as well as the threat of insurrection, sometimes carried out to bloody consequences.

Slavery, in principle, involved a reciprocal relation. Masters were entitled to extract labor from their slaves, but in return they were supposed to provide food, clothing, shelter, and religious instruction. These obligations constituted part of early modern Iberian legal codes and religious norms, but although no slaveowner was known to refuse his slave's labor, many proved lax in feeding and clothing their bondsmen, especially as long as the trans-Atlantic trade continued to offer slaves at attractive prices. However, no matter how much the legal and institutional framework favored masters, allowing them to dispose of their property pretty much in any way they pleased, slavery also involved a delicate set of relations that developed historically in the workplace within the Americas. Over time, the strict dependency that the master-slave bond theoretically entailed had been transformed, and in addition to rations and Catholic baptism, masters found themselves distributing provision grounds and permission to observe alternative religious practices. Perceived by the masters as discretionary concessions and by the slaves as acquired rights, these elements rarely became codified within formal law but very often were an important part of the recommendations detailed in treatises on management. Although it is tempting to view these features as the development of an independent slave economy and culture, in effect they constituted central elements of New World slave systems.

Northeastern Brazil in the late sixteenth and early seventeenth centuries provided the first setting for the full development of a plantation complex based primarily on African slavery. Although planters and mill owners had experimented with different forms of forced Indian labor, it rapidly became clear that any future expansion was to be inextricably bound to the steady supply of slaves from across the Atlantic. In all of its different stages, sugar production required intensive labor inputs, and as a result, the acquisition and maintenance of a stable slave force constituted one of the main investments that a planter needed to make. The deliberate shift to

African labor brought certain advantages, especially in terms of resistance to the epidemic surges that repeatedly decimated indigenous populations, but it also entailed new risks and costs. Slaveowners faced considerable expenditures with the initial outlay needed to purchase slaves, with varying costs of coercion and maintenance, and with unpredictable turnover rates. At the same time, forms of resistance posed a constant threat: flight from the plantations, for instance, occurred relatively frequently, not only hampering production but also creating the need to subsidize paramilitary forces to catch runaway slaves and to squash *quilombos* (maroon communities).

Whereas some plantations concentrated over 100 slaves, most *engenhos* (plantations with mills) during the colonial period operated with between sixty and eighty resident slaves. The advantage of having a large labor force lay in the possibility of organizing additional shifts, but there was a disadvantage in that it became difficult to keep all the slaves constantly occupied, especially during idle periods in the production cycle. To increase the amount of sugar they produced, mill owners established arrangements with cane growers (*lavradores de cana*), who commanded their own slaves in small holdings (usually around ten slaves) and who ceded half of their crop to the mill owner for the privilege of processing the other half. Although some cane farmers had title to their lands, others leased plots from the *engenho* in different kinds of contractual agreements, usually turning over an even greater share of their cane to the mill owner. These relatively small labor forces could be expanded as needed by renting or borrowing slaves from larger properties. On the *engenhos*, most of the slaves worked as field hands, but the labor force also included a broad variety of occupations, with different degrees of expertise involved, ranging from unskilled or semiskilled cane cutters, cattle tenders, and porters to the highly skilled mill artisans, or to more prestigious occupations such as house servants and even *feitores* (foremen or overseers). This occupational structure was reflected in differential slave prices, and was intimately connected to a rapidly developing ethnic hierarchy that distinguished recently arrived Africans (*boçais*) from more "seasoned" *ladinos*, Africans from creoles, blacks from mulattos, and ultimately slaves from free blacks. In addition to occupational, ethnic, and age divisions, slavery in the sugar industry also involved a sexual division of labor, although men often outnumbered women by as much as 2:1, especially in periods following new African slave purchases. Both men and women served as field hands, although men undertook the heavier tasks, such as clearing the fields for planting and chopping wood for the boilers. Female slaves cut and bundled cane alongside men, often working in pairs

with a male counterpart. In the refining stage, this division seemed to obey the same logic, that is, heavier and more dangerous tasks for men, lighter tasks requiring more precision for women. Male slaves thoroughly dominated other activities, though, such as transport, whether by boat, by ox cart, or on their own backs.

Slaveowners employed different strategies in their effort to instill and enforce labor discipline, ranging from positive incentives to strict supervision to harsh corporal punishment. Although theories and practices of slave governance were designed to enhance productivity and profitability, they also had to take into account the ever-present specter of slave resistance in its various forms. As Gavin Wright remarks, “[t]he economic essence of slavery involved the ability of the owner to control the allocation of labor time between market and nonmarket activity.”¹⁷ Masters sought to keep their slaves occupied as much as possible, which was a considerable challenge in situations where seasonal rhythms of planting and harvesting dictated sharp oscillations in the demand for manpower. In periods of little demand in the agricultural sphere, slaveowners reoriented their slaves’ activities to other collective tasks, which included clearing roads, constructing and restoring buildings, and working for hire on other properties.

On the larger units in both agriculture and mining, two basic organizational systems prevailed: gang and task. Gang labor involved an investment in close supervision, whereas the task system afforded slaves a certain measure of autonomy, as long as the slave met his quota on time. Each had distinct advantages and disadvantages, and in some cases, both forms could appear on a single production unit either simultaneously or seasonally. Both systems played a crucial role in the sugar production complex, as slaveowners deployed gangs to prepare the ground for cultivation and to weed the cane fields during the growing season, both activities involving strenuous and unpleasant work. The task system seemed to be preferred in the cutting, bundling, and delivery of cane to the mill. On both the large estates and cane farms, cane cutters worked in pairs, alternating between chopping and binding their daily quota, or *tarefa* (which also means “task”). Assigned quotas apparently varied over time: the evidence available suggests that in the seventeenth century, slaves were required to turn over as much as seven *mãos* (“hands,” units with fifty bundles), or 4,200 canes per day. By the eighteenth century, slightly smaller amounts were required, probably as a result of the adjustments the system went through as it achieved a certain

¹⁷ Gavin Wright, *The Political Economy of the Cotton South* (New York, 1978), 6.

stability. The size of quotas certainly remained a central feature in the organization of labor time and discipline. Equivalent to the task system in other plantation zones in the Americas, the magnitude of the *tarefa* not only determined how heavy the work load was to be, but also established how much “free” time the slaves would have on their hands. This additional time often was filled by other demands around the plantation. But it could also be used by slaves to tend their own gardens or to fish, especially as provision grounds (*roças*) became widely disseminated. In one notable example, reducing the size of the *tarefa* was a basic demand presented by the rebellious slaves from the Santana plantation at the end of the eighteenth century, in the conditions they proposed in order to go back to work.

But this exceptional case was far from the rule. Although there is no doubt that slaves played a crucial role in the development of slavery, they did so against the grain of conditions set by the slaveowners and sanctioned by royal laws. The task system certainly meted out a measure of autonomy, but the entire work process was always subject to strict supervision. The concession of provision grounds to plantation slaves constituted another part of this larger process involving the struggle between masters and bondsmen over the control of time. Provision ground cultivation probably developed early on within the sugar economy, as slaveowners found this to be an effective way to reduce costs, while at the same time offering an incentive to slaves. Some historians and anthropologists have contended that this practice constituted a “peasant breach” within the rigid system of plantation agriculture, where slaves carved out an independent productive sphere as “proto-peasants.” Although piecemeal evidence does show that slaves organized food production independently and even marketed surpluses, provision ground cultivation remained an integral part of the plantation insofar as the estate owners continued to wield the ultimate authority over the slaves’ access to time and land. However, as the practice developed from an arbitrary concession to a consolidated right, slaves gained a certain amount of leverage in their struggle to reduce the effective amount of labor time dedicated to producing wealth for their masters.

SLAVERY BEYOND THE PLANTATION

Although plantations and mines directed their output primarily to external markets, they also generated an internal demand for goods and services, which resulted in the expansion of slavery to other economic sectors, both rural and urban. The development of internal markets in Portuguese

America has received a great deal of attention in recent years and, correspondingly, a modified picture of slavery has emerged. Several studies have pointed to the widespread presence of slavery in nonexport activities, while at the same time showing the broad diffusion of slaveholding, which meant that a large percentage of households possessed slaves, even though in many cases they may have possessed only one slave. By the second half of the eighteenth century, although commercial agriculture tied to the Atlantic economy continued to attract the lion's share of slave imports, patterns of slaveholding seem to suggest that the plantation model was more an exception than a rule. On the fringes of the major sugar- and coffee-producing zones, as well as in urban areas, most slaves experienced slavery either on smaller units of production or in urban labor markets where they competed with other slaves and free persons for work.

In his study of the composition of the slave labor force in the Recôncavo area of Bahia in the eighteenth and early nineteenth centuries, Bert Barickman observes that mill owners and cane producers did not monopolize slaveholding, although greater concentrations predictably were to be found in sugar-growing parishes. Even in parishes dominated by "poor man's agriculture," that is, tobacco and manioc (cassava) farming, slaves made up as much as one-third of the total population during the late eighteenth and early nineteenth centuries. While economic historians traditionally have established cleavages between nonexport and export sectors, as well as between units of peasant production and slave-based plantations, detailed studies based on probate records and population rolls offer revealing insights into patterns of slaveholding and rural labor distribution. In the cases studied by Barickman, for example, one finds not only that most tobacco producers (around 90%) employed significant numbers of slaves, but also that even *roceiros* (small food producers), often labeled "subsistence producers" in the literature, also owned slaves. Indeed, 78 percent of the farmers listed as *roceiros* in Jaguaripe in 1781 held at least one slave.

Although the use of slaves in what appears to be peasant agriculture at first sight may seem contradictory, slavery and the rise of peasantries constituted an articulated process in more ways than one. Slave economies, whether agricultural or mining, gave rise to subsidiary food-producing economies, sometimes interwoven within the plantation zones, but at other junctures resulting in regional specialization. The sugar-producing zones of north-eastern Brazil included a mix of both strategies, as slaves maintained provision grounds while plantations also purchased manioc flour and other

foodstuffs from neighboring regions and meat from ranches in the interior. Both the foodstuff and cattle zones employed slave labor, although indigenous workers also formed a significant part of the workforce throughout the entire colonial period. What distinguished slave from nonslave units of production was their degree of commercialization, because income needed to be generated even to purchase a single slave. Under the conditions of low land values and relatively easy access to slaves, small agricultural units expanded rapidly throughout the eighteenth and early nineteenth centuries. Responding to favorable conditions, such as the increase in cotton prices or the growing urban demand for foodstuffs, family units of production could increase their participation in internal (and even export) markets by acquiring a few slaves in addition to taking on other kinds of dependent workers, including *agregados*, which refers to nonfamily household members who were “attached” to the domestic unit in some way. The increasingly direct linkage between Brazilian and African markets also accounts for part of the expansion of slavery beyond the plantation. Tobacco, in particular, was tied to the Atlantic economy not so much as an export to the metropolis but especially as an essential commodity in the slave trade, which helps explain why even poor tobacco farmers had access to slaves.

This widespread presence of slavery beyond the fringes of export agriculture also has been noted by Guillermo Palacios in his study of peasant agriculture in late colonial Pernambuco, as well as by Herbert Klein and Francisco Vidal Luna in their study of São Paulo before the rise of coffee plantations. A third region that has received considerable attention is Minas Gerais, where agricultural production and rural labor barely were noticed by historians, whose main focus was on the meteoric rise and decline of the mining economy over the course of the eighteenth century. In a seminal article that generated considerable debate, Roberto Borges Martins and Amílcar Martins Filho asserted that in spite of the decline of mining fortunes, the slave population continued to grow steadily in Minas Gerais after 1750, especially during the first half of the nineteenth century, and that this growth was linked primarily to the development of local and regional markets and to the natural reproduction of the slave population. Although the Martins brothers tended to view the postmining development of slavery in Minas Gerais as isolated, autonomous, and, above all, unnoticed – “growing in silence,” as it were – a critique by Robert Slenes suggests that Minas Gerais remained strongly articulated to the Atlantic economy, with the continued development of the diamond and gold mines, both sectors employing substantial numbers of slaves well into the nineteenth century,

along with the emergence of commercial agriculture in the Zona da Mata region, first supplying the coffee plantations of the Paraíba Valley with food-stuffs and later (after 1850) dedicated to coffee themselves. Douglas Libby adds to this picture by showing how an *avant-la-lettre* import substitution complex of industrial and protoindustrial units of production employed large quantities of slave labor. From a macroeconomic perspective, then, the Minas economy could continue to absorb slaves. In addition, Libby argues elsewhere (as do the Martins brothers) that although the slave population in Minas Gerais was not as dependent on the slave trade as other regions due to natural reproduction, it continued to receive an important share of slave imports during the first half of the nineteenth century. In any case, as an increasing number of studies on the demographic and economic history of slavery demonstrate, Minas Gerais provides an important example of how the internal market (as opposed to export markets) sustained slavery: between 1819 and 1872, the number of slaves in the province increased more than twofold, from 169,000 to 370,000, increasing the region's share of the total Brazilian slave population from 15 to 24 percent.

The expansion of urban slavery involved still other slaveholding patterns and labor arrangements. As we have seen, African slavery played an important role in Spanish American cities already in the sixteenth century, whereas in Portuguese America, in spite of low levels of urbanization before the eighteenth century, specific patterns that distinguished urban slavery had emerged in Salvador, Recife, and other towns by the mid-seventeenth century. Toward the end of the eighteenth century, with the expansion of the slave trade to Spanish America and the growth of urban centers in Portuguese America, slaves dominated certain segments of the urban labor market, controlled sectors of petty commerce, and generated income for an increasingly broad segment of small property owners. As Christine Hünefeldt shows in her study of Lima and environs during the first half of the nineteenth century, and as Maria Odila Dias demonstrates in her study of São Paulo, urban slaves in some cases were part of more extensive slaveholdings of owners with rural and urban properties, whereas in others they belonged to single women or widows, who acquired one or more slaves and hired them out to bring in a more or less steady income. Although these owners could outfit their slaves with tools or saleable wares, they left it to the slaves to secure work or buyers in a frequently competitive market. In exchange, slaves would turn over a fixed sum to their owners, retaining anything else they might have earned for themselves. Beyond the stipulated payment to their masters, slaves could save toward the purchase of their

freedom or use their earnings in a range of other social and devotional activities.

The specific arrangements between masters and slaves were part of the broader development of a market for services in which slaves competed for wages. Some masters rented their slaves directly to urban employers, and in Rio de Janeiro at least, a few slaveowners actually became specialized in offering slaves for rent. But the most common and abundant source of urban labor in Brazil resided in the availability of *escravos de ganho* or *ganhadores* (slaves for hire), also significant in several Spanish American cities even after Independence. Skilled slaves could find constant employment, but most slaves for hire faced a volatile and often highly competitive market interested primarily in casual labor. But the relative success of the system depended on the slave's own initiative as well as on the master's own circumstances. A single slave belonging to a relatively poor master usually enjoyed more space and leverage than a slave whose master had other sources of income. Against this portrait of slave initiative and leverage, there is a darker side to the story, especially in cases where slaves were not able to find work or successfully hawk wares but had to hand over the daily sum that their masters required nonetheless. Hünefeldt reproduces the dramatic testimony of a free Angolan woman in Lima, whose husband (a slave) had just hanged himself because he could not meet his obligations. Earning money on an irregular basis as a water carrier, the slave and his family often had to beg or borrow to come up with the six *reales* that his master required, not to mention the rent that he was charged by the same master for living quarters.¹⁸

In some instances, slaves for hire adopted specific strategies to establish greater control over the uncertainties of the labor market. Seemingly unstructured and undisciplined, the urban labor market increasingly came under the scrutiny of city officials attempting to regulate services. However, as João José Reis has shown in his study of labor gangs in nineteenth-century Salvador, the *ganhador* not only "moved about freely in the streets looking for work" but also "organised his own work time – the time, pace and even amount of his labour," especially because employers paid for specific tasks rather than units of time. In spite of this individual leeway, urban slaves in Salvador became organized in ethnic-based *cantos*, an ambivalent term meaning both "song" and "corner," which referred both to the work songs

¹⁸ Christine Hünefeldt, *Paying the Price of Freedom: Family and Labor among Lima's Slaves, 1800–1854* (Berkeley, CA, 1994).

that accompanied tasks and to the territorial domain of each work group. *Capitães-de-canto* (*canto* captains) served as leaders, whose main function resided in mediating the terms of service between urban employers and the *ganhadores*.¹⁹

In addition to ethnic and occupational structures, urban slavery also included a clear sexual division of labor, where women occupied strategic roles not only in domestic services but especially as vendors, whether carrying their wares through the streets or selling them from a fixed stall. In the mining towns of Minas Gerais during the eighteenth century, what began essentially as a male-dominated activity – probably because of the profoundly skewed sex ratio in the population as a whole – by the end of the century was controlled primarily by women. As Mary Karasch notes in her study of nineteenth-century Rio de Janeiro, the distinction between domestic service and street hawking was blurred by the fact that many house slaves spent part of their day on the streets selling food and other goods for their owners. In Lima during this same period, slave women often marketed produce from their owners' truck gardens, which in turn were worked by slaves in the rural area. This regular movement between the countryside and the city, also a characteristic of produce markets in Brazil, challenges assumptions based on a rigid contrast between rural and urban slavery.

From a theoretical standpoint, slaves for hire present an anomalous situation, where wage labor remained intertwined with chattel slavery, seemingly antithetical relations. Some historians have proposed that this practice constituted a “wage breach” analogous to the “peasant breach” identified in plantation provision grounds. However, even though wages were set primarily by market forces, the slave by definition could never aspire to be a free laborer, unless, of course, he purchased his own freedom. As Leila Algranti points out, slaves for hire negotiated their labor power in a competitive market, but their first and foremost obligation was to their owners, who collected a fixed amount and held discretionary if not arbitrary power over their charges. Nonetheless, the distinction between unskilled workers slave and free was not always so clear, not only in economic terms but also in social ones, because they often shared urban neighborhoods and lodgings. Slavery, after all, in spite of its seemingly tight institutional contours, also represented something of a hybrid labor system.

¹⁹ João José Reis, “‘The Revolution of the *Ganhadores*: Urban Labour, Ethnicity and the African Strike of 1857 in Bahia, Brazil,” *Journal of Latin American Studies* 29 (1997): 455–93.

WAGE LABOR AND ITS VARIANTS

Over the course of the colonial period, wage labor occupied an increasingly important position in the configuration of colonial labor markets. In its broadest outline, the history of labor systems appeared to evolve in the direction of relations mediated by a wage labor market, but the development of specific wage labor forms must be approached with some caution. Arnold Bauer, for example, describes this movement as “the gradual, patchy, and sporadic progression to freer forms of labor.”²⁰ In effect, formal coercion through encomienda obligations and mandatory drafts, which drew labor from declining indigenous populations, proved insufficient to meet the growing demands of a colonial economy, especially in mining, commercial agriculture, and urban trades. Employers, especially those who did not receive allotments of native workers, began to recruit free workers from among categories that were not formally attached to Indian communities, including *naborías* in New Spain and *yanaconas* and *forasteros* in the Andes, as well as a growing mestizo population, which began to expand at a more rapid pace by the eighteenth century. At the same time, Indians subject to tribute and labor obligations also entered the free labor market, as colonial employers recruited their services in between mandatory shifts or, in some cases, hired on Indians through contractual agreements that included the liquidation of tribute obligations, which were paid outright by the employers.

How free was the free labor market? Before examining this question in some detail, it is worth noting that studies of colonial and early postcolonial labor markets lag far behind scholarship on institutionalized forms of coerced labor. As Lyman Johnson observes, “[d]espite more than forty years of intensive interrogation of [Spanish America’s] economic development in the late colonial period, there are only a handful of wage and real wage studies.”²¹ One of the reasons for this neglect has to do with the fact that nominal wages often remained constant over long periods of time, because they usually were set by colonial authorities rather than by the market. Yet the idea that wages changed little over time leaves a false impression, according to Richard Garner, because wages were not static; rather they remained subject to conjunctural fluctuations in supply and

²⁰ Arnold Bauer, “Rural Workers in Spanish America: Problems of Peonage and Oppression,” *Hispanic American Historical Review* 59, 1 (1979): 35.

²¹ Lyman Johnson, “Slave and Free Labor in Buenos Aires, 1770–1815,” *International Review of Social History* 40 (1995): 410.

demand for labor, although real wages fluctuated in relation to oscillations in grain prices.²² At the same time, labor recruitment often involved a variety of both formal and informal modes of coercion, which quite possibly depressed wage levels. For example, in communities affected by the forced sale of commodities, Indian peasants were “forced” to seek wages in order to meet the quotas thrust upon them through the *reparto de mercancías*. At other junctures, especially in the late colonial and early national periods, enlightened and liberal states introduced various kinds of “vagrancy laws,” which sought to force “idle” and “shiftless” Indians, mestizos, and freed slaves into the labor market. Furthermore, employers sought (and often succeeded) to restrict the mobility of workers through a combination of contractual agreements (*asientos* or *conciertos*), ties of personal dependency, and credit–debt relations. And finally, workers themselves sought to avoid becoming entirely dependent upon wages, by maintaining ties to peasant communities and by negotiating share arrangements, which included access to land in the rural sphere and access to ore scraps in the mining zones.

The development of wage labor in the silver mines of the Andean region and of Mexico illustrates some of these trends. In Potosí, *mita* labor drafts provided a basic corps of workers at low wages, usually deployed by mine owners for the heaviest and most dangerous tasks. Even when the number of *mitayos* sent to the mines diminished, either because of evasion or of commutation in the form of cash payments, the *mita* functioned as a subsidy that lowered the cost of free labor. The mines depended on the constant availability of *mingas*, hired workers whose wages were somewhat higher than the fixed rate for *mitayos* and whose benefits usually included the right to retain ore scraps that could be sold in the *qhatu*, an Indian market, and subsequently processed in the surviving *guayra* ovens. During the early years when *mita* drafts supplied around 14,000 workers annually, mine owners recruited *mingas* from among the *mitayos* during their *huelga*, or rest period between shifts. In other words, the differences between *mitayos* and *mingas* basically were circumstantial, because the same person could shift from one status to the other, much in the same way as the distinction between unskilled and skilled labor could break down as workers shifted in and out of different functions depending on whether they served

²² Richard Garner, “Prices and Wages in Eighteenth-Century Mexico,” in Lyman Johnson and Enrique Tandeter, eds., *Essays on the Price History of Eighteenth-Century Latin America* (Albuquerque, NM, 1990), 76.

as draftees or as voluntary hired labor. In the mining economy, although wage arrangements became the prevailing form of labor recruitment, wage labor did not separate workers completely from the means of production. Whereas *mitayos* worked for wages because they were forced to, the *mingas* accepted to toil at a slightly higher wage scale only because they managed to retain rights to ore that they coaxed out of the mines on their own time. During the boom years of the late sixteenth and early seventeenth centuries, few workers depended fully on wages for their livelihood, because most miners maintained ties to their communities of origin, which allowed them to shift into and out of working for wages. The labor market in Potosí thus proved somewhat volatile, although at first sight the burgeoning city of over 100,000 inhabitants seemed to provide a steady supply of free labor. This explains the survival of traditional rights to ore scraps (called *la corpora*, or *cajchea*), which the *mingas* could sell in the marketplace to supplement their earnings. As Carlos Sempat Assadourian has shown, whereas *la corpora* cut into entrepreneurial profits at a tolerable level, it represented a significant increase in income for individual *mingas*, who supplemented their wages by about 80 percent on the average. As in the Mexican mines, where ore sharing became an informal prerogative, labor in the Andean mines constituted a hybrid form in which money wages account for only part of the story.

Because the *mita* system served primarily Potosí's silver mines and Huancavelica's mercury deposits, other major mining zones, especially Oruro, depended almost entirely on the recruitment of free labor. Without a comparable subsidy, mining entrepreneurs in Oruro faced high labor costs, because they had to attract workers with better wages than those offered in Potosí. As Ann Zulawski demonstrates in her study of labor in colonial Oruro, the rise of a free labor supply was intimately associated with patterns of voluntary migration, which derived not only from strategies of evasion of labor and tribute obligations but also from the attraction of higher wages (often paid by the day and not by the task, as in Potosí) and ore share relations. According to Zulawski, in spite of these conditions, "labor was not entirely commodified." Indeed, in her analysis of the Duke of La Palata's 1683 census, which sought to revive and restructure the *mita* from Quito to Tucumán, she notes that most of the men categorized as *forasteros* (Indians no longer residing in their communities of origin) and a good portion of those listed as *yanaconas* did not possess a discernible occupation. This was because "their work was in some sense casual," either because they worked for different employers, because they only worked in

periods of increased demand for labor, or because they changed occupational categories regularly.²³

In Mexico, although labor drafts continued to subsidize mines by providing a supplementary quota of workers into the eighteenth century, free wage labor had been firmly established at an early date. Located in areas with sparse and often rebellious indigenous populations, the mining bonanzas of northern Mexico offered wages to attract free labor from the more densely populated heartland, especially after experiments with Indian slavery proved to be an insufficient solution. At the end of the sixteenth century, the bulk of the work force (over 68%) was made up of *naborías* in these areas, whereas the *repartimiento* contributed only 17.7 percent of the total labor force, completed by slaves of African origin (13.8%). By the eighteenth century, unlike the Andes, where the bulk of the miners was made up of Indians, the working population in the northern Mexican mines was predominantly mestizo. In her analysis of the Zacatecas mines, Frédérique Langue provides a detailed cross-section of the ethnic composition of the labor force employed in different sectors. According to a list composed in 1781, 8.9 percent of the work force in the mines were Spaniards in specialized and supervisory positions, 28.6 were Indians, 14.7 mulattos, and 47.8 mestizos. In other sectors, however, this composition was quite different. *Haciendas de beneficio* (ore refineries) broke down as follows: 14.5 percent Spanish, 33 percent Indian, 22.1 percent mulatto, and 30.9 percent mestizo. On rural estates, however, the ethnic composition proved quite distinct: 15 percent Spanish, 44.5 percent Indian, 20.4 percent mulatto, and only 16.1 percent mestizo.²⁴

Doris Ladd, in her study of the mining "strike" at Real del Monte in 1766, provides a lively description of labor conditions and structures in the silver mines of northern Mexico. Aside from the "bitter wages" of death and disability, either by silicosis or mining accidents, the wage system included both cash payments and ore-sharing arrangements, called *pepena* or *partido*. In the smaller enterprises, mineowners supplied tools and workers supplied labor, dividing returns 50–50, whereas the larger mines involved more complex relations of ore sharing. Wages varied considerably from one mine to the next and from job to job. Some tasks received a daily rate, although many workers received monthly pay. During the late eighteenth

²³ Ann Zulawski, *They Eat from Their Labor: Work and Social Change in Colonial Bolivia* (Pittsburgh, PA, 1995), *pasim*.

²⁴ Frédérique Langue, "Trabajadores y formas de trabajo en las minas zacatecanas del siglo XVIII," *Historia Mexicana* 40, 3 (1991): 463–506.

century, daily rates varied from two to six reales, whereas the monthly scale went from eight to twelve pesos. However, as in the Andes, money wages in Mexico must be understood within the broader context of local customary practices, which involved other forms of remuneration beyond the preestablished wages. Ordinarily, work crews (*cuadrillas*) composed of pickmen and peons turned over an established amount of ore to the mine-owner (a quota known as the *tequío*), retaining for themselves any amount in excess of the *tequío*. In New Spain, despite its deep roots in customary practice, the *partido* came to be recognized formally only after 1777, with the creation of a Mining Tribunal with minute ordinances.

By the second half of the eighteenth century, the mining sector faced a series of challenges that affected labor arrangements and conditions. For example, when the mercury supply tailed off to a trickle in the late 1750s, Zacatecas lost as much as half its working population. In order to offset rising production costs, including labor, mine owners and royal authorities began to introduce measures seeking to “rationalize” the mining economy. This included the concentration of activities into larger units, efforts to cut ore share arrangements, and even attempts to revamp old institutions of forced labor, now couched in the Enlightenment rhetoric of “social utility.” In addition to the *repartimiento*, “vagabonds” and convicts also could be impressed into the labor force. Often different mestizo categories, such as *lobos* and *coyotes*, were associated with vagabondage. The conflict between modernizing principles and the persistence of noncapitalist relations in the struggle to preserve ore-sharing privileges was at the root of the 1766 episode at Real del Monte. As Cuauhtémoc Velasco has shown, even the technological developments introduced by British companies after independence did not necessarily lead to capitalist relations of production. Miners continued to work for fixed salaries, *destajos* (payments for specific tasks), *jornales* (daily wages), and ore shares. Although British entrepreneurs were opposed to it, the *partido* persisted into the nineteenth century as a form of incentive to attract free labor. Indeed, as Erick Langer argues, the transformation in relations of production in mining economies did not effectively take place until the second half of the century, resulting from the combination of institutional change, export-led development, the influx of foreign capital, and, in some notable cases, the influx of European immigrant labor.²⁵

²⁵ Erick Langer, “The Barriers to Proletarianization: Bolivian Mine Labour, 1826–1918,” *International Review of Social History* 41 (1996): 27–51.

In the rural sphere, the rise of commercial agriculture in Spanish America also was associated with the introduction of wage labor, and by the eighteenth century, it represented the most significant sector for employment. Whether on large haciendas or small *labores*, rural labor in Spanish America involved a broad gamut of possible arrangements and spanned an impressive array of categories to describe such arrangements. *Laborios*, *gañanes*, *inquilinos*, *agregados*, and *peones*, among many others, not only reflected different work relations, but also expressed variants over time and space. Furthermore, distinct categories sometimes reflected either claims of differential status or the degree to which workers were attached to estates as either permanent, seasonal, or casual labor. Recruitment for rural workers also showed significant variation, owing to a number of factors. Population decline, which as we have seen had a different timing and impact in distinct regions, might have pushed up real wages in some instances, but in others either gave rise to new strategies of compulsory labor or moved employers to experiment with other forms of enticing workers, including the payment of tribute obligations, rations, credit advances, and sharecropping arrangements.

Although the expansion of rural wage labor developed at a sharper pace with the decline of indigenous populations and the difficulty of supplying estates with regular quotas of draft labor, wages made up a significant part of estate expenses even before this. For many years, Latin American historians accepted the idea that “debt peonage” effectively became the solution for binding an increasingly scarce (and therefore more expensive) indigenous labor force to Spanish estates. Although the use of debt peonage as a form of maintaining and oppressing forced labor became an important expedient in the late nineteenth and early twentieth century – the most notorious cases are the henequén plantations in Yucatán and the rubber extraction economy of the Amazon – the evidence for the colonial period and early nineteenth century is ambiguous at best. The extension of credit to workers was not always a devious system of tricking ingenuous peasants into bondage. Rather, it emerged as a significant strategy for managing wage labor in a cash-scarce economy. The more meticulous studies of actual hacienda accounts show that in many regions and periods, it was the employers who owed back wages to their workers more than anything else. At the same time, however, from the workers’ perspective, it reflected a broader pattern of avoiding a strict dependency on wages. Rural workers, whether temporary or permanent, always sought to negotiate additional benefits and guarantees before demanding higher wages.

In describing the long-term process of settlement of a permanent labor force on late-colonial livestock haciendas in the Azángaro province of Peru, Nils Jacobsen shows that the debt labor issue goes beyond the relation between employers and workers. For much of the seventeenth and eighteenth centuries, estate owners faced a scarcity of labor and had to rely on draft quotas. However, as the *repartos de bienes* (forced sales of goods) became increasingly onerous to indigenous communities, more and more Indians began to work on haciendas to meet their obligations. Thus the *corregidores* played an important role in recruiting and distributing workers by imposing a debt upon peasants who otherwise were unable to pay for the goods that they were forced to buy. At the same time, by becoming *yanaconas* with fixed residence within hacienda lands, peasants could escape the oppressive burdens of community obligations. This proved to be an interesting solution for hacienda owners as well, because they could take advantage of alternatives to wage labor by paying the *yanaconas* in usufruct rights to agricultural plots and grazing pastures. Although the hacienda owners, by law, had to pay money wages, *yanaconas* in effect received very little, following deductions for tribute, for advances in rations, and for livestock they may have lost. Although nominally free, these workers faced increasing restrictions in mobility, becoming bound to the haciendas. Some estates enforced these restrictions by hiring “*guatacos* to capture peasants for the estate and *buscadores* to round up escaped colonos.” A *guataco* was an “[e]state employee during the colonial period charged with forcefully recruiting Indian peasants as hacienda laborers,” which reveals the darker side of peasant participation in the labor market.²⁶

As Herbert Klein remarks in his study of the *intendencia* of La Paz in the late colonial and early postcolonial period, labor recruitment for private estates involved a “complex combination of market and nonmarket incentives.” Tribute and mita obligations “pushed” Indians out of their communities and into the colonial economy, while the offer of access to private estate lands, payment of tribute, and exemption from mining mita rotations constituted “positive attractions.”²⁷ As in other areas of Spanish America where village communities survived intact, these “push and pull” factors varied in consonance with changing factor proportions, market conditions, and state policy. In both Mexico, following the decline of the *repartimiento*

²⁶ Nils Jacobsen, *Mirages of Transition: The Peruvian Altiplano, 1780–1930* (Berkeley, CA, 1993), 84–5 and 370.

²⁷ Herbert Klein, *Haciendas and Ayllus* (Stanford, CA, 1993), 14.

in agriculture, and in Peru, where the *mita* never was significant in supplying rural labor, recruitment took various forms, depending on the kind of relation established between worker and landowner. Most estates maintained a reduced core of resident workers, who, along with their families, provided services year-round in exchange for living quarters, rations, and wages, which often were absorbed by these other “benefits.” In addition to resident peons, many estates adopted the labor of tenants, who, in exchange for access to land (which may or may not have included the payment of rent), would supply a stipulated amount of labor services. Finally, following the rhythms of rural production, estates relied on seasonal or casual labor for regular or specific tasks, such as harvesting, transportation, and construction, among others. Written or verbal contracts established the terms and conditions of seasonal and temporary labor, and contract workers were distinguished from other categories through a variety of local terms, from the *tlaquehuales* of New Spain to the *conchabados* of the La Plata region. As Herbert Nickel points out in his study of recruitment in Puebla and Tlaxcala, employers also resorted to a series of illegal forms of recruitment, often refusing to accept debt settlements or to pay due wages, doctoring account books, forcing descendants of deceased debtors to work, establishing fraudulent contracts of *tlaquehuales* with corrupt *caciques* or local officials, undermining alternative means of survival through the destruction of community crops and expropriation of lands, and enforcing commercial monopolies.²⁸

By the eighteenth century, population growth in both Spanish and Portuguese America not only created a larger demand for agricultural output, but also increased the relative supply of potential laborers, affecting conditions for recruitment. As Eric Van Young argues, the development of markets toward the end of the colonial period had mixed effects: production grew, but productivity stagnated; rising prices led to higher profits but to lower wages; surpluses grew, but food crises persisted because of poor distribution. In Mexico, at least, rural workers faced a picture of “increasing rural proletarianization, declining real wages, [and] growing concentration of property in land.”²⁹ But this picture varied from place to place. In the Mexican Bajío, for example, population pressure changed

²⁸ Herbert J. Nickel, *Relaciones de trabajo en las haciendas de Puebla y Tlaxcala (1740–1914)* (Mexico City, 1987), 25.

²⁹ Eric Van Young, “The Age of Paradox: Mexican Agriculture at the End of the Colonial Period, 1750–1810,” in N. Jacobsen and H.-J. Puhle, eds., *The Economies of Mexico and Peru during the Late Colonial Period, 1760–1810* (Berlin, 1986), 64–90.

the terms of negotiation, for rather than enticing workers with landholding share arrangements, landowners began to charge money rents, which meant a need for money wages as well. By contrast, in the backlands of Buenos Aires, the relatively open access to land for peasant production led to a greater demand for slaves, although it did not necessarily result in high wages for free labor. Whereas peasants did engage in contract labor on both a seasonal and casual basis, they did so not necessarily because wages were high, but rather because they had certain limited cash needs (for example, to purchase necessary imports, such as salt) and because of dependency or patronage ties to large estate owners. In either case, however, rural workers flowed in and out of the labor market in often irregular patterns, and although wages provided an important part of their income, they could forestall becoming exclusively dependent upon their capacity to sell their labor power on the market.

Contracts, irregular patterns of employment, and patronage relations also marked wage labor in urban centers. As in the mining and agricultural spheres, the urban labor market involved a complex array of possible relations, as employers adopted a mix of formal compulsory labor (*repartimiento, mita*, slavery, and the use of convicts), informal compulsory labor (debt servitude), and wage labor. Wage labor, as we have seen, included the ambiguous situation of slaves for hire, not only in Brazil but, significantly, in late colonial and early postcolonial Spanish American cities, most notably Lima and Buenos Aires. Indeed, with the exception of textile workshops (*obreros*), whose hybrid systems of forced, apprentice, and free wage labor have been studied in detail for cities like Querétaro, Quito, and Cuzco, we are left with the impression expressed by R. Douglas Cope in his assessment of Mexico City in the midcolonial period: “urban labor markets operated on a largely informal basis.”³⁰

The significant presence of women in the urban labor force, especially but by no means exclusively in domestic service relations, further underscores the informal character of the urban employment market. According to Silvia Arrom, women accounted for nearly one-third of the labor force in Mexico City in 1811, totaling 20,500 workers. These figures would be even higher had the census included the Indian women who flooded the capital each day to sell foodstuffs. Although almost all lower-class women “were employed at some point in their lives,” employment was linked in specific ways to life cycles, which adds yet another variable to this picture

³⁰ R. Douglas Cope, *The Limits of Racial Domination* (Madison, WI, 1994).

of workers entering and exiting the labor market in seemingly irregular and informal patterns, not only echoing other spheres of colonial labor, but foreshadowing patterns of the years to come.³¹

1850: THE WINDS OF CHANGE?

Over the first 350 years following Columbus's landfall in the Caribbean, the history of labor systems in Latin America seems to follow, in its broadest outline, an evolutionary path from early forms of bondage to free labor regulated by market forces. Yet, at the midpoint of the nineteenth century, wage labor markets and capitalist relations of production did not dominate most landscapes, even though decisive steps in that direction had been taken. Slavery remained firmly entrenched in Brazil and in Cuba, and as slaveowners realized that this institution had been condemned to an agonizing death with the extinction of the trans-Atlantic trade, they scrambled to seek alternatives in which indenture contracts, sharecropping, and other forms of dependent relations would forestall the development of a full-blown free labor market. In other parts of Latin America, as the disorder brought on by the wars of independence and their aftermath began to give way to the formation of nation states adopting a varying range of liberal precepts, pressures to transform peasants into proletarians did not usually achieve the desired results. Protest, resistance, and outright rebellion took on new forms under post-independence conditions, while at the same time employers preferred to rely on time-tested strategies of recruitment – such as the *enganche* practice – and of personal dependency to reduce labor costs and to restrict worker mobility. If debt mechanisms were important during the late colonial period as a mediating feature in labor relations, they came to be used increasingly in the nineteenth century as a new form of coercion, reaching their most extreme examples in tropical plantation agriculture and forest extraction industries.

The early history of labor systems introduced other characteristics with long-term effects on economic, social, and demographic trends in Latin America. Migrant labor played a critical role in colonial times and not surprisingly has remained to this day a central feature in Latin American labor systems and beyond. Casual and informal labor, often associated with chronic unemployment and underemployment, also characterizes colonial

³¹ Silvia Arrom, *The Women of Mexico City, 1790–1857* (Stanford, CA, 1985), 181.

and current trends, not only in the region's major cities, but also in the countryside. Within this context, the persistence of informal relations mediated by ties of personal dependency rather than strict obedience to modern labor codes constitutes another long-term characteristic of Latin American labor systems. Finally, and above all, it is a history that continues to be written less in terms of the invisible hand of the market and more in terms of the actions and strategies, triumphs and defeats of those who most matter to this ongoing story.

Part III

ECONOMIC ORGANIZATION AND SECTORAL PERFORMANCE

POLITICAL ECONOMY AND ECONOMIC ORGANIZATION

JOHN H. COATSWORTH

INTRODUCTION

Institutions are rules, procedures, and patterns of collective behavior that persist over time. Formal institutions are embodied in organizations with the authority and power to coerce, that is, the capacity to impede, punish, halt, or reverse actions deemed contrary to acceptable norms. Informal institutions are those that persist without the organized capacity to compel compliance and punish violators. Formal institutions are not necessarily powerful nor informal ones weak. Imprecise or contradictory rules and lax enforcement can undermine formal institutions, just as voluntary adherence to unwritten rules can be powerfully reinforced by the uncoerced but self-interested behavior of individuals in a market place. The ensemble of institutions that most directly affect economic activity make up the economic organization of a society. Agencies, policies, and practices that reduce the private costs of economically productive activity, encourage the use of markets, and protect the human and property rights of economic actors make economic growth easier to achieve. Those that raise costs, impose risks, exclude, or discriminate make productivity advances more difficult to achieve.

This chapter focuses on those aspects of the political economy of the Spanish and Portuguese empires that help to explain both the initial success and subsequent longevity of colonial rule, as well as the long-term stagnation of the colonial economies. It argues that the Iberian empires persisted because of a rough equilibrium that developed between the interests of the two premodern imperial states, the relatively weak settler elites in

each of the colonies, and the divided subject populations of indigenous and African descent. This colonial equilibrium was achieved by transferring Iberian institutions to the Americas and then modifying them to fit New World conditions. Identifiably Iberian legal systems, fiscal and regulatory policies, and labor and land tenure practices evolved during the colonial era in response to numerous threats both external and internal. These Iberian colonial institutions embodied and reproduced a long-lasting political and social equilibrium in the Iberian New World as a whole, even though stability at the local level throughout the two empires often proved to be extremely fragile. Unfortunately, the Iberian institutions that worked effectively to preserve Spanish and Portuguese rule tended on balance to inhibit long-term economic growth.

The chapter is divided into four main parts. The first explores in greater depth the argument that Iberian institutions tended to discourage productivity advance. It argues that variation in productivity levels across the Iberian colonies can be attributed to the short-term gains achieved by exploiting readily accessible natural resources, followed by long-term stagnation due to institutional constraints. The second sketches the formation and evolution of the Iberian equilibrium in the New World by looking at the major challenges that had to be overcome. These included creating and then quickly eliminating the generous incentives that inspired the conquests, managing external defense with extremely limited capacities, constraining settler elites while simultaneously relying on them for defense and order, and exerting imperial authority without reliable bureaucratic agents. The third section analyzes the economic impact of the institutional complements to this imperial equilibrium, the development of land tenure and property rights in land, the evolution of labor and status hierarchies, and salient characteristics of the Iberian legal systems. A concluding section offers an interpretation of the institutional impact of independence that anticipates and contrasts somewhat with those offered in subsequent chapters.

Like many other discussions of the colonial era, perhaps too many, this one concentrates mainly on Spanish America and devotes much less attention to Brazil. This reflects the century-long lag between the Spanish conquest and colonization and the later development of Portugal's sugar and slave settlements on the coast of Brazil. It also reflects the relative scale and diversity of the two New World empires: Portuguese Brazil consisted of a small population concentrated in a few small patches in an immense territory. Spanish America effectively included a more populous, extensive,

and varied set of colonial territories, which makes it especially interesting for comparative purposes.

I. HOW COLONIAL INSTITUTIONS MATTERED

For more than two centuries, travelers, politicians, historians, and economists have argued that Spanish and Portuguese colonial institutions inhibited economic growth. Alexander von Humboldt repeatedly contrasted the alleged abundance of the region's natural resources and its relative poverty, which he attributed to Spanish misrule.¹ Humboldt was right. Inefficient Spanish and Portuguese economic organization impeded economic growth. At first sight, however, the data do not appear to support this argument. In 1800, late in the colonial era, the gap in per capita GDP between Cuba and Brazil or Peru was probably about three to one, not much less than the four to one ratio between the richest and poorest regions in the world at that time.² Spain ruled most of Latin America, so institutions and policies were much the same from one colony to another. Because GDP per capita varied so much under similar institutional arrangements, it would be logical to conclude that institutions must not have mattered much. On closer examination, however, it appears that the geography of accessible natural resources determined most of the observed variation in *levels* of productivity across colonies, whereas institutions explain the nearly uniform *stagnation* that characterized the Iberian colonial economies at whatever level of output per capita their natural endowments permitted. Throughout the Iberian New World, early economic successes achieved by short-lived export-led booms soon gave way to long-term stagnation.

The Iberian institutions exported to the New World evolved during the half millennium it took Christian warlords and warriors to complete the "Reconquest" of the Iberian peninsula. The Muslim invasions from North Africa began early in the eighth century and reached their maximum territorial extension in the eleventh. The military campaigns that pushed

¹ See, for example, Alexander von Humboldt, *Ensayo político sobre la Isla de Cuba* (Madrid, 1988; orig. publ. 1827), with its denunciation of slavery and Spanish commercial policy.

² For a comparison of GDP per capita for the major Latin American colonies in 1800, see John H. Coatsworth, "Economic and Institutional Trajectories in Nineteenth-Century Latin America," in Coatsworth and Alan M. Taylor, eds., *Latin America and the World Economy Since 1800* (Cambridge, MA, 1998), 23–54. Estimates of GDP per capita for major world regions in 1820 are found in Angus Maddison, *The World Economy: Historical Statistics* (Paris, 2003), 262.

back down the peninsula stretched from the Christian victory at Las Navas de Tolosa in 1212 to the triumph of Fernando and Isabel at Granada in 1492. This historical experience gave rise to institutions – political, social, and cultural as well as economic – that proved exceptionally well suited to wars of conquest, occupation, and assimilation of new territories. Iberian militarism and religious militancy, coupled with technological advances in ocean navigation, produced a major innovation in world politics: immense territorial empires not geographically contiguous to the imperial core.

In Mesoamerica and the Andes, and occasionally elsewhere, Spain and Portugal found it convenient to tolerate and simultaneously alter some of the indigenous institutions that regulated local economic practices. Here and there the two colonial empires and their successor states tolerated some African customs and norms. Apart from local accommodations that tended to diminish over time, however, the economies of the Iberian empires operated entirely within the framework of the institutions, governing structures, legal norms, and public policies transferred to the New World from Spain and Portugal.

Spanish and Portuguese conquerors and settlers in the Americas confronted extremely diverse environments populated by quite different peoples. The newcomers labored both to make sense of what they encountered and to make their fortunes at the same time. They also struggled with each other, with the natives they sought to exploit, and with the slaves they imported from Africa. Some came as adventurers and immigrants with dreams of heroic deeds, great fortunes, and noble titles. Others came as officials or priests, already connected to formal organizations with hierarchies and interests that shaped careers and opportunities. Few that came and none that prospered could have done so without the capacity to adapt what they knew and believed to what they learned after they arrived. Cultural adaptability – rather than rigid adherence to fixed ideas and values – helps explains how two tiny and often divided Iberian kingdoms of perhaps eight million people (seven in Spain) took possession of a vast region populated by as many as fifty million people and held on to most of it for more than three centuries.

The institutions that served to establish, preserve, and render profitable the Iberian empires in the New World did not work so well to promote productivity advance over the long run. The splendor of the two empires came mainly from the static gains from trade achieved by Spanish and Portuguese colonists when they opened the New World to transoceanic commerce. In the fifteenth and sixteenth centuries, the most prosperous

regions of the Iberian New World probably generated per capita incomes at least comparable to (and probably higher than) the most advanced regions of the Old. These gains came almost entirely from the “frontier effect,” that is, the application of Old World technology and organization to regions newly accessible to transoceanic commerce and rich in natural resources. In a few cases, the productivity gains associated with conquest, assimilation, and incorporation continued for a generation or two. Occasionally, new episodes of productivity advance occurred in older colonies with the discovery of new mineral deposits or the introduction of a new commercial crop.

With rare exceptions, however, productivity tended to stagnate after the initial spread of European enterprise into new territories. Technological innovations, such as the amalgamation process for processing low-grade silver ores introduced in the 1550s, occurred rarely and almost never as result of local invention. In the transactions sector, policy and administrative changes occasionally enhanced the efficiency of markets via lower taxes or deregulation. The Pombaline and Bourbon reforms in the second half of the eighteenth century, for example, encouraged freer intraimperial trade and experimentation with new crops (e.g., cotton in Brazil and sugar in Cuba). For the most part, however, the initial gains in productivity fell off as plantations pushed production further from the sea, bonanza-quality veins of silver gave way to lower quality ore, and new taxes and regulations replaced the old ones. Throughout colonial Latin America, the once-and-for-all gains associated with the opening of new territories were not sustained by subsequent productivity gains.

II. THE IBERIAN EQUILIBRIUM IN THE NEW WORLD

Portugal and Spain succeeded in creating empires that filled vast spaces on the new global maps of the early modern era, but they did not actually control, let alone govern, most of the territories they claimed. The Iberian states invested in armed naval vessels, but relied mainly on mercenaries and settler-led militias to defend against external and internal foes. Both states lacked the capacity to define and patrol, let alone defend, the land borders of their continental possessions. Neither could rely on a loyal and disinterested civil bureaucracy. Both struggled to make the state religion serve the state. Neither had the capacity to mobilize common citizens

to serve national or imperial goals. In many colonies, including all that contributed net revenues to the imperial treasuries, the majority population consisted of ethnically and linguistically alien peoples whom the Iberians defined as legally inferior. International wars provoked by dynastic and imperial competition produced fiscal crises and the inevitable defaults and confiscations that accompanied them with striking regularity. The multiple incapacities of the Iberian states paralleled the strategic weaknesses of the minority settler elites and the tactical limitations of the divided subordinate populations. The resulting equilibrium proved remarkably durable, but was profoundly inimical to economic growth.

CONQUEST BY REVOCABLE CONTRACT

The Iberian governments whose agents conquered and colonized the New World had only recently evolved into relatively stable polities with sovereigns capable of inspiring or coercing obedience within internationally recognized boundaries. The Portuguese king and nobility managed to overthrow and expel the last of the Islamic rulers from what became the national territory by 1349, but it took much longer for the Portuguese Crown to take effective control of the nation's public business. In Spain, the creation of a national government did not even begin until after the marriage of Fernando and Isabel (1469). Husband and wife continued to rule separately as sovereigns in Castile (Isabel) and Aragon (Fernando). All of the American territories seized after 1492 as well as the Philippines belonged to the Crown of Castile alone, that is, to Isabel and not to Fernando.³ The two Crowns were not united in a single person until their grandson Carlos I was crowned in 1516. Even then, the separate governing institutions of the Spanish kingdoms remained in place until the centralizing Bourbons set about undermining or abolishing them in the eighteenth century.

Iberian imperialism did not depend much on the organizational capacities or resources mobilized by the governments of Spain and Portugal. Instead, the seizure of vast territories in the New World relied on a diverse set

³ Actually, the American territories of Spain became the property of the monarch of Castile, but not of the government of Castile (and still less of an entity known as Spain). Isabel of Castile authorized and helped to finance Columbus's voyages, so the places he "discovered" belonged to her and to her heirs. In fact, the New World colonies were not colonies at all, but nominally separate kingdoms ruled by the same monarch as Castile. The Portuguese Crown did not adopt a similar constitutional position until it designated Brazil a separate and coequal kingdom, to the chagrin of the Portuguese Cortes, in 1815.

of mixed enterprises modeled on Mediterranean, mainly Italian examples. Well-connected individuals with seafaring or commercial experience cultivated friends in the Portuguese and Spanish royal courts to help in securing royal patronage for voyages of exploration and conquest. The reward for successful lobbying usually took the form of an agreement, concession, or contract, such as Isabel's famous *capitulación* with Columbus in April 1492. The Spanish contracts authorized the proposed expedition in the name of the Castilian Crown, indicated what, if any, financial or other material support the Crown would provide, appointed the would-be explorer or conqueror to govern and profit from the territories he seized, and specified the Crown's share of any profits accruing from the venture. In both Portugal and Spain, monarchs and aristocrats often provided a portion of the funding required to mount these expeditions of discovery, conquest, and colonization. Other investors included landholding magnates and religious orders, prosperous merchants, and even individual prelates and clergymen.

The Iberian use of private contractors, frequently foreigners, to explore and conquer new territory followed standard medieval and early modern practice. Governments lacked resources and personnel to accomplish much public business, even warfare and tax collecting. Monarchs routinely hired mercenaries to fight, contracted tax "farmers" to find revenues, left the administration of justice to local authorities (manorial courts, chartered towns), and delegated most other activities to individuals and groups in exchange for whatever monopolies, tax exemptions, or other privileges they could credibly offer. These practices formed part of a larger pattern of state formation in which a recognizably distinct public sphere or government, as in Roman law and practice, emerged slowly from the monarch's household.

The contracts between monarchs and the leaders of expeditions thus deliberately blurred the distinction between public and private spheres. The monarch authorized and taxed, but also profited. The conquerors pillaged and profited, but also governed. The principal advantage of this system from the viewpoint of the Crown was its efficiency. Monarchs acquired territories and taxpaying subjects without bearing the full cost of the ships, men, and weaponry deployed to find and subdue them. Risk-taking adventurers and their backers bore most of the organizational and financial costs of the expeditions, but could reap huge and permanent rewards for themselves and their heirs. The Castilian Crown acquired most of what became its vast empire in the Americas by approving contracts (sometimes retroactively,

as in the case of Hernán Cortes's conquest of Mexico) with some 70 such entrepreneurs and their partners.

As Isabel and her successors learned through bitter experience, imperialism by contract worked well enough to produce great conquests at little or no cost to the Crown, but could pose serious dangers. The contract with Columbus made him chief executive officer and sole commercial magistrate of the territories he was to discover. He alone could nominate candidates for other public offices and would receive a tenth of all tax revenues collected in addition to any private profits that he might earn. His titles, lest there be any doubt about his governmental powers and authority, included viceroy, governor, captain-general, and Admiral of the Ocean Seas. Unfortunately for him, Columbus's autocratic mismanagement of the colony he settled in Hispaniola (today's Dominican Republic) provoked continuous complaints and rebellion. Columbus responded by hanging a number of his severest critics. He sent far-fetched tales of miracles back to Isabel and ignored instructions to stop enslaving the local population. In the end, his exasperated monarch removed him from office – but allowed him to keep the private fortune he had amassed, together with the pensions attached to his titles.

As new expeditions "discovered" more and more of the vast New World, the Columbus problem occurred over and over again. The leaders of expeditions authorized by the Crown commanded the military and naval forces they assembled. They invariably assumed governing authority over conquered territories and peoples. They distributed the spoils of conquest, including people, booty, taxing and juridical authority, and land and other productive property among their followers. They inspired complaints and protests from their jealous comrades, abused Native American populations well beyond the tolerant standards of Spain's militant Catholic Church, savagely punished and even executed opponents both Spanish and indigenous, and frequently ignored instructions from the Crown and the officials dispatched by the Crown to supervise them. From time to time, the conquering Spaniards took time out from subjugating the indigenous populations to fight pitched battles among themselves.

As soon as each *conquistador* reported a new territory subdued, the Crown set about constraining, limiting, circumscribing, and eventually displacing his authority and that of his family members, friends, and allies. The most important step in this direction was the inevitable dispatch of a royal governor or viceroy. Isabel sent a royal governor to replace Columbus on Hispaniola in 1500, seven years after the second voyage established the new

colony. On the mainland, viceroys arrived in Mexico fourteen years and in Peru twelve years after the conquest. To avoid outright rebellion, the Crown permitted the leaders it displaced to retain their private fortunes and the various privileges and pensions that corresponded to their new status. This was not enough, however, to prevent numerous conflicts and continuous tensions between Crown and conquerors in most of the colonies. In the 1540s, the Pizarro clan in the Andes rebelled against royal authority and fought a prolonged civil war. Gonzalo Pizarro, surviving brother of the conqueror of the Incas, seized power in Peru with an army of Spaniards and indigenous troops. Royal officials had to recruit a loyalist force of settlers and indigenous troops in Ecuador (the *Audiencia* of Quito) to retake the colony, but the success of their efforts did not put an end to the tensions inherent in the Crown's relations with its conquering agents.

The colonization of Brazil occurred later and under different circumstances but also culminated in royal intervention. The Portuguese initially found little of interest in Brazil. There were no precious metals or cities to loot. Worried nonetheless about protecting his territorial claims, King João III (r. 1521–57) first divided Brazil into fourteen enormous "captaincies" and awarded them to twelve well-connected Portuguese nobles. These grants or "donations" contained terms similar to Spanish contracts. Ten of the captaincies actually managed to create settlements of colonists, but only two (São Vicente and Pernambuco) developed viable and expanding economies. The Crown dispatched a royal governor fourteen years after the first grant and rescinded some of the powers granted to the donatary captains. This decision was not taken, however, to confront or avert challenges to royal authority from Portuguese settlers, but on the contrary, to allow the Crown to stabilize and consolidate the fragile Portuguese settlements in Brazil before they were overwhelmed by native resistance or foreign invasion.

The Iberian conquest and colonization of the Americas were neither wholly public nor entirely private undertakings. The rules of the economic game could never be separated from reasons of state. What the sovereign granted, the sovereign could eventually take away. Without incentives to induce privately organized expeditions, the New World could not have been conquered or colonized. But without quickly developing the capacity to make credible threats of punishment and expropriation, the Iberian monarchs could never have governed their vast American territories from Europe. Settler elites too secure in their possessions would have posed a threat to the very empires that created them.

EXTERNAL DEFENSE

The Iberian states could not rely on large professional military and naval forces. The Hapsburgs never created a standing army, never imposed conscription, and relied on hired mercenaries whenever possible. The total strength of the Spanish infantry at the outset of the War of the Spanish Succession (1701–14), when the fate of the dynasty itself hung in the balance, stood at a mere 13,268 soldiers supported by 5,097 cavalry.⁴ The Portuguese army was so backward and unreliable at this time that Pedro II (r. 1683–1706) virtually turned it over to foreign officers sent from England to help it get organized enough to fight. Colonial militias and local police in both empires consisted of men dragooned from the ranks of the destitute, criminals, and vagrants or armed retainers financed by individuals or organizations in exchange for various privileges. There were virtually no professional armed forces in Brazil until 1719 and the Spanish mainland colonies until the 1760s. Until the late eighteenth century, defense against external threats and internal revolts depended mainly on neglected navies and irregular militias.

The most vulnerable of the Iberian colonies to external threats were those that looked worth stealing. The Spanish islands in the Caribbean proved to be the most attractive and the easiest to attack. By the early sixteenth century, all of Spain's enemies had learned that great fortunes and vast revenues could be made by importing slaves to produce sugar, even on the tiniest islands. In the 1620s, they began seizing the tiny Windward and Leeward islands. England took St. Kitts (1623), Barbados (1627), Nevis (1628), and Antigua and Montserrat (1632). The French grabbed a part of St. Kitts (1625), as well as Guadeloupe and Martinique (1635). The Dutch began settling on the remote coast of the Guianas in the 1610s and seized a series of islands off the Venezuelan coast in the 1640s. Jamaica fell to the English in 1655, and the Danes occupied St. Thomas and St. John in the Virgin Islands in the 1670s. By this time, French settlers had occupied portions of Hispaniola (modern Haiti, formally ceded by Spain in 1697). Spanish defenses in the Caribbean did not stiffen until most of it had been lost. By the beginning of the eighteenth century, Spain's island possessions had been reduced to Cuba, Puerto Rico, and the eastern half of Hispaniola (modern Dominican Republic).

⁴ John Lynch, *Bourbon Spain, 1700–1808* (London, 1989), 27.

Fortunately for Spain, clear-headed cost–benefit calculations by potential enemies protected most of its mainland possessions from serious attack for most of the colonial era. The viceroyalties of Mexico and Peru, famous for their mineral wealth, could have been seized by a powerful enemy but only at a prohibitively high cost. The mines were all located hundreds of miles from the seacoast. To grab and hold on to them, another power would have had to seize and govern vast territories with large indigenous populations. Fortunately for Spain, none were interested enough to plot full-scale invasions. Nonetheless, in the second half of the eighteenth century, Spain did make serious efforts to beef up its defenses. By 1771, it had a total of 42,995 soldiers on duty throughout the Americas, many of whom were recently enlisted colonists. Spain also embarked on efforts to send settlers, convert natives, and establish a military presence in a number of peripheral regions such as northern New Spain (California, Texas, and New Mexico) and the interior of the La Plata region.

Portuguese defenses, both at home and in the colonies, rested on even weaker foundations. The temporary unification of Portugal and Spain under the Spanish Crown (1580–1640) made matters worse as Portugal became an unwilling partner in Spain's war with the Dutch Republic. The Dutch invaded the sugar-producing northeast of Brazil in 1630. By the time Portugal recovered its independence and expelled the Dutch in 1654, the struggle for territory had already shifted to the Caribbean, where sugar could be produced more cheaply. Fortunately for its defense, Brazil's sugar economy stagnated as Caribbean production surged ahead in the second half of the seventeenth century. The later discovery of gold and diamonds in Brazil did not inspire new invasions because the deposits were located, like silver in Mexico and Peru, far into the interior. The Portuguese alliance with Britain also helped ward off attacks. Like Spain's, Portugal's late eighteenth century reformers also set out to establish a permanent presence, however minimal, in peripheral regions heretofore claimed only on maps by building a string of small forts along the Amazon and the northern and western borders of the colony.

In addition to territorial losses in the Caribbean, frequent wars imposed substantial direct costs on economic activity as well as indirect costs in the shape of foregone opportunities for trade and growth. The direct costs of inadequate defenses were probably highest in trade-related activities. English predation on Spanish shipping was especially effective in the Caribbean. Lost cargoes and skyrocketing insurance costs during periods of

warfare destroyed fortunes and disrupted commerce for years at a time. In the islands permanently lost to other powers, Spanish and creole property holders suffered confiscation and other losses. The indirect costs of Spanish wars, even those fought mainly in Europe, were higher and spread more widely in the form of unexpected and arbitrary tax increases, forced “gifts” and loans, and confiscations via default and repudiation of government debt. The Spanish government openly or covertly defaulted on its debts or declared unilateral conversions that made major detrimental changes in terms and interest rates in 1557, 1575, 1596, 1606, 1627, 1647, 1739, and during the Napoleonic wars.⁵ In addition to full and partial defaults, the Spain repeatedly resorted to debasing the money supply in ways that effectively amounted to confiscation in order to raise revenues. Such measures made it impossible to develop even the rudiments of a financial infrastructure capable of supporting productive long-term investment.

Two other war-related economic costs are worth mentioning. The first was the indirect cost in both the Spanish and the Portuguese colonies of efforts by the imperial regimes to extract more revenues from their American colonies, especially after the Seven Years War (1758–63). In the 1760s, both Spain and Portugal launched prolonged reform efforts to reorganize colonial tax systems and tighten administrative controls. As the state became most costly and intrusive, the New World equilibrium so carefully constructed over a quarter of a millennium began to break down. The increasing number of indigenous rebellions in Mesoamerica and the Andes beginning in the 1760s and a smaller but still alarming number of tax protests and *comunero* revolts involving both creoles and *castas* exacted a high price in terms of destruction and increased risk. Second, while the Bourbon state’s increasing activity was provoking resistance the number of slave uprisings and maroon wars increased in Brazil and throughout the Caribbean as international warfare called into question the capacity of every colonial regime to marshal sufficient material and military resources to repress them.

INTERNAL SECURITY AND THE COLONIAL COMPACT

Defense against external attack was indispensable, but the key to the Iberian imperial equilibrium lay in the implicit compact between the

⁵ Gabriel Tortella and Francisco Comin, “Fiscal and Monetary Institutions in Spain (1600–1900),” in Michael D. Bordo and Roberto Cortés Conde, eds., *Transferring Wealth and Power from the Old to the New World: Monetary and Fiscal Institutions in the 17th through 19th Centuries* (Cambridge, 2001).

colonial regime, the predominantly creole settler elites, and the subordinate majorities. Weak states survive by leveraging limited resources to target potential defectors. So long as challengers are unable to coordinate, and external defense holds, temporary setbacks can be reversed. Weak *empires* need even more: colonial agents powerful enough to maintain order but too weak to go it alone and subordinate populations unable or unwilling to unite against the colonial regime.

The institutions that shaped the capacities and opportunities available to the settler elites developed in tandem with those that defined and enforced the subordination of indigenous and African peoples and their descendants. Most historical writing assumes a perfect symmetry here – Iberian institutions facilitated European exploitation of indigenous and slave labor, so the Europeans got rich and prospered while subordinate populations suffered or died off. It is true that conquest and enslavement and the legacies of these mega-institutional processes have reverberated throughout the history of the Americas. They are reflected in the historic failure to invest in education and human services that has been a defining characteristic of modern nations with large indigenous and African-descended populations. At the same time, however, it would be a mistake to assume that the colonial societies in which ethnic majorities were defined as legally inferior necessarily provided conditions favorable to the long-term prosperity of the settler elites or the growth of the colonial economies.

Spanish and Portuguese colonists and their descendants sought protection and legitimization of their privileged status; unrestricted access to land, mineral resources, and indigenous labor; and minimal taxation and regulation of their own productive and commercial activities. The Iberian states, on the other hand, devoted considerable imagination and effort to undermining potential contenders for power and authority, particularly in the more prosperous regions where the fiscal stakes were highest and unsettling settler ambitions most likely to arise. Tensions between imperial governments and settler elites persisted through three centuries of colonial rule. Conflicts occurred most frequently over tax and regulatory policies and access to indigenous labor. Challenges to the fundamental structure of the colonial compact occurred rarely, but creole-led confrontations over specific tax or regulatory policies or particular “abuses” by Spanish officials occurred more or less continuously throughout the colonial era. Conflicts also erupted over control of colonial governing institutions, including local and colonywide councils that exercised limited legislative and judicial powers. As the dynamism of the conquest gave way to economic stagnation and

even decline in the seventeenth century, local elites in the colonies succeeded in occupying positions and accumulating power in the colonial administration. The last half century or so of Hapsburg rule, which ended in 1701, is sometimes referred to by historians as an era of “benign neglect” in which the Crown permitted colonists to take over many local positions of power. The Bourbon regime, which sought to recapture control and recentralize power in the second half of the eighteenth century, had to struggle against long-entrenched interests.

Routine conflicts between the Crown and creole settlers over policies and positions did not fundamentally alter the political economy of colonial rule. Not only did the settler elites depend ultimately on the metropolitan governments for external defense and internal security, they also suffered from two major disabilities that marked them as *colonial*, in contrast to the European aristocracies they admired and often sought to emulate.

First, unlike European aristocracies that emerged over centuries of decentralized political turbulence, the settler elites of the Americas found themselves constrained from the outset by the claims of their monarchs. The Portuguese and Spanish Crowns asserted ownership of all the property and resources of the conquered regions. In theory, this meant that every act of seizure and expropriation, from the statues in indigenous temples to real estate and mining claims, had to be reviewed and confirmed by the Crown. Viceroy, district magistrates (*corregidores*), and the court system eventually managed these matters. The Spanish colonial regime generally insisted on respect for indigenous landholdings (see below), but permitted settlers to occupy and use untitled and abandoned tracts, providing written titles retrospectively through a claims process called *composición*, which became commonplace in the seventeenth century. Thus, the Crown tended to confirm the predations of the conquistadors and the land grabbing of the settlers *ex post*, but reserved both the right to withhold approval whenever convenient and to punish acts of disrespect or defiance by confiscating of the offender’s property.

Second, even more important to maintaining the balance between imperial interests and settler ambitions was the evolution of Iberian institutions that governed relations between settler elites and native populations. Spanish law and practice defined the indigenous populations as vassals or subjects of the two Crowns. Settler elites had no legal jurisdiction over the indigenous populations, except as appointed officials of the Crown, though in several notable cases (Columbus in Santo Domingo, Hernán Cortés in the

vast territories of his *marquesado*) the Spanish Crown briefly authorized the equivalent of manorial courts. Spanish legislation abolished indigenous slavery in 1542, provided official protection for indigenous property rights in land, and permitted indigenous communities to manage their affairs according to their own *usos y costumbres* (though supervised by priests and officials). The indigenous communities that survived the demographic collapse (or were reconstituted afterward) thus retained both their lands and an impressive, though not absolute, capacity to govern their own villages and urban barrios. Unlike Spain itself and indeed most of Europe, the creole elites of Spanish America controlled neither land nor souls. The relative autonomy of indigenous populations from economic, political, or personal dependence on the settler elites was crucial to the durability of the Iberian equilibrium in the Spanish empire.

It should be added, however, that the relative autonomy enjoyed by the indigenous villages was balanced by the extraordinary stability of the European rural estate as a social unit. The resident workers and service tenants on nonslave rural estates (*haciendas*) in Spanish America virtually never revolted, mainly because they could move away if dissatisfied. The *haciendas* faced a potential external threat from encroachment by neighboring villages, but this threat rarely materialized in the colonial era. Most village riots and revolts in colonial Mesoamerica and the Andes were defensive and directed against new taxes, labor drafts, and other official abuses. These "caste" conflicts by subject groups against colonial authorities did not become "class" struggles over land against creole and mestizo landowners until decades after independence.

In contrast, Portugal allowed its colonists to enslave the indigenous population, in part because the Amerindians of Brazil would not otherwise have worked on sugar plantations and other European enterprises, unlike the indigenous populations of Mesoamerica and the Andes. From the imperial perspective, slavery tended to make the colonial regime more secure against settler defection. Whether worked by indigenous or African slaves, the bedrock institution of slave society, the slave plantation, was a potentially unstable and at times unmanageable institution. Slaves were impossible to mobilize and arm for sedition without calling into question their status as slaves. They were unlikely to serve as allies of their owners against the Crown or anyone else.

Planter fears of slave rebellion were no doubt compounded by the lack of professional military or police forces. For local security, Brazilian and

Spanish American slave-owning plantation elites had to rely on militias composed mainly of creole and mulatto farmers and tenants. This dependence, in turn, limited the planters' ability to expand their landholdings at the expense of less efficient producers. Fear of revolt from below also tended to make plantation owners politically conservative. Their protests over tax and regulatory issues were rare, short-lived, and more demonstrative than serious threats to colonial rule.

Subordinate populations throughout the Americas faced tactical limitations that facilitated conquest and colonization and proved crucial for maintaining the colonial regime. In Mexico, the cultural and linguistic diversity of the indigenous population, conflicts between competing ethnic groups, and the death or displacement of native elites made an indigenous politics of resistance to colonial rule impossible. In the Andes, where cultural and linguistic differences were less pronounced, the Spanish regime deliberately set out to assimilate native lords to Spanish culture, language, institutions, and politics. This strategy worked until Bourbon administrative and fiscal reforms backfired in the 1780s by pushing a substantial number of the Andean *kurakas* to unite in revolt. Similarly, the diversity of origins of the slave populations reduced the threat of widespread, generalized slave insurrection. Massive imports from the same African region increased the risk of nativist insurrections, where the eventual emergence of leaders among assimilated creole slaves produced generalized demands for abolition and citizenship. Large-scale indigenous revolts often called "caste wars," large-scale slave insurrections, and major maroon wars were not common, but they were frequent enough to cause widespread fear and uncertainty.⁶

For the most part, however, subordinate populations in the New World had no choice but to confine their protests to relatively small-scale riots and rebellions, usually limited to a single indigenous village or slave plantation. In eighteenth-century Peru and Mexico, for example, historians have recorded over 300 localized indigenous uprisings. Virtually all of these uprisings involved indigenous villages protesting against "abuses" by local Spanish officials. Some were provoked by disputes between villages and neighboring *haciendas*, but none involved violence against *haciendas* by their own employees. Most slave rebellions were similarly local in scale, but came from within the plantations and were directed to force redress of

⁶ See "Patterns of Rural Rebellion in Latin America: Mexico in Comparative Perspective," in Friedrich Katz, ed., *Riot, Rebellion, and Revolution: Rural Social Conflict in Mexico* (Princeton, NJ, 1988), 21–62.

abuses by overseers and owners. Throughout the Iberian empires, localized “reformist” violence aimed at redressing grievances or securing small gains was endemic.⁷

Colonial elites in Mesoamerica and the Andes and their counterparts in the slave colonies of Brazil and the Caribbean understood that without the moral and material resources provided by the colonial governments, they would not be able to maintain their shaky economic and political dominance over potentially and often actively hostile populations. The viceroy or other officials usually took charge of suppressing revolts and the Church hierarchy nearly always weighed in on the side of order and patience. Both imperial powers understood that they could not retain their empires if they failed to make credible their capacity to reward loyalty and punish defection. Nonetheless, the settler elites also understood that they could not rely on the colonial state for protection in the short run, when most losses of life and property were apt to occur. Colonial militias composed of settlers and their retainers suppressed most of the hundreds, perhaps thousands, of local riots and rebellions that occurred during the colonial era. When local efforts failed, it could take months to mobilize distant military forces (often militias from other colonies). Thus, although the Iberian powers could not have maintained control over their vast territories without the active support of European and creole settlers, the settlers ultimately depended on the colonial state to bail them out in case of serious upheavals.

Twentieth-century images of politically powerful landowners dominating vast numbers of powerless and landless laborers capture a twentieth-century reality for some parts of Latin America, but they have little to do with the colonial era. The Spanish empire in Mesoamerica and the Andes could not have survived without imposing a balance between the greed of the conquerors and settlers and the demands and needs of indigenous villagers willing to pay tribute to the Crown in exchange for the right to occupy and cultivate their own lands. In these regions, Latin America’s landed elites were noteworthy for their relative weakness, not their dominance, in the countryside. In the Caribbean and Brazil, slave owners depended on colonial states and local militias for defense against constant upheaval

⁷ William B. Taylor uses the term “reformist” in his analysis of over 140 local riots and rebellions in central Mexico and Oaxaca during the eighteenth century in *Drinking, Homicide and Rebellion in Colonial Mexican Villages* (Stanford, CA, 1979), chap. 4. In some areas, maroon communities of runaway slaves contributed to the insecurity from outside of the plantations, but unlike indigenous villages, maroon settlements were frequently attacked and destroyed by settler militias with official support.

and uncertainty until the institution was abolished. Latin America's colonial landowning elites were among the weakest, least secure, and most dependent of any in the world.

BUREAUCRATS AND PRIESTS

Controlling settler elites and subordinate populations in the Iberian colonies would have been easier had Spain or Portugal been able to rely on a loyal and disinterested bureaucracy. From the beginning of the colonial era, however, the capacity of the Portuguese and Spanish governments to communicate orders and compel obedience varied from intermittently effective to utterly nonexistent. The officials appointed by Spain and Portugal to govern their American colonies were few in number, frequently unreliable, and almost always engaged in what would today be seen as shamelessly rent-seeking, even corrupt, behavior. The two mother countries governed their vast territories with no more than a few thousand employees. Throughout the Hapsburg era, the Spanish government auctioned off many major as well as minor bureaucratic offices to the highest bidders. Employees of both governments used their offices for private gain. Colonial officials, even those dispatched from the peninsula, often developed close ties (including kinship through marriage) to the creole settlers they were supposed to control and proved reluctant to enforce policies that benefited the Crown at their relatives' expense.

The Spanish and Portuguese governments therefore jealously guarded their theoretical monopolies of ultimate executive, legislative, and judicial authority. Both Iberian governments used laws and regulations as instruments to project royal power, discipline bureaucrats, and confine settler elites. In fact, the two Crowns legislated with such precision and detail throughout the colonial era that full compliance with the law was often impossible (see below). Armed with rules full of detailed prescriptions and prohibitions, officials acquired additional leverage to bargain and negotiate (on behalf of the Crown or their own interests). Subjects permanently at risk of prosecution for violating contradictory laws usually found it prudent to treat royal officials with greater deference than they might otherwise have done, but the system also produced frustration and revolt when officials failed to negotiate reasonable alternatives to compliance. *Se obedece, pero no se cumple* (it [the law] is obeyed but not fulfilled or complied with), the aphorism commonly cited to describe the reluctance or incapacity of colonial officials to enforce rigid "blue line" rules, also

points to the discretionary authority that served both to enhance their power and to encourage corruption (see the discussion below on legal systems).

Both Iberian empires used the Roman Catholic Church to reinforce royal authority. In the first decades after the conquests in New Spain and Peru, the Spanish Crown found reliable allies in the regular orders of clergy, especially the Franciscans, Dominicans, and Augustinians. By the late sixteenth century, the Jesuits had arrived. The latter played a strategic role in the interior of Brazil and the peripheral regions of Spanish America by establishing missions in territories otherwise free of Europeans. The orders' institutional and theological interests coincided with the Crown's determination to keep the indigenous populations free of legal and juridical subordination to the creole settler elites. Over time, however, the orders lost ground to the secular (parish) clergy. Though agreements with successive popes beginning in 1486 gave Spanish – and later Portuguese – monarchs patronage rights, that is, the right to appoint bishops and intervene in church business, Iberian monarchs had to struggle to keep bishops and priests from becoming the willing allies of the wealthy colonists upon whose generosity they depended for all their personal and institutional needs. In the eighteenth century, centralizing monarchs in both countries concluded that both the orders and the secular clergy had acquired too much autonomy and were paying too little attention to the interests of the Crown. Spain negotiated a new settlement with the Vatican in 1737 and secured greater control over the Spanish Church. The Portuguese expelled the Jesuits from Brazil in 1759. Eight years later, Charles III (r. 1759–88) expelled the order from all the Spanish dominions. Neither monarchy, however, challenged the Church's monopoly over an array of public functions that ranged from registering all births, deaths, and marriages to levying taxes on agricultural output (the tithe).

Without reliable bureaucratic and cultural agents, Spain and Portugal maintained the often precarious New World colonial equilibrium only through constant attention and continuous adjustments to respond to new and recurring threats. The preferred response of both Spain (at least until the late eighteenth century) and Portugal (throughout the colonial era) was to negotiate concessions with disaffected interest and ethnic groups, so long as the Crown's ultimate authority and its revenue needs were respected. Both empires had the capacity to mobilize military resources – militia, military, and naval – to crush local and even regional challenges, though such efforts usually took many months to develop.

The relative stability of the two regimes produced a high degree of continuity in the institutions that structured the incentives, and the disincentives, to engaging in productive economic activities. Unfortunately, the main institutions of colonial rule – those that embodied and preserved the juridical authority of the Crown, used archaic land tenures to weaken settler elites and pacify indigenous villagers, imposed caste systems and forced labor (both slave and indigenous), and delegated the production of public goods and services to private bodies – all these helped to maintain the Iberian equilibrium, but at the cost of impeding economic growth for centuries.

III. INSTITUTIONAL OBSTACLES TO PRODUCTIVITY ADVANCE

The bedrock institutions of colonial economic life, those that defined property rights in land, labor, and transactions, came to the Americas from Spain and Portugal and evolved to take into account the realities of the New World environment. Iberian legal doctrines, legislation, and court systems were among the most sophisticated and advanced in the world. They adapted with remarkable speed to the conquest and colonization of alien lands and peoples, provided a reasonable framework for economic transactions of many kinds, and contributed to the creation and consolidation of new land tenure and labor regimes. As in most premodern states and empires, however, Iberian institutions were not designed to promote factor mobility, technological change, or frictionless transactions. They distorted factor markets, impeded the development of new enterprises, and imposed substantial risks and costs on transactions of all kinds. These problems affected every level of colonial society from the settler elites of landowners, merchants, miners, and officials to the subordinate majorities of villagers, slaves, and service tenants.

LAND TENURE AND PROPERTY RIGHTS IN LAND

Conquest and colonization stimulated the development of private property in land, but premodern tenures dominated the Latin American landscape well into the nineteenth century. Private property had not yet emerged as the dominant form of landholding either on the Iberian peninsula or in the Americas at the time of the conquest. In Spain and Portugal, land

and other assets could be “owned” in diverse ways. Entail or mortmain and a variety of feudal and communal tenures were more common than privately held property. Similarly, in pre-Columbian America, most of the land and other forms of wealth were not privately owned in anything like the modern sense. In both the Iberian peninsula and central Mexico, land and other assets accumulated by hereditary lords had become private in the sense that their possession no longer depended on offices occupied or services rendered to the state. Elsewhere in the Americas, however, this trend was absent or still incipient, as in the Inca territories, where only the Inca ruler seems to have possessed something like privately owned lands.⁸ Among peasant commoners, individual landholding was common, but nearly always conditional on some mechanism of allocation and reallocation by community authorities.

Pre-Columbian property rights regimes were complex and layered. Throughout the Americas, indigenous agricultural villages owned and worked some land in common, often to produce tribute goods or support religious institutions. Most village lands were allotted to households by local authorities, but could be reassigned in whole or in part as household composition changed. In central Mexico, however, household plots could usually be inherited or at least transferred within extended families. In Aztec (Nahua) lands, the nobility and warrior class received lands after military victories over rival cities and states. These noble estates usually came with a labor force already settled on them and obligated to provide service. In the Inca empire, individual private property in land was less developed, both in the villages and among the aristocracy. In conquered towns and villages, Inca officials designated lands to be cultivated for the benefit of Inca religious shrines and the state offices, but the lands remained the property of the communities. In most indigenous societies in the Americas, the concept of individual private property as a claim to assets independent of community obligation or status simply did not exist.

Early in the colonization process, the Spanish and Portuguese Crowns instructed their agents to respect the property rights, both individual and collective, of the indigenous populations they encountered. In the first

⁸ The Inca ruler could bequeath his accumulated lands to his extended family, who could use the income from his estates to support themselves and shrines dedicated to his memory. He could not, however, pass his property on to his successor; each new ruler had to conquer new territories and populations to make his fortune. See María Rostworowski and Craig Morris, “The Fourfold Domain: Inka Power and Its Social Foundations,” in Frank Salomon and Stuart Schwartz, eds., *The Cambridge History of the Native Peoples of the Americas*, vol. 3, *South America*, part 1 (Cambridge, 1999), 780–4.

decades of colonization, however, neither government managed to enforce these instructions effectively and both granted multiple exceptions to them. Spaniards could legally take over public buildings and facilities, confiscate all lands and other property of religious institutions, and seize property belonging to any individual or community that resisted subjugation, rebelled against Spanish rule, or failed to embrace Catholicism. Spanish colonists (until 1542) and Portuguese settlers (for much longer) could legally enslave natives who resisted subjugation or failed to convert. In practice, the first *conquistadores* usually seized and distributed among themselves whatever they fancied without fear of rebuke or prosecution. Gradually, however, the Spanish and Portuguese governments began to concern themselves with the survival of the native peoples and the threat of settler defection. In the Spanish empire, this concern resulted in the abolition of indigenous slavery and personal service and the development of legal protections for indigenous landholding.

Among the indigenous populations of Mesoamerica and the Andes, the conquest initially reinforced the predominance of premodern forms of landholding over individual property in land. In central Mexico, for example, some indigenous villages exploited the Spanish victory to free themselves from obligations to Aztec and local lords and received communal land grants from the Spaniards. The land titles issued by the colonial authorities went not to individuals or families, but to communities. These lands were defined as inalienable and could never be sold. Colonial courts tended to enforce respect for village land titles when they were challenged from within or without. Putative “sales” of village common lands were routinely declared null and void. Spaniards and mestizos were forbidden by law to reside in indigenous villages. Until liberal land legislation and economic modernization in the late nineteenth century, most of the indigenous communities that survived the demographic catastrophe of the conquest managed to retain their lands.⁹

Premodern land tenures were also common among Spaniards in the colonial era. Lands belonging to wealthy conquerors and colonists granted noble titles became entails (*mayorazgos*). In Mexico, the Cortes family carved out

⁹ In the Andes, however, the new land titles treated villages as territorially discrete administrative units and thus tended to separate, often permanently, the previously linked settlements at diverse altitudes that belonged to the same *ayllus*. The elaborate systems of reciprocal gift-giving and barter that had developed to regulate exchanges between the islands in these Andean *ayllu* “archipelagos” dissolved over time to be replaced, if at all, by impersonal markets.

an immense *marquesado* full of entailed lands stretching from the Valley of Cuernavaca to Oaxaca. Lands donated to various agencies of the Church, such as the religious orders, bishoprics, or charitable agencies, could also be designated as inalienable. Such donations were especially common in the seventeenth century, when commercial agriculture was shrinking in many areas and land values declined. Spanish colonial towns and cities also received grants of inalienable common lands, which the *ayuntamientos* and *cabildos* (town councils) usually rented out. Spanish law also recognized cooperative ownership arrangements, sometimes called *condueñazgos*, among private individuals. In the Caribbean, mestizo and poor creole peasant farmers frequently owned shares that entitled them to farm somewhere within large tracts of land, but the share titles did not specify the precise boundaries of the plots they were entitled to. Throughout most of Spanish America and Brazil, individuals and communities occupied public lands and passed them on to heirs for decades and even centuries without benefit of formal titles. Cadastral surveys did not begin anywhere until the last quarter of the nineteenth century.

Private ownership of land thus coexisted with premodern forms of land tenure throughout the colonial era. Private landholding predominated among Spaniards and castas. Spaniards received grants of land, called *mercedes*, to tracts of unoccupied or confiscated land, which they were free to sell or bequeath as private property. The Spanish authorities also recognized and confirmed in writing the ownership of private estates by collaborating native lords. In some cases, Spanish *mercedes* freed native lords from the community obligations on which their property holding had previously been conditioned or confirmed the servile obligations of the laborers on their estates. In Mexico and the Andes, private property in land was most common in Spanish towns and mining settlements, their immediate hinterlands, and the transportation routes that linked them. In Brazil and the Caribbean, private property in land developed most rapidly in regions dominated by slave plantations. Private ownership also gained ground during the long eighteenth century, particularly in the Caribbean and Mexico, as population growth led to increased urbanization and trade.

Colonial land tenure systems discouraged investment and production, though not for the reasons commonly cited in the historical literature. *Haciendas* and plantations did not “monopolize” land, could not control prices, and did not “waste” land through neglect or inefficient management. That is, none of the microlevel problems hypothesized a generation ago

survived empirical testing.¹⁰ The major impediments to productivity in rural Latin America turned out to be institutional: the inalienability of many landholdings, the insecurity of most titles, the inefficiency of the courts, and the widespread access to common and public lands.

The first three of these problems impeded the development of a mortgage market and financial institutions to serve it. At the end of the colonial era, most of the cultivated land in Latin America was not owned in fee simple by individuals with secure titles. Even elite *haciendas* and slave plantations with written titles to some of their lands often included tracts of untitled public or abandoned indigenous lands. Land registries were unknown and cadastral surveys did not take place anywhere until the late nineteenth century. Competing claims to lands clogged colonial and national courts. The pervasive lack of clear titles affected nearly all landowners, though elite *hacendados* and planters probably enjoyed better opportunities to fix deficiencies than others. Land that could not be seized for nonpayment of debt, either because titles were imperfect or because the land itself was inalienable, could not be used to secure loans. Even private owners with secure titles suffered, however, because colonial and nineteenth-century courts in most countries could not be counted on to enforce foreclosure demands. Even producers with titles usually found it impossible to obtain mortgage credit, because the judicial system made foreclosure a practical impossibility. Except for Church credit to wealthy notables with good political connections, mortgage loans were unknown in most of Latin America until the late nineteenth century. The absence of a private mortgage market impeded investment and the development of lending institutions throughout Latin America until the late nineteenth century or later.

The fourth problem, widespread access to land, is usually thought to be a peculiarity of the North American experience. Even if the comparison is restricted to the northernmost of the thirteen British colonies, this is unlikely to be true for the colonial era and most of the nineteenth century. The persistence of indigenous village landownership, the vast stretches of untitled territory occupied by indigenous and casta peasants and herders, and the encouragement of smallholder settlements on the periphery of the slave plantations all testify to the ease of access to productive land in much of Latin America. Unfortunately, widespread land ownership in societies

¹⁰ See Eric Van Young, "Mexican Rural History since Chevalier: The Historiography of the Colonial Hacienda," *Latin American Research Review*, 18 (1983): 5–61; see also Simon Miller, *Formación de clase y transición agraria en México* (Mexico, 1997).

with race-based caste hierarchies, premodern land tenures, and inefficient judicial institutions did not promote economic growth. Instead, widespread ownership of land added a further drag on economic modernization by raising the wage incentive required to move people to more productive jobs when they developed in other sectors of the economy.

COERCION, CASTE, AND PROPERTY RIGHTS IN LABOR

Europeans and their descendants in colonial Latin America constituted a small and legally privileged minority of the population. Subject peoples, even those born under Spanish or Portuguese rule, were ethnically, culturally, and often linguistically distinct from their rulers and employers. The Iberian powers developed two distinct regimes to deal with the indigenous population, which began to decline almost immediately, and the Africans they kidnapped to repopulate their territories. The political and legal framework that defined relations between indigenous populations and Iberian conquerors and settlers came to be known as a system of castes (*castas*). After indigenous slavery was abolished in the Spanish empire in 1542, the caste system was applied to all Native Americans. In Brazil, caste distinctions coexisted with indigenous slavery. Africans in both empires were subject to enslavement. Freed slaves and free descendants of slaves became subject to the caste system.

The Spanish American caste system, the more elaborate and institutionalized of the two, consisted of laws, policies, and practices that assigned distinct sets of rights and obligations to individuals on the basis of their officially recognized ethnicity. It evolved over the course of the sixteenth century. After considerable debate and experimentation, Spanish legislation by the mid-sixteenth century officially recognized a fundamental distinction between a *república de indios* and a *república de los españoles*.¹¹ The indigenous *república* included only the population officially classified as indigenous. The Spanish *república*, however, consisted not only of Spaniards, but also of all nonindigenous peoples: creoles (persons of European ancestry born in the New World), mestizos (individuals of mixed European and indigenous ancestry), and Africans and their descendants, slave as well as free. Elaborate classifications with a correspondingly complex nomenclature evolved to take into account all the possible racial combinations.

¹¹ The term *república* in this context signified a public entity of some kind, closer in meaning to its Latin origin than in later times when it came to designate a state without a monarch.

Individuals of diverse kinds of mixed ancestry came to be referred to as *castas*. In most of Spanish America, the tripartite division of *indios*, whites, and *castas* included the vast majority of the population.

In the Spanish American caste system, each of the three officially designated ethnic groups was assigned a separate set of fiscal obligations, civil rights, and economic prerogatives. Only European-born Spaniards could hold some public offices; the remaining high positions in government and the Church were reserved to creoles. As a matter of law, mestizos and Indians were excluded from positions of public and spiritual trust altogether. They were excluded as well from the practice of law, medicine, engineering, wholesale commerce, and some of the more highly specialized artisan occupations. Special rules governed and limited mestizo ascent in occupations from which Indians were excluded altogether. Europeans and mestizos were forbidden to live in Indian villages, and Indians were forbidden to reside outside their villages without the permission of civil and religious authorities. Indians were forbidden to own horses, bear arms, or dress like Europeans. Lesser restraints regulated the conduct of mestizos. Separate rules governed the status of each ethnic group in the colonial legal system and provided each group with a distinct code of privileges, exemptions, and liabilities.

As the caste system evolved in the sixteenth century, the Spanish authorities sought to regulate access to indigenous labor through two distinct institutions, the *encomienda* and the *repartimiento de indios*, both of which they eventually abandoned to private enterprise. The *encomienda* was a grant to a Spanish *conquistador* or other settler from the Spanish Crown of a right to labor services and payments in kind (or in money later on) from the indigenous population in a specified area. The *repartimiento* (or *reparto*) *de indios*, called *m'ita* after the Quechua term in the Andes, was a temporary allocation by a Spanish official of indigenous laborers, either for public works or to labor in Spanish enterprises, such as landed estates (*haciendas*) or mines. Private labor markets developed alongside the *encomienda* and the *repartimiento* and eventually dominated, but did so within the legal framework of a caste system that distorted labor markets and restricted mobility.

In the New World, the *encomienda* was a grant from the Crown or a royal official that assigned ("entrusted") indigenous populations in specified areas to individual Spaniards. The first New World *encomiendas* were granted to Spanish settlers on Hispaniola by the royal governor Nicolás de Ovando, shortly after his arrival in 1502. In 1509, a royal order (*cédula*) established the right of conquest leaders (*adelantados*) to grant *encomiendas* directly to

their subordinates. The recipient of an *encomienda*, called the *encomendero*, was authorized to receive tribute and labor from his charges. *Encomenderos* took control of their territories, replaced the officials of the previous indigenous empire or city-state, and negotiated with local chiefs to secure their cooperation in extracting labor, taxes, and tribute. The *encomenderos* had to crush any lingering resistance and pay for priests to convert the natives. The *encomienda* was not, however, a grant of private property. The indigenous people were not slaves, but legally free vassals of the Crown. Nor did the *encomienda* provide title to any land or other assets. As in Spain, the New World *encomiendas* were temporary, but pressure from the conquering generation and its allies made them heritable across two and sometimes more generations.

The value of the *encomiendas* declined as the indigenous population died off. The institution itself eventually disappeared by the end of the sixteenth century in the core areas of central Mexico and the Viceroyalty of Peru, though it persisted in some marginal areas, such as the Yucatán peninsula, until the eighteenth century. As the initial conquerors were pushed aside, the Crown created royal *encomiendas* either by reassigning existing vacant *encomiendas* or by allocating a growing proportion of newly conquered subjects. By the mid-sixteenth century, native resistance, declining tribute payments and labor services, and new Crown restrictions on the *encomenderos* further reduced their value.

As competition for access to dwindling supplies of labor intensified, the Crown abolished *encomienda* labor services and imposed state-managed rationing of indigenous labor through the *repartimiento de indios*. First introduced in the 1550s in New Spain, the *repartimiento de indios* required indigenous villages to supply specified quotas of adult male laborers for periods of up to three months and sometimes longer. Special magistrates received requests from Spaniards for labor allotments, either for planting and harvest labor on *haciendas* or for unskilled laborers to work in mines, *obreras* (wool processing and textile workshops), and other enterprises. The magistrates decided how many laborers each village had to supply, based on its reported population, and assigned them to Spanish employers. The magistrates were also charged with ensuring that the laborers were properly fed and paid the wage fixed by law. One effect of the new system was to make indigenous labor more widely available to Spanish and creole businesses than it had been when the *encomenderos* monopolized it.

Population decline soon made the *repartimiento* more and more onerous to the indigenous population, because colonial administrators resisted

reducing the number of laborers each village was obligated to provide. As the indigenous population fell, the proportion of adult males taken away for work each year tended to increase. Rigid enforcement provoked resistance by indigenous communities, who flooded Spanish courts with litigation claiming that their diminished numbers made it impossible for them to comply. Meanwhile, Spanish and creole employers undermined the *repartimiento* by using wage and other inducements to lure indigenous workers away from the employers to whom they had been assigned. By the beginning of the seventeenth century, the *repartimiento* had become impossible to sustain in most areas. In New Spain, the *repartimiento* for agriculture ended in 1599. By 1630, it had been abolished for all other kinds of work, except in case of urgent public necessity. In the Andes, the *m'ita* survived on a large scale only in the provinces adjacent to Potosí, Huancavelica, and other mining centers, where the mines would have had to close without access to forced labor.

Encomienda and the *repartimiento* each worked for a generation or two to mobilize seasonal and short-term labor gangs from the largely rural indigenous population of Mesoamerica and the Andes. They served as alternatives to enslaving the indigenous populations in areas where slavery would not have been economically viable or even enforceable. Both institutions allocated labor to Spanish entrepreneurs by administrative fiat. No doubt this resulted in an economically inefficient allocation of indigenous labor. This effect was probably mitigated when *encomenderos* rented out some of the indigenous laborers under their control or entered into partnerships with mine owners and other Spaniards in which they supplied laborers in exchange for a share of profits. The *repartimiento*, however, prohibited employers from renting or reassigning laborers. In each case, the Spanish state implicitly balanced the benefits of rewarding conquerors (*the encomienda*) and closer Crown control of access to indigenous labor (*repartimiento*) against the distorting effects of allocating labor by fiat rather than by using markets.

By the end of the sixteenth century, the practice of hiring seasonal labor had spread throughout the main areas of estate agriculture in both New Spain and Peru. Private labor markets had already replaced forced labor drafts as the principal mechanism for allocating indigenous labor to Spanish enterprise. Most of the Spanish and creole settler population had already made the transition to reliance on private property, rather than temporary grants of coerced labor, as the basis for their wealth and status. The new regime of private transactions operated, nonetheless, within the framework

of the caste system, which placed limits on the mobility, both geographic and occupational, of the indigenous labor force. The persistence of the caste system also distorted the processes of capital formation by forcing the small enterprises of mestizos and Indians into the straightjacket of approved activities. "Free" markets belong to a later epoch in Latin American history.

In Brazil, the indigenous populations of the interior, like those of most of lowland Spanish America, were not sedentary agriculturalists accustomed to external rule. As in the Spanish American peripheries, they resisted subjugation and incorporation, often fleeing beyond the reach of European settlers and institutions. In these areas, the caste system could not be imposed except where the missions of the regular orders succeeded in persuading small numbers of people to adopt sedentary agriculture along with Christianity. The Portuguese thus tolerated and at times even encouraged enslavement as an effective way – in the view of many the only effective way – to exploit indigenous labor. Unlike the Spanish territories, Brazil retained indigenous slavery well into the eighteenth century, though the supply of new slaves from the interior had long since dwindled to a fraction of the supply of captured Africans. Portuguese prohibitions on indigenous slavery, repeatedly issued with loopholes and just as often repealed, did not become effective or unambiguous until Pombal took up the issue in the 1750s.

Though African slaves accompanied the first Spanish *conquistadores*, the development of plantations using African slaves first took place on a large scale in Brazil in the early seventeenth century. Slave plantations spread to the Caribbean in the mid- to late seventeenth century, mainly to the islands lost by Spain to the Dutch, English, French, and others. Spain did not have direct access to sources of slaves in Africa, except between 1580 and 1640, when the Spanish and Portuguese Crowns were united. During the rest of the colonial era until the late eighteenth century, Spain prohibited or severely restricted slave imports.

Slave plantations required investments in internal security, which neither the planters nor the colonial governments cared to make. In Brazil, this problem was solved by encouraging Portuguese, creole, and even mulatto tenants and small holders to locate in the vicinity of the plantations, where they served in the local militias needed to suppress disturbances or revolts. The Brazilian plantations thus tended to be relatively small, like their counterparts in seventeenth- and eighteenth-century Cuba (sugar) or Venezuela (cacao). The plantation elites of Brazil and the Spanish colonies could not have dominated the landscape, as they sometimes do in historical accounts,

without depleting the ranks of the militias that made their enterprises viable in the first place.¹²

LEGAL SYSTEMS AND PROPERTY RIGHTS

The Iberian colonial legal codes and judicial systems evolved to protect the Crown's theoretically absolute authority in vast empires where the two states often lacked the capacity to compel obedience. They failed to define and enforce property rights consistently even for the colonial settler elites. High costs, interminable delays, and unpredictable outcomes discouraged investment, impeded the development of financial institutions of all kinds, and placed excessive discretionary authority in the hands of rent-seeking colonial officials. Though the evidence cited here comes mainly from the Spanish colonies, Portuguese historiography cites an almost identical litany of legal and judicial impediments to enterprise.

Comparative legal historians have suggested that the "Common Law" legal systems of Great Britain and most of its former colonies performed better in defining and protecting property rights than the "Civil Law" systems that emerged from Roman legal doctrines first taken up by centralizing monarchies and eventually adapted and embodied in the Napoleonic codes (1804).¹³ The Common Law systems evolved in a decentralized way, placed major responsibilities for justice in the hands of juries and local judges, relied mainly on general standards or principles for judges to apply to the unique circumstances of the cases they adjudicated, developed open and increasingly transparent adversarial procedures in public view, and recognized citizens' rights to pursue individual interests not harmful to others or expressly forbidden by statute. Civil Law systems evolved under centralizing monarchs who appointed judges to act as agents strictly accountable to the monarch rather than powerful local magnates and therefore required judges to base their decisions on the precise language of the written law in

¹² The relationship between plantations and small holders was first described in telling detail by Stuart B. Schwartz, "Free Labor in a Slave Economy: The Lavradores de Cana in Colonial Brazil," in Dauril Alden, ed., *Colonial Roots of Modern Brazil: Papers of the Newberry Library Conference* (Berkeley, CA, 1973), 147–97. The Brazilian pattern contrasts sharply with the much larger plantations in the British, French, and Dutch West Indies, where nonslave populations constituted a much smaller percentage of the population and regular military forces were much more important in maintaining stability.

¹³ For an introduction, see John H. Merryman, *The Civil Law Tradition: An Introduction to the Legal Systems of Western Europe and Latin America* (Stanford, CA, 1985); for a game theoretic approach to the history of the two divergent systems, see Andrei Shleifer and Edward L. Glaeser, "Legal Origins," *Quarterly Journal of Economics*, 117 (2002): 1193–1230.

all cases no matter how dissimilar, placed evidence gathering, pleading, and decisions in the hands of royal magistrates protected from public scrutiny and local influence, avoided juries and open confrontations, and recognized no rights or obligations of citizens not expressly conferred on them by the written law. For further discussion of these and related issues, see the chapter by Alan Dye in Volume II.

Within the evolving Civil Law structure of the Spanish and Spanish colonial legal system, two characteristics were especially important in raising the risks and costs faced by investors, producers, and traders. These were the confusing and contradictory proliferation of highly detailed laws and instructions and the development of a fragmented judicial system in which members of "corporate" bodies, including indigenous villagers, royal officials, church employees, the military, persons living within entailed estates (*mayorazgos*), and others, were subject to special courts and legal codes.

The first characteristic feature of the Iberian legal systems that discouraged economic activity was the proliferation of written laws, regulations, and decrees, many of which contained rules that specified required behavior in such excruciating (and sometimes lunatic) detail that they made full compliance difficult and provided grounds for endless litigation. Because the Crown insisted both on obedience to the written law and on writing many laws, confusion and miscommunication were endemic. Lawyers and judges agreed that codification could help to solve this problem by removing outdated laws and eliminating repetitions and contradictions, but every effort at codification ended in failure. In the New World, Spain's most ambitious effort at codification was the *Recopilación de leyes de las Indias*. To produce it, a team of experts worked from 1624 to 1635 to reduce over 400,000 royal *cédulas* (decrees) to a mere 11,000 statutes. When the *Recopilación* was finally published in 1681, after nearly a half-century of revisions and reviews, this had been further reduced to just over 6,400. By this time, however, it was already outdated. A second attempt at codification, the *Recopilación de leyes de los Reynos de las Indias*, was published in 1791, but included no legislation issued after the reign of Carlos II (1665–1700).¹⁴ Moreover, both of these codifications consisted only of that portion of Spanish legislation formulated specifically for application in the colonies. The colonies were also expected to obey, and even give precedence to all other Spanish legislation unless explicitly exempted in the

¹⁴ Clarence H. Haring, *The Spanish Empire in America* (New York, 1952; orig. publ. 1947), 101–5.

statute, so the codifications of colonial laws were incomplete by definition. Lawyers and jurists cited Spanish legal codes going back to the thirteenth century.

Second, the Spanish colonial judicial system did not apply a single body of law, however voluminous and detailed, to all subjects. Special courts (*juzgados*) held jurisdiction in all cases involving Indians, while *fueros* with special courts for military officers, priests, and aristocrats came to the Americas from Spain soon after the conquest. The *juzgados de indios* placed considerable discretionary powers in the hands of magistrates, who dispensed a rough justice to indigenous litigants and defendants. Though sometimes protective of indigenous property and other claims, the Indian courts frequently treated their charges as children in need of supervision and control by Europeans. The *juzgados* commonly sacrificed the human and property rights of the indigenous people in their jurisdictions to the maintenance of good order and proper deference. At the other end of the social and ethnic spectrum were the *fueros*, which exempted privileged individuals from the uncertain justice of the ordinary courts. Special courts were created to adjudicate civil and even criminal cases involving clergy, military and civilian officials, and aristocrats. In some of these special tribunals, the judges were selected from among the members of the corporate body to whom the *fuero* was granted. In these cases, a special subcode of laws and procedures was applied. In many cases, certain kinds of judgments were expressly forbidden. For example, lenders could not lay claim to the entailed estates of aristocrats or the communal lands of indigenous villagers to secure payment of debts. In the eighteenth century, the Bourbon reformers granted additional *fueros* to promote economic interests. The two most important of these were the *fuero mercantil* and the *fuero de minería*. The first heard disputes between members of the *consulados* of merchants authorized to engage in export-import trading. The second applied to mineowners. The creation of the *fuero mercantil* and the simultaneous application in the colonies of the *Ordenanzas de Bilbao* (a commercial code first promulgated for the Spanish city of Bilbao) probably reduced some of the costs and risks of litigation between a tiny minority of elite merchants after 1792. Mineowners in Mexico benefited in the same way after creation of the *fuero de minería* in 1783.

The creation of these special courts for some had negative effects on the efficiency with which property rights were defined and enforced for the rest of the population. Overlapping jurisdictions caused continuous disputes, with different courts claiming jurisdiction in the same cases. The

costs and uncertainties of litigation involving individuals with access rights to more than one tribunal may actually have been increased by the need to litigate over where the case should be tried. One of the New Spain's most distinguished viceroys, the Conde de Revillagigedo (1789–99), remarked that "Everyone in his own court believes he will be better treated than in that of others, and thus all efforts are bent toward moving disputes and suits to one's own ground."¹⁵ In addition to the extra litigation costs for those directly involved, the existence of privileged corporate bodies whose members operated with their own rules and sat in judgment on one another outside the jurisdiction of the regular courts tended to raise the costs and risks of enterprise for the rest of the population.

Despite their negative economic consequences, the inefficiencies and delays built into the Iberian legal systems probably contributed to social and political stability in the colonies. Uncertainty reinforced the authority of appellate courts and the Crown and thus checked the power and influence of settler elites. The colonial courts provided an alternative to violence for aggrieved individuals and communities and a mechanism for pacifying potentially dangerous conflicts until higher authorities could intervene. Indigenous communities made constant use of the Spanish court system to contest decisions by local officials, clamor for reductions in labor drafts and tribute payments, and defend village lands from alleged usurpation. Slaves and their defenders also used the courts in Brazil and Spanish America to protest abuses and enforce manumission agreements. Litigants of inferior status and resources faced huge obstacles, of course, which is why they frequently resorted to extralegal actions to pressure magistrates and opponents. Indigenous villagers occupied disputed land or expelled offending officials, whereas slaves refused to work, hid themselves (*petit marronnage*), or sought refuge and protection from their owners.

Although the high cost of litigation in time and expense worked to the benefit of those who could afford to pay and wait, even those who paid and waited could not predict outcomes reliably, nor could they be certain that decisions, even those taken by the Council of the Indies or the king himself, would not be appealed again. Disputes over landownership, especially those involving indigenous communities, often took decades to settle, only to be reopened by new claims or renewed appeals. Many transactions, such as private mortgage loans, never occurred because they would have required

¹⁵ Cited in Jacinto Pallares, *El poder judicial, o Tratado completo de la organización, competencia y procedimientos de los tribunales de la República Mexicana* (Mexico City, 1874), 35.

different or better definitions and more effective enforcement of property rights.

IV. CONCLUSIONS: INDEPENDENCE AND DELAYED INSTITUTIONAL CHANGE

Institutional modernization did not coincide with political independence in Latin America. In Spanish America, the newly independent states created in the wake of prolonged civil strife and the associated economic declines lacked political and fiscal resources and were generally weaker than the shaky colonial regimes they replaced. The creole economic elites that inherited the leadership of the new nations were even more divided, impoverished, and unpopular than they had been under colonial rule. During the independence wars, indigenous majorities in parts of Mexico and the Andes seized or retook local political power. Slaves who fought were freed and those who did not clamored for citizenship. Excluded classes and castes became intoxicated with republican doctrines of legal equality and popular sovereignty. In Brazil, the colonial regime itself declared independence, but the new empire spent much of its energy suppressing armed rebellions and social turmoil.

The Iberian colonial equilibrium, battered and nearly broken, barely survived the independence wars to re-emerge as a grim stalemate that took up to a half century of civil strife to escape. The white (creole) settler-led revolts that separated all the Iberian colonies save Cuba and Puerto Rico from Spain and Portugal between 1808 and 1824 unleashed a whirlwind of political and social turmoil. In Brazil regional political and social upheavals continued to the mid-nineteenth century. In Spanish America, the collapse of the colonial regime and the violent conflicts of the independence era made it impossible to restore stable government in most of the former Spanish colonies.

The collapse of stable government and the persistence of violent social and political strife overwhelmed the potential benefits of independence, which included the definitive end of the Iberian commercial monopolies and tax burdens. Ending trade restrictions just as terms of trade were moving sharply in favor of Latin America should have stimulated exports and thus economic growth. One reason that Latin America did not benefit economically from independence may have been that the economic burden of the Spanish commercial monopoly and fiscal burden was smaller than

historians once thought. The measurable cost of Iberian colonialism had two components: the net export of fiscal revenues and the negative effects of the imperial trade monopoly. In the case of Mexico, these costs amount to roughly 7.2 percent of colonial income between 1792 and 1820.¹⁶ That is, per capita income would have risen by three pesos, from forty to forty-three pesos, had Mexico achieved its independence without costs or disruptions early in the 1790s. Estimates do not exist for other colonies, but it is likely that Mexico's burden was higher than most. Mexico, like Peru and Bolivia, exported revenues to subsidize colonial administration in other parts of the empire and the Spanish commercial monopoly probably weighed more heavily there than on commercial backwaters like most of Central America and Paraguay. Some colonies, including Cuba and Argentina, benefited from subsidies whereas in others, such as Panama, trade regulations created artificial entrepôts. Even in the worst cases, however, neither the fiscal transfers nor the commercial monopoly had the major distorting or stunting effects often attributed to them.¹⁷

Economic decline, political strife, and social turmoil fed on each other, defeating all efforts to repair and rebuild the Iberian equilibrium. Every neocolonial policy and institution that required stable and effective government proved impossible to impose and had to be abandoned. In this sense, the warfare that followed independence contributed to undermining the colonial institutional legacy that had inhibited economic growth and thus accelerated the creation of a more efficient economic organization throughout Spanish America. Unlike the United States, which had inherited institutions well suited to encouraging economic growth, Latin America launched its independence with premodern institutions that first had to be swept away before sustained economic growth could occur.

As a result of the postindependence turmoil, virtually every Latin American country made an initial stab at institutional modernization in accordance with liberal principles at some point between 1830 and 1880. Liberal movements and regimes first worked to complete the destruction of centralized absolutist government and colonial social and economic regulation, which war and civil strife were already weakening. This destructive

¹⁶ Estimates are from John H. Coatsworth, "Obstacles to Economic Growth in Nineteenth-Century Mexico," *American Historical Review* 83, 1 (February 1978): 80–100.

¹⁷ It is also worth noting, as Leandro Prados de la Escosura points out in Chapter 13, that independence destroyed the currency union embodied in the Spanish empire – though the postindependence trade among the former members of this currency union was so minuscule that its loss was scarcely remarked.

phase included the abolition of caste systems; premodern property rights in land; the *fueros* of clergy, military officers, merchants, and miners; state monopolies on tobacco and other products; licensing fees and special taxes of all kinds; import prohibitions and exclusions; public enforcement and collection of the tithe; the public functions of the Church (registries of births, deaths, marriage, and control of cemeteries); and even slavery in most regions.

A second wave of liberal reforms began later in the nineteenth century, though it overlapped with portions of the first. Second wave reforms usually included wholesale revisions of legal codes, sweeping tariff, fiscal, monetary, and judicial reforms, and new banking and mining legislation. These second wave reforms occurred as economic elites took effective control of most Latin American states for the first time. The political economy of modern Latin America thus emerged only after a historic rupture with the past. In most cases, however, liberal victories did not achieve permanence until they were validated by the onset of economic growth linked to increased trade, railroad construction, and foreign direct investment.

The timing of institutional modernization in the nineteenth century depended mainly on the interplay of two key variables: the fortunes of the contending political parties or factions (and the social and economic interests associated with them) and the export production possibilities each nation faced. Institutional modernization came more rapidly in places where creole settler elites did not have to contend with large indigenous or African slave populations, such as Argentina (Buenos Aires), Uruguay, and Chile. Institutional change and economic growth took longer to achieve in countries, such as Peru and Guatemala, where settler elites managed to reconstruct a part of the colonial equilibrium by negotiating social peace in the countryside in exchange for respect for indigenous autonomy and landownership, and in Brazil, where a centralist monarchy tied to slavery had to fall before modern institutions and economic growth could begin.

Though institutional modernization embraced the concept of *civil/equality* for adult male citizens, the onset of economic growth produced sharp increases in *economic inequality*. The revolution in transport costs that made national and international markets accessible to formerly remote areas of the countryside induced waves of elite land grabbing and the privatization of immense tracts of “vacant” public land (some of it occupied for centuries). Economic growth also pushed income inequalities to unprecedented levels, with high salaries going to small numbers of people with capital, skills, and education, while unskilled majorities fell behind. Though export-led

economic growth increased economic inequality, it simultaneously provided the resources and eventually the external allies to contain the political consequences. Liberal reforms validated by economic performance consolidated political regimes responsive to the interests of economic elites.

Stable elite rule and economic inequality were thus the historic achievements of postindependence liberal reforms and late nineteenth-century globalization, not a consequence of Iberian colonial rule. A new equilibrium had emerged. The new equilibrium embraced the basic institutional requisites for protecting productive property and importing capital and technology and thus encouraged economic growth. Without this new trajectory, the major economies of Latin America could not have managed to achieve sustained economic growth averaging between 1.5 and 2.0 percent per annum during the entire twentieth century.¹⁸

Important elements of continuity with the colonial era nonetheless persist. Many of the Latin American states are weak, extract minimal tax revenues, provide few public goods, and fail to protect the rights of those who are unwilling or unable to pay. The contemporary correlation of ethnicity with socioeconomic status is the result of starting economic growth in the aftermath of three centuries of European domination in which civil status was tied to race. The colonial legacy of racial discrimination, compounded by modern economic inequality and high rates of population growth, also helps to explains the Latin American lag in investing in human capital.

Once the major elements of institutional modernization had been achieved in the late nineteenth century, the modern equilibrium persisted, as its colonial predecessor had, despite relatively high levels of social and political violence. Even an upheaval as vast and destabilizing as the Mexican Revolution, for example, failed to stall economic activity. Twentieth-century growth rates in Latin America were more volatile than elsewhere, but prolonged stagnation did not recur until the last two decades of the century. The question before the region today is whether the modern equilibrium inherited from the late nineteenth century can be repaired and put back to work with modest reforms, or, as some voices insist, a new rupture is now in prospect.

¹⁸ See Maddison, *The World Economy: Historical Statistics*, 263.

8

AGRICULTURE AND LAND TENURE

CARLOS SEMPAT ASSADOURIAN

TRANSLATED BY AMÍLCAR CHALLÚ AND JOHN H. COATSWORTH

PRE-COLONIAL AGRARIAN SYSTEMS

I

According to José de Acosta's model, put forward in his *Historia natural y moral de las Indias*, first published in Seville in 1590, in the vast new world conquered by Spain "three kinds of government and life have been found among the Indians." The Aztec empire in central Mexico and the Inca empire in Peru represented the most complex forms of government. They were established "republics," in the Aristotelian sense, with hereditary royal houses and a high degree of agricultural development. For the other types of society, Father Acosta used the terms *bebeterías* (independent towns or villages) or "totally barbarous." The former included communities with their elected or at least less absolute rulers, which were smaller in terms of both population size and territorial extension, such as the Araucanians in the extreme south of the continent. The "barbarians" included "tribes," such as the Chichimecas of northern Mexico, with economies based essentially on foraging. Acosta, like many other sixteenth-century Spaniards, also reflected on the relative ease of the conquest of the first type of indigenous society as compared to the difficulty of conquering the second and third type.

The greater political, economic, and agricultural development of the two large native empires, and the central position their territories had under the new colonial regime, justify making them the basic point of reference in our analysis of agrarian systems before and after the European conquest. The two periods are characterized by completely different socioeconomic structures. Nonetheless, between the time of the conquest and the completed

formation of the colonial “mode” there occurred a century-long transition whose guiding principles were laid down during the long reign of Philip II (1527–98). This transition was characterized by the horrendous collapse of the native population in the midst of which there occurred a cumulative transfer of sixteenth-century European social, legal, and economic institutions and forms of economic calculation that determined the shape of the colonial “mode.”

After long debates on the size of the indigenous population on the eve of the European invasion, the estimates of Woodrow W. Borah and Sherbourne F. Cook have been generally accepted. Central Mexico and Tawantinsuyo (the Inca realm) were the most populated areas, although the Antilles and present-day Colombia also had dense population centers. Although Borah and Cook’s estimate of 25 million inhabitants for central Mexico seems rather high in our opinion (and Henry F. Dobyns’s estimate of 30 to 37 million people for the Inca empire does not deserve any consideration, given its flawed methodology), it is still true that these agrarian regions were as densely populated on the eve of the conquest as they were in the early twentieth century. It is now beyond doubt that the population collapsed over the course of a century after the conquest, ranging from complete extinction in the Antilles to a decline as high as 90 percent in central Mexico and the Andes. The slow rise of the white, *mestizo*, and African populations minimally compensated for the huge population losses among the native population (see the chapter by Linda Newson in this volume).

The demographic facts show, then, that a rural landscape originally “full” of people became progressively “emptier” after the European invasion. Hernán Cortés’s letters reveal the astonishment and admiration he felt for the demographically bountiful scene he encountered when he first entered central Mexico. Similarly, Diego Camargo recalled years later his impressions of the old *señorío* of Tlaxcala: “full of people as a beehive”; with no land left vacant; “the Tlaxcalans did not fit in their territory”; since they “needed lands to grow crops” their only option was to encroach upon forest lands. In the Andes, this demographic pressure acquired mythic proportions in the Quechua tale of Waru Chiri: In the remote past the dead returned after five days to become immortal. “For this reason, mankind increased, multiplied. And it was difficult to find food. They had to sow crops on the cliffs and in tiny plots at the bottom of gorges. They lived suffering.” This Andean oral tradition about periods of severe imbalance between population growth and means of subsistence was taken up again by Miguel Cabello Balboa in 1586. His account refers to a remote time

when people cultivated only in benign climates with a ten-year rotation, until another period came with the other extreme in which "people multiplied so much that land did not lack people, but people lacked land." This critical moment forced villages to define their boundaries, to regulate families' rights of access to cultivable land, and to domesticate the hostile environments of mountains, frigid lands, and deserts.

High population estimates suggest that the two large kingdoms were in the middle of a Malthusian phase in which their resources could no longer meet the demands of a growing population. Borah and Cook claim that in central Mexico, with a population of 25.2 million, it was no longer possible to expand food production given the available technology. By the end of the fifteenth century, they conclude, a demographic catastrophe was inevitable, even without the European conquest. Although verifying this claim is difficult, the passages we just quoted from Muñoz Camargo, Cabello Balboa, and the Quechua narrator of Waru Chiri all point to demographic stress as the main impetus behind the expansion of the productive capacity of these pre-Hispanic civilizations through terracing, the principal example they cite, which turned mountain slopes into highly productive fields. Without doubt, the addition of new areas for cultivation, as well as the huge investments of institutionally mobilized labor that they required, represented authentic land policies on the part of the indigenous organizations. Thus, it cannot be claimed with certainty that this capacity to adapt had reached its limits by 1500. Similarly, the evidence adduced of erosion in some areas of Mexico or of alkalization or bleaching in irrigated zones of Peru cannot be taken as definitive.

The evidence concerning the possible adverse effects of demographic stress on nutritional levels rests on firmer ground. Paleodemographic studies of human remains in Yucatán, Oaxaca, and Teotihuacán, all in present-day Mexico, reveal an inadequate diet distorted by high intakes of carbohydrates and acute deficiencies of animal proteins and certain vitamins. These findings concur with the observations of the first Europeans who arrived in Mexico, such as Hernán Cortés and the early Franciscan missionaries. They emphasized the chronic grave malnutrition of the common Indian and its impact on the high mortality that resulted when the conquerors demanded a more intensive work effort than the malnourished Indians could support. Based on that evidence some scholars have used Malthus's model of repressive and preemptive brakes as population growth reaches the limit of available resources to suggest that there is a direct link between high levels of malnutrition and low life expectancy, on one hand, and high mortality

rates caused by infectious diseases or by periodic climate-related subsistence crises, on the other. Since it is uncertain whether these observations apply to the rest of the continent, the only aspect that is valid all over the Americas is that there is no preemptive Malthusian brake: it was completely alien to the reproductive behavior of the indigenous peoples (both before and after conquest) to delay marriage in order to limit the number of births.

Without knowledge about iron metallurgy and the plough, the basic tool of pre-Hispanic agriculture was the stick or planting pole, operated by hand or foot (*coa* in Mesoamerica, *chaqitaclla* in the Andes), together with axes, hammers, and other tools such as hoes and rakes of wood or stone, with some use of bronze at times. With this simple and archaic (“neolithic”) equipment, indigenous organizations nonetheless managed to develop with rigorous forms of collective mobilization of human energy, an agriculture based on one or two years of use and three, four, or more years of resting the soil. The paradigm of these systems of long fallowing is tree-felling, burning, and clearing of land and reliance on rainfall without irrigation, but here we emphasize the more intensive forms of exploitation with irrigation that were developed in the most diverse environments.¹

II

The cultivation of lands inundated and fertilized by river floods has received little attention, even though a 1949 study by Armillas identified this practice in the Balsas basin, especially in the so-called hot land (*tierra caliente*) of Guerrero and Michoacán. This neglect may be due to the assumption that this type of land use belonged to a more primitive state of agricultural development associated with small hydraulic works, some permanent and some renewable, or none at all to regulate the flow of water. However, two examples from very distant geographic regions suggest that this technique was in more frequent use at the time of the conquest than is usually assumed. First, there is the Vega de Metztitlan, located in the Huasteca region of the state of Hidalgo in Mexico, with an area of 11,000 hectares. Second, in the extreme south of the continent there is the 100-kilometer-long stretch of

¹ For now classic general typologies of extensive and intensive agricultural systems, see E. Boserup, *The Conditions of Agricultural Growth* (Chicago, 1965), and Eric Wolf, *Peasants* (Englewood Cliffs, NJ, 1966). More specifically for Mesoamerica, see Angel Palerm, “Agricultural systems and food patterns,” in *Handbook of Middle American Studies*, vol. 6 (Washington, DC, 1967), and T. Rojas Rabiela, *Las siembras de ayer* (Mexico City, 1988). For additional citations, see the bibliographical essay.

land periodically flooded by the rivers Salado and Dulce in what is today the Argentine province of Santiago del Estero. The anachronistic yet descriptive reference to this area as the "Argentine Nile" aptly highlights the fertility of this ancient method of flood plain or marsh agriculture.

In recent decades aerial photography has shown the widespread use of raised fields (also called ridged or drained fields) all over the continent's wetlands. The use of this technique has been detected in several seasonally flooded subtropical lowlands, such as the San Jorge alluvial plains of northern Colombia, spread over an area of 32,000 hectares; the Mojos plains in Bolivia, covering over 20,000 hectares; the Guayas River basin in Ecuador; the plains of the Orinoco River; the Mayan lowlands (Belize and the Mexican states of Yucatán, Campeche, Tabasco, and Quintana Roo); and Vera Cruz in Mexico. The most notable example of highland ridged fields is situated in the wetlands along the shores of Lake Titicaca between Bolivia and Peru. It covered 82,056 hectares at an altitude of 3,800 to 3,890 meters above sea level.² Smaller ridged fields have also been discovered in central Peru near Jauja and in the north of the equatorial Andes, including the Quito plateau and the region around Bogotá. There seems to be no convincing explanation other than population pressure for why wetlands that are today considered marginal or not suitable for agricultural use were converted into arable lands. The enormous expenditure of human energy needed to build and maintain fields raised above the water (they were 1.80 meters high in San Jorge and even higher in northern Vera Cruz) and keep canals clean suggest that the benefits must have been quite significant. It is likely that the ridged fields had high-quality soil, given that mud and muck deposited by the periodic floods in the canals constantly renewed the soils and provided adequate levels of phosphate supply and fixed nitrogen. Dams could have retained enough water in the canals to irrigate the fields during the dry season, making it possible to achieve two harvests per year. Moreover, in the highlands, the water in the canals reduced the risk of frosts.

The most impressive example of the productivity of wetland systems in the entire continent, and perhaps in the entire preindustrial agricultural

² The absence of references in the early Spanish documents suggests that here, as elsewhere, this system had already been abandoned at the time of the conquest. Nevertheless, Smith, Denevan, and Hamilton believe that the abandonment of the ridged fields in the Titicaca region occurred after the European invasion, as the indigenous population decline reduced the pressure on food production. According to other views, the abandonment could have occurred two or three centuries earlier with the fall of the Tiwanaku culture.

world, was that of the *chinampas* in the Valley of Mexico. The *chinampas* were rectangular raised platforms built on a strong framework of posts, sticks, and tree branches anchored firmly to the lake bed and filled with earth. The surrounding canals provided moisture, natural fertilizers of muck and rotting aquatic vegetation, and a supply of irrigation water in the dry season. With this permanent moisture an essential group of plants were grown throughout the year, with no period of fallowing: maize in the rainy season, chiles, green and red tomatoes, squash, amaranth, chia, beans, ornamental flowers of various kinds, and so on. The exceptional productivity of the *chinampas* stemmed from individual planting in small nurseries of hardened mud, which allowed transplanting the best seedlings and reduced the time each plant spent in the soil, and from the use of protective vegetation to shield the seedlings and plants from occasional frosts in autumn and winter. Though disagreements still exist about the date when *chinampas* were first used (W. T. Sanders argued that they probably appeared in the Early Horizon, 1300 to 800 B.C.E.), there is consensus on dating the great expansion of the *chinampas* in the Late Horizon (1325–1521), as migration and state centralization accelerated demographic growth. Centralized state intervention was required to maintain the supply of fresh water and keep the water level stable.³ It was evident in the hydraulic works that were concentrated in the freshwater Chalco-Xochimilco Lake to control the water levels and prevent saltier water from entering from other lakes, as well as in the regular pattern of placement of the *chinampas*.

Another kind of agriculture that stood out for its achievements in a completely different environment was developed in the arid plains of the Peruvian coast by taking advantage of the more than fifty rivers that come down from the mountains to empty into the Pacific. The so-called *chacras hundidas*, or sunken fields, were the simplest way to capture water from these rivers. They consisted of rectangular excavations (10 to 40 meters wide and 30 to 100 meters long) dug down as deep (from a few centimeters to one or even two meters) as necessary to reach the water table fed by the river water that filtered through the sand. Despite its technical simplicity, the beginnings of this technique were rather late (from 400–600 to 850–1150 C.E.). This probably means that in the context of high demographic

³ The *chinampas* occupied an area of 12,000 hectares, including 3,000 hectares of canals and lagoons, according to the tentative estimate of Armillas. Calnek and Palerm have indicated that the size of the small garden plot *chinampas* located next to homes varied between 0.01 and 0.04 hectares.

pressure, these sunken fields played a secondary role, complementary to the technologically more complex and much older systems of canal irrigation. Another form of irrigated agriculture was also based on capturing river water that filtered through the sand: the aqueducts or “percolating galleries” used in the valleys of Moquegua and Nazca (the latter dated from 600 B.C.E. to 400 C.E.). In this system, storage tanks were built close to or on the river bed, from which open canals spread out; when a canal became too deep – three meters, usually – it was covered with stone tiles or waterproof wood (along with earth from excavating the canal) and the walls were tiled with stone. The volume of flow and the seasonal variations depended on the capacity of the water tanks and the permeability of the soil along the course of the canals. Among open-canal irrigation systems it is possible to distinguish different types according to their complexity. One way was to directly draw water from watercourses and conduct it through master canals and ditches to the cultivated lands. More common were works with bigger infrastructure made of an initial dam and a master canal that transferred the liquid to the irrigation areas; the long, winding courses (in the Tumbes valley, the canal was over 60 kilometers; in Chira, apparently 160 kilometers) required the construction of solid embankments to pass over ravines and steep inclines, secondary dikes or drains to control the flow of water, and the tiling of canal beds and walls to help keep percolation and erosion to a minimum. A similarly impressive level of complexity was reached in the canal systems that ran between river valleys to connect two or more rivers, such as the megasystems of irrigation in Lambayeque (where a canal connected five different river basins), Chicama-Moche, Fortaleza-Pativilca-Supe, Rimac-Chillón, and Chincha-Pisco. These systems made it possible to combine the water resources of distinct rivers, moving water from rivers with more plentiful flows to other areas as needed, thus making more secure the cultivation of crops with longer growing seasons or perhaps allowing two harvests per year.

Though hydraulic works attract more attention because of the engineering they require and because they provide a test case for Wittfogel’s theory of authoritarian political systems based on large-scale irrigation networks (“Oriental despotism”), on the eve of the conquest, terrace cultivation on the hills and mountain sides was the predominant form of agriculture in the most densely populated and politically centralized areas of the continent. In general, this system can be characterized by recalling O. F. Cook’s praise, in 1925, of the Andean peoples’ impressive efforts to modify the natural

topography to create a productive landscape; they were “soil-makers.”⁴ Another study by Maldonado and Gamarra Dulanto, published several decades ago, highlighted how this “soil-making” controlled erosion and at the same time used water effectively. Instead of flowing fast down the hill-sides, carrying away fine particles of soil, the water is retained in the terraces, giving way to a process of filtration that brings the fine particles down to the bottom layers of the soil, leaving on the surface soil a thicker texture that facilitates a quick filtration and hence diminishes the loss of water to evaporation. An additional benefit of terraces, this study also pointed out, was the lower risk of frost. The large labor outlays required to create and maintain the terraces, the periodic rejuvenation of the soil provoked by inundations, and the frequent association of this system with irrigation canals from temporary or permanent sources of water that supplemented seasonal rains suggest that Andean people obtained harvests every year from the terraces, perhaps with some short period of fallowing if the yields decreased significantly.

Another outstanding feature of terrace agriculture is that, particularly in the Andes, it allowed peasant domestic units to access parcels in different ecological zones located at a distance of one or a few days’ walk away. This system of “ecological verticality” not only provided a great variety of crops, but also allowed families to distribute their labor over longer periods of time. The seasonal requirements of labor were different for crops at differing altitudes, because the growing season in higher altitudes is longer. The increased social productivity derived from the distribution of the labor force over longer periods was enhanced, both in the Andes and central Mexico, by the practice of “garden agriculture,” as the Spanish called the concentration of family efforts on a very small piece of land practically without any intervals of subutilization throughout the entire growing season. Given the importance of soil quality, adequate water supply, and the use of fertilizers to replace nitrogen and phosphorus, this garden agriculture, with its minute preparation of the soil, seed selection, method of sowing, and individualized care of plants, improved the productivity of the small family plots and improved the yield per unit of seeds planted.

As in other rural societies, the American populations, even though they grew a large variety of seed plants and tubers, concentrated their work on one or two basic crops. In a broad area ranging from the Caribbean to Colombia to the Amazon, the staple crop was yucca or manioc, from

⁴ See the bibliographical essay for citations.

which tapioca is obtained. In the two areas we are focusing on, Carl Sauer established the key distinction between maize (grain) and tubers (roots), but we must carefully review his observation "that maize was nowhere, south of Honduras, the staple foodstuff that it was further north." The prevalence of maize in Mesoamerica is undeniable, but the importance of maize in the Inca empire deserves more attention. In an influential article published in 1960, John V. Murra, acknowledging the predominance of maize in coastal Peru, argued that two agricultural systems coexisted in the highlands. For subsistence the most important crops were the potato and other tubers that had been domesticated locally and laboriously adapted to the high, cold altitudes of the highlands. Their cultivation was basically dependent on rain and required long cycles of fallowing. In contrast, Murra argues, maize was a state-run operation: its large-scale cultivation on the lower and more temperate levels of the sierra was only possible once the Inca state built irrigated terraces, brought in fertilizers from the coast, and put the priestly caste in charge. Although generally valid, it is important to make some observations on Murra's model. We believe that in the equatorial and central Andes, where, generally speaking, the division between cold (i.e., potato) and temperate (i.e., maize) zones can be established in the range from 2,800 to 3,000 meters, households with access to lands in the several ecological levels practiced both kinds of agriculture. This leads us to argue for the coexistence of maize and potatoes as the two staple crops of peasant subsistence. In the central Andes, moreover, the picture becomes more complex when we consider the livestock herds grazed above 3,900 to 4,100 meters⁵ that belonged to the Inca and various ethnic groups. In the southern Andes, the Aymara chiefdoms (*señoríos*) around Lake Titicaca (at almost 4,000 meters) stand out as a case in which the main source of wealth consisted of animal herds complemented with tuber agriculture. Even before Inca rule, these *señoríos* succeeded in getting access to maize by settling groups of colonists (*mitmakunas*) at appropriate ecological levels, several days' walk away from their homes. Maize was also procured by exchanging livestock and *chuño*⁶ for maize with other groups. Finally, we think that Murra, in his 1960 article, overestimated the role of the Inca state in building terraces suitable for maize.

Although it is correct to focus on staple crops and calculate hypothetical nutritional yields from them, it is still important to keep in mind the

⁵ This is called the subalpine zone, puna, jalka, or páramo alto, depending on the author.

⁶ A starch obtained from bitter, high-altitude varieties of potato.

multiplicity of domesticated plants, about seventy in Mesoamerica and forty in the Andes, which ranks these areas among the ecosystems with the greatest diversity of cultivated plants in the world. The variety of crops (not counting other picked fruits, the “raw” in Levi-Strauss’ terminology) is significant for the debate on the abundance and quality of the native diet and prompts one to conjecture about possible systems of crop rotation, a problem we still know too little about. Both in the Andes and Mesoamerica, maize was often cultivated along with squash or especially with beans because the latter helped fix nitrogen in the soil. Growing potatoes in altitudes over 4,000 meters was one of the great achievements of the Andean highlands; but, similarly, the fact that potato or, more properly, potato varieties, were the staple crop in this region does not mean that other products were not present in the native diet. Some weight in calculating the importance of other crops must be given to the sixteenth-century European chroniclers who so often mentioned other tubers such as *mashua*, *oca*, *maca*, and *ulluco*, as well as seed plants native or adapted to cold high altitudes such as *quinua* and *cañahua*, which have a higher protein content than maize or wheat (about 15% vs. 10–12%). Finally, the crops grown in wet and hot lands, such of cotton, coca, and cocoa, are worth mentioning as much for their functions in pre-Hispanic times as for their role under the colonial regime.

III

For two decades after the 1955 symposium on “Irrigation Civilization: A Comparative Study,” leading scholars such as H. Steward, D. Collier, Pedro Armillas, W. T. Sanders, Eric Wolf, and Ángel Palerm used Wittfogel’s model of “Oriental despotism” (or the “Asiatic mode of production,” to use Marx’s original language) to judge the hydraulic and agrarian development of the great Mesoamerican and Andean states. This thesis had the merit of promoting debate on the key issue of the relationship between irrigation and social and political institutions. The Wittfogel model has now been rejected for lack of evidence of an imperial hydraulic bureaucracy or because ceremonial and urban centers or the same social stratification actually pre-date the creation of large irrigation works, and so on. On this issue, it is worth recalling the famous chronicle of Guaman Poma written in the early seventeenth century. In a concise sentence, he actually summarizes in order of importance the elements that sustained the development of pre-Inca hydraulic systems. He writes that before Inca dominance, in the native

chiefdoms, "since there were so many Indians and they had no more than one ruler, they opened irrigation ditches and built terraced fields with the greatest skill in the world, by hand, without tools, and thus they made all the fields for sowing; no matter whether they were in the jungle, the desert, or the highlands." Guaman Poma's summary tells us that (1) both on the coast and in the highlands, irrigation and terrace agriculture were associated with high population density; (2) the low efficiency of Indian construction tools (actually, Guaman Poma means that they used no iron, European tools) was compensated for by large deployments of collective labor; and (3) hydraulic systems and terrace agriculture developed in states smaller than the Inca empire. Guaman Poma also offers valuable information on other issues related to the issue of irrigation and the state. For example, he mentions the "astrologists," meaning the group of specialists attached to the central state that studied the movements of the sun, the moon, and the stars and established the calendars (lunar or solar) that ruled agriculture and religion. Another large set of references indicate that community authorities controlled the canals and the distribution of water. Similarly, the whole chronicle illustrates the labor discipline and obedience of the Andean population, inasmuch as water was an important variable linked to other social and political variables. Without a doubt, all these considerations are valid for the Mesoamerican area.

It is difficult to present an accurate summary of land tenure conditions in the large Mesoamerican and Andean kingdoms, because of the lack of research on this topic and because some of the issues are still controversial. Legal terms derived from the Roman tradition (property, *possessio, usufructo*) are not appropriate for describing the interpenetration of sociopolitical structures and the web of entitlements and obligations that governed the access to land in the pre-Hispanic world. To shed light on what changed after the European conquest, we first refer to the prototype that probably prevailed in the ethnic *señoríos*, over which the Inca and the Aztec imposed additional entitlements and demands.

In this prototype, lands were divided between the religion, noble lineages, and the communities of commoners. Whereas the gods' lands could be worked by permanent servants, the lands of the noble lineages were worked with labor contributed by the communities. All the men of the community, as a right derived from being born into one of the community's family groups, were entitled, on reaching an age when they could work as adults and get married, to receive land sufficient for the subsistence of a family head or independent household. As long as the recipient of the land complied

with the rules of the ethnic organization, the land received in this way was protected against any intrusion, even from the highest political authorities, and it could be passed on from father to sons. The energy devoted to cultivation varied over time, as it depended on the biological growth of the family. In the first stages of the family cycle, the productive couple worked with greatest intensity; as children were incorporated to the family workforce, there was more available energy and the household became a team of simple, limited cooperation – a team of workers, each with a smaller workload than single parents. Household units cooperated by exchanging labor services, subject to reciprocity rules, but these exchanges were of minor importance in the cultivation of family plots.

There was an important difference between the *señoríos* in the Andes and some, but not all, in central Mexico. In the latter, the codices and the colonial chronicles based upon them show the impressive domination that the large noble houses, and related secondary lineages, exerted over a certain class of peasants. The Europeans called them “renters” or *terrazgueros* (service tenants), terms that then denoted the basic identity between economic rent and the feudal bondage of personal service. This aspect, which we leave unexplained, was unknown in the Andes. In the Andes, by contrast, the existence of animal husbandry caused the appearance of rights to pasture lands. If we can project into the past the information on possession of herd animals contained in the European documents of the sixteenth century, the right to possess animals, that is, to pasture and the services of shepherds, was restricted to, or highly concentrated in, the hands of the noble lineages.

Without modifying these basic characteristics, the Incas and Aztecs imposed on their subject ethnic territories “imperial” rights to lands and to the human energy necessary to work them. In Mexico, imperial domination meant the creation of new state properties, but at least as or more important was the allocation of “patrimonial” lands to the ruling families, to the great noble houses and their members as well as to secondary lineages of the three *señoríos* that constituted the Triple Alliance. In the Andes, some lands were given to the Inca, the royal lineages, and their members, but these, were so few in number that it is difficult even to find examples to describe. What stands out in the Inca conquests was the assignment of lands to the imperial religion and the state. The latter, scattered across all the ecological levels, provided the state with huge stocks of three strategic products: coca, maize, and *chuño*. The great maize-producing domain of Cochabamba, to which the Aymara ethnic groups of the highlands supplied 14,000 workers every

year, is worth mentioning because of its size. The Inca also took for himself rights over pastures, making it likely, as some early colonial documents suggest, that the state owned most of the livestock. The Inca used the *mita* to recruit the necessary labor for agriculture and herding. The *mita* was the mobilization of all adult, married men of the Indian communities in rotating shifts, an institution that the ethnic organizations had devised to furnish labor services to their own local rulers. Inca rule imposed another obligation on part of the population that had no equivalent in the Mexican case. This was the transplanting of clusters of households from one ethnic domain to another. Isolated from their original communities and registered as servants of the state in census records, these workers received lands for family subsistence in their new locations but had the reciprocal obligation of doing *mita* work on state lands. The increase in terrace agriculture during the Inca period was associated with these new settlements. According to early post-conquest European sources, these transfers had an essentially strategic military purpose; yet Cieza de León and Polo de Ondegardo, the two best observers of Andean structures, concur in praising these forced migrations, some of which represented an actual demographic policy of relocating excess population to vacant lands or areas with few inhabitants.

Given its importance in the colonial period, it is also worth mentioning the issue of eminent domain in this survey of land tenures. Specialists say that in tribal societies, rules governing access to or possession of land and rules on land management are inextricably linked. The rights to manage land are entrusted to leaders at each sociopolitical level according to their rank. At the top of the rights structure is the supreme authority (the king, the head of the governing house); land management rights are then delegated all the way down the hierarchy through the village chiefs and the highest-ranking members of the kinship groups. In this pyramid, the king is the “owner” of the land only in his role as administrator or ultimate depositary of the collective property rights to the nation’s territory. Applying the tribal model, we see in the Andes case that the Inca successfully imposed an ideology and a concrete policy that made him appear as the omnipresent entity above all communities and thus converted him into “the effective owner and the effective guarantor of all collective property.” It seems also clear that in the same way, following ancient Andean customs, the Inca legitimated the flow of labor to the state possessions: the Inca “granted” the land to all the members of the subject ethnic entities, and, in reciprocity, he “asked for” labor services. It does not appear that the Triple Alliance in Mexico sought to assume such supreme “property” and

“management” rights over their entire territory. In the original townships of the Triple Alliance and in subject and independent domains such as Cholula, Huexotzinco, and Tlaxcala, we suggest, but only as a hypothesis, that the evidence points to a completely different structure of rights than in the Andes. The large number and the social status of the *terrazgueros*; the references to transactions in land; and, above all, the fact that, soon after the conquest, the noble houses were able to claim property rights to land, in the European sense of the term, as well as relations of personal dominion over the peasants cultivating it, suggests an evolution of land access and management rights very different from that in the Andes.

IV

Acknowledging the risk of distortion when economic facts are isolated from institutions of kinship, religion, and politics, we can identify, following the scheme Karl Polanyi proposed in 1957, three main general principles in the pre-Hispanic economy: reciprocity, redistribution, and exchange. Before proceeding, however, it is important to point out that Polanyi excludes the output of domestic units from these principles because he does not consider them to be economically institutionalized, since access to crop and pastureland was governed by reciprocity or redistribution at a level higher than the family. Without discussing this proposition, it is worth pointing out that in the Andes (and even Mesoamerica if we exclude the *terrazgueros*) the norm was for households to keep all the production grown in their domestic plots. Linking that rule with the demographic trends, it seems evident that most agricultural production and consumption took place within the household economy.

The functional hierarchy of reciprocity, which Polanyi defines as the “movements between correlative points of symmetrical groupings,” has occasioned a singular alignment among the students of indigenous social structures. Scholars of central Mexico minimize its importance, or even call into question its existence, whereas John V. Murra and other Andeanists believe that reciprocity reflected the basic logic of Andean social organization (in Polanyi’s terms, the dominant principle of the “forms of integration”). Nonetheless, when Murra sought to verify his position, he did not find in the sixteenth-century European chronicles any more references to “reciprocity” in Peru than in Mexico. Moreover, in both places, these references are limited to movements occurring within (i.e., not between) groupings that identify themselves by some kind of common origin and the

descriptions are so imprecise that it is not possible to discern which members of such groups the reciprocity rules applied to. Thus, Murra's position was sustained less by historical evidence than by a theoretical premise based on ethnographical studies of precapitalist kingdoms in other continents (from Thurnwald and Malinowski to the present) and on contemporary Andean communities. We think that Murra's position ought to be tested equally in the Mexican case.

The redistribution principle, which in Polanyi's metaphor is like a swinging pendulum whose center corresponds to the state, has been developed by Murra for the Andes and by Pedro Carrasco for Mexico by analyzing processes of appropriation and distribution both in the ethnic *señoríos* and at the imperial level. Murra, as early as 1955, in his doctoral dissertation, raised a series of questions that are still valid today. For example, he opposed the idea, then widely accepted, that the well-being of the villages depended on state redistribution because this ran contrary to the basic logic of Andean social organization, which made the village community responsible for its own subsistence and wellbeing through reciprocity. He criticized Markham and Baudin's idea of an "Inca socialist state" because they were mistaken in their belief, which came from Garcilaso de la Vega and Blas Parera, that the primary function of the state storehouses spread all over the territory was the accumulation of excess food stocks for welfare purposes. On the contrary, Murra found that they served mainly to support the military, to sustain, to a lesser extent, the royal family and state officers, and for gift giving. Murra similarly questioned the alleged redistributive function of the state granaries during years of poor harvests. However, sources as trustable as Cieza de León, Polo de Ondegardo, Damián de la Vadera, and the magistrate Hernando de Santillán all agree on a position that can be summarized in the following quotation: "in years of much scarcity, they ordered the granaries to give out provisions to needy provinces, which they would repay in exact measure when their own harvests were once again abundant." It seems probable, then, that the Inca empire did have a policy of moderating or countering the cyclical plague of hunger. There was, also, another important function of the state storehouses: to "give" subsistence (and prestige goods such as coca and *chicha* during feasts and state ceremonies) to peasants when the peasants were "giving" their collective labor by taking turns working on the Inca's lands. This appears to have been an extension, amplified and redefined by the Inca imperial policies, of the norms that governed mutual contributions of energy between domestic units in a community: that is, what Polanyi called "reciprocity," Murra

characterized as the basic logic of Andean social organization and Blas de Valera called the “Law of Brotherhood.”

Taken together, Murra’s observations cast doubt on Polanyi’s redistributive principle when applied to the Inca empire. It seems certain that obeying this principle was obligatory and that the basis for this state “generosity” followed ancient Andean rules of reciprocity. Hence, in general, we can argue that the appropriation of land and labor by the center, followed then by the center’s return of only a part of the goods thus produced, were legitimized or “institutionalized” by invoking the customs and sensibilities of reciprocal obligation (“the movements between correlative points of symmetrical groupings,” in Polanyi’s words). In the Andean case, to conceptualize the redistribution principle as a reciprocal relationship between asymmetrical groups would be the only way to confirm and to use as an analytical tool another of Polanyi’s general concepts: that societies with economies embedded in other institutions are well “integrated” and have few social conflicts. To be accurate, we ought to add that tensions always arise when the dominant, ethnic, or imperial group attempts to ignore or reduce its obligations of “generosity” in the pendulum swing between appropriation and distribution. In the case of central Mexico, we do not find any information to support the idea that the Triple Alliance managed to legitimate its appropriation of lands, subject peoples, and taxes (tribute) from the conquered *señoríos* on the basis of any reciprocal relationships, as the Inca probably did. On the other hand, the chronicles of some *señoríos* mention tensions and revolts of the Indian villagers when their authorities put in question ancient conventions of reciprocity that gave cohesion to – “integrated” – the community.

Despite the differences between the one area and another, it seems that in both cases family subsistence production/consumption and the land-human energy–goods movements that embody the redistribution principle represented the totality of agricultural production and, if we broaden the scope of the analysis, almost the whole social product. Under these assumptions, the exchange principle appears as a secondary element, both in its ability to orient the production process and in its function in the general circulation of goods. Besides, according to Polanyi, exchange would be a factor of little importance in the cohesion of these societies. He identified the prevalence of one form of integration “with the degree to which it comprises land and labor in society” and asserted that “exchange in order to produce integration requires a system of price-making markets.” It is necessary to subject these ideas to scrutiny by analyzing exchange in the Andes and central Mexico.

Because we have abundant information on some aspects of exchange, it occupies a prominent place in the scholarship on ancient central Mexico, always with reference to the analytical framework established by Polanyi. External or long-distance trade, which Polanyi defined as a relatively peaceful means to obtain goods not otherwise available within a political unit, is the form of exchange most studied up to now. We know the composition of this trade (mainly luxury and ceremonial goods, but also coca, cotton, and salt), as well as its routes, and the high social position held by the professional merchants who were in charge of this activity. Research has confirmed the presence in this traffic of two of the three principal types of commerce pointed out by Polanyi. The first is "gift trade," which "links the partners in relationships of reciprocity." The second is "administered trade," which "has its firm foundation in treaty relationships that are more or less formal," though it was not the case, as Polanyi thought, that "trading runs through government-controlled channels" and "consequently, the whole of trade is carried on by administrative methods." In central Mexico, researchers have shown that this administrative trade coexisted with strong "private" activity of merchants, which should not, however, be confused with Polanyi's third type of trade – "market trade, which follows the lines traced out by the supply–demand–price mechanism." Instead, the scholars in this field have found, confirming another of Polanyi's observations, that the merchants were motivated by a "status motive" that included elements of duty and service and that the material rewards "do not as a rule take the form of gain made on exchange, but rather of treasure or endowment with landed revenue bestowed on the trader by king or temple or lord, by way of recompense."

Despite its quantitative dimensions and theoretical importance, short- and mid-distance trade in subsistence goods has received less attention than long-distance trade. Without doubt, all large towns of central Mexico, and probably some middle-sized ones, boasted trading plazas, or "markets," called *tianquitztli* in Nahuatl. The surviving data, unfortunately, all come from the great markets of Tenochtitlan and Tlatelolco. We can safely guess that the smaller *tianquitztli* kept to a regular schedule and some sort of statutes with officers to enforce them. Also, without omitting the activity of traders, above all those of lower rank, the outstanding feature of the *tianquitztli* was the massive involvement of peasants, both as suppliers and as consumers. We can thus speculate that peasant households tended to produce surpluses of some of their subsistence crops, or to dedicate time to craft work, hunting, or fishing, with the purpose of bartering for other crops, craft products, salt, raw cotton, cotton cloth (*manta*), and so on.

The data on the great urban markets of Tenochtitlan and Tlatelolco reveal a feature that may be unique to these places: the consistent participation of urban-based artisans of different kinds. It is, however, unclear whether they consisted of people completely unattached to subsistence agriculture, and, if so, why – and how – they lost their rights to land. There are other elements of these large markets that can be extended to the local *tianquitztli*. One is the use of cotton *mantas* and cacao beans, both indivisible and widely traded consumption goods, as “equivalents” or measures of value for other goods and thus, although in a very limited way, as a means of payment or currency. The authorities intervened to set rules when faced with possible changes in the customary values of these products.

In the Andes, some studies had emphasized the existence of a large urban market in Cuzco and regional *tianquitztli* with professional merchants (called *mindaláes* in Chincha, present-day Ecuador). There was also a long-distance maritime trade devoted to the export of a mollusk shell – *mullu* in Quechua – essential to the agricultural rituals of the highlands. Beyond the *mullu* trade, more information is still needed (although we doubt that it will ever be discovered) to deal more confidently with the issue of “markets” (meaning trading plazas organized by some central authority) and merchants in the Andean area. In the meanwhile it is more feasible to explore analytically and submit for discussion John V. Murra’s two basic propositions on this subject. The first, published in 1972, was enthusiastically received in the field. It held that vertical control of a maximum of ecological levels, that is, direct access to multiple crops and other resources, was an ideal shared by all Andean ethnic groups, no matter how complex their political and economic organization. Murra offered a convincing proof of this “ideal” by analyzing five cases of small and large ethnic organizations (the latter were “kingdoms”) from the coast, mountains, and highlands. Yet, even accepting the pervasiveness of this ideal, it also seems evident that its development did not imply full self-sufficiency for the ethnic groups. Polo de Ondegardo put it very accurately: “there are only a few lands, or maybe none, in the highlands that the Indians can live on without having to go to other lands to obtain what they need.” It is exactly this strict need for exchange and for means to secure it that gives relevance to Murra’s second proposition: in the Andes, luxury, ritual, and subsistence goods were not traded in marketplaces, nor redistributed by the state. They were exchanged by establishing bonds of mutual help and activating relationships that allowed each group to gain access to the production of other groups. The *chupachus*, an ethnic group of the highlands,

are a good example of small Andean ethnic groups used by Murra in developing his model of the maximization of vertical control of ecological levels. This group controlled access to salt deposits as well as three ecological environments at one or a few days' walk, each with abundant lands that allowed them to produce a large number of crops: (1) in the high, cold mountain, tubers such as oca, potatoes, mashua, and ulluco; (2) low, warm mountain crops such as maize and *quinua*; (3) hot lowland products, such as coca, cotton, maize, peppers, peanuts, squash, *camotes*, and beans. Nonetheless, they had only small herds in the frigid *puna* or *jalka*, so the chupachus had to barter their surplus production in the temperate and hot zones for *jalka* products such as jerked beef and wool. They bartered goods with six different ethnic groups located from three to six days' walk at no scheduled dates and on an individual or small-group basis, that is, without the presence of merchants, customary marketplaces, or prearranged fairs. Our source does not allow us to discern what kind of relationships or mutual aid governed bartering between the chupachus and the other groups, but a study by Pierre Duviols indicates clearly that in the exchanges between agriculturalists and shepherds, within a dual context of rivalry and complementarity, certain mechanisms of reciprocity enter into play, thanks to which they give each other their gods and goods.

THE FORMATION OF THE COLONIAL AGRICULTURAL SYSTEM

I

The effect of the collapse of the indigenous population on methods of agricultural production has not been much studied. The curve of depopulation leads to the hypothesis of Ester Boserup on the plausibility of finding a regression in agricultural techniques, a return to more extensive systems of cultivation in historical situations in which a sharp fall in population density occurs. The premise of this argument is that intensive agriculture requires a larger and more continuous volume of labor per unit of output and is thus less attractive for satisfying human necessities. Considering the abundance of lands that the indigenous population began to possess after the conquest, and that made possible a Boserup-type regression, we should find a process of substitution with annual cropping and short-term fallowing being replaced by systems using long-term

fallowing and, as Borah and Cook suggested, a tendency to abandon marginal lands to concentrate cultivation on the best lands, thus raising per capita output. Without doubt, large portions of land of every quality were totally abandoned. From another perspective, all the known information indicates that the native population continued practicing "garden agriculture," with the requisite high and continuous investment of labor on small plots. If we relate the continuity of this form of cultivation to the decline in number of family members caused by the demographic collapse, we have to ask whether there might also have occurred a reduction in the size of the garden plots in tandem with the fall in the amount of energy available to household units.

Of course, indigenous irrigation works also fell victim to the demographic crisis. Along the long desert coast of Peru, the system of sunken fields, percolating galleries, and intervalley canals suffered a brutal collapse because the population nearly disappeared within two decades of the conquest, but there occurred in this area a resurgence of brilliant indigenous hydraulic engineering used by the Europeans for the cultivation of wheat, grapes, and sugar cane. The data show that the wetlands agriculture of the *chinampas* in the Valley of Mexico was severely affected by the demographic crisis and would have been even worse had it not been for the importance of this system of cultivation for supplying Mexico City. Terrace agriculture, which did not interest the Europeans, who were used to farming flatter lands, suffered a process of degradation that paralleled the demographic decline. In addition, we have the impression, above all for the Andean region, that the depopulation, which made collective work on maintaining dams, reservoirs, and canals more difficult, also caused a shift from irrigated fields to an agriculture that depended on rainfall.

Studies of indigenous attitudes toward European agricultural tools have focused exclusively on the example of the Roman plow, which implied the use of draft animals and sowing by scattering seeds by hand, but the analysis assumes the conclusion, correct in any case, that its adoption would take place slowly and mean the abandonment of the terraces constructed on steep slopes. Though the plow and excess lands, which the indigenous population possessed within fifty years of the conquest, raise a series of questions and hypotheses, here we point out only that the example of the plow distorts the record of indigenous reactions to European tools. The rapid and massive adoption of the axe and various kinds of machete and the use, though not everywhere, of metal points on the Mesoamerican digging stick (*coa*) and its Andean counterpart (*chaquitaclla*) show immediate understanding of the greater efficiency (time savings) of metallic over nonmetallic tools.

for agricultural tasks. In the selection of European plants, the widespread adoption of vegetables and fruits for garden plots contrasts with the limited diffusion of wheat, cane sugar (more in Mexico in areas such as Michoacán and the Huasteca region of San Luis Potosí than in Peru) destined for the production of alcoholic beverages for popular consumption, and grapes in the oases of the Peruvian coast.

The case of wheat merits special attention. Historians often point to mechanisms used by the Europeans to impede the supply of indigenous agricultural products to markets, but this observation seems valid only for grapes and sugar cane and for much later in the colonial era. During the first decades, in contrast, efforts were made to introduce wheat into the agricultural repertoire of the Indians with the intention, among various officials and priests, of converting them into the main producers of this grain for the European population. The failure to realize this aim at a time when the indigenous population was in possession of excess cultivable land may have been due to the Indians' reluctance to switch from maize to the European cereal.

In the new socioeconomic system that colonial domination imposed, there was an important long-term element of structural continuity from the indigenous world: the right of access to farm lands for each household belonging to an ethnic organization. Of course, the traditional principles of reciprocity continued to prevail between symmetric groups and within kin groups. As regards political institutions, during the first decades the ethnic chiefs still held, although with some ambiguity, their governmental and economic powers. The conquest only meant, in the short term, substituting a European king for the indigenous sovereigns, along with the "succession" of the new monarch to state lands and incomes. Taking into account that state revenues were granted as *encomiendas* to private parties who took part in the invasion, we can interpret continuity in Indian access to cultivable lands as preserving the principle of state "generosity" that underpinned the process of appropriation under the old order. The new European sovereign was obliged by papal bulls to provide the spiritual compensation of evangelization to his newly conquered subjects and this served as the chief precept that legitimated Spain's dominion.

II

The tribute or revenue from the *encomienda* was the only economic administrative institution that mediated between the indigenous rural world and the overall economic system. The tithe scarcely affected indigenous

agricultural production, and the *repartimiento de mercancías* (distribution of trade goods) of the *corregidores* cannot be considered in this category. For this reason we will single out some aspects of the *encomienda*'s evolution in the sixteenth century using the Andean and central Mexican areas as examples. In the first years, the size and composition of the *encomiendas* were the results of deals between the *encomenderos* and local chiefs, whereas the process of producing agricultural and artisan goods, textiles, and metals, as well as the labor drafts for European properties (personal service), continued to be governed by the same modalities that had generated the surpluses exacted by the previous indigenous state: the "fair" distribution of tribute obligations among and within the indigenous communities, the supervision of this work by their immediate chiefs, the forms of cooperation, work shifts, and so on. With some modifications, the old modalities for paying the tribute continued for a very long time.

Then, as the state managed to assume control of the size and composition of the tribute paid in the private *encomiendas* – roughly in 1532 in Mexico and 1550 in Peru – it initiated an energetic policy against the earlier deals between the *encomenderos* and the local chiefs by sharply reducing the amount of the tribute (the so-called *retasa* or rerating), canceling or moderating personal service obligations or rent in paid labor, and strengthening the trend toward substituting monetary payments for tribute in kind. This attack against *encomenderos'* interests provoked tense confrontations, led to a *retasa* that drastically reduced the surplus generated by the indigenous organizations to pay the tribute, and had a large impact on the formation of new agrarian structures, because the elimination of personal service and the shift to monetary payments broke the monopoly that the *encomenderos* had exerted over the indigenous labor force and thus "liberated" it for use by all European settlers. In the 1560s, the colonial state lined up against the prestige, power, and economic revenues of the ethnic chiefs: their jurisdiction was reduced even farther, all members of noble lineages were demoted to tribute payers (except the title holders and their heirs), and customary labor services owed to them by indigenous communities were reduced to a minimum. In Mexico this tough offensive went even further, as the *terrazgueros* attached to noble houses were converted into tribute payers of the king, and to ensure that they were not doubly taxed with obligations both to their old lords and to the Crown, they were given "vacant" lands of their own.

In the 1570s the colonial government gave definitive shape to the tribute. The differences between central Mexico and the Andes were telling. In

Mexico the tribute was set at rate of one silver peso and half a *fanega* (1.5 bushels) of maize per head. In the Andean area Viceroy Francisco de Toledo imposed a rate, mostly in silver, four to five times higher than in Mexico, with the aggravating factor that all highland communities located within 180 leagues from Potosí had to pay all or part of the tribute by supplying the mines with an annual contingent of workers equal to 12 to 17 percent of the male tributary population. This association between tribute and forced labor (*mita*) also favored other mining centers, such as the mercury mine of Huancavelica, and was extended to agricultural and cattle estates and textile workshops owned by Europeans. It is possible to extend this sample of differential tribute burdens by looking at other jurisdictions. In Yucatán, for example, the tribute was usually paid in coarse cotton cloth (*mantas*), a product in high demand in central Mexico even in pre-Columbian times. Summing up, the evolution of the *encomienda* shows the Spanish Crown's firm decision to prevent the development of seigneurial institutions like those still current in the metropolis and to curb the ambitions of the ethnic chiefs, whose status as "natural lords" led them to aspire to become something like what earls, counts, and *marqueses* were in Spain. We should also emphasize, because of the differences in the regional application of the same institutional paradigm, that in Mexico the *encomienda* tribute soon became in a secondary factor, whereas in the Andes, because of its magnitude and its link to the *mita* or forced labor service, the tribute was the main mechanism for stimulating the growth and reproduction of the new European economy. In the Andes, it is impossible to study the development, over the short or the long run, of the European agricultural sector and the whole economic system in the Andes without making constant reference to the cruel subjugation imposed on the native peasant population.

III

We now review trends in agricultural production during this first long period influenced by the unceasing fall of the indigenous population, beginning with subsistence production by the indigenous population and the transfer of surplus output as revenues to the *encomiendas*. In the indigenous sector, the scale of production is determined by the quantity of energy in the households available to meet their own consumption needs. Hence, the decline of the native population, which in the Andean and central Mexican areas reached 50 to 66 percent by 1550 and 90 percent by 1600–20, can

be taken as a reliable indicator of long-term decline in this sector. On the trends of the surplus production transferred to the *encomiendas*, we have already mentioned the significance of the process of monetization, which reduced the delivery of indigenous products to the *encomenderos*, and the *retasa*, which recalibrated tribute payments downward as the population fell.

Alongside this secular decline in indigenous subsistence production and surpluses, European agricultural, mining, and textile production experienced progressive "growth." Limiting our summary to the agricultural sector, we will first provide a panorama of the transfer of crops and livestock and the formation of markets, and then survey how the colonial state regulated land tenure rights.

Taken together, the regional chronicles provide good information on subjects such as the dates and names of the individuals who introduced imported plants and animals all over the colonies. As regards plants, in the initial receiving area in the Caribbean, the success of the sugar cane originally imported from the Canary Islands stands out, along with the adaptation of vegetables and fruit trees. On the other hand, the wet weather and the soil quality were not propitious for the diffusion of wheat and other cereals or grapes. In Mexico, apart from vegetables, the expansion of sugar cane and the excellent results of wheat cultivation were notable, but among the so-called inferior cereals, rye was almost nonexistent and barley, used only as fodder, had only limited development because of competition from other fodder crops like maize and alfalfa; vineyards and olive fields were also marginal. In the Andes and in the contemporary territories of Chile, Argentina, and Paraguay, wheat cultivation and (except in Chile) sugar cane had a solid development; it is likely that barley, which adapted to altitudes as high as 3,000 meters, was more extensively cultivated than in Mexico. A singular trait of this vast space was the diffusion of the olive and, especially, the grapevine. Vineyards appeared in the oasis valleys of Ica, Pisco, Nazca, Vitor, and Sigua on the desert stretch of the Peruvian coast; in the northern and central valleys of Chile, and in the Cuyo region in Argentina. Of course, the expansion of wheat, sugar cane, and vineyards was conditioned by the growth of the European population and the acceptance of these products among mestizos and Indians. Vineyards and sugar plantations, which were also the basis of distilled beverages, experienced faster growth than wheat.

In contrast to the diffusion of crops, which was limited by their use as foodstuffs, the multiplication of European livestock, both large (cattle,

horses, donkeys, mules) and small (sheep, goats, pigs), was stimulated by the diverse roles they played as suppliers of basic foodstuffs for the entire population; sources of crucial raw materials such as wool, hides, and milk, as well as grease and tallow needed for lighting, cooking, and soap manufacturing; and draft animals for agricultural work, mining, manufacturing, and transportation. In Peru, native animals continued to provide transportation for freight during the first decades, but in Mexico and other parts of the continent, European animals replaced the work of thousands and even millions of indigenous human porters, thus "saving" human energy. The prodigious multiplication of European livestock was also aided by other favorable factors such as their low labor force requirements, the availability of large portions of land almost unpopulated before the conquest, and the new lands made vacant by the indigenous demographic crisis.

In Mexico, cattle began to arrive from the reception and adaptation center that was the Caribbean in exchange for Indians enslaved during the wars of conquest, whereas sheep were delivered directly from Castile. Livestock expansion received an additional boost from Antonio de Mendoza, viceroy from 1535 to 1550, who was himself a rancher and introduced the merino sheep. Flocks of sheep were concentrated in the central region and the areas adjacent to the bishopric of Puebla. The protests of the Indians in the 1550s against the tidal wave of sheep that took over lands, destroyed crops, and competed for water recalls the classic image of sixteenth- and seventeenth-century England: "sheep eat up men." Soon thereafter, with the discovery of silver deposits in Zacatecas (discovered in 1548), Guanajuato, and elsewhere, military efforts to secure the colony's frontier involving both private interests and the state, livestock began to move toward the great open spaces to the north, which were populated mainly by hunters and gatherers – "totally barbarian" according to the Jesuit father José de Acosta.

The stages of this spatial reorganization of the livestock sector, paced by the faster reproduction rates fostered by the virgin prairies, were movement into the Querétaro area and other frontier zones of the Mezquital Valley, followed immediately by a much vaster expansion toward the north and northeast that reached Guadalajara and Nueva Galicia, as well as secondary movement into the Huasteca area. By the end of the seventeenth century, livestock herds had reached the plains of the northeast and the Nuevo Reino de León. Leslie B. Simpson furnished the only quantitative

estimates, certainly hypothetical but still relatively reliable, of the prodigious multiplication of European livestock: cattle grew from 100,000 head in 1560 to 400,000 in 1580 and 1 million in 1610–20; sheep and goats shot up from 1.1 to 2.0 million head in 1560–70 to 8 million by 1620. The enormous numerical and territorial expansion of herds was regulated by two forms of access to grazing lands. On the one hand, private property advanced slowly with the foundation of *estancias* (large landed properties used exclusively for stock raising); the extreme of this form is represented by the immense domains of the north. On the other hand, there were the short local movements of herds, mid-distance regional movements, and, particularly, long-distance migrations of sheep herds known as the *Gran Transhumancia*, which was based on the customary norms of free access to pasture animals on unfenced lands, on cultivated lands after the harvest, and on designated summer pasturelands, and those of the guild organization called the Mesta.

We still lack any kind of general quantification that would let us compare the expansion of herds in the Andes with the Mexican case. Yet, frequently, documents provide fragmentary information that point to a high rate of reproduction of sheep all over the highlands, from Quito (nowadays Ecuador) to Charcas (Bolivia); and, to a lesser extent, of goats (well regarded commercially for their meat, tallow, and hardened leather) and cattle herds. We think it is relevant to highlight here, as we did in the discussion on Mexico, the effects of market integration that provoked the expansion of European herds in peripheral areas. For instance, in central Chile the manufacture of tallow for the Lima urban market was so widespread in the seventeenth century that a remarkable nineteenth-century writer, Benjamín Vicuña Mackenna, named it “the century of the tallow” to highlight the dominant function of tallow in shaping the “external sector” of this regional economy. A similar process occurred in another peripheral space at the same time. In the sixteenth century, native herds still provided most of the transportation for trade goods in the Andes, but in the next century they were gradually replaced by mules. The *estancias* involved in the breeding of this hybrid animal first spread over Pasto, Piura, Huanuco, Arequipa, and Chile; but between 1600 and 1620, a vast part of the contemporary Argentina (Córdoba, Buenos Aires, and the Littoral region) was becoming the main breeding area for mules bound to the markets in Bolivia and Peru. In the same region there occurred, without any human intervention, an extraordinary multiplication of cattle herds, which led to periodic mass

slaughter of the animals for tallow and hides and sustained a solid export trade of cattle on the hoof to Alto Peru, Paraguay, and Chile.

Finally, we will discuss the reception of European livestock by the indigenous population. The Indians were forbidden by law to use horses and they demonstrated indifference toward cattle, but raising pigs soon became a ubiquitous feature of their household economies and they were quick to develop a favorable attitude toward the adoption of sheep and goats. By the end of the sixteenth century, the indigenous communities of Mexico, with no previous experience in animal husbandry, had come to own huge flocks of sheep (according to Leslie B. Simpson, 418,000 in Tlaxcala-Puebla, 360,000 in Zimatlán-Jilotepec, and 230,000 in the Huasteca), so we can reasonably imagine that the Andean native communities were not far behind.

IV

To the scheme we have put forward so far, which contrasts the secular decline of native population and production with the secular rise of the European productive sector, we need to add the emergence, at the same time, of price-making markets and money as a means of payment. Although, in theory, this was the most important development, we will limit our review to a few cases and refer to the more general implications for the agrarian system. The first example is from the great ancient market of the city of Tenochtitlan. The continuous decline in population and in indigenous food supplies was somewhat balanced by the inflow of other goods such as wheat, meat, tallow, sugar cane, and alcoholic beverages. Even maize found a voracious consumer in the European animals used for riding and hauling.

The new structure of urban demand included the gradual emergence of European enterprises (stock-raising *estancias*, wheat fields in Chalco, Toluca, and the nearer areas of the Bajío, and sugar cane agroindustries in Cuernavaca and Izúcar) as a modified continuation of older elements. For instance, the maize tribute that the Triple Alliance got from Chalco, Xochimilco, and other areas, which was then "redistributed," became an *encomienda* payment in kind that could be turned into "merchandise" with a certain monetary value in the market. A deeper change took place in long-distance trade: in the Maya region of Yucatán, the *encomienda* tribute was fixed in cotton cloth (*mantas*), which were bought by European dealers, who brought them by sea to Vera Cruz and thence to markets in central Mexico.

This commercial traffic developed so fast that, in the 1560s, it was cited in the proposals sent to the Council of the Indies to create an excise tax (*alcabala*) as a paradigm of the new mercantile economy that was developing under colonial rule and the resulting creation of new sources of fiscal revenue. In addition, silver mining in the Mexican north contributed to the security of ranching expansion and promoted in this region, almost unpopulated a few years before, the foundation of a series of agricultural settlements whose location and size depended on the demand of the mining centers to which they were connected. In this sense, Mexican historiography has been fully aware of how the Zacatecas–Guanajuato axis was transforming the Bajío region into the largest “granary” of all New Spain. However, it will never be pointless to insist on important details, such as the sizable demand for hides, tallow, fuel, beverages, and the fodder for the mules that powered this industrial sector, as well as the many trade flows that linked the mining sector with agriculture and cattle raising, which were the main component in the internal circulation of silver as it made its way to the exterior.

Two examples of market creation in the Andean space provide additional details on the development of the new colonial economy. We have already shown the achievements of indigenous agriculture along the desert coast of Peru and its collapse as the population practically disappeared during the first decades after the conquest. Once Lima was established as the political, commercial, and ecclesiastical center of the Peruvian viceroyalty, the demographic growth of the city and of its great urban market between 1550 to 1600 stimulated the conversion of this desolate sandy landscape into a vibrant economic zone. Enclaves of commercial agriculture appeared in the valleys of the south (vineyards), the center (wheat, maize, some sugar cane), and the north (sugar cane), not only to supply Lima and the coastal region itself, but also to reach over land to the distant market of Potosí (wine, *aguardiente*) and by sea to Chile (sugar) and Panama (flour). The growth of commercial agriculture on the Peruvian coast turns out to be even more interesting when one notices the integration of various factors: European plants, the brilliant indigenous hydraulic engineering developed over previous centuries, and the use of African slaves to replace the native population. The last trait makes the agricultural development of the Peruvian coast, which was oriented entirely to the internal market, look similar to the tropical export production located on the Caribbean islands and the Atlantic coast.

Beyond any doubt, the immense silver production of Potosí in the second half of the sixteenth century represented the most important and

unprecedented event in the world economy of that era, because of both the transformations it unleashed in the Andean region and its powerful international implications. We will point out only two of the many internal effects of the development of the mining-based market that arose at an elevation of more than 4,000 meters above sea level and that consisted almost entirely of indigenous people. The first of them was the configuration of the Cochabamba valley as the main "granary" of the Andes in colonial times. In contrast with the Mexican granary of the Bajío, which was formed in an almost unpopulated and unproductive space, Cochabamba was the most important maize-producing area of the Inca state. However, the continuity with the pre-conquest era was stripped of its original character: under a private property regime, the valley began to be occupied by European agricultural enterprises that added wheat to the traditional maize growing and converted the production of both cereals into a highly commercialized sector by exporting the output to Potosí in exchange for silver.

Another effect of this large mining market is of significant theoretical interest; our comments on it are valid for all of the other colonial areas as well. During the 1550s and 1560s, the indigenous communities of the highland plateau and mountain regions paid their *encomienda* tribute partly in silver – which they obtained by "controlling" the extraction and smelting of the Potosí metals – and partly in products such as coca, maize, tubers, *chuño*, and textiles that were delivered to Potosí, where they represented the bulk of all trade in that market (65% according to a 1567 estimate by the *oidor* [magistrate] Juan de Matienzo). For this reason, the *encomienda* rent was in practice regarded as a money rent subject to up and downs. Although part of the tribute that had to be paid in silver was a fixed amount, the other part was calculated taking into account the price movements of the Potosí market. This is a case of a "price-forming" market, but as the use of this category may be controversial, we simply emphasize certain of its characteristics.

In the ethnic environment, the production of goods to pay tribute, which would become the "supply" in the Potosí market, stuck to the old organizational principles in which land and labor were not evaluated as commercial "costs." The transfer of surplus to the *encomendero* was "legitimated" by "rights" obtained through military victory or the deals negotiated in exchange peaceful submission. The multitude of indigenous consumers in the Potosí market consisted of a group of specialists who settled in the city and of the seasonal inflow of peasant laborers coming in *mita* contingents.

Both groups had access to silver or merchandise for sale. Assuming that in the exchange of tribute products for silver the latter functioned as the measure of value, we cannot yet offer a rigorous explanation of how silver equivalences were established. So far, our empirical observation points to the importance of the fluctuations in silver yields obtained from the leaden ores smelted using indigenous technology (the *huayra*) and to the customary equivalences established in exchanges during pre-European times, perhaps determined by the relative “prestige” of the merchandise – coca belonged to a highest rank, maize was preferred over *chuño* and tubers, and so on. In any case, the data we have on the movements of prices show that these were created by negotiations in the market. The example of coca, for which there is copious data because it was so dominant in the market in Potosí, and which therefore strongly influenced the monetization of the tribute paid in kind to the *encomiendas*, shows the actual functioning of a supply-and-demand price-making mechanism. The monetary value of coca trended downward because of increased supply due the expansion of indigenous and European production through channels other than the *encomienda* tribute. This downward trend intensified in the last years of the 1560s as demand in Potosí fell with the decline in the number of consumers due to the crisis that struck the mining industry when the silver yields obtained from the *huayra* smelting method declined.

V

To complete the picture of the decline of indigenous population and production and the process of transfer and growth of the European agrarian sector, we will review the land tenure regime imposed by colonial rule. The papal bulls of 1493 provided the Spanish kings with absolute power over the people and resources of the New World with the sole requirement of evangelization. Nonetheless, two decades later Cardinal Cayetano, a member of the influential Dominican order, expressed within the church the opinion that these concessions should be limited. He argued that since the Indians belonged to a class of infidels who had never been subject to a Christian prince or known the name of Christ, there could not exist a just cause for war to subjugate them and deprive them of their lands. This position was adopted by the Pope in 1537 in three papal documents that censured not only slavery but also the seizure of the Indians lands and properties.

More important for its concrete consequences was the controversy that erupted in Spain itself over the Crown's policy toward the Indies. The debate began in 1512 in the so-called Junta de Burgos. One of the Junta's conclusions, as is shown in the treatise *De las Islas del Mar Océano* (On the Islands of the Ocean Sea) by Dr. Palacios Rubios, was the acceptance of Cardinal Cayetano's positions about the right of Indians to their lands and properties. The dispute gained importance after the conquest of Mexico in 1521. In the decade that followed, under Emperor Charles V, the main governing principles of Spain's Indian policy were laid down more clearly. The papal command to propagate the Christian faith continued to be crucial. On temporal matters, the basic orientation was to impede the establishment of a seigneurial regime in the New World. The *encomienda* system had to be eliminated and instead the Crown would only compensate conquerors and first settlers for their services with economic and honorific rewards. As regards royal power, it was again clearly stated that jurisdiction belonged entirely to the king, although the status that should be conceded to the ethnic chiefdoms was not definitively resolved, nor was it clear whether the laws had to be the same as in Spain's European kingdoms. Finally, on the specific question of land tenure, it was decided to reaffirm the doctrine formulated by the Junta de Burgos that acknowledged the Indians' dominion over their lands, as well as the *ius gentium*, the right of the monarch to take property according to the laws of war, and the *ius eminens*, the sovereign's right to claim ownership of lands considered vacant.

These principles guided the Crown's land policy through most of the sixteenth century. The principles had to be applied with flexibility in the face of varying economic conditions, pressure from colonist groups, the intensity of indigenous complaints, the interests or ideas of the authorities, the peculiarities of each region, and so on. During the conquest and initial settlement, the Crown imposed certain general limits and conditions, but delegated land distribution powers to private parties and town councils (*cabildos*). After this initial stage, which the Crown itself brought to an end, the state took charge of allocating land, juridically through the Council of the Indies in Spain and directly via the top governmental organs in the colonies, that is, the viceroys and *Audiencias* (judicial councils). The juridical form that the state used to allocate lands was the *merced* (a grant or favor), whose name conveyed that the grant was a gift of royal property (*bien realengo*). The measurement of the lots granted was

standardized according to their use (cultivation or ranching). The *caballería* and its fraction the *suerte* consisted of 42.8 and 10.7 hectares (105.43 and 26.17 acres), respectively, whereas the ranching lots for large and small livestock (*sitio de ganado mayor* and *menor*) comprised areas of 780.3 and 1755.6 hectares (1926.64 and 4333.75 acres), respectively. In all cases, the grant included a provision that required the land to be put to use shortly after the grantee took possession (usually within a year) and forbade the sale of the granted land for a period of time. These clauses made the New World *merced* resemble the terms of the *presura* (the donation of vacant lands by the king) and the accompanying *escalio* (settlement and use requirements) used during the Iberian reconquest and repopulation.

The *mercedes* constituted, until 1591, the only mechanism that the colonial state employed to shape an agrarian territory filled with privately owned European agricultural enterprises. The *merced* was a very useful tool for this purpose because it allowed the state to regulate the expansion of the European sector according to its needs and designs. This functionality makes the *mercedes* documents an essential source for studying the development of the new rural property system. Neglected or little used in Peru and elsewhere, this body of evidence in Mexico became the basis for careful quantitative research, such as Lesley Simpson's work some decades ago and more recently that of Hanns Prem and Hildeberto Martínez, the former of a more general kind, and the latter concentrated on Alto Atoyac and the ethnic chiefdoms of Tecamachalco and Quecholac, in Puebla. Broadening the analysis, we will point to other elements and special conditions. For example, the *ius gentium* gave the European monarch the right to inherit not only the revenues, but also the lands belonging to the state and the native sovereigns. In Mexico, in a gesture aimed at helping to consolidate his military "alliance" with indigenous organizations, the conqueror Hernán Cortés gave back to the local chiefdoms the lands and peoples taken from them by the Triple Alliance. In the Andean space, in contrast, the so-called lands of the Sun and the Inca, so favorable for the cultivation of coca or maize, were a particular target of the Europeans' greed, and, even more interestingly, the cause of most of the land conflicts that arose between the ethnic groups after the conquest.

In a noteworthy article published in 1943, Silvio Zavala showed that the *mercedes* or grants of *encomiendas* over Indian subjects and the *mercedes* of titles to land constituted separate kinds of juridical acts and grants of very different things. He thus dispelled one of the gravest historiographical

errors; up to that moment, historians of the Spanish colonies had thought that the large private estates or *latifundios* derived directly from the *encomienda*. In many areas, as more recent studies highlight, the *encomenderos* developed a broad array of procedures for obtaining plots of land from the indigenous communities over which they had jurisdiction. The negative effect of the *encomienda* system on the landholdings of the Indian villages is also demonstrated in our research on the Andes, which showed that the fragmentation of ethnic organizations when they were divided among two or more *encomiendas* caused those of the highlands to lose their ancient access to temperate and hot levels, where they cultivated maize and coca.

Perhaps more relevant in the colonial reshaping of agrarian territory were the conditions created by the policy of relocation and concentration of the indigenous population known as “congregation” in Mexico and “reduction” in Peru. In central Mexico, by the late 1550s and early 1560s, there was a partial movement of villages directed by members of religious orders who, it seems, got some sort of consent from the indigenous leaders to carry them out. In contrast to this “negotiated” displacement, the autocratic government of Viceroy Toledo in Peru executed a forced general “reduction” in just three years (1572–4) using extremely violent methods against the native population to break their opposition. Despite the differences in the two cases, the rules governing the transplanting of populations stipulated that the communities would retain their property rights over the places that, now left unoccupied, could be considered “vacant.” Also, in both cases, the authorities soon began to parcel out pieces of these lands under the pretext that they remained uncultivated and therefore were of no use to the Indians. However, according to our hypotheses, this new cycle of land grants only reached a particularly high intensity in its district of the Charcas *Audiencia* during the 1580s as a consequence of the reforms introduced by Viceroy Toledo. The reforms affected the exploitation of the Potosí mines (mercury amalgamation, *mita*, higher monetization of the *encomienda* duty) in ways that altered the nature of supply and demand in that mining market.

The main argument presented by the state to justify the massive movements of native people was always that the unification of five, twenty, sixty, or even more hamlets into one, two, or three large villages would facilitate evangelization and the adoption of European principles of public order. Yet it is important to take note of the demands of the conquistadors and settlers who sought to change the dispersed settlement pattern of the Indians,

which allowed them to claim “rights” over the totality of their territories, into a more concentrated pattern of population and cultivation that would “liberate” lands to accelerate the expansion of the European.

This request, which became more frequent beginning in the 1550s, did not change the Crown’s prudent policy of granting *mercedes* that permitted a slow expansion of the lands held by Europeans, but a new model of the kind of agrarian structure that ought to be developed was emerging. It was linked to the financial benefits that the royal treasury might obtain with a change in land tenure policy. This duality in the Crown’s position emerges in its most important decrees issued on the problem we are dealing with. For example, a 1568 decree sent to the Mexican *Audiencia*, reasoning that the congregation of the still scattered Indian population would leave many lands unoccupied where new towns for Spaniards and mestizos could be founded, put a council formed by Indian chiefs (*caciques*) and members of the Franciscan, Dominican, and Augustinian orders in charge of the elaboration of a new official position. The Council of the Indies knew very well that councils with this kind of composition would reject a new approach completely or offer only minimal concessions to the interest of the European settlers.

Another decree of 1568 is very significant in terms of judicial doctrine because it stated that vacant lands that had not been yet granted as *mercedes* “are in our charge and belong to ourselves, and hence we can dispose them as we better think and please.” However, the decree failed to order anything specific and just asked for updated information on land-related issues. Another decree from 1581, although it too was reduced to a request for information, touched on topics that show how the “moral scruples” of Philip II and the Council of the Indies about land rights were being subordinated to the idea of a huge monetary transaction that could help to attenuate the grave financial crisis of the royal treasury. In effect, the Crown wanted to know how much money it would get from the sales of “vacant lands” (and whether it would provoke any inconvenience or scandal) and from the royal confirmation of full property rights to the lands already granted in the *mercedes* issued by the colonial authorities.

After the Council of the Indies examined this question several times during the 1580s, four royal decrees issued in 1591 gave shape to these trends. They defined the new land policy and justified it by citing the necessity of finding extraordinary revenues to cover the huge military costs required for the defense of Christianity. In sum, Philip II argued that the native rulers had possessed direct dominion over the land and in consequence,

by reason of the right of seigneurial succession, “the vacant lands and soils belong to our patrimony and royal crown.” He ordered that the area needed by the Indian villages for cultivation and stockraising be measured so that “all the rest of the land remain free and unencumbered to be granted and disposed of according to our will.” He also decreed that the European colonists proceed by means of a money payment to the *composición* (titling) of lands they had received through *mercedes* as well as those they had occupied illegally. Though Philip II threatened the immediate execution of these measures, their implementation and the financial results they yielded varied across the colonies. In Peru, the results essentially confirmed the allocation that Viceroy Toledo had made two decades earlier to the indigenous when he carried out his general reduction (concentrated resettlements). In 1593–4, there was a massive *composición* of lands granted to Europeans via *mercedes* as well as those occupied illegally and a rapid auctioning off of all the rest as “vacant.” This rapid and effective operation brought the royal treasury an immediate and very large scale influx of cash revenues.

In Mexico, where the Indian population first had to be resettled, the implementation of the 1591 decrees was delayed because of opposition from the religious orders, which charged that the resettlement meant despoiling the Indians of their rights to lands that they were being forced to abandon. The orders also presented alternative plans for a new pattern for settling the indigenous peasants, which without doubt would have been more appropriate and favorable than those proposed by the government. Despite this obstruction, the resettlements were able to be completed during the first decade of the seventeenth century, with a heavy movement during the years 1603–4. On the other hand, during this process of resettlement the lands that the Indian villages were forced to abandon were not, in contrast to Peru, simultaneously auctioned off as “vacant” lands or made available to the European for titling. Nevertheless, a large increase in the territory occupied by European properties did occur in Mexico between 1590 and 1620 as a result of an increase in the number of *mercedes* issued by the government and to a lesser extent an increase in the sale of “patrimonial” lands by Indian noble families that had begun years earlier. It was only in the 1630s and 1640s, when the Crown again ordered the *composición* of European property, that it obtained some modest cash benefit comparable to what it had obtained years earlier in Peru. In both Mexico and Peru, despite this difference in revenues for the royal treasury, the radical transfer of lands to the European sector imposed by the decrees of 1591 caused a new expansion of cultivation. Using tithe records, we should be able in

the future to document the intensity and duration of this decisive cycle of increase in the European agrarian sector.

VI

This synthesis, which has shown how the Crown accepted the continuity of the Indian peasant community while simultaneously reducing its territorial reach and stimulating the more rapid expansion of European rural property holding, represents the crystallization of the land tenure and agrarian production systems that reigned until long after the crisis and collapse of colonial rule. The understanding of these structures has suffered and still suffers from many prejudices and errors owing to their essentially colonial character, which involved the subordination of all strata of the indigenous population. Historical analysis should try to reflect the fact accurately.

We know very little about the extent and quality of the cultivable lands allocated to the Indian villages, whether the indigenous territory continued to diminish over the long run, and whether there were modifications in the tradition of intensive agriculture that involved high and continuous investments in small plots. The prevalent idea, based on cases of village protests, is that these lands were generally the poorest. Nonetheless, here it is proposed that the conception of a "generous" state in terms of the quality of the lands allocated to the villages for cultivation could be much more accurate than commonly assumed. It appears to us, therefore, that the critical question is not the type but the size of these lands. The land was usually allocated to the villages by multiplying the average lot (*parcela*) size by the number of domestic units congregated in each village, but these allocation were made when the Indian population had reached its nadir. In consequence, the original allocation of land soon turned out to be insufficient and the source of both internal and external tensions and conflicts when the negative slope of the demographic curve reversed and became positive in the second half of the seventeenth century. Variations in the size of the original allocations are well documented, above all in central Mexico, as are the purchase of rural properties by the communities and the creation of villages, within the boundaries of *haciendas*, which petitioned for land and official recognition when the permanent population of Indian laborers reached a certain number of families. But without doubt the dominant trend was toward the reduction of the indigenous sector.

The historiography emphasizes a presumed strategy by the European sector of minimizing Indian access to land and water as the primordial

or unique cause of this reduction. However, the data, especially from the seventeenth century, suggest that perhaps the most important cause was the petitions of the villages themselves seeking to alienate parts of their territory in order to pay tribute. In the Andes as well, the greatest decline in Indian territory occurred in a short period during the 1640s and was promoted by the Crown itself trying to compensate for a severe crisis in tribute collections by selling a portion of the lands it had previously allocated to the Indian population. The size of the territory allocated to the indigenous population not only mattered in relation to access to land, but was also extremely significant in relation to the management of Indian peasant labor. It is very important also to distinguish between the relatively benevolent regime established in Mexico and the extremely violent one imposed in Peru. This can be seen in the low versus high tribute rates and in the limited versus generalized system of coerced labor for the European productive sector. The higher coefficient of exploitation imposed in the Andes seriously damaged the functioning of the peasant economy, but also provoked a massive flight from the villages and led to the creation of a new stratum of the Indian population (called *forasteros*), which profoundly contradicted and distorted the norms of socioterritorial organization that the government had established.

Indian peasant territoriality represented, in the colonial economic system, the modality of subsistence production, but this quality did not assume absolute self-sufficiency in the production of necessities in the domestic units. The relative equivalence between family consumption and production, which presupposed the obligation, to one degree or another, to exchange products with the outside world, has only recently been considered. This new analysis, which we can generically call “the indigenous participation in markets,” allows us to understand better the economic function and meaning of the network of small popular markets that we call *tiangiz*, where the simple exchange of agricultural and artisan goods at short or medium distance predominated. It also helps us understand the Indian supply of goods to spatially much larger Indian markets (coca, drinks such as *pulque* and *chichi*, molasses, and so on), to multiracial markets (here the supply of fuels, salt, and garden products stands out), and even to international markets (cochineal), as well as indigenous participation in the transportation of merchandise. With respect to the Indian peasant demand for goods, a portion of this demand was supplied by state functionaries who controlled the apparatus of the “forced distribution of merchandise” (*repartimiento de mercancías*) by the *corregidores*. This has been studied more than

other forms of demand because it generated a voluminous documentation that includes statistical data, especially for the second half of the eighteenth century. For this reason, research has centered on this half century and has not focused much on the long period that preceded it. Even so, there is a need for deeper analysis of the Indian forms of payment in this supposedly coerced commerce.

Together with the recognition and deeper study of Indian peasant territoriality, it is worth taking a new look, in closer touch with the facts, at the European agrarian system that was transferred to the colonies. Up to a few decades ago, this sector was conceived of as composed of vast territorial domains that enclosed almost all of the indigenous population within structures that responded only to motives of status – prestige and power – among the conquering colonizers. Rethinking this image must include both the forms of land tenure and the technology and economic logic that directed the process of production. Thus, the existence of immense cattle *haciendas*, like those of the Mexican north, ought to be contrasted with the more moderate-sized patterns that were the rule in more densely populated regions of greater economic importance. On the cultivation process, we can suppose that there was a transfer of all the tools used in the Iberian peninsula and that here, as in Europe, we would find the same diversity of opinion about the use of oxen, horses, or mules for pulling the plow. Because of the lack of specific studies, it is difficult to evaluate with more certainty the complex problem of systems of cultivation.

For the case of central Mexico, the available information suggests that in the sixteenth and seventeenth centuries, the predominant system in unirrigated wheat was double alternation, which consisted of sowing half of the land each year and leaving the other half fallow, but we still do not know how maize, rye, and legumes such as beans (*frijoles*) were cultivated on the European units. In any case, it appears certain that the returns were extremely high in comparison to those in Europe. For example, returning to the case of the cultivation of unirrigated wheat during the sixteenth and seventeenth centuries in central Mexico, the average yield (ratio of seed to harvest) came to between 1:15 and 1:20, whereas in Castille with the same system of double alternation the average yield was 1:5, which suggests a yield of perhaps 1:8 to 1:10 in the best fields. The superior fertility of colonial agriculture was due, in our opinion, to the intensive use of fertilizer made possible by the abundant livestock that each European property possessed. Another remarkable aspect of colonial agriculture was

the transfer of European techniques of irrigation – in certain cases in combination with pre-Colombian indigenous techniques. Together with sugar cane and vineyards, which constituted the outstanding examples of irrigated lands, we should also observe its application in the case of wheat. In Mexico, researchers have emphasized that irrigation permitted sowing in the autumn and harvesting in summer by reducing the effects of the dry season in winter and spring. Irrigation also made possible annual harvest without resort to fallow, converting the Bajío region, which had been depopulated in ancient times, into the main granary of the colony. And, of course, the progressive advance of European irrigated lands made control of water the main factor in conflicts with the Indian peasant population. The incorporation in the European territory of native plants with strong market demand is also worth noting. In some cases, these products competed with Indian products and did not reach large dimensions (coca, chiles), but in others (cacao, tobacco), the European sector absorbed nearly all of the output. The integration of maize merits special mention. In Mexico, for example, favored by the allocation of land and the use of the plow, the European agricultural system had already begun to control the supply of maize to the cities and mining centers by the first decades of the seventeenth century. It is also worth emphasizing, because of its function and dimensions, that a high proportion of this maize production was distributed in the form of “salaries” paid to the indigenous population that resided permanently on the European properties (*gañan* or debt peon) and to the labor gangs of *tlaquehuales* that offered their labor during periods of peak demand (sowing, harvesting).

The scheme we have presented has concentrated on Mexico and the Andes. It shows that the structuring of the agrarian system occurred during the sixteenth and first half of the seventeenth centuries and combined the continuity of indigenous territoriality primordially directed at subsistence with the promotion of the growth of European property producing overwhelmingly for the domestic market. These cases, in addition to suggesting an “efficient” configuration of agrarian production in economic terms, also offer an image opposed to the simplified agroexport model that is constantly repeated in the conventional historiography. We will consider, therefore, this last element, understanding the “export sector” as referring to production for the long-distance oceanic trade to Europe. Again taking up the Mexican and Andean cases, the only agrarian production that was consistently exported was cochineal, exclusively produced in Mexico. From 1578

to 1598, for example, more than 200,000 arrobas⁷ of this dye were exported from Vera Cruz to Seville, with a value equal to 20 percent of all the silver and gold sent from New Spain during the same period. Paradoxically, the production of cochineal took place exclusively in Indian peasant areas. The potential export capacity of both sectors in products such as tobacco, cacao, hides, and wool was limited by the structure of demand for international goods in Europe in the sixteenth and seventeenth centuries. The supply of tobacco was monopolized after 1612 by the English colony of Virginia. Cacao at this time was solely used for medicinal purposes in Europe. The demand for hides was covered by intra-European trade, whereas the export of wool, which the sheep raisers in 1580 intended to attempt, was vetoed by the metropolis to prevent damage to its own production. That leaves sugar. In New Spain and the Andes, as we have already pointed out, production rose rapidly, but it was completely directed to internal consumption. The sugar cane plantations, in consequence, only produced for export in the area of the Antilles (especially Cuba) and Brazil.

⁷ The Spanish colonial arroba weighed about 11.5 kilograms (roughly 25 pounds). [Trans.]

9

THE MINING INDUSTRY

ENRIQUE TANDETER

TRANSLATED BY JOHN COURIEL AND ROBERT KARL

The desire of Latin America's European colonists to amass reserves of precious metals, and later to discover and exploit mineral resources, played a significant and historically well-studied role in the conquest and colonization of Latin America. But until recent decades, economic historians of the colonial period focused particularly upon the impacts of Latin America's mineral wealth on the economies of Europe – on price inflation in the sixteenth century, for example.¹ Along with this approach came a heuristic bias toward European primary sources, such as customs records from the ports of Spain and Portugal. Heavy reliance on these sources resulted in a methodological error, namely the conclusion that trends in Latin American mining could reliably be deduced from trends in European precious metal receipts.² Only since the 1960s and 1970s have scholars shifted away from the traditional emphasis on the traffic of minerals to Europe and toward an analysis of mining's significant role in the economic development of colonial Latin America.³

Because of its importance in the colonial economies and in the maintenance of imperial finances, the mining sector was always the object of much political attention. This attention translated into numerous direct

¹ The paradigmatic work is Earl J. Hamilton, *American Treasure and the Price Revolution in Spain, 1501–1650* (Cambridge, MA, 1934).

² Huguette and Pierre Chaunu, *Seville et l'Atlantique, 1504–1650*, 8 vols. (Paris, 1955–9).

³ Carlos Sempat Assadourian, "La producción de la mercancía dinero en la formación del mercado interno colonial. El caso del espacio peruano, siglo XVI," in Enrique Florescano, ed., *Ensayos sobre el desarrollo económico en México y América Latina: 1500–1975* (Mexico, 1979), 223–92; James Lockhart, "Trunk Lines and Feeder Lines: The Spanish Reaction to American Resources," in Kenneth J. Andrien and Rolena Adorno, eds., *Transatlantic Encounters: Europeans and Andeans in the Sixteenth Century* (Berkeley, CA, 1991), 90–120.

state interventions in favor of the mining sector, including generous allotments of manpower, credit on favorable terms, and generous tax treatment. However, a comparative approach reveals that these policies were seldom the result of global imperial planning, but more often were the result of particular decisions for the different viceroyalties or regions. This chapter undertakes a comparative analysis of the characteristics of silver mining during the colonial period in the two great productive zones of Latin America, Mexico and the Andes.

Early shipments of precious metals to Europe consisted largely of gold, owing to a period of appropriation of the stored mineral wealth of indigenous groups in the Caribbean and Mexico. Gold deposits to the southwest of the Mexican capital were first mined in 1522. During the next decade, silver deposits were discovered throughout the region to the south of Mexico City in Zumpango del Rio (1530), Sultepec (1531), and Taxco (1532). These last two mines attracted the interest of numerous conquistadors because of their proximity to the city, which mining equipment and imported Spanish luxury goods could come from, and because they could anchor productive agricultural and ranching communities.

The indigenous population provided manpower for the silver mines by way of two distinct institutional arrangements, slavery and *encomienda*. It is probable that much of the slave labor was transferred from the gold mines. Some slaves had been taken in the wars of conquest, whereas others had been bought from *caciques* or other Spaniards. The important mines at Taxco and Sultepec eventually employed 100 to 150 slaves. Because slaves represented the most significant capital investment of mine owners, they were apparently well treated, fed, and clothed.⁴

The other institutional arrangement, grants of indigenous groups as *encomiendas* to individual conquistadors in recompense for participation in the initial stages of the conquest, facilitated diverse modes of tapping into indigenous manpower. As early as the 1530s, the Taxco mine relied on compulsory labor from a wide geographic area. As part of their tributary obligations to their *encomenderos*, many indigenous people worked thirty-day shifts, during which time they had to supply their own sustenance. Others were rented by their *encomenderos* to other miners who did not have their own *encomienda* laborers. These arrangements typically lasted a

⁴ Robert C. West, "Early Silver Mining in New Spain, 1531–1551," in Alan K. Craig and Robert C. West, eds., *In Quest of Mineral Wealth: Aboriginal and Colonial Mining and Metallurgy in Spanish America* (Baton Rouge, LA, 1995), 119–35.

couple of weeks. *Encomienda* laborers generally lacked training and therefore performed supplementary tasks such as hauling food and firewood to make charcoal.⁵

During the 1550s, intervention by the Spanish Crown worked a double change in the mining industry. On the one hand, despite the Crown's early distaste for slavery, it was not until midcentury that it effectively prohibited it. On the other, royal authorities began to enforce an interdict against the use of *encomienda* labor for personal services. That prohibition was part of the New Laws of 1542, whose enforcement in New Spain was later suspended. The prohibition was reasserted in 1549 and thereafter remained officially in force. Despite the prohibition, mining centers in the center and south of New Spain continued to rely on forced indigenous labor. In the second half of the sixteenth century, they turned to a new method of recruitment, the *repartimiento*, whereby a percentage of indigenous males subject to the tribute rotated among mining entrepreneurs. Thus, the colonial state broadened access to indigenous manpower to benefit those who had not received *encomiendas*.

Labor practices evolved differently in the mining centers of northern New Spain. There, resistance from the indigenous population was stronger and more enduring. Early attempts to subject the indigenous population to *encomiendas* were unavailing. Resistance among nomadic tribes spread and culminated in the so-called War of the Mixton (1540–2). But by 1543, the first northern mines – a gold mine at Xaltepec and silver mines at Espíritu Santo, Guachinango, Xocotlán, and Etzatlán – were established. They were quickly exhausted.

The find of the era came in 1546 with the discovery of Zacatecas, which became the region's leading mining operation.⁶ The mine relied at first on indigenous slave labor. Its establishment set off the prolonged War of the Chichimecas in which the region was embroiled from 1550 to 1600. Despite the occasional interruptions it caused, the war in general had two positive consequences for the mining industry. First, indigenous persons captured in combat could legally be made slaves, and could be put to work in the mines. Second, the war attracted southern indigenous groups such as the Tlaxcaltecas, Otomies, and Tarascos, who came to fight the Chichimecas but stayed as voluntary laborers, or *naborías*.

⁵ Robert Stephen Haskett, "'Our Suffering with the Taxco Tribute': Involuntary Mine Labor and Indigenous Society in Central New Spain," *Hispanic American Historical Review* 71, 3 (1991): 447–75.

⁶ Peter Bakewell, *Minería y sociedad en el México colonial. Zacatecas: 1546–1700* (Mexico, 1976).

Table 9.1. *Distribution of the types of manpower in the mining industry of New Spain, c. 1590*

| District | Black slaves | | Free Indian wage workers (<i>naborías</i>) | | Draft Indian labor (<i>repartimiento</i>) | | |
|----------------|--------------|------|---|------|--|------|-------|
| | Total | % | Total | % | Total | % | Total |
| "Nueva España" | 892 | 14.6 | 3582 | 58.8 | 1619 | 26.6 | 6093 |
| Zacatecas | 200 | 9.3 | 1956 | 90.7 | 0 | 0 | 2156 |
| Guadalajara | 110 | 16.4 | 559 | 83.6 | 0 | 0 | 669 |
| Guadiana | 61 | 27.1 | 164 | 72.9 | 0 | 0 | 225 |
| Totals | 1263 | 13.8 | 6261 | 68.5 | 1619 | 17.7 | 9143 |

Source: Peter Bakewell, "Notes on the Mexican Silver Mining Industry in the 1590s," in Peter Bakewell, ed., *Mines of Silver and Gold in the Americas* (London, 1997), 184.

Given the expansion of *encomienda* and *repartimiento* in other zones of Spanish America during the sixteenth century, allowing access to coerced labor, the lack of these arrangements in the northern mining country has always been a source of debate. The importance of the zone would have been evident not just because of the riches of Zacatecas but also because of the discovery of other major centers such as Guanajuato in 1550 and Parral in 1623. One possible explanation for the lack of state-organized coercive labor practices is that local indigenous communities had not been part of the Aztec empire and had sociopolitical arrangements less amenable to the Spanish tributary regime. But it is unclear why the Spaniards failed to organize long-distance migrations from the central areas that had been under the control of the Aztecs into the northern mining region. The violence and speed of the depopulation that struck the central region during the sixteenth century offers at least a partial explanation. It would have been difficult to contemplate recruitment of laborers over and above those who were constantly needed to replace those who fell to disease in the central region.

In any event, as Table 9.1 demonstrates, by the end of the sixteenth century there was a clear contrast in the composition of labor in the central-south region – New Spain proper – where forced indigenous workers were key, and the mines of the north which relied heavily on *naborías* and African slaves. African slaves were especially prized for their status as permanent laborers and were principally used in refining *haciendas*.

The recruitment and retention of the *naborías* posed the double problem of debt peonage and direct appropriation of minerals by the laborers themselves. It is probable that since early times advances against salaries were offered as a means of attracting *naborías*, generating indebtedness to entrepreneurs. By the last quarter of the sixteenth century, indebtedness was a major bond tying laborers to their mines. In seventeenth-century Zacatecas, mine owners would often delay payment as a means of keeping occasional workers around.⁷

There is also evidence from the period that laborers would steal chunks of minerals and then trade them or smelt them down with primitive kilns and blowers of their own construction called *cendradillas*. It is difficult to say when and how this practice was legalized as a supplement to salary, but it ultimately was, and came to be referred to as *pepenas*, or later as *partidos*. The *partido* involved the division between the owner and the worker of the ore that excerpted the minimum quota called *tequío*. This resulted in a high level of participation by the workers in the appropriation of the ore they produced; David Brading has argued that some laborers may have been virtual partners of the entrepreneurs.⁸

The Spanish conquistadors were generally ignorant of mining techniques and metallurgy. The initial prospecting and location of mines was, therefore, largely in the hands of indigenous people, slave and free. Mining was at first superficial and utilized shallow tunnels. Ore was first crushed with hammers or in a few cases with horse- or mule-drawn machines, but was later smelted down in "Castilian" ovens.⁹

In spite of the constant increase of silver registered at the coffers of Mexico City between 1534 and 1548, a sense of crisis arose in the sector. In 1548, indebted miners succeeded in reducing the Crown's traditional 20 percent tax on mineral production, the *quinto real*, to 10 percent. Nonetheless, overall production declined between 1552 and 1556. The crisis can be attributed in part to a decrease in the amount of easily harvested minerals suitable for smelting, and also to the cost of using significant amounts of firewood to smelt poorer-quality minerals.¹⁰ But the most important cause of declining production was the contemporaneous labor shortages resulting

⁷ Personal communication with Frédérique Langue.

⁸ David A. Brading, "Las minas de plata en el Perú y México colonial. Un estudio comparativo," *Desarrollo Económico* 11, 41 (1971): 104.

⁹ Ramón Sánchez Flores, "Technology of Mining in Colonial Mexico: Installations, Tools, Artifacts and Machines Used in the Patio Process, Sixteenth to Eighteenth Centuries," in Craig and West, eds., *In Quest of Mineral Wealth*, 137–53.

¹⁰ West, "Early Silver Mining," 69.

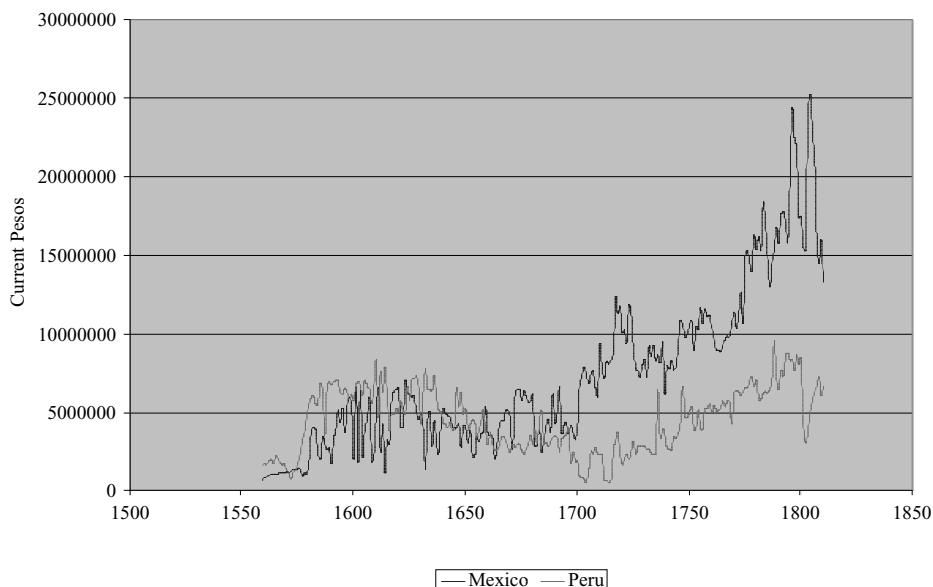


Figure 9.1. Silver output by viceroyalty.

Source: Richard Garner, <http://www.laceh.com/>.

from the abolition of slavery and of personal service in the *encomiendas* toward 1550.

In any case, the solution to the crisis came with the adoption of a new method of mineral refinement, amalgamation with mercury, used for the first time in 1555 by Bartolomé de Medina in Pachuca.¹¹ After that, the supply of mercury, over which the Crown had monopolistic control, became an essential aspect of silver mining in colonial Latin America. The new refining technique gave rise to a boom in silver production in the Viceroyalty of New Spain: annual growth averaged 2.5 percent from 1559 to 1627 (see Figure 9.1). Taxco and Pachuca were the principal Mexican productive centers at the time.¹²

In contrast to those of New Spain, the fortunes of Peru's mining industry in the sixteenth and seventeenth centuries rested heavily on the success or failure of a single mine, the Cerro Rico of Potosí. Conquistadors were first

¹¹ Alan Probert, "Bartolomé de Medina: The Patio Process and the Sixteenth Century Silver Crisis," in Peter Bakewell, ed., *Mines of Silver and Gold in the Americas* (London, 1997), 96–130.

¹² Richard L. Garner, "Long-Term Silver Mining Trends in Spanish America: A Comparative Analysis of Peru and Mexico," *American Historical Review* 93, 4 (1998), 904.

drawn to a different find in the region, at Porco in present-day Bolivia. It had been an Inca mine. Upon the defeat of the indigenous resistance in the Charcas territory, the town of La Plata was founded in 1539 and local inhabitants were distributed in *encomiendas* to the Spanish conquistadors of the region. It was Gonzalo Pizarro, who had received from his brother Francisco an *encomienda* of more than 20,000 indigenous workers, who that same year began mining Porco, which was within the territory inhabited by his Indians. Pizarro took as a partner Antonio Álvarez, who was personally responsible for developing the mines. They used *encomienda* workers and African slaves owned by both of them. Pizarro kept 75 percent of the mine's profits and Álvarez took 25 percent. A key element in the successful exploitation of Porco was the mining expertise of the Caranga Indians who, before the fractious conflicts among Peru's conquerors that ended in 1548, had been allotted to several *encomenderos*.¹³

Potosí had apparently not been in exploitation under the Inca. Discovered in 1545, Potosí's Cerro Rico early production stages reflected the complexity that would characterize the evolution towards a mature colonial system. Its first workers were *yanaconas*, or indigenous persons who were not subject to *encomienda* obligations. The name refers to the *yana*, servants who in the Inca empire had been personally tied to distinguished individuals of various statures. Some of these effectively passed into the service of members of the conquering Spanish military. However, the proliferation of *yanaconas* in the decades following the European invasion suggests that many were in fact runaways, who fled the *encomienda* tributary obligations of their communities during the tumultuous "civil wars."¹⁴

More than 7,000 *yanaconas* were working at Potosí within a few years of its discovery. Some of them may have come with the masters to whom they were already attached, whereas others came on their own upon hearing of fabulous discoveries. Mining expertise could not have been rare among them because the Inca and residents of smaller communities had practiced mining before the European conquest. Former workers from Porco may have figured prominently among the *yanaconas*. But in general, it is probable that the most specialized indigenous miners had been the first to respond to

¹³ Ana María Presta, "Gonzalo Pizarro y el desarrollo de Porco. Patronazgo y clientelismo en un yacimiento charqueño inicial, 1538–1576," *VI Reunión de Historiadores de la Minería Latinoamericana* (Lima, 1999).

¹⁴ Nathan Wachtel, *Los vencidos. Los indios del Perú frente a la conquista española: 1530–1570* (Madrid, 1976).

the attraction of colonial mining centers in a social context that significantly increased the importance of precious metals production.

The *yanaconas* of Potosí were independent workers who controlled the mining process completely, from the extraction of mineral to its smelting. They were known as *indios varas*, because mine proprietors, typically Spaniards, would give them a certain length, measured in *varas*, within the mines for working, in an arrangement similar to a lease.¹⁵ The *yanaconas* used their own tools, made their own ladders, and hired other Indians to assist them. The mine proprietors had the right to the richest minerals, appropriate for smelting, which they would sell to the *indios varas* whereas the *yanaconas* retained poorer quality finds. Some *yanaconas* refined their own minerals while others sold them at *el gato*, Potosí's market.

It should be underscored that the development of the mines was largely the work of indigenous people, with only limited participation by the Spaniards. Not only did the indigenous have earlier mining experience on which to rely, but also they were skilled in the smelting of minerals in *guayras*, small ovens of their own construction. These were indispensable at Potosí because they burned hotter than the Castilian ovens used at Porco. The latter were similar to those introduced by German miners to New Spain, but at Potosí higher temperatures were needed to smelt the minerals.¹⁶

Their limited labor participation notwithstanding, the Spaniards enjoyed a large share of the profits because all of the *yanaconas* were attached to some of them. Such Spaniards were entitled to a weekly payment of a fixed quota of refined silver from their *yanaconas*, regardless of whether they had property rights in the mine.¹⁷ The *yanaconas* could keep the rest after making that payment. In the context of the institutional complexities of tributary obligations in the first century of the colonies, this arrangement at Potosí was effective and transparent. Whereas *encomenderos* could have mixed luck in converting the goods and services of indigenous workers into hard currency, the colonists at Potosí could be sure of a good return on the work of their *yanaconas*. The Crown, for its part, could considerably increase the number of rewarded conquistadors because those who had not

¹⁵ Peter Bakewell, *Mineros de la Montaña Roja* (Madrid, 1989).

¹⁶ Julio Sánchez Gómez, "La técnica en la producción de metales monedables en España y en América, 1500–1650," in Julio Sánchez Gómez, Guillermo Mira Delli-Zotti, and Rafael Dobado, eds., *La savia del imperio. Tres estudios de economía colonial* (Salamanca, 1997), 17–264.

¹⁷ James Lockhart, *El mundo hispanoperuano 1532–1560* (Mexico, 1982).

received *encomiendas* could still make an ample living from the work of ten or fifteen *yanaconas* allotted to each of them.

Encomenderos were not left out of Potosí's prosperity. Some of the first *encomenderos* of the jurisdiction and others commenced simultaneous operations at Porco and Potosí. But because the flooding of mines and caves at Porco posed a significant obstacle, it was over time abandoned in favor of Potosí – both voluntarily by worker migration and by mandated relocation by *encomenderos*.

More generally, all the *encomenderos* of the Peruvian territory reacted to the bonanza at Potosí by including precious metal in their tribute demands. Contingents of workers subject to tributary obligations made their way to Potosí in hope of satisfying the portion of their communities' obligations payable in silver. Those groups were sent for *mitas* or periodic turns, and constituted the most immediate antecedent to the institution that Toledo organized more elaborately in the 1570s.¹⁸

Obviously the vast majority of the Indians subject to *encomiendas* who went to Potosí lacked training in mining and could only perform the simplest tasks. It was surely from among those migrants that the *yanaconas* drew their contract laborers, who were probably responsible for hauling heavy loads of ore from the mines. In that way, by 1550 two sectors of manual labor had developed in Potosí: the *yanaconas* and skilled laborers on the one hand, and the *encomienda* Indians and unskilled laborers on the other. The two classes would remain until the end of the colonial period and were transmuted into the *indios mingas* and *indios mitayos* of the seventeenth and eighteenth centuries.

In spite of having to pay a weekly quota to their masters, the *yanaconas* at Potosí were able to accumulate important sums of money. The same was true of some *encomienda* Indians with mining expertise, who for that reason had cause to remain in Potosí.¹⁹ But by the 1550s, a shortage of firewood for the *guayras* was followed by an abrupt decline in minerals suitable for smelting by 1560, and many *yanaconas* abandoned the city or shifted to ancillary trades.

This first crisis in Potosí was similar to what had happened some years earlier in New Spain in that it was alleviated by the arrival of mercury amalgamation in 1572. Here, that method of refinement also had the additional

¹⁸ Bakewell, *Mineros de la Montaña Roja*.

¹⁹ Personal communication with Gonzalo Lamana.

benefit of being applicable to minerals that had previously been discarded as unsuitable for smelting. It is unclear why mercury amalgamation took so long to find its way to Peru; a Peruvian observer had been sent to New Spain in 1558 to investigate the process and actually performed it upon his return.²⁰

The use of mercury amalgamation was facilitated in the Andean region by the presence of the Huancavelica mercury mine, the only one developed on the continent during the colonial period.²¹ The spread of amalgamation during the 1570s required the construction of large and costly grinding plants, the *ingenios*. Unlike in New Spain, in the Andes the use of animal energy was expensive and water power was therefore preferable. This necessitated a system of manmade lakes to store water year-round, independent of seasonal rains.²²

Parallel to the technological transformations required by the implementation of mercury amalgamation, the formal organization of mining labor was redefined by Viceroy Toledo. He resolved that each year more than 13,000 indigenous workers and their families from a vast area of the Andes would travel to Potosí to work in its mines for twelve months. This conscription was not without precedent. Spanish functionaries had previously organized various compulsory migrations, among them the concession in 1562 by the Royal *Audiencia* of Charcas of 500 Indians to the Porco mine, ironically to offset competition from Potosí.²³

Several factors present in the Andes made so vast a seasonal forced migration more feasible than it would have been in New Spain.²⁴ Notable among them was the existence of a pre-Columbian tradition of tributary obligations in the form of periodic labor drafts organized by the Inca state. Similarly, although the population of the Andean region was probably smaller and with a density lower than that of Mesoamerica before the conquest, it appears to have been relatively less reduced after the conquest. There is also the fact that Viceroy Toledo framed the migration as part of a global reform of indigenous affairs, which included a reformulation both in the relocation of populations into the *reducciones* or selected villages and a renegotiation of tributary obligations with the local indigenous chieftains,

²⁰ Sánchez Gómez, "La técnica en la producción de metales," 141–2.

²¹ Gwendolyn Ballantine Cobb, *Potosí y Huancavelica. Bases económicas del Perú, 1545–1640* (La Paz, 1977).

²² Peter Bakewell, "Technological Change in Potosí: The Silver Boom of the 1570s," *Jahrbuch für Geschichte von Staat, Wirtschaft und Gesellschaft Lateinamerikas* 14 (1977): 57–77.

²³ Presta, "Gonzalo Pizarro y el desarrollo de Porco."

²⁴ Nicolás Sánchez-Albornoz, "Trabajo y minería en Charcas," *Anuario 2001 del Archivo y Biblioteca Nacionales de Bolivia* (Sucre, 2001), 111–23.

whose authority was recognized by the same process. Moreover, to guarantee the success of labor recruitment, the viceroy recognized new ethnic hierarchies in the *capitanías de mita*, which reconstructed regional ethnic units that had begun to disintegrate after the arrival of the Spaniards.²⁵

The importance of the *yanaconas* as skilled laborers at Potosí would change radically after the spread of mercury amalgamation. With the rise of the new technology, the mining process would be divided into two stages: the extraction of the mineral and its processing. The Spaniards, who alone possessed the capital to build refineries (*ingenios*), monopolized them. The ultimate result of this bifurcation was the reduction of *yanaconas* to mere salaried workers.²⁶

The changes of the 1570s allowed Potosí to reach its maximum levels of production, and total Peruvian production overtook that of New Spain. Silver production in Peru climbed an exceptional 3.6 percent per year between 1559 and 1610 – at that rate, production doubled every twenty years.²⁷ The boom at Potosí would have notable consequences for the resources that made their way back to Europe, both in the form of payment for imports and fiscal contributions. Moreover, the growing production of Potosí would be fundamental to the development of economic activities in a vast “Peruvian Space.”²⁸ There was a process of regional specialization, fueled by Spanish and indigenous entrepreneurs who responded to the demand of Potosí and other large mining and urban centers, such as Lima, La Paz, La Plata, Arequipa, and Cuzco.²⁹ It should be underscored that manufacturing in the Americas largely covered the needs of local consumers, who demanded from Europe and Asia only steel and luxury goods. Much of the demand for consumer goods, particularly in Potosí, came from the large indigenous urban population.

The fall of silver shipments to Europe registered by Earl Hamilton and the Chaunus gave rise to a perception of a crisis in the seventeenth-century American mining industry. But Morineau has shown that, if official shipments and contraband are counted together, there was no decrease in

²⁵ Thierry Saignes, “Notes on the Regional Contribution to the *Mita* in Potosí in the Early Seventeenth Century,” *Bulletin of Latin American Research* 4, 1 (1985): 65–76; Carlos Sempat Assadourian, *Transiciones hacia el Sistema Colonial Andino* (Lima, 1994).

²⁶ Assadourian, “La producción de la mercancía dinero.”

²⁷ Garner, “Long-Term Silver Mining Trends,” 903.

²⁸ Carlos Sempat Assadourian, *El sistema de la economía colonial. Mercado interno, regiones y espacio económico* (Lima, 1982).

²⁹ Luis Miguel Glave, “Trajines. Un capítulo en la formación del mercado interno colonial,” *Revista Andina* 1 (1983): 9–76.

total shipments during the century.³⁰ An investigation of the official records of mineral production in New Spain also reveals a clear increase over the century. In spite of a fall in production during the 1630s and 1640s, average annual growth between 1628 and 1724 in the Viceroyalty of New Spain was 1.2 percent, reaching a new record in the last decade of the seventeenth century.³¹ This overall trend masked notable regional variations; whereas three districts (Mexico City, San Luis Potosí, and Sombrerete) produced less at the end of the century than at the beginning, another five (Durango, Guadalajara, Guanajuato, Pachuca, and Zacatecas) did better.³²

Toward the end of the sixteenth century, the most important of the productive regions in terms of number of mines, smelters, and refining works, was the one that registered its silver at the Caja Real in Mexico City, followed by Zacatecas. But Bakewell has noted that some indicators suggest a different pattern.³³ In effect, the number of refineries per miner and per smelter were significantly higher for Zacatecas than for the central region of New Spain. This indicates more investment per enterprise, which in turn could signal more prosperity and confidence. The fact that debts to the Crown for mercury were lower in Zacatecas further reinforces the general sense of prosperity in the region. If during the first three decades of the seventeenth century the coffers of Mexico filled more quickly than did those of Zacatecas, the latter would become the more important productive center, and continued to assert leadership of the northern regions in silver production.³⁴

Production at Zacatecas had a markedly cyclical character with peaks of fifty to sixty years and troughs of twenty to forty years. The boom that followed the introduction of the amalgamation method leveled out toward the middle of the 1620s and the area experienced a slump from 1630 through the 1660s. It should be recalled that Borah had attributed a supposed lack of workers to the decline in the indigenous population at the start of "New Spain's century of depression." Recent studies, on the contrary, suggest that by 1620 the indigenous population had begun to recover.³⁵ Bakewell

³⁰ Michel Morineau, *Incroyables gazettes et fabuleux métaux. Les retours des trésors américains d'après les gazettes hollandaises (XVIIe–XVIIIe siècles)* (Cambridge, 1985).

³¹ Garner, "Long-Term Silver Mining Trends," 904.

³² John J. TePaske and Herbert S. Klein, "The Seventeenth Century Crisis in New Spain: Myth or Reality?" *Past and Present* 90 (1981): 116–36.

³³ Bakewell, "Notes on the Mexican Silver Mining Industry in the 1590s," in Peter Bakewell, ed., *Mines of Silver and Gold in the Americas*, 184.

³⁴ Bakewell, *Minería y sociedad*.

³⁵ Cecilia Rabell, *La población novohispana a la luz de los registros parroquiales* (Mexico, 1990).

has attributed poor performance during the period largely to a shortage of mercury and capital. The Crown's decision to compensate for lower mercury production at Huancavelica by redirecting European mercury to Peru was responsible for the first shortage. Priorities shifted again in the 1660s when shipments from Huancavelica were sent to Mexico.

With regard to the shortage of capital, the same cyclical pattern of production at Zacatecas seems to have ensured that only a few mining families would remain in the industry for generations. Many collapsed under the weight of debts to the Crown for mercury between 1640 and 1660, and some abandoned their agricultural possessions as well as their mines. Under these circumstances, development of the mining industry came to depending heavily on the credit supplied by the *aviadores*, among whom were the successive *corregidores*, at first with their own funds and later with those of the silver merchants of Mexico City. These new players in the mining industry were responsible for an upsurge in Zacatecas's production after 1660, which eventually spread to the whole of the Mexican mining industry, with an increased role for smelting, a refining technique that required significant capital investments for new plants as well as the transformation of the existing ones, as did the recovery of abandoned mines.³⁶

The relative shortages of capital that had been observed until then might have resulted from negative evolution in the profitability of the mining industry. Though we lack data about individual mining operations, we can formulate a few hypotheses from information about prices in New Spain, and their influence on silver prices in the Americas, gathered by Richard Garner. The spread of mercury amalgamation coincided with a prolonged era of high profitability that probably culminated toward 1600. Corn prices jumped significantly after that, and continued to rise through 1650. As a consequence the value curve for silver production, with inflation adjusted for higher corn prices, demonstrates fluctuations but an overall downward trend until 1660 (see Figure 9.2).

To this negative domestic trend we should add the consequences of changes in international demand for silver. Recent studies have proposed changing the traditional focus, which viewed American silver flowing toward Asia to counter Europe's negative trading balance with that region. The work of Dennis Flynn, developing Ricardian hypotheses formulated earlier by K. N. Chaudhuri, attempted to bring specificity to the flows of

³⁶ Bakewell, *Minería y sociedad*.

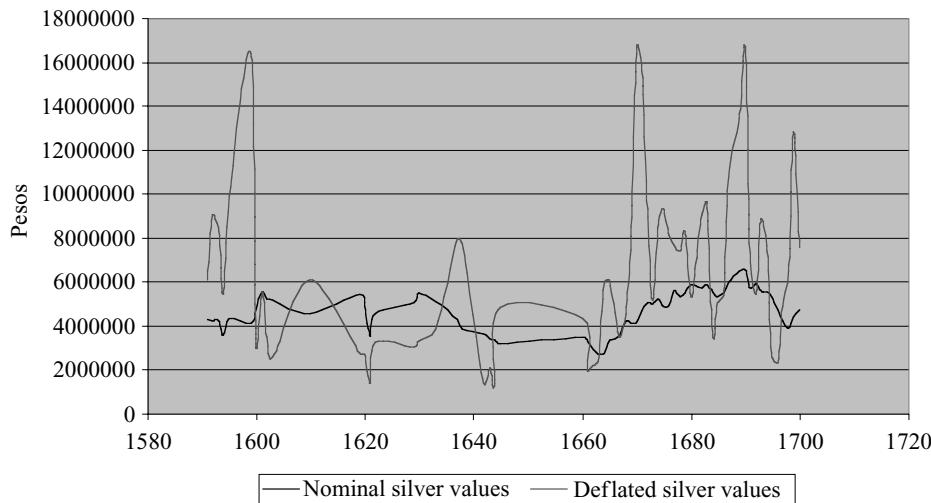


Figure 9.2. Mexico: Nominal and deflated silver values.

Source: Personal communication with Richard Garner; silver amounts from John TePaske and Garner; corn prices compiled by Garner from various sources; indices based on series averages.

precious metals and to highlight the role of demand.³⁷ This implies recognizing the changes occurring in the Chinese economy during the fifteenth and sixteenth centuries, which led to a notable increase in the demand for silver during the second half of the sixteenth century.³⁸ The exchange ratio of gold to silver in the Chinese economy favored silver more than in Europe: during the 1560s, the ratio in Spain was 1:12, whereas in China the ratio fluctuated between 1:5.5 and 1:8.1 between 1560 and 1630.³⁹ This difference permitted great arbitrage profits. The international situation, together with low costs and stable internal prices, favored Latin American mining and provided incentives for the increases in production observed during the sixteenth century. Overvaluation of silver in China eroded around 1630, and silver's world price fell to approximate its cost of production.⁴⁰ The

³⁷ Dennis O. Flynn, "Comparing the Tokugawa Shogunate with Hapsburg Spain: Two Silver-Based Empires in a Global Setting," in James D. Tracy, ed., *The Political Economy of Merchant Empires: State Power and World Trade, 1550–1750* (Cambridge, 1991), 332–59.

³⁸ Richard von Glahn, *Fountain of Fortune: Money and Monetary Policy in China, 1000–1700* (Berkeley, CA, 1996).

³⁹ Harry E. Cross, "South American Bullion Production and Export, 1550–1750," in J. F. Richards, ed., *Precious Metals in the Later Medieval and Early Modern Worlds* (Durham, NC, 1983), 399–400; Glahn, *Fountain of Fortune*, 128.

⁴⁰ Flynn, "Comparing the Tokugawa Shogunate."

disappearance of the favorable trading ratio in China did not mean the end of silver shipments to the Far East. Demand for monetary silver persisted without abatement in the seventeenth century, but its price failed to stimulate production as it had in prior decades.⁴¹

During the first half of the seventeenth century, both the buying power of silver at home and its price abroad were low. With the value of silver fell the profitability of investment in mining, which may explain the shortage of capital noted above. However, after 1660 the situation in New Spain changed with a clear decrease in the price of corn. So the mineral production observed for the period is significantly higher when measured in inflation-adjusted amounts. The capital that merchants and credit lenders began to pump into the mining industry at the time probably responded to the era's favorable combination of buying power and profitability.

The situation was very different in the Andes, the other great geographic nucleus of Latin American silver mining, in the seventeenth century. On the one hand, the Cerro Rico at Potosí played an absolutely groundbreaking role in the region after its discovery and the start of exploitation in 1545.⁴² Before 1600 its mines produced almost all the silver generated by the Viceroyalty of Peru; in the seventeenth century, it would account for more than 68 percent of total output.

Unlike New Spain, the Andean region exhibited a clear downward trend in silver production during the seventeenth century. Potosí had reached its peak toward 1600, and all through the following century it saw a steady but uninterrupted decline. The same could be said of the region as a whole after 1640. During the first half of the century, mining began at Oruro, the second most important mining center in Upper Peru, and production there did not begin to fall until 1650.⁴³ The mine at Castrovirreyna in Lower Peru experienced somewhat of a bonanza in the first decades of the century. But after midcentury, neither the production of Cailloma nor that beginning at Pasco in Lower Peru, nor the mines of Chucuito, Carangas, and La Paz in Upper Peru, could compensate for the sharp decline of Potosí. By 1700, Potosí was turning out a third of what it had produced during its boom at the end of the sixteenth century. The net result was that whereas annual growth in Peruvian silver output averaged 3.6 percent between 1599

⁴¹ Glahn, *Fountain of Fortune*, 255.

⁴² Bakewell, *Mineros de la Montaña Roja*.

⁴³ Concepción Gaviria Márquez, "Producción y crisis en Oruro a fines del período colonial," *Metalúrgica* 16 (1997): 20–27; Oscar Cornblit, *Power and Violence in the Colonial City: Oruro from the Mining Renaissance to the Rebellion of Tupac Amaru: 1740–1782* (Cambridge, 1995).

and 1610, far higher than in Mexico, rates became negative at a yearly –1.7 percent between 1611 and 1714.⁴⁴ As a consequence of this downturn, New Spain outpaced Peru in the production of precious metals by the end of the seventeenth century.

In the case of Potosí, various factors were to blame. There was an important decline in the number of coerced migrants to the area over the course of the century. In 1578, Toledo had decreed that 14,181 workers should travel to Potosí every year; in spite of several new allotments of coerced migrants, the following twenty-five years saw only a small reduction in their numbers, reaching 12,354 by 1633. That number held relatively steady until 1688, when the Duke of La Palata abruptly lowered the number to 5,658. In 1692, the Count of Monclova reduced the total again to 4,101. Officially, then, the number of workers held steady for a century, only to fall by two-thirds in five years.

But official figures fail to capture the complex reality of migration during the period. The viceregal government was slow to realize the decline: there was a marked downward trend in the number of migrants, and halfway through the 1650s they had already fallen in number to a level officially recognized only in 1692. Numerical discrepancies came to worry the authorities as the century progressed, both on the peninsula and in Peru.⁴⁵ Their goal was to maintain the rate of annual migration to ensure a steady supply of labor and abundant silver production in Potosí. But these goals were trapped in a web of difficulties.

It is possible that the indigenous Andean population could have initiated its recuperation during the first half of the seventeenth century, as we know was the case for the indigenous population in New Spain.⁴⁶ But the same period also saw the most intense attempts by indigenous workers to evade their tributary obligations by abandoning their communities and becoming *forasteros* or *yanaconas* in other communities, cities, or Spanish *haciendas*. Drumming up a contingent of workers now entailed confronting the diminished enthusiasm of tributary workers and convincing local potentates – *curacas*, *corregidores*, priests, and *hacienda* owners – to turn over available manpower. Moreover, the intentions of the Crown, themselves infrequently clear, were often frustrated by the conflicting

⁴⁴ Garner, “Long-Term Silver Mining Trends,” 903.

⁴⁵ Jeffrey A. Cole, *The Potosí Mita, 1573–1700: Compulsory Indian Labor in the Andes* (Stanford, CA, 1985); Ignacio González Casanovas, *Las dudas de la corona. La política de repartimientos para la minería de Potosí: 1680–1732* (Madrid, 2000).

⁴⁶ Enrique Tandeter, “Población y economía en los Andes (siglo XVIII),” *Revista Andina* 25, 13:1 (1995): 7–22.

priorities of colonial authorities. Reform efforts were entrusted to viceroys, who in turn relied on functionaries at Potosí to implement policies on the ground. The *audiencia* at Charcas could either support or block viceregal policies according to the personal biases of its members, and often caved in to the interests of powerful Potosí entrepreneurs or other regional players. Many viceroys tried to make labor recruitment more efficient; paradoxically, some came to advocate abolition of coerced labor out of frustration with the institution.⁴⁷

Other influential factors in the decline of production at Potosí were increased costs and decreased mineral yields. During the height of the sixteenth-century boom, a *cajón* of ore yielded something on the order of fifty marks of silver. By the seventeenth century, the yield fell to twelve or thirteen marks. And accessing minerals required ever longer and deeper tunnels, which in turn were more susceptible to flooding. Drainage shafts were dug to bail out flooded mines, and these did not come cheap. The flooding problem seriously threatened smaller mining operations in Peru.

We know also in considerable detail about the development of the mines at Oruro, the second most important Peruvian mining center in the seventeenth century.⁴⁸ After arriving on the scene early in the century, the mines experienced a bit of a rally until 1650. Oruro's miners were known for their modest resources, which frequently led them to seek partners. Few were able to work continuously. Hardly any of the roughly 200 miners had the capital to set up refining plants, so there were only about a dozen of these to process all the excavated ore. One singularly acute problem at Oruro during this period was its failure to maintain a regular supply of labor. Even when the region seemed most productive, labor costs were high. To attract labor, miners had to pay considerably more than the market rate at Potosí, and they tolerated a significant amount of theft by workers. High salaries and loss of mineral wealth to absconding workers led to another labor expense, increased supervision. It is not surprising, then, that from the first days of operation at Oruro, its miners had sought access to forced labor. Their repeated attempts to gain a concession of coerced workers failed. The only official concession the mines received was the relocation of 168 *mitayos* originally allotted to the Salinas de García Mendoza mines when these were depleted. Labor shortages played to the advantage of miners from Potosí,

⁴⁷ Cole, *The Potosí Mita*; González Casanova, *Las dudas de la corona*.

⁴⁸ Ann Zulawski, *They Eat from Their Labor: Work and Social Change in Colonial Bolivia* (Pittsburgh, PA, 1995).

who illegally rented out some of their excess workers to entrepreneurs at Oruro.⁴⁹

If, as in New Spain, seventeenth-century mining in Peru was served by a mercantile sector that provided goods and tools, it is evident that Peruvian entrepreneurs lacked the injection of capital that so importantly contributed to the success of their Mexican counterparts beginning in 1660. In the Viceroyalty at Lima, mercantile capital seems to have been directed to different productive sectors.⁵⁰ The case of Antonio López de Quiroga illustrates by its rarity the extreme lack of capital in Peruvian mining.⁵¹ López de Quiroga, a Galician immigrant, established himself as a silver merchant in Potosí in the middle of the seventeenth century. He later became involved in the production of silver at the Cerro Rico and other mines of upper Peru, ultimately emerging as the most successful producer in the region or perhaps on the continent. He was known for his massive capacity for risk, and threw immense sums of money at the job of tunnel digging for better access to deep mines and flood prevention. His gambles generally paid off, allowing him to amass a considerable fortune. More notable still was his perseverance in reinvesting his wealth in new mines, which he did all his life.

The majority of his colleagues in Potosí took a different path, one that led to declining output by the middle of the seventeenth century. They profited from rent options implicit in the workings of the *mita*, or labor grants. When Viceroy Toledo distributed *mitayos* to mining entrepreneurs in the 1570s, he did so under the condition that they could eventually compensate for their labor obligations through a payment in money. Employers, in turn, could either hire replacements, so-called *indios de plata*, or simply keep the money received from *mitayos*, which gave rise to the colorful expression of *indios de faldriquera* or “pocket Indians.” This led to a sharp increase in the second half of the century in the portion of silver profits that went to entrepreneurs who had neither to risk their own capital nor to dedicate themselves to the successful operation of a mine to make a living. Production fell accordingly. Complete abandon of the mining trade was uncommon, among other reasons because doing so would

⁴⁹ Laura Escobar de Querejazu, *Caciques, yanaconas y extravagantes. La sociedad colonial en Charcas, s.XVI–XVIII* (La Paz, 2001).

⁵⁰ K. J. Andrien, *Crisis and Decline: The Viceroyalty of Peru in the Seventeenth Century* (Albuquerque, NM, 1985), 11–41.

⁵¹ Peter Bakewell, *Silver and Entrepreneurship in Seventeenth-Century Potosí: The Life and Times of Antonio López de Quiroga* (Albuquerque, NM, 1988).

result in the loss of state-supplied *mitayos*. But even without working in the mines, an entrepreneur could refine metals purchased from *pallaqueros*, small entrepreneurs who gleaned silver from old tailings. Moreover, entrepreneurs could combine workers who commuted their obligations to cash with other *mitayos* who actually performed their labor duties.

Of course, the lower international silver prices of the seventeenth century that affected Mexico also hurt Peru. The question remains why production did not recover in Peru, as it did in Mexico, when silver prices again rose in the second half of the century. In particular, it is interesting that silver production in Peru did not attract the capital investment that it did in Mexico, particularly from the merchant sector. Richard Garner has noted two substantial differences between the two mining regions during the century that help explain Peru's failure to recover. First, Peruvian miners paid more for mercury because they relied heavily on Huancavelica. Second, entrepreneurs in Peru paid a higher tax – the 20 percent *quinto* – whereas New Spain by a much earlier date paid just the 10 percent *diezmo*.⁵² As the century progressed, the Spanish crown ignored a number of successive calls for help regarding these two disadvantages.⁵³ Royal reticence was tied, no doubt, to the fact that Potosí already benefited from the *mita*, which was seen as the ultimate subsidy that could be given to a Latin American mine.

Clearly the differences identified by Garner had a negative impact on the profitability that could be expected of investments in Peruvian mining. A factor that should also be considered was the evolution of the purchasing power of silver in Peru's domestic economy. Garner has also compiled information on prices originally gathered by Pablo Macera and his colleagues, using it to deflate the nominal values of silver produced during the century (see Figure 9.3). The results are very suggestive.

Unlike New Spain, in Peru the early rise in production attributable to the introduction of mercury amalgamation ran almost to 1640, but was not continuous and was always accompanied by low domestic prices. From 1640 to 1700, production fell steadily as prices rose, resulting in decreased domestic buying power for precious metals. This unfavorable economic environment helps explain the diversion of capital away from mining in the Andes.

⁵² Garner, "Long-Term Silver Mining Trends," 906.

⁵³ Clara López Beltrán, *Estructura económica de una sociedad colonial. Charcas en el siglo XVII* (La Paz, 1988), 63–III.

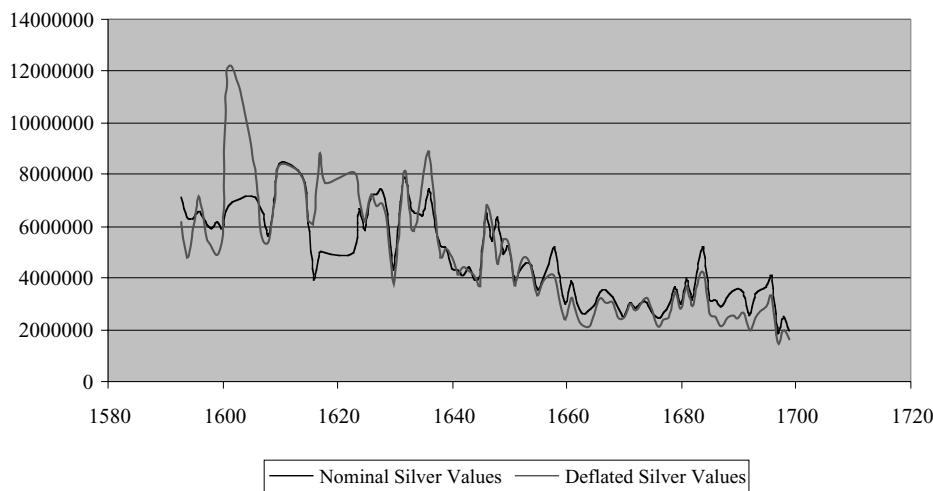


Figure 9.3. Peru: Nominal and deflated silver values.

Source: Personal communication with Richard Garner; silver amounts from TePaske and Garner; prices of several dozen products from Macera et al.; indices based on series averages.

Whereas New Spain's silver mining industry was in recovery by 1660, by the start of the eighteenth century the same could be said of Peruvian mining. The return to profitability can be attributed to multiple processes that thereafter affected worldwide demand for silver. First, European prices expressed in silver sank toward 1660, and then hit one floor in the 1680s and another in 1720–1. This new era of increased buying power for precious metals in Europe generated a strong incentive to find new reserves and improve refinement processes in the colonies.⁵⁴ Second, the most spectacular response to that increased demand came from Brazil, where gold production skyrocketed. The result was a real “golden age” in Europe, during which the value of silver appreciated dramatically relative to that of gold.⁵⁵ Third, demand from China regained relevance between 1700 and 1750 as its gold–silver ratio again offered new arbitrage opportunities; silver prices were much more favorable there than in Europe and the Americas.⁵⁶

Focusing on the upswing in silver production of the early decades of the eighteenth century, we rely less on explanations centered on state policies

⁵⁴ Pierre Vilar, *Oro y moneda en la historia: 1450–1920* (Barcelona, 1969), 231–5.

⁵⁵ Frank C. Spooner, *The International Economy and Monetary Movements in France, 1493–1725* (Cambridge, MA, 1972), 196–207.

⁵⁶ Dennis O. Flynn and Arturo Giráldez, “Cycles of Silver: Global Economic Unity through the Mid-18th Century,” *Journal of World History* 13, 2 (Fall 2002): 391–427.

and pay more attention to a set of factors internal to the mining business and its relation to the regional and transatlantic markets.

The average annual growth rate of the Mexican mining industry between 1725 and 1809 was 1.2 percent.⁵⁷ This expansion was accompanied by a reordering of productive centers in terms of importance. Guanajuato surpassed Zacatecas, which had been until then the principal mining center of New Spain, during the eighteenth century. Although both would produce more by the end of the century than at its beginning, Zacatecas doubled while Guanajuato quintupled output. At Zacatecas growth was most pronounced in the first and fourth quarters of the century, with a period of contraction in between. At Guanajuato growth was continuous.

The century-long rise in Mexican mining output was interrupted damped by periods of famine and disease (1736–7, 1759–60, 1784–5) and by mercury shortages caused by wars in Europe (1799–1801). But if the data are disaggregated by mining center, we find that each center had different periods of expansion and contraction. Moreover, these periods were more or less limited in duration, some lasting a few years and others no more than a few decades.

In his fundamental work on Bourbon Mexico, David Brading argues that growth periods in the mining industry corresponded to cycles of discovery, abandonment, and renovation of mines.⁵⁸ In some cases, such as that of the mines of Santa Eulalia in Chihuahua, there was only one growth cycle between 1703 and 1737. There, in that period, several extraordinary factors converged: mineral discoveries were very rich, ore was easily smelted and refined, and local inputs such as firewood and lead were abundant.⁵⁹ In other Latin American mining centers, various cycles ensued. To understand how they progressed, it should be borne in mind that there was no particular order to the original discovery and development of colonial mines. Due to indications that property rights would be poorly policed, entrepreneurs pursued profit with very little regard for the rights of their competitors. This gave rise to at least two kinds of problems. On the one hand, conflicts would often arise when a miner dug a tunnel that crossed or collapsed that of another. But more importantly, technological issues arose. As tunnels got deeper, digging them became costlier: getting mineral ore out of the earth was more difficult and time-consuming, and could even

⁵⁷ Garner, "Long-Term Silver Mining Trends," 904–5.

⁵⁸ David A. Brading, *Miners and Merchants in Bourbon Mexico, 1763–1810* (Cambridge, 1971).

⁵⁹ Phillip L. Hadley, *Minería y sociedad en el centro minero de Santa Eulalia, Chihuahua: 1709–1750* (Mexico, 1979).

be impossible where poor ventilation or flooding intervened. Construction of the necessary “dead works” gave rise to a series of challenges. One of them was arriving at workable excavation plans. Appropriate technologies were not always available, even after the Crown had dispatched European engineers to diverse regions of the continent toward the end of the eighteenth century.⁶⁰ The second challenge was raising the capital needed for work that would require enormous sums but would not, even in the best case, produce any results for many years. The most successful excavation of New Spain, for example, was a shaft dug to drain the Vizcaína silver vein in Real del Monte. The project commenced in 1739, and for nine years work was wasted due to miscalculations. Another twenty years passed before the Count of Regla, the mine’s owner, realized a profit. Naturally, during those years of investment without reward, the mine was constantly at risk of being abandoned for lack of funds, because of the death of its owner, or because the prospects of success seemed remote. But even when work culminated in a productive boom, the prosperity rarely would last more than a couple of decades, after which a new cycle of abandonment would begin. Over the course of the century, the Quebradilla mine at Zacatecas had three periods of success interrupted by flooding and abandonment. The Vizcaína mine was abandoned three times.⁶¹ One last challenge to keep in mind was the role of property rights and usufruct. An excavation could reactivate an abandoned mine or improve the productive capacity of one that had been forgotten or was difficult to work. When that happened, conflicts arose as to how owners should share newly discovered wealth.

This complex mix of problems was dealt with most effectively in New Spain. There, the successive cycles of the eighteenth century resulted in larger mining operations. These were capable of excavating more and deeper tunnels, which were optimized with their own drainage shafts. The sums involved, the waiting periods, the complexity of the enterprises, and the high risks were all factors that underscored the importance of entrepreneurial capacities in the century-long expansion of the Mexican mining sector. Failures resulted in a constant turnover of entrepreneurs in many mining centers, and new speculators brought with them new capital

⁶⁰ For an account of significant mining failures in Potosí, see Enrique Tandeter, *Coercion and Market: Silver Mining in Colonial Potosí, 1692–1826* (Albuquerque, NM, 1993), 185–7; for mining failures throughout Peru, see Carlos Contreras, *Los mineros y el rey: los Andes del norte, Huallayoc 1770–1825* (Lima, 1995), 127–36.

⁶¹ Brading, *Miners and Merchants*, 135–6.

and capacity. The constant influx of new blood had beneficial impacts on the industry.⁶²

Scholars have explored the effects of turnover especially in Zacatecas.⁶³ There the rise of the first quarter of the century can be attributed to individual entrepreneurs. The bonanzas of the period, numerous but brief, did not amount to adequate compensation for the difficulties that these individual entrepreneurs faced raising capital from silver merchants or *aviadores*. During the middle decades of the century, a prolonged slump in production at Zacatecas gave rise to the first efforts toward collaboration among miners. But real concentration of property and the creation of companies would not occur until the end of the 1760s, coincident with the new cycle of expansion in the region.

This development was probably tied to a new phase in mining inaugurated by the visit of José de Gálvez to New Spain between 1765 and 1771, process of the part of the Bourbon reforms. Specific policies were developed that increased the profitability of the industry and contributed to a new jump in mining production throughout the viceroyalty between 1765–9 and 1775–9.

The first of these policies was to increase the owner's control over labor costs, specifically through lower salaries and elimination of the *partidos*.⁶⁴ The history of the mine at Real del Monte is particularly illustrative of how the reformist efforts of the 1760s were implicated in a larger project. We have alluded to the prolonged task of rehabilitating the Vizcaína mine, begun in 1739 by José Alejandro Bustamante and Pedro Romero de Terreros. It was abandoned after nine years of labor and 100,000 wasted pesos. Bustamante died in 1750, and just five years later his surviving partner returned to the construction effort, which was completed in 1759. Romero de Terreros obviously had an incentive to recoup his investment as quickly as possible.⁶⁵ To that end, he lowered the salaries of his free workers and increased the labor quotas of the region's indigenous forced laborers. Free workers' salaries were reduced from four to three *reales* per day in 1765. Additionally, Romero de

⁶² Richard Garner, "Silver Production and Entrepreneurial Structure in 18th-Century Mexico," *Jahrbuch für Geschichte von Staat, Wirtschaft und Gesellschaft Lateinamerikas* 14 (1977): 157.

⁶³ Frédérique Langue, *Mines, terres et société à Zacatecas (Mexique) de la fin du XVIIe siècle à l'indépendance* (Paris, 1992), 121–33.

⁶⁴ Langue, *Mines*, 44–7.

⁶⁵ Doris M. Ladd, *The Making of a Strike: Mexican Silver Workers' Struggles in Real del Monte 1766–1775* (Lincoln, NE, 1988).

Terreros made a series of changes aimed at reducing the *partidos*. The workers protested these reforms in writing and at the end of July 1766 began what has been called the first strike in the history of Mexico. The viceroy and his representative, Francisco de Gamboa, were initially favorable to the workers' claims. But several unresolved issues led to violent conflicts toward the end of 1766 and early in 1767. José de Gálvez, who had arrived from Spain in 1765, firmly supported Romero de Terreros and proposed that he be granted the title of Count of Regla in honor of his efforts to improve the mining industry. In the wake of the expulsion of the Jesuits in 1767, there were a series of mine worker revolts in San Luis Potosí and Guanajuato. The violent suppression ordered by Gálvez cleared the way for a new attitude of control that quickly spread among mine owners. After that, supported by militias and paramilitary groups, the owners modified the way they managed the direct sharing of ore with their workers, eliminating the *partidos* and reducing salaries.⁶⁶

Reforms of the period included lower prices for gunpowder and the organization of a more efficient supply to encourage its use in mining. A steadier and cheaper supply of mercury led to more ore being refined by amalgamation vis-à-vis smelting. Tax exemptions and the provision of mercury at cost for high risk investments in mining were also crucial for growth.⁶⁷

These concessions breaks were especially important for Zacatecas and for its most successful entrepreneur, José de la Borda. He had begun his mining career in 1716 at Tlapujahua and later was successful at Taxco between 1752 and 1762. That notwithstanding, he arrived at Zacatecas on the brink of financial ruin with debts in excess of 400,000 pesos. For start-up capital, he sold a silver monstrance worth 100,000 pesos that in more prosperous times he had loaned to a church in Taxco. In 1768, when the mining depression at Zacatecas had reached a nadir, de la Borda won royal concessions to restore the mine at Quebradilla. These included a full exemption from the tithe and the extra 1 percent tax during excavations, a 50 percent reduction in the tithe for the next twenty years, and mercury supplied at cost. But not even these concessions changed de la Borda's fortunes. So his attention turned to another group of mines at Vetagrande, whose exploitation he increased thanks to loans from *aviadores* and the Crown. Profits from Vetagrande were ultimately the key to finishing the work at Quebradilla. By 1775, the

⁶⁶ Brading, *Miners and Merchants*, 27, 147–9, 157, 184, 186, 277–8.

⁶⁷ Brading, *Miners and Merchants*, 143, 157, 159–60, 263–4.

mine was turning a profit. José de la Borda died in 1776 and the bonanza at Quebradilla continued until 1784.⁶⁸

The Bourbon reforms had other indirect consequences of great importance for Mexican mining. Liberalization of trade with the Iberian peninsula and the resulting changes in internal commerce within New Spain resulted in lower profits for the great merchant concerns that dominated imports, the *almaceneros* of Mexico City. These New World merchants responded in the 1780s by moving their capital to other enterprises, among them mining. Merchants had traditionally provided only short-term financing for mines. But the decrease in mercantile profits combined with tax exemptions for mining persuaded them to invest in mine renovations.⁶⁹

John Coatsworth has offered a doubly revisionist interpretation of this shift in incentives regarding the finance of mining operations and its impact on the economy of New Spain.⁷⁰ First, Coatsworth rejects optimism about the state of the Mexican mining sector during the eighteenth century, and argues that the profitability of silver mining may have decreased even as production rose. His hypothesis draws strong support from the declining purchasing power of silver in terms of a market basket of domestically produced goods, mostly agricultural products (see Table 9.2). By these lights, Spanish economic policies did not fortify an industry that was profitable in its own right; instead, they helped to keep the endangered mining sector afloat. Second, Coatsworth suggests that the incentives for mining supplied by the Crown diverted investment from agriculture, which also struggled during the period.⁷¹

Silver production in the Andes grew at an average annual rate of 1.2 percent between 1715 and 1810, practically the same growth rate experienced in Mexico. Of course, the Andean industry had much further to climb given the disappointments of the seventeenth century.⁷² In terms of the hierarchy of mining centers that led the industry in the eighteenth century, changes were even more pronounced than in Mexico. Potosí, the most productive mining center of the Americas, which in the colonial period altogether produced more silver than Zacatecas and Guanajuato combined, continued its

⁶⁸ Langue, *Mines*, 133–6.

⁶⁹ Brading, *Miners and Merchants*, 95–128, 158.

⁷⁰ John H. Coatsworth, “The Mexican Mining Industry in the Eighteenth Century,” in Nils Jacobsen and Hans-Jurgen Puhle, eds., *The Economies of Mexico and Peru during the Late Colonial Period, 1760–1820* (Berlin, 1986), 26–45.

⁷¹ See, for example, Richard L. Garner with Spiro E. Stefanou, *Economic Growth and Change in Bourbon Mexico* (Gainesville, FL, 1993).

⁷² Garner, “Long-Term Silver Mining Trends,” 903.

Table 9.2. *Index of market value of precious metals production in Mexico, 1695–1814 (1755–9 = 100)*

| | According to the Florescano price index | According to the Rabell price index | Physical production |
|---------|--|--|---------------------|
| 1695/99 | | 20.0 | 29 |
| 1700/04 | | 28.3 | 39 |
| 1705/09 | | 33.5 | 43 |
| 1710/14 | | 48.9 | 50 |
| 1715/19 | | 60.6 | 53 |
| 1720/24 | 79.5 | 88.4 | 77 |
| 1725/29 | 82.3 | 65.8 | 79 |
| 1730/34 | 79.4 | 64.1 | 80 |
| 1735/39 | 69.4 | 72.6 | 73 |
| 1740/44 | 62.1 | 65.5 | 74 |
| 1745/49 | 75.3 | 62.7 | 91 |
| 1750/54 | 76.3 | 98.8 | 98 |
| 1755/59 | 100.0 | 100.0 | 100 |
| 1760/64 | 87.1 | 106.5 | 89 |
| 1765/69 | 114.5 | | 93 |
| 1770/74 | 95.1 | 168.5 | 123 |
| 1775/79 | 150.8 | 202.9 | 139 |
| 1780/84 | 119.2 | | 153 |
| 1785/89 | 64.8 | | 142 |
| 1790/94 | 142.5 | | 167 |
| 1795/99 | 123.7 | 109.0 | 185 |
| 1800/04 | 102.7 | 78.7 | 159 |
| 1805/09 | 105.5 | | 186 |
| 1810/14 | 27.5 | | 72 |

Source: John H. Coatsworth, "The Mexican Mining Industry in the Eighteenth Century," in Nils Jacobsen and Hans-Jürgen Puhle, eds., *The Economies of Mexico and Peru during the Late Colonial Period, 1760–1810* (Berlin, 1986), 32.

prolonged expansion as the century progressed (see Table 9.3). However, even after its long climb, Potosí had just barely reached 50 percent of the output it had seen 200 years earlier. In the rest of Upper Peru only Oruro was a significant producer. Production there was inconsistent for the first half of the century, and then rose steadily until it ended abruptly as a result indigenous rebellions in 1781.⁷³

⁷³ Gaviria Márquez, "Producción y crisis en Oruro"; Cornblit, *Power and Violence*.

Table 9.3. *Index of market value of silver production in Potosí, 1701–1810
(1751–60 = 100)*

| | According to an agricultural price index | According to an imported textiles price index | According to an imported paper price index | Physical silver production |
|-----------|--|---|--|-------------------------------|
| 1700/10 | | 59.6 | 26.4 | 71.4 |
| 1711/20 | 90.0 | 83.4 | 59.1 | 62.7 |
| 1721/30 | 69.6 | 48.4 | 34.1 | 59.0 |
| 1731/40 | 76.2 | 68.8 | 44.9 | 69.6 |
| 1741/50 | 88.7 | 87.8 | 38.5 | 73.7 |
| 1751/60 | 100.0 | 100.0 | 100.0 | 100.0 |
| 1761/70 | 152.7 | 127.9 | 116.8 | 116.1 |
| 1771/80 | 182.4 | 190.8 | 171.3 | 139.2 |
| 1781/90 | 202.8 | | 194.0 | 146.5 |
| 1791/1800 | 223.7 | | 174.8 | 151.2 |
| 1801/10 | 151.8 | | 70.9 | 113.8 |

Source: Enrique Tandeter, *Coercion and Market. Silver Mining in Colonial Potosí, 1692–1826* (Albuquerque, NM, 1993), 8, 116.

The century's most important change came in Lower Peru, where silver production increased more than sevenfold between the end of the seventeenth century and the last decade of the eighteenth century.⁷⁴ As a result, whereas in the previous century Lower Peru accounted for only 10 percent of silver production in the Andes, at the end of the eighteenth century it accounted for 34 percent. Various productive centers were responsible for the increase, particularly Cerro de Pasco in the central Sierra and Hualgayoc in the northern Sierra.

Although the growth figures for Lower Peru are impressive, in absolute terms the region's productive capacity – with the exception of Cerro de Pasco – was very modest compared to that of New Spain. A census done in 1789–90 gives us a clear picture of the industry.⁷⁵ The average entrepreneur employed 12.2 laborers, whereas the average operating mine occupied 13.3. The industry was populated by small firms, often just barely solvent, and was certainly not deemed prestigious by regional merchants and bureaucrats. But local government functionaries were deployed in the service of

⁷⁴ John R. Fisher, *Silver Mines and Silver Miners in Colonial Peru, 1776–1824* (Liverpool, 1977).

⁷⁵ John Fisher, ed., *Matrícula de los mineros del Perú 1790* (Lima, 1975); Fisher, *Silver Mines*.

the mining industry by the Bourbon reforms. The most ambitious reform in the area from a bureaucratic point of view was the establishment of the Royal Mining Tribunal in Lima, which later established local outposts.⁷⁶

A recent study of mineral production at Hualgayoc in the northern Sierra offers a deeper understanding of the problematic mining industry of Lower Peru.⁷⁷ Hualgayoc was discovered only in 1771, and it reached its productive apogee between 1776 and 1800. Its minerals were of higher quality than the average in New Spain and much purer than Lower Peru. With just 10 percent of the viceroyalty's workforce, Hualgayoc accounted for 15 percent of the viceroyalty's silver production in the last quarter of the eighteenth century. There was great disparity among entrepreneurs. Production was not vertically integrated, in that mineral extraction and refinement were in different hands. Finance for the production process and transport of refined silver between Hualgayoc and Trujillo, where the royal banks converted the silver to bars, were also independently supplied. The various sectors of the industry accused each other of reaping unfair gains, but a careful study has shown how the scarcity of capital made capitalists, producers, and transporters indispensable to each other.⁷⁸

The case of Hualgayoc offers more evidence of the many weaknesses of the mining industry of Lower Peru and illustrates the refusal of the Crown and its representatives to implement the solutions that the owners demanded. Two such requests had been for the establishment of a fund for credits and inputs and the creation of satellite banks to obviate the need for trips to Trujillo. The Mining Tribunal established a local exchange bank in 1792, but it failed and was closed in just two years. Recruiting labor was difficult, too, because the region lacked an entrenched mining tradition, population was low, agricultural was remunerative, and in general the fiscal pressures on the indigenous population were lower than in other places. Mine owners insisted that forced labor was necessary, but the Crown would not grant it.

Nor did the area benefit from the engineering and technical missions dispatched by the Crown in the late 1780s.⁷⁹ One specialist sent on such a mission, Federico Mothes, arrived in Hualgayoc in 1784. Although he

⁷⁶ Miguel Molina Martínez, *El Real Tribunal de Minería de Lima: 1785–1821* (Seville, 1986).

⁷⁷ Contreras, *Los mineros y el rey*.

⁷⁸ Contreras, *Los mineros y el rey*.

⁷⁹ For the impact of such missions in New Spain, see Brading, *Miners and Merchants*; for New Granada, see Sandra Montgomery Keelan, "The Bourbon Mining Reform in New Granada," in John R. Fisher, Allan J. Kuethe, and Anthony McFarlane, eds., *Reform and Insurrection in Bourbon New Granada and Peru* (Baton Rouge, LA, 1990), 41–53; for Peru, see Fisher, *Silver Mines*.

at one point enjoyed support from a faction of miners and was held out as a sage consultant on the science of mining, his actual interventions, in particular his involvement with the construction of a mine shaft, were failures. His record explains the cloud of animosity under which he fled Hualgayoc in 1798.⁸⁰

Cerro de Pasco was a notable exception to the trends of Lower Peru. Although silver production in the area dates to 1567, Cerro de Pasco itself was only relevant after 1630 when the Yauricocha site was excavated. Even larger veins were discovered later.⁸¹ Mining continued throughout the seventeenth century, but in the eighteenth century the works were flooded. This necessitated drainage shafts, with all the time and capital they entailed. One such shaft was excavated in 1740 by a private owner with good results. But the project that would most distinguish Cerro de Pasco from the rest of Lower Peruvian mining was the shaft begun in 1780 by fifty of the region's most important mine owners. The digging was complete in just six years and immediately bore fruit. In 1794, the miners agreed to keep digging as far as Yanacancha. Two years later they obtained financial support from the Royal Mining Tribunal and a quota of forced laborers from Jauja. They reached Yanacancha in 1811. All this notwithstanding, production once again declined because of flooding, confirming the need for yet deeper shafts. One such shaft was begun, but was not completed until the middle of the nineteenth century.⁸²

Potosí took a very different course.⁸³ Production did not witness the spikes that characterized Mexico in the eighteenth century, but instead climbed steadily from 1730 onward. The rise was not the result of discoveries or bonanzas, but of increases in the amount of ore processed. The ore had relatively low silver content. In contrast to an average of fifteen marks per *cajón* [one *cajón* = fifty *quintales*/hundred weight] in New Spain, and twelve marks per *cajón* in Lower Peru, the average yield at Potosí oscillated between four and eight marks per *cajón*. The key to the survival and expansion of Potosí was the *mita*, maintained until the end of the colonial period. Since the end of the seventeenth century, the yearly migration amounted to approximately 3,000 men – half the total labor force. This source of labor was more than numerically significant. Mine owners worked radical changes in the nature of the *mita* as an institution over the course of the eighteenth century. The single most important

⁸⁰ Contreras, *Los Mineros y el Rey*, 121–49.

⁸¹ Fisher, *Silver Mines*, 112.

⁸² Fischer, *Silver Mines*, 93–4, 112–16.

⁸³ Tandeter, *Coercion and Market*.

modification was the replacement of day wages with a kind of piecework arrangement: workers were paid for producing a quota of ore. In this way, the forced laborer not only lost the security of fixed pay for a day's work, but also forced him to work more than his traditional "turn," so that it became impossible for him to make extra money in what used to be his leisure time. It was this expanded "*mita* rent" that constituted the dominant relation of production at Potosí; the institution of the *mita* itself was just a starting point.⁸⁴ The practice of demanding production quotas from laborers, particularly during the second half of the century, greatly augmented the amount of ores produced in spite of their low silver content.

Prolonged reliance on "*mita* rent" had significant impacts on property relations and the distribution of wealth. While in New Spain the instability of mining production, tied to many risky investments that occasionally led to great windfalls, made continued ownership by any family rare, this was the norm in Potosí. But even though families retained ownership of mines, they increasingly distanced themselves from actual mining operations. Rental of companies that were assigned forced labor, which had originally been prohibited by legislation, became common during the eighteenth century. Tenant-owners thus obtained access to a certain quota of forced laborers, the main object of the rental agreement. The plant and mine owners, because they maintained monopolistic control of a limited number of coerced laborers, were able to appropriate most of the profits generated by the rented property. In this way, tenants were severely limited in their opportunities for savings and investment.

Paradoxically, in terms of the domestic and international buying power of its silver, the Peruvian industry seems to have done better than its Mexican counterpart for almost all of the eighteenth century. But the existence of the *mita* meant that the capital attracted to Potosí from other sectors, such as commerce or bureaucracy, was interested not in mining but in profiting from rents from forced labor. Thus, they sought to buy refining works with allotments of coerced laborers in order to collect rent. For these newcomers there was no incentive to invest in the mining industry itself. Producing more silver only required limited outlays to install the necessary machinery to refine ores produced by others.

So unlike the entrepreneurial rotation that many times infused the Mexican industry with new talent and capital, what we see in Potosí is the entrenchment of mine-owning families and a constant flow of speculators

⁸⁴ Tandeter, *Coercion and Market*.

who tried their luck at rented refining works. The arrival of these adventurers, typically European immigrants with no technical knowledge or capital, was only possible because of the Royal Bank of San Carlos. The bank, a state institution, facilitated the exchange of silver and provided loans and inputs of mercury on credit against anticipated silver output.⁸⁵ Even so, a good number of renters abandoned the refining works within a year. Paradoxically, the onerous terms demanded by the mine owners drove the rise in production. In the long run, the only way for tenants to make their high rental payments was to boost production while keeping costs steady. The “*mita rent*” offered the means for achieving this by raising the ore quotas demanded of forced laborers.

The “*mita rent*” also limited the impact of the Bourbon reforms in Potosí. Juan del Pino Manrique and Francisco de Paula Sanz, the successive *intendentes* of the Villa Imperial, embodied a new type of bureaucrat. Together with a phalanx of newly arrived Spanish officials, they efficiently increased returns to the Crown. Production grew rapidly, driving revenue to the royal *Hacienda*. But fomenting progress in Potosí raised unique issues. Unlike Gálvez in New Spain, royal officials in Potosí could not rely on government measures boosting profits to translate into more investment from the private sector. When the state lowered the price of mercury, for example, mine owners simply charged their renters higher rents. Thus entrenched, owners of the refining works and not the renters benefitted from the Crown’s reforms.

Manrique and Sanz, influenced by Enlightenment thinking and confident that the state could reorder society on rational grounds, launched a sweeping reform of the mining industry to remedy these problems. The program became extremely complex toward 1790. By then, the Crown had taken upon itself to dig a shaft to ease access to the deepest and hopefully most profitable veins of the region. The risky and expensive works that in New Spain were undertaken by private investors came under government control in Peru. The work was later abandoned during the Wars of Independence before it had yielded any results. The von Born method of silver refining, which Baron Nordenflicht tried to introduce in this era, failed to take hold in Peru, as it did throughout the Americas.

The Sanz program was embodied in an extensive legislative project, the Caroline Code, drafted by his deputy, Pedro Vicente Cañete. Its key

⁸⁵ Guillermo Mira Delli-Zotti, “El Real Banco de San Carlos de Potosí y la minería altoperuana colonial,” in Sánchez Gómez, Mira Dell-Zotti, and Doblado, *La savia del imperio*, 265–399.

components were a cap on the rent that mine owners could charge to tenant entrepreneurs and an increase in the number of *mitayos* to allow more mines to benefit from forced labor. Opposed to the project were the interests of mine owners and the humanitarian activism against the *mita* of Victoriano de Villava, the eminent prosecutor of the *audiencia* in Charcas. On the Iberian peninsula, the impetus for reform died out in 1792 and was replaced by a policy of consolidating gains. When the Caroline Code was definitively rejected in 1797, the Spanish bureaucrats no doubt expected silver production at Potosí, which had doubled in just half a century without much state stimulus, to continue its long and steady growth without the new code.

The Wars of Independence marked a radical turning point in American mining. In Mexico mintage dropped by half between 1810 and 1811, reaching the most critical point in 1812. If a modest recovery occurred around 1818–20 at the end of the war, between 1821 and 1840 production fell yet another 30 percent relative to the average between 1801 and 1820. The drop in the production of silver meant a reduction in employment and consumption, in addition to a contraction in the money supply and in the volume of credit, with a growing imbalance in the balance of payments due to an increase in imports and the relative decline of silver available to pay for them. This drop occurred in the context of a reduced international price for silver in the 1820s, a situation that returned in the 1840s when the production of Mexican silver was 27 percent greater than in the prior decade and 60 percent higher than in the 1820s. By the 1840s, it reached a level not substantially lower than that of the end of the colonial period.⁸⁶

No consensus exists regarding the causes of the fall in silver production. The physical destruction of mines and *ingenios* and the emigration of *peninsulares* with the consequent decline in investment have been cited as explanations.⁸⁷ Harry Cross has criticized those explanations, emphasizing, on the other hand, the role of the new attitude of investors, apprehensive about committing themselves in the long term, unlike what occurred at the end of the colonial period, when their caution resulted from the poor harvests of 1809–10 and a growing mistrust toward the lower strata of society

⁸⁶ Richard Salvucci and Linda K. Salvucci, "Las consecuencias económicas de la independencia mexicana," in Leandro Prados de la Escosura and Samuel Amaral, eds., *La independencia americana: Consecuencias económicas* (Madrid, 1993), 42–9.

⁸⁷ Carlos Conterras, "La minería hispanoamericana después de la independencia. Estudio comparativo de Bolivia, Chile, México y Perú," in Margarita Menegus Bornemann, ed., *Dos décadas de investigación en historia económica comparada en América Latina* (México, 1999), 259.

due to their participation in the insurgency.⁸⁸ Other hypotheses emphasize the difficulty of supplying basic inputs combined with the fragmentation of commerce, which ruptured the system of exchanging silver for needed inputs that contributed capital to the mines. To these factors should be added the relative paralysis of what had been the colonial policy of promoting mining, with its favorable fiscal policy and guaranteed supply of materials.⁸⁹ Fundamental among these inputs was mercury, whose price was particularly high between 1831 and the middle of the century, a period in which the Rothschilds enjoyed a true global monopoly over the supply, because various family branches simultaneously controlled production at the Almadén mine in Spain and the Idria mine in the Adriatic.⁹⁰

Latin American independence generated great expectations in Great Britain, resulting in the creation of numerous joint stock companies directed at Spanish America and, in particular, the exploitation of its minerals, in the context of an investment euphoria running wild in the London market between 1824 and 1825. However, these mining companies were launched late, generally in the six months just before the end of the euphoria in December 1825, which caused most of them to fail when the bubble burst.⁹¹ Even so, half a dozen British mining companies went so far as to establish themselves in Mexico, though only one of them would survive until after 1850.⁹²

Figuring prominently among the companies which went bankrupt was the *Compañía de Aventureros de las Minas del Real del Monte*, whose activities concentrated on the properties of Pedro Romero de Terreros, third Count of Regla. When it went bankrupt in 1849, the company had accumulated losses of 5,000,000 pesos and debts of 2,500,000 pesos. There is no doubt that this was a financial disaster, though it should nevertheless be emphasized that the Mexican company that purchased the *Compañía de Aventureros* obtained large profits in the following years on the foundations laid down between 1824 and 1849.

The reasons for financial failure were numerous. Nonetheless, the peculiar situation in which colonial legislation, ratified by the independent state,

⁸⁸ Cuauhtémoc Velasco Ávila et al., *Estado y minería en México: 1767–1910* (México, 1988), 90.

⁸⁹ María Eugenia Romero Sotelo, *Minería y guerra. La economía de Nueva España, 1810–1821* (México, 1997), 13–15.

⁹⁰ William Randall, *Real del Monte: Una empresa minera británica en México* (México, 1972), 17–191; Contreras, *La minería hispanoamericana*, 261.

⁹¹ Claudio Véliz, “Egaña, Lambert and the Chilean Mining Associations of 1825,” *Hispanic American Historical Review* 55, 4 (Nov. 1975): 641–3.

⁹² Randall, *Real del Monte*, 9.

placed the foreign investor bears mentioning. In effect, the foreign investor could not become the owner of mineral deposits, a fact that in some cases led investors to become financiers or providers of credit and in others, such as Real del Monte, renters.⁹³ In this last position, the Mexican owners enjoyed payments or “feedings” (*alimentos*) independent of profits, placing them in the “parasitic” position we saw in late colonial Potosí. The result at Real del Monte was that in the final accounting at the moment of closure the owners owed the British company 4,500,000 pesos, which they had been advanced, against 5,000,000 in total losses.⁹⁴ In other cases, the position of being renters implied that foreign investors could be removed precisely when their projects began to yield returns. This occurred, for instance, in Bolaños after eighteen years of investment.⁹⁵

The *Compañía de Aventureros* made significant advances in draining the mines thanks to the introduction of machinery and to the use of steam as a source of energy. However, the company did not translate that success into a meaningful increase in profitability because it was unable to increase its capacity to process low-grade ore and thus reduce its dependence on fortuitous bonanzas. This was likely due to the weakness of the local management caused by its the distance from London and the unwillingness of the shareholders to grant real authority to their representative in Mexico.⁹⁶ The company had belated successes in improving techniques for refining ore. In its last five years it was able to begin utilizing the Friburgo or barrel method in the refinement of red and black tailings (*tierras coloradas y negras*), which were considered until then resistant to amalgamation. The company also then implemented the mercury-free flotation method.⁹⁷

Guanajuato, the great productive zone of the eighteenth century, was the center of two other British companies. The Anglo-Mexican Mining Association commenced its activities in 1825 and in the following year had already encountered great difficulties caused by large expenditures and the very slow recovery of Valenciana, the mine perhaps most affected by the war. The London shareholders did not want to boost investment nor extend workings to smaller mines. Facing a lack of capital the company had to depend on the work of independent scavengers (*buscones*) in other mines.

⁹³ Velasco Ávila, *Estado y minería*, 223.

⁹⁴ Velasco Ávila, *Estado y minería*, 103.

⁹⁵ Contreras, *La minería hispanoamericana*, 269; Margaret E. Rankine, “The Mexican Mining Industry in the Nineteenth Century with Special Reference to Guanajuato,” *Bulletin of Latin American Research* 11, 1 (1992): 30.

⁹⁶ Randall, *Real del Monte*, 85–6.

⁹⁷ Randall, *Real del Monte*, 114, 135–42.

One of the company's few favorable elements was its control over the concession for the mint (*casa de moneda*) in Guanajuato. Draining Valenciana advanced in the first years more slowly than expected, without revealing workable ores. By 1836–7, it was concluded that Guanajuato would not yield profits and the British company extended its activity to Zacatecas, but before the middle of the century it was only seeking to return the mines to their owner.⁹⁸

The United Mexican Mining Company was an exceptional case in that it survived until 1908, when its properties were acquired by a U.S. company. This company had taken on the great Rayas mine in Guanajuato, where in 1825 it focused on deepening the shaft that the mine's owner had begun in 1825 and suspended during the insurgency. It differed from the Anglo-Mexican Mining Association by having a Mexican directorate with a politician of Lucas Alamán's influence as president, which ended up being particularly important because of the numerous legal conflicts that the company faced with the owners of the mines. Still, the initial optimism of the British, based on the affirmation in Ward's 1827 book that they would obtain dividends of 26.5 percent on nominal capital in three years, was not realized. Their most unrealistic assumption consisted in the belief that as draining the shafts progressed, they would be able to produce enough metal to finance the continuation of the work. They thus underestimated the negative effects of the haphazard work done during the years of insurgency, which had to be cleaned up slowly and at great cost. Naturally, once cleaned, many sections revealed no useable ore.⁹⁹

One of the largest problems that the British company confronted was the shortage of labor. The control that Gálvez won over the workers in 1767 was lost during the insurgency, and the situation was worsened by the epidemics of 1825, 1830, and 1833. Here the company also had to rely in good measure on independent *buscones* who received gunpowder and tools from the company, but took upon themselves the costs of ore extraction. The British attempted, without success, to change the method, which included remuneration for shares (*partidos*), in other words, half of what was extracted, in addition to the disadvantage of haphazard work and the exploitation of inferior ore.¹⁰⁰

United Mexican maintained itself in good measure through its policy of diversification. This led it to enjoy bonanzas in the mines of La Luz in

⁹⁸ Rankine, "The Mexican Mining Industry," 30.

⁹⁹ Rankine, "The Mexican Mining Industry," 30–2.

¹⁰⁰ Rankine, "The Mexican Mining Industry," 32–5.

the 1840s and 1850s, and in the mines of San José de los Muchachos.¹⁰¹ The company was also able to participate in the exploitation of Zacatecas, a region that had suffered less destruction than Guanajuato as the result of operations by the insurgent armies, and where the supply of materials could be maintained with fewer disruptions. The greatest problem in those deposits, instead, seems to have been the withdrawal of Spanish investments. On the other hand, the establishment of a provincial *casa de moneda* also stimulated the production of silver in this area. In this context, Anglo-Mexican took the opportunity to extend its activity to Sombrerete and Veta Grande.¹⁰²

More recent studies have also underlined the fall in mining production after independence in the Andes and the existence of cycles of recovery prior to 1850. Altogether, production in Bolivia (Upper Peru) fell much more markedly than in Peru (colonial Lower Peru) and experienced a smaller recovery. Bolivian production dropped from an index of 100 for 1801–10 to an index of 34 in 1841–50, to go up in the following decade to a level of 45. In Peru, on the other hand, although production declined to 32 in 1821–30, over the subsequent two decades it climbed back up to an index of 88.¹⁰³

The 1810s and 1820s marked a “regressive” phase in Bolivian mining during which the destructive impact of the War of Independence became evident. For Potosí that destruction was especially long-lasting; in a physical sense, the long interruptions in work at the mines of Cerro Rico caused flooding and collapses that later made it very difficult and costly to resume work; the fifteen-year lack of adequate maintenance for the sophisticated system of lakes that provided the hydraulic energy for grinding ores left the refining works paralyzed. The mercury supply became less regular than it had been during the second half of the eighteenth century, and from 1819 on prices were double those of the twenty-five years prior to 1810.¹⁰⁴

Mining at Potosí was affected, then, by the same set of problems that have been cited to explain the crisis in the Mexican industry, though in this case the abandonment of the colonial policy of fiscal stimulus seems to have played an even larger role. The state's weakness signified the disappearance

¹⁰¹ Rankine, “The Mexican Mining Industry,” 37.

¹⁰² Velasco Ávila, *Estado y minería*, 204–6.

¹⁰³ Contreras, *La minería hispanoamericana*, 259.

¹⁰⁴ For the following paragraphs, see Enrique Tandeter, *Coercion and Market* (Albuquerque, NM, 1993), 221–31.

of the two pillars that sustained the industry in colonial times: the provision of indigenous forced labor (*mita*) and credit support from the Royal Bank of San Carlos.

The importance of Potosí and its mint brought acute suffering from the avatars of war. It was occupied three times, in 1811, 1813, and 1815, by patriot armies sent from Buenos Aires; each *porteño* (rebel) or royalist retreat involved looting the local agencies of government. The consequence was the impossibility of continuing support for mining through credit, whether in materials or in money. The overall result was that in 1819 mining activity was not even a tenth of what it had been ten years before; in 1822 there were only fourteen active refiners (*azogueros*) in Ribera; after the liberation of Potosí, in 1825, the number was reduced to twelve refineries whereas in 1836 there were fifteen in service.

In contrast to Mexico, the Andean region held a very modest place in the wave of English investments directed at mining between 1824 and 1825. In Bolivia only two companies, the Chilean and Peruvian Mining Association and the Potosí, La Paz and Peruvian Mining Association, attracted interest. The first very quickly failed, whereas the second lasted somewhat longer.¹⁰⁵ In recruiting managers for the enterprise there was a real preoccupation with acquiring the technology and technicians appropriate to the mineral deposits of South America. This was evinced by the trip that James (Diego) Paroissien, Peruvian veteran of the South American War of Independence, former diplomat, vice-president of the Potosí Company, and future head of the firm in Bolivia, made to Paris around August 1825 to interview Alexander von Humboldt. Of the various suggestions that the latter made regarding possible participants in the venture, the only one that materialized was Baron Hermann de Czettritz y Neuhaus, who traveled to Potosí as head of the technical aspect of the enterprise.

The purchase of materials also gave positive signs, such as the 300 bottles of mercury, acquired at half of the then current Bolivian price. Shipped as well were a special iron mill to grind *relaves* (remains of amalgam) and spare parts for the refining works active in Potosí, in addition to tools and raw iron. Particularly significant were two machines that mixed ores with water for pulverizing. These surpassed existing *ingenios*, which used a dry grinding technique that resulted in the loss of part of the metal contained in the ore and damaged the health of workers involved in the process.

¹⁰⁵ Antonio Mitre, *Los patriarcas de la plata. Estructura socio-económica de la minería boliviana en el siglo XIX* (Lima, 1981), 82.

Also worth noting was a load of bricks “for ovens” to be used for smelting previously unexploited, high-quality *negrillo* ores.

In these preparations we may then discern, alongside the speculative fever and the waste that characterized all English mining companies formed in those years, specific traits that tied the Potosí Company to the Nordenflicht mission’s failed attempt to contribute technological innovations to Potosí’s productive process. This relationship was apparent in the company’s advertising prospectus, which quoted Anton Zacharías Helms, a member of the Nordenflicht mission, as a witness to the riches still to be exploited in Potosí. Moreover, both Czettritz, head of the “mining department” of the Potosí Company, and Edmond Temple, the firm’s secretary, explicitly favored the barrel-refining method that Nordenflicht had unsuccessfully tested.

The Potosí Company distinguished itself further from other speculative ventures of the era in the path that it chose very early for getting into the mining business. A multitude of European and American speculators had formulated ambitious schemes for obtaining broad government concessions for mineral deposits in the new independent republics.¹⁰⁶ The Potosí Company, on the other hand, ensured its effective insertion into the productive structure of the Villa Imperial in the same month as its foundation, through the signing in London of a rental agreement for three-fourths of the Laguacayo *ingenio* and its affiliated mines over a period of ninety-nine years. Later, it would sign in Potosí a contract for the remaining 25 percent.

The company’s largest group of administrators arrived at Potosí between March and April 1826. By the end of the year initial hopes had already given way to the certainty of failure, precipitated by the crash of the London financial market in December 1825. By then no investor had paid the second installment; moreover, scarcely 50 percent of the first installment had been collected. The company definitively suspended operations at the beginning of 1827 without refining a single mark of silver, despite having accumulated a large quantity of the mineral, which was ultimately sold locally in the City.

After the ambitious plans for expansion which the Potosí Company had envisioned for all of Bolivia and even Peru, a text drafted by Czettritz at the end of 1826 coldly described the bleak outlook for the working of Laguacayo and its mines.¹⁰⁷ The Potosí Company was thereafter reduced

¹⁰⁶ William Lofstrom, *Dámaso de Uriburu. Un empresario minero a principios del siglo XIX en Bolivia* (La Paz, 1982).

¹⁰⁷ Enrique Tandeter, “Potosí y los ingleses a fines de 1826,” *Historia y Cultura* 3 (1978): 125–43.

to the modest scale of a colonial renter with little or no capital, but now without the subsidy represented by the *mita*. It was, however, a renter that sought to reverse the dominance of rents over profits that had characterized “colonial” renters. In effect, the subscription contracts in London and Potosí alike stipulated that the owners would receive a third of the operation’s net profits. Rents thus stopped being a heavy fixed burden and took on the variable character of profits. This was a paradoxical contrast to Mexico where, as we have seen, it was only after the convulsions of the War of Independence that owners came to enjoy a parasitic position relative to producers, particularly foreigners.

From the end of the 1820s Bolivia saw the start of a reconstruction phase in mining activity, led by national companies formed by sectors displaced by the ephemeral postindependence mercantile boom that, with government support, then diverted capital to mining.¹⁰⁸ On the whole, that phase of reconstruction (1830–50) saw a turn to colonial period technology, which was suitable for the processing of *materiales de desmonte*, low-quality tailings from previous workings, in a context of elevated costs caused by the high price of mercury.¹⁰⁹ A particular element of continuity with the colonial period was the overexploitation of labor as the key to mining’s profitability.¹¹⁰

However, a few individual businessmen sought an innovative route. This occurred with the Ortiz brothers, businessmen of *salteño* origin who emigrated to Potosí in 1816 and in 1836 invented a refining machine that lowered costs by reducing the need for workers in the refining process. The machine’s production was vital to what has been dubbed the “first republican silver cycle, 1838–1842.”¹¹¹ Despite various attempts, the device did not spread to the *ribera potosina* nor to the Peruvian mine of Cerro de Pasco where it was tested. Nevertheless, its creators garnered significant profits, which allowed them to compete with the principal producers at Potosí until mid-century. Other innovations developed at mines in the Bolivian interior, which had never enjoyed the advantage of the *mita* and where mercury must have been more expensive. The mines nonetheless had the advantage of possessing higher quality ores and an abundance of fuel. Those factors

¹⁰⁸ Antonio Mitre, *Los patriarcas de la plata*, 88.

¹⁰⁹ Antonio Mitre, *Los patriarcas de la plata*, 112–13.

¹¹⁰ Antonio Mitre, *Los patriarcas de la plata*, 142–3.

¹¹¹ Tristan Platt, “Historias unidas, memorias escindidas: Las empresas mineras de los hermanos Ortiz y la construcción de las élites nacionales. Salta y Potosí, 1800–1880,” in Margarita Menegus Bornemann, ed., *Dos décadas de investigación en historia económica*, 285–362.

perhaps explain why there had been experimentation during the 1820s and 1830s, first at Chichas and later at Porco and Chayanta, with the recovery of the technique formulated by Álvaro Alonso Barba in Upper Peru in the seventeenth century.¹¹² In this method, ground ores underwent calcination and were then boiled with water, mercury, and salt in copper containers placed in small ovens. The primary advantage of the technique was its speed, combined with the fact that it did not waste mercury.¹¹³

The general context of Bolivian silver production to midcentury was unfavorable due to the state monopoly imposed by the government. In effect, there was no free trade in minerals, and government-run purchasing agencies, called *bancos de rescate*, always paid inferior prices, between 18 and 26 percent lower than prices in the “free” market, and paid in *moneda feble* (light coins) of lower quality and weight than the official currency. This *moneda feble* originated with the wartime needs of the treasury under the government of Santa Cruz and grew during the first half of the nineteenth century from 14 to 80–90 percent of the total mintage of the 1850s, displacing *pesos fuertes* (hard pesos) from circulation. The combined effect of the lower purchase price plus the devaluation of *moneda feble* represented a hidden tax of between 25 and 33 percent on the value of production. At the same time, the circulation of *moneda feble* meant inflation for inputs important for mining such as mercury, tools, and machinery. In this period smuggling was the great temptation because it permitted avoidance of internal taxes, explicit or hidden, in addition to providing high-value silver to pay for inputs. The government had little success in suppressing smuggling, and was forced to accept the operation of secondary purchase banks (*bancos secundarios de rescate*), first state run, and then privately run in the 1840s. At the very least, these had the advantage that they paid for the silver in cash without forcing the seller to wait until his silver dust could be turned into coin in Potosí, which continued to have the only mint.¹¹⁴

In independent Peru, silver also continued to be the primary article of export, though guano surpassed it beginning in the 1840s. Mining developed in the context of a republican state in constant crisis that, instead of assisting it as in colonial times, saddled it with heavy taxes. Miners could only turn to commercial credit and to private capital, which, as in

¹¹² Tristan Platt, “The Alchemy of Modernity, Alonso Barba’s Copper Cauldrons and the Independence of Bolivian Metallurgy (1790–1890),” *Journal of Latin American Studies* 32 (2000): 1–54.

¹¹³ Platt, “The Alchemy of Modernity.”

¹¹⁴ Mitre, *Los patriarcas de la plata*, 51–3.

the colony, were reluctant to risk long-term capital. While in the colonial period Cerro de Pasco's production only reached half of total regional production, immediately after independence a process of concentration began at this site because of stagnation at mines in both the north (Hualgayoc) and the south (Puno and Arequipa). As in Bolivia, a fundamental problem was the discrepancy between the official prices paid for ore at the mines and the international price of silver, 40 percent higher. Combined with high taxes, the costs of coinage, and export duties, this situation caused mining profits to fall from 25 percent in 1828 to 7.5 percent in 1851. As in Bolivia, Peruvian mine owners profited from overexploitation of the labor force.¹¹⁵

Cerro de Pasco saw a dramatic increase in production in the 1820s thanks to the introduction of three steam engines for draining the mines. It was thus possible to dig fifteen *varas* [approximately fifteen yards] beneath the tunnel of Yanacancha (San Judas) and move from exploiting low-quality *minerales pacos* to others (*pavonados* and *polvorillas*) with outputs of up to 400 marks per *cajón*. But if 1820 marked a great boom in production it was also the beginning of war in Cerro de Pasco, with successive patriot and royalist occupations. The only machine functioning in 1825 permanently broke down in 1828.¹¹⁶ In 1839 the drainage of Quiulacocha, begun in 1806, was completed, which explains the new rise in production in 1840–43, though a lack of maintenance and more substantial investments quickly exhausted its profitability.¹¹⁷

This chapter has confirmed the extreme dependence on state policies of the Latin American colonial mining industry, as well as the disparate regional impacts of such policies. It has reviewed the development of enterprises that, like those in other colonial economic sectors, could not fairly be characterized as efficient, but whose arrangements were nonetheless rational given the resources at hand.¹¹⁸ Investigation of the profitability of mining enterprises is limited by the lack of empirical work on the subject. But an analysis of the role played by domestic and international demand

¹¹⁵ Alfonso W. Quiroz, "Consecuencias económicas y financieras del proceso de independencia en Perú, 1800–1830," in Leandro Prados de la Escosura and Samuel Amaral, eds., *La independencia americana: Consecuencias económicas* (Madrid, 1993), 124–46.

¹¹⁶ John R. Fisher, *Silver Mines and Silver Miners in Colonial Peru, 1776–1824* (Liverpool, 1977).

¹¹⁷ Quiroz, "Consecuencias económicas y financieras," 124–46; José R. Deustua, *The Bewitchment of Silver. The Social Economy of Mining in Nineteenth-Century Peru* (Athens, OH, 2000).

¹¹⁸ For the example of the textile sector, see Richard Salvucci, *Textiles and Capitalism in Mexico: An Economic History of the Obrajes, 1539–1840* (Princeton, NJ, 1987).

yields some hypotheses to explain the mining industry's fluctuating profits and ability to attract capital. We have verified the negative effects of independence on the mining industry in Mexico and the Andes as well as the limitations of the first wave of foreign investment in the sector. Nonetheless, we have also been able to observe cycles of rising production at various points during the first half of the nineteenth century.

10

PREMODERN MANUFACTURING

AURORA GÓMEZ-GALVARRIATO

The late industrial development of Latin America poses important questions for the study of early manufacturing in the region. A central theme addressed directly or indirectly by the literature on the topic is the differences between the evolution of manufacturing in Latin America and in regions such as Europe and North America that industrialized earlier. To what extent does Latin American economic backwardness in terms of industrial development have its roots in the colonial era and the early post-colonial period? How was manufacturing in Latin America affected by colonial policies? What other factors account for its stagnation?

At first glance, one may assume that compared to Europe or North America very little manufacturing was undertaken in Latin America before 1850. Spanish and Portuguese colonial policies did limit the development of manufacturing in the region, but the further we study the topic the more we find that colonial regulations were flexible enough to allow some manufacturing to take place when the demand for particular goods could not be adequately supplied by the metropolis. Moreover, certain products manufactured in Latin America were central to colonial trade and thus promoted by the colonial governments.

Given the vast geographical extent of Latin America and its profound physical and historical heterogeneity, it is difficult to make general statements about the region as a whole. Manufacturing developed in different ways throughout Latin America depending on natural resource endowments, transportation costs, and the composition of the population.

Very different population densities and degrees of political organization existed in Latin America before the arrival of the Europeans. This, together with the different relative values (net of transport costs) of the

export goods Europeans were able to extract from each region, generated a diverse composition of the population in terms of their ethnicity and their social, political, and economic status. The demand for manufactured goods in Latin America – in terms of quantity, type, and quality – would be crucially shaped by the specific composition of the population in each region.

Latin America was also very heterogeneous in terms of the factors that determined whether the goods demanded would be supplied locally or imported from abroad. Labor, capital, and natural resource endowments were not always abundant enough to make the production of certain goods economically viable. Moreover, a certain market size was needed before some manufactured goods could be produced locally. The size of the internal market also depended on the transportation facilities within the region. All these factors differed greatly across Latin America.

Colonial regulations played an important role in shaping the supply of manufactured goods to Latin America in several ways. Colonial rules prohibited or limited the production of some manufactured goods and the use of certain factors of production in the colonies. Other rules forbade or limited their importation and exportation outside of strictly defined regions. Finally, colonial policies shifted transportation costs by establishing strict regulations on transatlantic and colonial commerce. However, it is difficult to assess to what extent these regulations were important factors that limited the development of manufacturing in Latin America.

As in other parts of the world, most manufacturing activity in Latin America during this period was the work of small-scale craftsmen who produced goods on order for local consumers. In those regions of Latin America where European and indigenous populations coexisted, the study of this type of manufacturing is a fascinating subject because of the survival and hybridization of different traditions, technologies, products, and distribution channels that were usually neither fully integrated nor completely separate, but intertwined and mutually influential.

Manufacturing on a larger scale, which could supply a broader market than the locality where the goods were produced, also existed in colonial Latin America. Sugar, molasses, rum, tobacco, cigars, wool and cotton cloth, certain types of pottery, leather goods, and silver and gold coins manufactured in Latin America sometimes traveled great distances. The market for some of these products could extend to faraway villages and cities in the Americas, to Europe, or to distant parts of Asia and Africa.

This chapter will focus on the study of two manufacturing sectors – sugar processing and textiles – to highlight the differences and similarities between

manufacturing activity in Latin American and that in other regions up to about 1850. Sugar and textiles shared some traits that make them particularly useful case studies for understanding the opportunities and constraints that Latin America's early manufacturing industry faced. Although some sugar and textile manufacturing was carried out on a small scale for local markets (especially textiles), the lion's share of production (especially sugar) was destined for a broader market. Moreover, a clear separation between those who owned the means of production and those who supplied the work force existed in both industries. Finally, in both sectors production technologies eventually developed during the nineteenth century to make both of them truly industrial products.

There were also differences between sugar and textiles in terms of the markets to which they were destined, the geographic regions in which they were produced, and the type of labor they used. Generally, sugar was produced mostly for European markets, whereas textiles were produced for Latin American (but not strictly local) markets; sugar was produced mostly in coastal regions, whereas textiles were generally produced in the highlands; and sugar was generally produced by African slave labor, whereas textiles were mostly manufactured by coerced Indian labor.

THE SUGAR INDUSTRY

Sugar was one of the most important manufactured products in Latin America before 1850. Yet few studies on Latin American manufacturing deal with the evolution of the sugar industry. Several characteristics of sugar production have set it aside from the study of industrial development in Latin America. The fact that sugar production involves both agricultural and manufacturing processes, and that sugar mills need to be located in rural areas close to the plantations (many times vertically integrated with them), has made us understand sugar more as an agricultural than as a manufactured product. Moreover, the prevalence of slavery in the production of sugar throughout the region made sugar production hardly the place to look for industrial development. Finally, because sugar production did not form part of the Industrial Revolution experienced in Europe and other industrialized nations, it was left out of the list of industries that should be considered in studying the industrialization process.¹

¹ A discussion on this issue can be found in Stuart Schwartz, *Sugar Plantations in the Formation of Brazilian Society: Bahia, 1550–1835* (Cambridge, 1985), 154; Sidney Mintz, *Sweetness and Power. The Place of Sugar in Modern History* (New York, 1985), 48–52.

However, other Latin American manufactured goods, such as textiles, share several characteristics with sugar. Textile production also required agricultural raw materials – cotton and wool. Textile mills were often located in rural areas because of the need for hydraulic power (given Latin America's scarcity of coal). Textile production was also undertaken by coerced labor in Latin America during the colonial era. Finally, like sugar, textile production experienced substantial technological development during the nineteenth century, such as the incorporation of steam power and other engineering innovations.

Arguably, sugar was the first manufactured article in the world to have been mass produced and mass consumed. It would take some time for sugar to pass from the tables of princes to those of the common working man, but by the mid-eighteenth century English laborers were already extensively using sugar to sweeten their teas, porridges, and breads. At a time when most manufactured products in Europe were still produced in small artisan shops, in the West Indies sugar was produced in mills employing between twenty and twenty-five workers per shift, with a strict division of labor and supervision, and using very costly and sophisticated (for the times) machinery and equipment. "As in the modern factory, the laborers in the sugar-making process were assigned specific and discrete jobs and were separated from the final product of their labor."²

THE EARLY DEVELOPMENT OF THE SUGAR INDUSTRY IN LATIN AMERICA (1493–1590)

Sugar production, together with gold and silver mining, was clearly the principal economic motivation for the conquest and colonization of the Americas. Christopher Columbus carried sugarcane as early as 1493, bringing it to Hispaniola (Santo Domingo) on his second Atlantic voyage. Since at least 1433 sugar had been successfully produced in several Atlantic islands, such as Madeira and the Canaries, and exported to Europe. Columbus, who knew the sugar industry well from his early career in the Madeiran trade, quickly realized that the natural environment of the islands he had just discovered was ideal for sugar production.

By the early sixteenth century, Spanish and Portuguese settlers had already introduced sugarcane to Puerto Rico (1515), Cuba (1511), and Brazil (1518). In New Spain it was Hernán Cortés who established the first

² Schwartz, *Sugar Plantations*, 149.

plantation and sugar mill in 1523. A decade later sugar production was introduced into Peru, and by 1547 it had reached Paraguay.

During the sixteenth century the Spanish Crown promoted the cultivation of sugar in its American colonies. The Crown gave land and water rights to settlers committed to sugar production and it permitted the importation of African slaves. Moreover, the Crown established a system of credit to advance loans for the establishment of sugar mills, and exempted all sugar machinery and equipment introduced to the Spanish West Indies from import taxes (*almojarifazgo*). In 1555 and 1568 the Crown sent instructions to New Spain's viceroys Luis de Velasco and Martín Enríquez to favor sugarcane cultivation and to distribute land among those who wanted to build new mills.

Unlike most other tropical commodities, sugarcane could not be traded internationally in crude form for processing in Europe. Its economic value deteriorated if it was not processed immediately. Thus, a manufacturing process had to develop on site parallel to the agricultural endeavor. Spanish settlers imported the methods for sugarcane cultivation and production from the Old World. Yet they also introduced some important innovations into the production technology in order to adapt it to the new environment. The sugar industry of Hispaniola, together with that of its contemporary in São Tomé, represented a transitional stage in the evolution of the industry from the intensive small-scale farming of the Mediterranean and the Atlantic islands to the larger plantations of the American industry in its colonial heyday. Whereas the role of slavery in Madeira and the Canaries was relatively minor, in Hispaniola and São Tomé it gradually increased to culminate in full dependence on slave labor. This would become a general and long-lasting trait of sugar production in the Americas until the end of the nineteenth century. The scale of production in the Hispaniola and São Tomé sugar estates also differed from that in their Madeiran and Canarian counterparts: the average plantation in Hispaniola had about 100 slaves and produced more than twice the sugar of its Madeiran counterpart.

However, during the sixteenth century there was a persistent use of Mediterranean milling technology. Theodore De Bry's 1595 representation of work in the fields and mills of Hispaniola shows that the industry relied on Old World technologies, such as the use of small edge-runner mills (*trapiches*), which were powered by men, oxen, or mules. There were also other, larger mills (*ingenios*) moved by water wheels. The fuel used for sugar production was tree branches or logs. Mills were supplemented with presses

in order to extract the juice that the mill left in the cane. This technology was unsuited to dealing with the larger amounts of cane that could be grown in Hispaniola and must have been a constraint on the growth of the industry.

The Spanish were less successful at introducing the sugar industry onto Caribbean islands other than Hispaniola. Jamaica never produced enough sugar for export, and production in Puerto Rico generated little trade. Despite the early introduction of sugarcane onto Cuba, the sugar industry did not progress there until much later. During this period Cuban sugar production was carried out on a small scale and with relatively few slaves, making it more similar to its Canarian antecedents than to Hispaniola. Despite its promising start, however, the sugar industry stagnated in Hispaniola after 1580. Throughout the Spanish West Indies sugar production languished until the late eighteenth century. In large part, this was due to the lure of silver and gold in the mainland colonies of Mexico and the Andes. Spain's Caribbean possessions served primarily as way stations and fortresses along trade routes.

Despite its initial encouragement of sugar, the Crown's policy in Cuba was dominated by questions of security. The colonial regime tended to discourage the development of industries that did not service the transit of precious metals. Officials set strict rules on immigration to the island in an attempt to restrict the settlement of people to those who directly served the Crown's purposes and to block the settlement of people who might have contributed an element of instability. The importation of slaves was strictly regulated in order to reduce the threat of slave uprisings. This policy limited sugar planters' access to coerced labor, commonly used by competitors in other West Indian colonies. Taxes and restrictions on shipments of sugar further limited the expansion of the sugar industry.

The Spanish naval strategy against contraband and piracy, which led to a prohibition on trade between the Río de la Plata and the metropolis in 1594, also dealt a harsh blow to the development of the region. The sugar industry of Paraguay, which sold a large amount of its produce to Asunción and Buenos Aires, was badly hurt by this policy. In New Spain, the extraction of precious metals also prevailed over sugar production. Nonetheless, the sugar industry developed prosperously during the sixteenth century because, instead of competing with silver as an export product, its produce was destined for internal consumption that was propelled by the growth of mining. Similarly, the sugar production of Peru was mostly consumed within the Spanish colonies.

Within New Spain, after an early start in Morelos, sugar production spread during the sixteenth century to Veracruz, Puebla, Michoacán, and Nueva Galicia. In contrast with the Caribbean, until the end of the sixteenth century most of the laborers working in New Spain's sugar industry were not slaves but rather *encomienda* or (after 1550) *repartimiento* Indians. After 1542, when Indians were allowed to pay their tribute in metallic coins, many undertook sugarcane production on their own plots and sold the output to nearby *trapiches*. This made sugar production in sixteenth-century New Spain similar to the smallholder pattern of cultivation in Madeira, the Canaries, and Puerto Rico. The vertically integrated agro-industrial form of production did not take hold in New Spain until the seventeenth century, with the development of large *haciendas* that installed the new type of sugar mills called *ingenios*. Although small-scale sugar cultivation survived together with old-fashioned *trapiches* that produced *panela*, *piloncillo*, *panocha*, or the forbidden rum (*aguardiente*), the importance of the small sugar farms was substantially reduced.

The conquest generated a secular decline in the Indian population that, by the end of the sixteenth century, was reaching its lowest levels and making Indian labor a scarce resource. This situation caused Viceroy Gaspar de Zúñiga y Acevedo to move against sugar production. In 1596, he expressed to the Crown that sugar producers were competing for labor against grain cultivation and the mining industry. In response, Madrid ordered the viceroy to place limits on sugar production. In 1599, therefore, Acevedo proclaimed three decrees that radically restricted sugar production in New Spain. The first forbade the employment of *repartimiento* Indians in the sugar plantations and mills. No Indian could work in the sugar mills, and although Indians could be hired in sugarcane cultivation they had to be employed as free laborers. The second decree forbade the establishment of new sugar mills and the cultivation of sugarcane on land not previously used for that purpose. A third decree required planters to have a viceregal license to cultivate sugarcane. This last decree was complemented in December 1600 with another one that restricted sugarcane processing to sugar mills or *trapiches* owned by the same planter. Unintentionally, this last decree limited sugar production by Indian and Spanish smallholders and promoted the vertical integration of the agro-industry. Similarly, the Viceroy of Peru issued a decree in 1601 that forbade Indians to work on sugar *haciendas* and vineyards unless they were paid a daily wage.

There is substantial debate regarding the degree to which these decrees were actually complied with. However, there is consensus that these

regulations limited the development of the sugar industry in New Spain and Peru through “artificial constraints” narrower than those imposed by purely economic forces. Moreover, the investment opportunities that mining generated in these two regions were too attractive to allow resources to flow to sugar production as in the colonies where sugar was the major colonial export.

Unlike the Spanish colonists, the Portuguese did not find in Brazil a better investment than sugar for several centuries. After a hesitant start, the Brazilian sugar industry developed at an impressive rate. Most of the Brazilian coast is suitable for the cultivation of sugarcane. Lower transportation costs to Lisbon, together with a local supply of Indian labor, made the northeast of Brazil the most favored location for the initial development of the sugar industry. During the sixteenth century the Brazilian sugar industry was concentrated in Pernambuco and Bahia.

As in Hispaniola, plantations in Brazil evolved into large-scale operations fully dependent on slave labor. From the 1520s until the 1570s the great majority of slaves were Indians. Even as late as 1583, two-thirds of the slaves on the *engenhos* of Pernambuco were Indians. In the early years of the Brazilian sugar industry, sugar masters and other skilled laborers in the mills (such as purgers and kettlemen) were freemen from Madeira who received high salaries. However, by 1548 Brazilian planters were employing skilled African slaves (but not Indians) in these positions. Brazilian planters devised a system of incentives to ensure the adequate performance of slave labor in these difficult and strategic tasks. This system enabled them to overcome the often cited incompatibility of technology or industrialization with slavery.³

Until the mid-sixteenth century most African slaves in Brazil were either house servants or *oficiais*, skilled at various tasks. However, after about 1570 the employment of African slaves in Brazilian sugar mills became increasingly widespread until they became the predominant labor force by the early seventeenth century. As in New Spain, this change occurred as a result of the impact of Old World diseases on the native population together with the increased opposition of the Crown and the Church to the enslavement of Indians. Although some Indians continued to work on *engenhos* as slaves or for wages well into the eighteenth century, they never again supplied an important amount of labor to the mills.

³ Schwartz, *Sugar Plantations*, 66, 154–157; J. H. Galloway, *The Sugarcane Industry: An Historical Geography from Its Origins to 1914* (New York, 1989), 72.

GEOGRAPHICAL AND TECHNOLOGICAL TRANSFORMATIONS:
THE LATIN AMERICAN SUGAR INDUSTRY DURING THE
SEVENTEENTH AND EIGHTEENTH CENTURIES (1590–1780)

As in other parts of Latin America, during the sixteenth century the Brazilian sugar industry used a Mediterranean milling technology that was ill adapted to the scale of the industry in the Americas. *Engenhos* were small, the *trapiche* type, mostly powered by oxen or horses, although some water-powered mills were built. Between 1608 and 1612 a breakthrough in sugarcane milling took place in Brazil with the invention of a new mill that crushed the cane between three vertically mounted rollers or cylinders, instead of the two horizontal rollers portrayed in De Bry's illustrations. The three-roller mill had many advantages over earlier equipment. It could be operated with less animal power and labor and could mill cane at a higher rate. It pressed the cane better and thus eventually did away with the need for secondary presses. It was very versatile, being easily adapted to different sizes and energy sources. Finally, it was easier to construct, drastically reduced the cost of establishing a new *engenho*, and thus was responsible for a spurt of growth of mill construction in Brazil during the early sixteenth century.

It is difficult to calculate precisely the cost–benefit gains the new technology brought about due to lack of data. Yet one rough calculation indicates that the production of sugar per slave in Brazil went from between 0.25 and 0.4 tons a year with the old technology to 0.5 tons a year with the three-roller mill.⁴ During the early sixteenth century its use spread rapidly. Although the first evidence of its existence comes from 1613, five years later it was already in widespread use, and by 1628 it had largely replaced other types of mills. Soon, it became the predominant technology used in the Americas.⁵

A further innovation that can probably be attributed to the industry in Brazil was the adoption of a more efficient process for sugar manufacturing. Instead of the juice being boiled in a single cauldron until crystallization was reached, it was now boiled in a battery of cauldrons. The juice was passed from larger cauldrons to smaller ones as evaporation and clarification took

⁴ Ward Barrett and Stuart Schwartz, "Comparación entre dos economías azucareras coloniales: Morelos, México y Bahía, Brasil," in Enrique Florescano, ed., *Haciendas, latifundias, y plantaciones en América Latina* (México City, Madrid, Buenos Aires, 1975), 542.

⁵ This must have been facilitated by the fact that during this period Portugal and its colonies formed part of the Spanish monarchy.

place, and greater heat was applied to the smaller cauldrons than to the larger. This innovation allowed more efficient use of energy and greater control and continuity in the production process. The battery of cauldrons was an important complement to the three-roller mill in allowing a larger scale of production.

Until the mid-sixteenth century most Brazilian sugar reached Europe through Lisbon. Yet, by the end of the century several ports in northern Europe – particularly London, Hamburg, and Antwerp – became its main destination. By that time, more than two-thirds of Brazilian sugar exports were transported in Dutch vessels.

During the sixteenth century the Dutch sought to expand from refining and transportation to the actual production of sugar. In 1624–5 the Dutch made a failed attempt to seize the city of Salvador and surrounding plantations in Bahia, causing grave difficulties to the Bahian sugar industry. Then, in 1630, they returned and seized Pernambuco and held it until 1654. At the height of their power in Brazil they held much of the coast between the São Francisco River and Maranhão. Constant warfare seriously damaged sugar production in the region. Despite the efforts of the Dutch West India Company to supply credit and slaves, by the time the Dutch were finally expelled from the northeast, Pernambuco's sugar production had fallen to only 10 percent of Brazil's total.

In 1649, the long-opposed idea of establishing a convoy or fleet for the Brazilian trade had to be adopted in order to protect trading vessels from Dutch attacks and seizures. The Brazilian Company was created, and the formerly "open" Brazilian export trade was from then on supplanted by the fleet system centered in Lisbon. This gave the Portuguese government greater power to regulate trade and control the price of imports.

The English and the French began to seize Spain's Caribbean islands in the 1620s and to convert them to sugar production a decade or so later. The English began settling Barbados in 1627 with a population of cotton and tobacco farmers. However, after the 1640s the island turned increasingly to sugar production as a result of the increase in sugar prices caused by the warfare in Pernambuco. Similar developments took place on the islands of Nevis, Antigua, Montserrat, St. Kitts, Guadeloupe, and Martinique. The Caribbean sugar economy received another boost after 1654 when Dutch exiles from Pernambuco transferred skills, experience, and capital to regions such as the newly established Dutch colonies of Surinam and Curaçao as well as to other Caribbean islands recently occupied by the English. In 1655 the English added Jamaica to their territories and in 1697 the French

obtained Spanish recognition of their possession of a portion of Hispaniola, later known as St. Domingue and then as Haiti. These islands became increasingly important in the supply of sugar to the European markets, and during the eighteenth century became the dominant suppliers of the international market (see Table 10.1). They had a competitive advantage over Brazil due to their closer proximity to Europe and North America.

Whereas sugar production expanded in the Antilles during the second half of the sixteenth century, the Brazilian sugar industry experienced difficult times. Mercantilist policies instituted by Colbert in France and the British Navigation acts of 1651, 1660, 1661, and 1673 effectively excluded many Brazilian products from northern European markets. Nonetheless, Brazil continued producing more sugar in this period than any competitor in the Caribbean. In the eighteenth century, sugar remained Brazil's most valuable export, but Brazil's share of the Atlantic sugar market fell precipitously during the first three-quarters of the century as a result both of declining production and of rising foreign competition. Whereas in 1730 Brazil still accounted for about one-third of the sugar produced in the Americas, by 1776 it supplied less than 10 percent of the market.

Although sugar production in Spanish America was severely restricted by the end of the sixteenth century, it continued to prosper in those regions where it was produced for internal markets. Crespo has estimated an annual growth of 1.4 percent in sugar production for New Spain during the seventeenth century.⁶ This growth coincided with the shift toward production in large plantations that vertically integrated sugar milling and that employed a substantial number of African slaves. Data from Morelos indicate that during the seventeenth century large sugar *haciendas* employed between 75 and 100 slaves, whereas the smaller units employed between 25 and 50. These plantations also employed many Indians who either lived on the *haciendas* or came to work by the day. The rising cost of African slaves, together with the increase of the Indian population of New Spain, resulted in the virtual disappearance of slave labor at most of New Spain's sugar plantations (with the exception of Córdoba) by the end of the eighteenth century.

During the seventeenth century, an important share of the sugar industry developed in coastal Peru and Tucumán, Argentina in *haciendas* established by the Jesuits. As in New Spain and Brazil, the absolute decline of the Indian population, as well as legislation, forced colonists to turn to African slaves

⁶ Horacio Crespo, *Historia del azúcar en México* (Mexico City, 1988), 139–42.

Table 10.1. *Sugar production: 1600–1900 (1000s of metric tons)*

| Year | British W. Indies (a) | Other W. Indies (b) | St. Domingue | Cuba | Bahia (Brazil) | Brazil | Morelos (Mexico) | Mexico |
|------|--------------------------|------------------------|-----------------|------|-------------------|--------|---------------------|--------|
| 1600 | | | | | | | 0.2 | |
| 1610 | | | | | 4.3 | 10.2 | | |
| 1620 | | | | | | 14.1 | | |
| 1630 | | | | | 4.5 | | | |
| 1640 | | | | | | 13 | | |
| 1650 | 3.8 | | | | | | | |
| 1660 | 8.3 | | | | | | | |
| 1670 | 4.8 | | | | 7.3 | | | |
| 1680 | 3.6 | | | | | | | |
| 1690 | 7.2 | | | | | | | |
| 1700 | 23.8 | | | | | | | |
| 1710 | 32.3 | 5.8 | 5.1 | | 7.4 | 19 | 1.6 | |
| 1720 | 46.1 | 5.3 | 10.9 | | | | | |
| 1730 | 65.5 | 15.4 | | | | | | |
| 1740 | 55.9 | 16.2 | 43.1 | 2.0 | | | | |
| 1750 | 62.7 | 20.2 | | | 5.2 | | | |
| 1760 | 121.3 | 9.0 | 63.2 | 0.7 | 5.8 | | 2.4 | |
| 1770 | 82 | 13 | 60 | 7 | | | | |
| 1780 | 73 | 15 | 68 | 7 | | | | |
| 1790 | 85 | 22 | 75 | 15 | 5.9 | | 5.2 | |
| 1800 | 110 | 33 | 9 | 29 | | 12 | 7.8 | |
| 1810 | 135 | 48 | 6 | 39 | | 5 | | |
| 1820 | 166 | 54 | 1 | 55 | | 11 | 6.4 | |
| 1830 | 189 | 67 | 0 | 105 | | 21 | | |
| 1840 | 107 | 69 | | 161 | | 37 | — | |
| 1850 | 123 | 44 | | 295 | | 52 | | |
| 1860 | 163 | 78 | | 429 | | 84 | 11.5 | |
| 1870 | 207 | 84 | | 703 | | 68 | 8.5 | 18.9 |
| 1880 | 225 | 90 | | 619 | | 160 | 26.4 | 76 |
| 1890 | 258 | 88 | | 636 | | 148 | | 65.8 |
| 1900 | 204 | 72 | | 309 | | 167 | 38.2 | 95 |

Notes: Figures reported are from years that correspond not exactly but closely to the date indicated:
 (a) from 1600 to 1700 data include Barbados, Jamaica, and Leeward Islands; (b) from 1710 to 1760 data include Barbados, Jamaica, St. Kitts, Nieves, Montserrat, Antigua, and the Minor Antilles;
 (c) other West Indies includes from 1710 to 1760 Martinique, and from then on Martinique, Guadeloupe, and Surinam.

Sources: Alan Dye, *Cuban Sugar in the Age of Mass Production* (Stanford, CA, 1998), 27; Gary B. Nash, *Sugar and Slaves* (Chapel Hill, NC, 1972), 203; David Watts, *The West Indies: Patterns of Development, Culture, and Environmental Change since 1492* (Cambridge, 1990), 330; Stuart B. Schwartz, *Sugar Plantations in the Formation of Brazilian Society: Bahia, 1550–1835* (Cambridge, 1985), 168; Ernesto Sánchez Santiró, *Azúcar y Poder* (Mexico City, 2001), 168; and Gisela Landázuri and Verónica Vázquez, *Azúcar y estado: 1750–1880* (Mexico City, 1988), 62, 243, 245.

for the bulk of their *haciendas'* labor force. Yet they also relied on Indian labor, both temporary and permanent.

Inventories from sugar *haciendas* in New Spain and a description of the sugar-making process in Peru's Jesuit *haciendas* indicate that by the late seventeenth and early eighteenth centuries sugar processing was carried out in three-roller mills moved by animal power (or water power in New Spain) and the battery of cauldrons that had developed in Brazil.

There is evidence of technological change taking place in the sugar industry of New Spain. Gradually, the huge timbers used to give the cane a second crushing in mill equipment were replaced with more durable and efficient metal rollers. By the third decade of the seventeenth century, better milling equipment resulted in the abandonment of the use of costly presses to extract the sugar juice left by the mill from the bagasse or residue of sugarcane. Moreover, the cauldrons used to clarify sugar were gradually differentiated, depending on their place in the sugar-clarifying process, to allow important savings in energy costs (using only a third of the previous amount of wood required) and greater control of the sugar production process. However, it appears that neither in New Spain nor in Peru had the mills yet adopted the "Jamaica train" or "French train" developed in the Antilles during the early eighteenth century. This new furnace design replaced the separate fires under each of the several cauldrons by conducting the heat of one fire to the cauldrons through internal flues, thereby achieving efficiencies in fuel consumption.

The sugar industry of Brazil, New Spain, and Peru produced refined sugar through a method called "claying" or "purga." This was a skillful and time-consuming process by which sugar was transformed from a coarse and brown low-grade sugar full of molasses, known as *muscavado*, into different types of sugar, from high-quality whites to lower grade brown to yellow sugar, suitable for immediate consumption. The use of this process explains the lack of separate refineries in these colonies and their metropolises. Although the Caribbean planters eventually learned the technique of "claying" sugar, the vast majority of Antillean sugar exports to Europe were of *muscavado*, which served as the raw material for the European refineries that transformed it into white sugar. The refineries dissolved sugar in water and, as in the claying process, added clay to the magma in order to purify it, and then strained it through cloth before setting it in cones or other molds to cure.

Until the last two decades of the sixteenth century Antwerp (still part of the Spanish empire) was the principal center of sugar refining in Europe. However, "the sack of Antwerp and the destruction of its refineries during

the Dutch wars of independence from the Spanish Habsburgs encouraged the dispersal of sugar refining to other cities, so that by 1600 entrepreneurs in London, Hamburg, Rouen, and particularly Amsterdam were well established in this phase of the industry.⁷ By about the middle of the eighteenth century there were 120 refineries in England, each providing employment to about nine men. Moreover, the refining trade brought into existence a number of subsidiary trades. Several English cities – such as Bristol, Glasgow, and Liverpool – owed much of their eighteenth-century splendor to the refining industry.⁸

There are several reasons that sugar refining was carried out in a location separate from the sugar plantations. One was the lack of skill in making clayed sugar in the early years of Caribbean sugar production. Other reasons included the shortage of fuel in the Caribbean and the greater risk of damage to refined sugar during the transatlantic trip. However, there is still no cost–benefit analysis of alternative locations for the claying and refining processes that might indicate whether efficiency gains were obtained by transferring the sugar-refining process to Europe. It is clear, however, that mercantilist policies played a substantial role in supporting the European refining industry. “The manufacture of sugar created employment and the further the colonists took the process of manufacturing toward refined sugar the less work they left for refiners at home.”⁹ Moreover, sugar refining reduced the bulk of the end product, thereby reducing the cargoes and injuring the interests of merchant marines.

An act of the English Parliament in 1685 placed a duty four times greater on refined sugar than upon brown sugar imported into England, putting an end to refining in the English colonies. In 1682 the French adopted a similar policy and two years later the French Crown forbade the erection of new refineries in the French West Indies.

DIVERGENT PATTERNS: THE SUGAR INDUSTRY IN LATIN AMERICA DURING THE LATE EIGHTEENTH AND EARLY NINETEENTH CENTURIES (1780–1850)

During the second half of the eighteenth century a new spirit permeated Portuguese and Spanish metropolitan policies. The Portuguese marquis of

⁷ Galloway, *The Sugarcane Industry*, 77.

⁸ Eric Williams, *Capitalism and Slavery* (Chapel Hill, 1944, 1994), 74–5.

⁹ Galloway, *The Sugarcane Industry*, 109.

Pombal and the Spanish Bourbon kings sought to reorganize their empires through a series of reforms designed to increase the resources flowing to the metropolis. In order to restore confidence in the quality of Brazilian products, the Portuguese Crown in 1751 created boards of inspection in the major Brazilian ports, which eventually led to the fixing of sugar prices. In 1763 the capital of Brazil was transferred from Bahia to Rio de Janeiro. These policies were resented by Brazilian planters, but the end of the fleet system in 1765 gave them new opportunities for trade.

In 1759 the Jesuits were expelled from Brazil, and in 1767 the Spanish Crown followed suit. Although the Society of Jesus had sugar plantations throughout Latin America, they were not as important in Brazil or New Spain as they were in Peru and Argentina. The sugar industry was not seriously disrupted by the Jesuits' expulsion because former Jesuit plantations and mills were sold to private entrepreneurs.

Some of the Spanish reforms showed a more liberal policy orientation. In 1774 Charles III legalized direct trade between the viceroyalties of Peru and New Spain. Although this reform did not generate sugar exports from New Spain, it did increase sugar demand within the viceroyalty by allowing the direct entrance of cacao from Guayaquil. Since sugar is necessary to transform cacao into chocolate, an increase in cacao imports raised sugar consumption. In 1792 Charles IV exempted New Spain's sugar from both royal and municipal taxes in Spain (a privilege Cuban sugar already enjoyed). In 1794 and 1796 this policy was complemented by a new regulation that exempted New Spain's sugar from import and export taxes. Colonial regulations changed in 1796 to allow the establishment of new mills both in Spain and its colonies. In the same year, a decree was passed to legalize the production of rum (*aguardiente de caña*) in New Spain, thus allowing the rapid development of this sector of the industry.

The English capture of Havana in 1762 (during the Seven Years' War) resulted in a brief implementation of more liberal policies that creole planters would later demand of Spain when the English departed the next year. Internal political pressure, together with the more liberal attitude of the Spanish Crown, led to the liberalization of the slave trade to Cuba in 1789 and the passage of trade reforms that removed barriers hindering the industry's development.

More important than policy changes was the increase in sugar prices that began in the 1770s and accelerated dramatically due to the outbreak of the Haitian revolution in 1792. Haiti had been the Caribbean's largest sugar producer. Rising prices led to rapid growth of sugar production throughout

Latin America. The Brazilian sugar industry expanded, not only in Bahia – where the number of *engenhos* went from 166 in 1759 to 260 in 1798 – but also in Pernambuco, Rio de Janeiro, and São Paulo. Although Bahia continued to be the most important sugar-producing region in Brazil, by 1808 Rio de Janeiro was contributing about 20 percent of Brazil's total sugar exports. Between 1750 and 1790 sugar production in New Spain more than doubled, passing from about 5,500 tons to almost 11,000 (see Table 10.1). However, nowhere did the sugar industry experience a greater impulse during this period than in Cuba. From 1780 to 1800 Cuba's sugar production increased from 7,000 to 29,000 metric tons – that is, a 400 percent increase.

During the last decades of the eighteenth century and the early decades of the nineteenth century, astonishing economic, political, and social transformations took place in Europe and North America that brought about vertiginous changes in Latin America. The Wars of Independence, the consolidation of the new republics, restraints on the slave trade, and the later abolition of slavery together with the technological transformations that the Industrial Revolution brought about affected Latin America's sugar industry in very different ways, producing divergent patterns of development in the region.

Major challenges faced Latin American sugar planters during the nineteenth century. They "had to replace slavery with new systems of labor as well as finance revolutionary innovations in milling and manufacturing at a time of declining prices caused by competition from beet sugar."¹⁰ Only some regions in Latin America could successfully meet these challenges, which required radical changes in sugar manufacturing technology, land use, settlement patterns, and even the ethnic composition of the labor force.

Independence had diverse consequences throughout Latin America. Haiti is an extreme example of the destructive effects that warfare and instability could inflict upon the sugar industry. New Spain's economy was also seriously hindered by the Wars of Independence and the subsequent era of political instability. In the early years of the nineteenth century, Humboldt predicted the prosperous development of sugar in New Spain. Yet the Wars of Independence resulted in the tremendous destruction of sugar plantations, buildings, and machinery; and republican Mexico's decisions to cut off trade with Spain ended the modest flow of exports. The Mexican economy fell into an era of stagnation that lasted until the 1860s, severely affecting its sugar industry in terms both of consumption and of the

¹⁰ Galloway, *The Sugarcane Industry*, 143.

possibility of raising investment capital. Surviving mills remained technologically stagnant until the last decades of the century. In contrast, though Brazil achieved independence peacefully, its economy stagnated for most of the nineteenth century, in part due to regional revolts, slave rebellions, and wars with neighboring Paraguay. Cuba's independence wars (1868–78, 1895–8) were also violent and disruptive. However, they took place when economic growth was already under way, and economic conditions soon recovered through the inflow of North American capital.

The end of slavery took place at different paces and rhythms throughout Latin America, starting with Haiti in 1792. Britain's participation in the slave trade ceased as a result of an Act of Parliament in 1807, but slavery continued in the West Indian colonies until 1834. The abolition of slavery was proclaimed in most of Spanish America's new nations between 1810 and 1824. Peru and Venezuela were notable exceptions. Slavery also persisted until 1848 in the French colonies, until 1886 in Cuba, and until 1888 in Brazil. The sugar industry was everywhere affected by slave trade restrictions and abolition. The end of slavery was less problematic where the industry was not so dependent on slavery, as in Mexico (Morelos), or where it was carried out slowly, allowing gradual replacement of slaves with other types of labor, as in Cuba and Peru.

The emancipation of slaves in the British colonies opened opportunities for the Cuban and Brazilian sugar industries, where slavery was not abolished until the end of the century. However, sugar from these sources was virtually excluded from Britain, one of the biggest markets. Until 1846, Brazilian sugar was subject to a duty almost three times higher than sugar from the British West Indies, East Indies, and Mauritius. Thus, continental Europe became the main market for Brazilian sugar. Cuba also faced stiff barriers in virtually all major markets. Yet North America's sugar demand had grown sufficiently by the end of the nineteenth century to absorb most of Cuba's annual crop. Although the United States also placed high protective tariffs against Cuba's sugar, the island's geographical advantage and unusually good natural conditions allowed it to compete successfully in the North American sugar market.

The development of the beet sugar industry in Europe, and later in the United States, generated a difficult rival for cane sugar. Tariffs and taxation were to be major factors in the unequal competition that took place between the two types of sugar throughout the nineteenth century. Beet sugar began to be produced successfully in Europe during the Napoleonic Wars as the supply of cane sugar was interrupted. From the beginning, its

production – considered a way out for a depressed agricultural sector – was favored with governmental support. Whereas cane sugar paid high tariffs, no country taxed beet sugar, until France began to do so in 1837. France and Germany, once importers of cane sugar, closed their doors to sugar imports and subsidized the export of beet sugar. After 1845, Britain reduced its tariffs on both cane and beet sugar, in the interest of free trade. However this was not very helpful for cane sugar producers, who had to compete against heavily subsidized beet sugar. By the end of the century, Britain's imports of beet sugar reached two-thirds of total sugar entering Britain. Competition for cane sugar producers also came from new sugar plantations in areas such as Java and Hawaii.

In order to successfully compete in the international markets, cane sugar producers had to introduce important technological transformations, some of which were by-products of innovations developed for the beet sugar industry. During the nineteenth century radical technological changes took place in all three stages of sugar production: milling, boiling, and clarifying. Whereas lack of capital and other problems kept many Latin American regions from adopting these innovations, Cuba eagerly put them into practice almost as soon as they were available.

By the end of the eighteenth century a new horizontal iron mill was developed by English and French technicians that represented a substantial improvement on the three-roller mill. Its rollers ran smoothly, placing an even pressure on the sugarcane, and thus requiring less energy to extract larger amounts of cane juice. Moreover, its design allowed the mills to be fed by mobile cane conductors that were adapted to the mill in the 1820s. During the first two decades of the nineteenth century most of the horizontal mills installed in Cuba were moved by animal power. However, in a few decades steam engines were used in Cuban sugar mills. Each of them replaced between fifty and eighty yoke of oxen and about thirty slaves. Innovation also took place in the 1810s in the second stage of sugar production, where closed cauldrons that boiled molasses in a vacuum replaced the “Jamaica trains” that had been used in Cuba since the late eighteenth century. Vacuum cauldrons reduced energy costs, increased sugarcane productivity from 4 to 5.9 percent, and produced a whiter, higher quality sugar.¹¹ In the 1840s claying was also transformed with the introduction of new machinery that drained sugar using centrifugal force. This machine

¹¹ Manuel Moreno Friguals, *El ingenio: El complejo económico social cubano del azúcar*, 3 vols. (Havana, 1978), 1:211, 214–20.

generated considerable labor savings. In addition, a purer and drier sugar was obtained.

Furthermore, transportation costs were dramatically reduced by the introduction of the railway. The first railroad in Latin America was built in Cuba in 1834–7 to transport sugar from inland to the port of Havana. By 1860 there were about 400 miles of track. By that year, the diffusion of the steam engine in Cuba was almost complete: 91 percent of the sugar crop was produced using steam power. Centrifuges had already replaced the old claying process. However, although 15 percent of the mills had already installed their first vacuum evaporators, only 5 percent of the sugar was produced using that system.¹² Cuba's technological transformation during the nineteenth century went hand in hand with a rapid expansion of the industry that transformed the island into the world's most important sugar producer.

In contrast, in Brazil, the sugar industry began to lose ground. Since the 1830s coffee had become Brazil's principal export, draining capital and slave labor away from sugar. Although technological progress did not take place in Brazil as fast as it did in Cuba, it was sufficient to allow the Brazilian sugar industry to continue selling its product in the international markets.

THE TEXTILE INDUSTRY

Whereas sugar was a completely unknown product before the arrival of the Europeans, textile production existed in pre-Hispanic America before the conquest. In Mesoamerica cloth was woven from cotton and hard fibers such as *agave* and *ixtle*. In the Andean region cloth was also made from the wool of vicuñas, guanacos, and other *ovejas de la tierra* (local sheep), as the colonial writings described them. Cloth production was carried out by Indian women in their homes and formed a substantial part of the tribute that both the Aztecs and the Incas received. The *Códice Mendocino* and the *Matrícula de Tributos* indicates that the Aztec rulers annually received in tribute 250,000 cotton mantles, 240,000 skirts, 144,000 loincloths, and 200,000 pounds of cotton.¹³ Specialization in textile production appears to have existed in some Andean villages before the conquest. The tribute

¹² Alan Dye, *Cuban Sugar in the Age of Mass Production. Technology and the Economics of the Sugar Central, 1899–1929* (Stanford, CA, 1998), 89; Moreno Fraginals, *El ingenio*, 1:234.

¹³ Richard E. Greenleaf, "The Obraje in the Late Mexican Colony," *The Americas* 23, 3 (Jan. 1967): 229.

demanded by the Incas from villages such as Urin Chillo, in the north of the valley of Quito, was wholly paid in *cumbi* or fine cloth from camelid wood. Huánuco also paid its tribute in *cumbi*, for which the Inca distributed the raw material.

Textile production was not interrupted by the arrival of the Spaniards, although it suffered some changes. The finest and more decorated cloth produced in Mesoamerica, destined for the highest classes, disappeared. Yet the use of cotton cloth, formerly exclusive to the highest ranks, was generalized. Cotton cloth continued to be woven domestically by Indian women.

The Spanish inherited the pre-conquest tribute system and thus received an important share of the tribute as cloth until 1570, when it was regulated that tribute should be paid in coins. Until then, most of the tribute paid in several parts of New Spain, such as Yucatan and the Audiencia of Guatemala, was delivered in textiles.

The Spaniards, however, introduced changes to the pre-conquest tribute system. By 1562, for example, although they continued to charge Huánuco Indians their tribute in cloth, they demanded cotton cloth instead of camelid wool and no longer supplied the raw material. Moreover, instead of charging the tribute every year as the Inca did, they required it every four months. In Pánuco by 1553 the Indians were required to produce longer and better cloths than those they had formerly provided.

Early on, the *encomenderos* tried to force the cotton cloth production of Indian women into factory-like settings. In 1549, however, *encomenderos* who “locked up Indian women in corrals” to weave cloth were ordered to stop doing so by the viceroy.¹⁴ Yet, as with many other ordinances, this one did not succeed in deterring *encomenderos* from this practice; it became prevalent in Yucatan, where Indian women were forced to labor in the *comulna*, or village house, to spin and weave for the *encomendero*.

The catastrophic decline of the Indian population throughout the sixteenth century resulted in a sharp decline in the domestic production of cotton textiles. Trying to stop the demise of its tributaries, the Crown attempted to curtail the power of the *encomenderos* and prohibited them from exacting personal service from Indians. Afterward, it would be the *corregidor* – through the *repartimiento de mercancías* – who would organize the domestic production of textiles. As population decreased, and sheep

¹⁴ Juan de Solórzano Pereira, *Política Indiana*, vol. 2 (Madrid, 1972), chap. 12; cited in Fernando Silva Santiesteban, *Los Obrajes en el Virreinato del Perú* (Lima, 1964), 15.

proliferated, a different kind of textile production was born: the woolen textile *obraje*.

THE OBRAJES DE PAÑO

Sheep were introduced early into Spanish America and their population grew exponentially from the sixteenth century to the first decades of the seventeenth century. A colonial version of the Spanish *Mesta* was established in central and southern Mexico between the 1530s and 1540s, causing disputes between herd owners and Indians who saw their crops destroyed by the ovine invasion. In the Quito region sheep also proliferated. Some estimates indicate that about 1.2 million sheep pastured in the Quito valley between the late sixteenth and early seventeenth centuries.

Woolen cloth was being woven in New Spain as early as 1527, only seven years after the conquest of Tenochtitlan. In the Andes cloth made from sheep's wool gradually replaced that from alpacas and vicuñas in the second part of the sixteenth century.

Woolen cloth was produced throughout Spanish America in *obrajes de paños*. *Obrajes*, described by Chávez Orozco in 1938 as a "factory embryo,"¹⁵ have long fascinated historians. Their size, the number of laborers working in them, their diffusion over many regions of Latin America, the extension of their markets, and their impact on Indian communities justify their prominent place in historiography. Several types of *obrajes* existed, but in general terms they can be defined as large workshops that within their walls vertically integrated every part of the woolen cloth production process from processing raw wool to spinning thread and weaving cloth. "The labor force of the *obraje* was organized in a well-defined system of tasks, and all laborers, with the exception of cottage spinners, worked in the *obraje* under the supervision of a foreman."¹⁶ *Obrajes* were larger in scale than other types of colonial manufactories such as the *chorrillos*, *telares sueltos*, *trapiches*, and *obrajuelos*. *Obrajes* typically had twelve looms, but they could have as many as 30 looms, 100 spindles, and 200 operatives. A distinctive characteristic of *obrajes* was that they owned a fulling machine, the *batán*, composed of heavy wooden hammers rotating on a hydraulically powered axle that was used to shrink and felt cloth after weaving.

¹⁵ Luis Chávez Orozco, *Historia económica y social de México* (Mexico City, 1938), chap. 2.

¹⁶ Richard Salvucci, "Enterprise and Economic Development in Colonial Mexico: The Case of the *Obrajes*," *The Journal of Economic History* (March 1981): 198.

Obrajes were a New World colonial organizational innovation. They did not have roots in pre-Hispanic America or Spain. In the Andes there existed organized workshops – known as *cumbicamayoc andacllas* – where the specialized labor of women and *cumbi* weavers manufactured cloth for the Inca. They were the pre-Hispanic institution most similar to the *obrajes*. However, they were totally unknown in Mesoamerica, where the *obraje* was born.

Obrajes did not exist as such in Spain, where textile production was carried out in small artisanal shops. In the second half of the sixteenth century there was a substantial expansion of the Castilian textile industry. The industry concentrated in Segovia, where artisanal shops grew to integrate all the parts of the production process and hired wage laborers. Yet this took place only in Segovia and not until several years after the first *obrajes* appeared in New Spain between 1535 and 1550. In Catalonia, textile production continued to be carried out in small artisanal shops, where the guilds expanded.

Thus, “artisans and *obrajes* do not arrive simultaneously to New Spain, but the Spanish artisan, adapting to the local conditions of a massive demand and to the possibility of organizing the Indian labor force free from guild restrictions, becomes a capitalist entrepreneur.”¹⁷ The colonial *obraje* was a European enterprise, built with the techniques and experience of Spanish masters and artisans, but based on coerced Indian labor: Indian slavery, *encomienda*, *mita*, *repartimiento*, or debt-peonage.

The first mention of *obrajes* in New Spain dates from 1539 in Puebla, 1551 in Texcoco and Michoacán, 1560 in Apizaco, 1560 in Tlaxcala, and 1604 in Mexico City, Tepeaca, Cholula, Querétaro, Coyoacán, and Tecamachalco, by which time there appear to have been more than one hundred *obrajes* in the colony. In the Viceroyalty of Perú the first *obraje* was established in 1545 in Jauja. There appear to have been *obrajes* in almost every *corregimiento* of the Viceroyalty of Peru – such as Cuzco, Cajamarca, Conchucos, Huanuco, Huamanga, and Abancay – but the most important *obraje* region was the Audiencia de Quito. Although *obrajes* were not established in this region until the 1560s, the Audiencia’s economy soon centered around *obraje* production. There were also *obrajes* in La Paz, Córdoba, and some villages of Chile.

¹⁷ Carmen Viqueira and José I. Urquiola, *Los obrajes en la Nueva España: 1530–1630* (Mexico City, 1990), 61.

Obraje production was destined for consumption far beyond local markets. “There is no doubt about the wideness and extension of colonial textile circuits.”¹⁸ The output of the *obrajes* of New Spain was destined mainly for its mining regions and the northern markets of the *Tierra Adentro*. But it also went south reaching as far as Guatemala. Puebla’s *obrajes* sent large quantities of cotton cloth to Peru until 1590, when the Crown’s increasing restrictions on trade dealt a fatal blow to a commerce that had already been decreasing as a result of competition from the new Peruvian *obrajes*.

Lima was the principal destination of Quito’s quality cloth – the *paños* – until the eighteenth century. During the export season in Quito, which ran from June to December, mule trains carried cloth to Guayaquil and embarked on coastal traders, which carried it to Callao. In times of war, use of sea routes was minimized, so that cloth was shipped to Piura or Tumbes and carried overland from there to Lima, thus raising transportation costs. Then “paños were shipped inland from Lima to the Sierra and south to Potosí, Chile, and Buenos Aires . . . The *paños* trade was a small part of a much larger Andean commercial system whose vital force was the silver flowing from the Peruvian mines.”¹⁹ Some of its consumers were the Indians to whom the *paños* were forcibly distributed through the *repartimiento de mercancías*.

Quito also produced a large amount of coarser varieties of cloth – *bayetas* and *jergas* – to export to the mining and cattle-growing regions of Nueva Granada. These were produced during the seventeenth century in smaller urban factories. However, as the market for *paños* in Lima worsened in the eighteenth century, the large weaving estates shifted to producing this type of cloth and small-scale producers were swept away. “As a consequence the economic orientation of the elite switched from Lima to Nueva Granada – a change realistically reflected in the detachment of Quito from the Lima viceroyalty and its inclusion in Nueva Granada in 1739.”²⁰

The production of the *obrajes* of Huamanga was destined at first to the mining regions of Huancavelica and Castrovirreyna, and afterward to Potosí and Oruro. However, when mining in these regions declined during the eighteenth century, so did the *obrajes*. Their owners sought new markets by

¹⁸ Manuel Miño Grijalva, *La protoindustria colonial hispanoamericana* (Mexico City, 1993), 12.

¹⁹ Robson Brines Tryer, “The Demographic and Economic History of the Audiencia de Quito: Indian Population and Textiles Industry, 1600–1800” (Ph.D. dissertation, University of California, Berkeley, 1976), 279.

²⁰ Tryer, “The Demographic and Economic History of the Audiencia de Quito,” 178.

supplying cloth to the *corregidores* for the forced *reparto* of their *paños*. This worked until 1781, when the *repartimiento de mercancías* was abolished as a result of Tupac Amarú's rebellion.

A common characteristic of the *obraje* economy throughout Latin America was that it was mainly destined for the mines or cities dependent on silver coin and bullion production, and thus its destiny was intricately related to that of mining. Indians were a poor market for *obraje* production because they were restricted by their scarce resources and because they were able to, and probably preferred to, supply their own needs. Compulsion by the *corregidores* through the *repartimiento de mercancías* was thus needed to make them buy the woolen cloth of the *obrajes*.

Obrajes flourished because they were able to compete successfully with foreign imports. Between 1549 and 1562 the *paños* in Puebla sold at two pesos, two reales per *vara*, whereas Spanish *paños* were sold in Sevilla at between two pesos, three reales and five pesos, five reales per *vara*. Moreover, transport costs raised Spanish *paños* prices substantially. In Puebla, Spanish *paños* were sold for between eleven pesos and four reales and fifteen pesos per *vara*.²¹

During the seventeenth century, *paños* prices experienced a secular decline both in New Spain and in Peru. Prices then fell even more severely during the eighteenth century. This was the result of increased competition on two fronts. First, the number of colonial producers rose, as more *obrajes*, *chorrillos*, and *telares sueltos* were established and artisan production of cotton cloth increased. Second, increased competition from European textiles became particularly harsh by the second half of the eighteenth century with the development of new manufacturing techniques in what would later be called the Industrial Revolution. English textile costs may have dropped by as much as 70 percent between 1780 and 1812. This process was offset during brief periods of time during the eighteenth century when European warfare interrupted trade and thus protected colonial economies from foreign competition.

The relation between *obraje* prosperity and mining cycles is not straightforward. During the sixteenth century when competition from foreign textiles was unimportant, labor was still abundant, and mining production plentiful, *obrajes* prospered along with the mining sector. The expansion of the *obraje* economy in New Spain from 1579 to 1630 closely followed the mining cycle. *Obrajes* in the Viceroyalty of Peru flourished in the late

²¹ Viqueira and Urquiola, *Los obrajes en la Nueva España*, 53.

sixteenth century during the mining boom in Potosí, where half of the silver in Spanish America was produced between 1575 and 1600.

However, during the seventeenth and eighteenth centuries the positive relation between mining and *obrages* is less clear. In those regions where mining and *obrages* coexisted the competition for resources – particularly labor – increased as a result of the sharp decline in the native population. Given that the Crown clearly supported mining over any other sector, during the seventeenth century *obrages* suffered from the regulations the Crown imposed to secure labor for mineral extraction. Moreover, due to foreign competition an increase in silver production did not necessarily mean greater *pañó* demand for the *obrages*. Quito's *obrajeros* blamed the reduced metal production of the viceroyalty for their eighteenth-century demise. Richard Salvucci found a negative relationship between silver output and *obraje* production in eighteenth-century New Spain, but a positive relationship between silver production and British cottons exported to the British West Indies, which eventually found their way to New Spain.²²

In 1604 there had been between 120 and 130 *obrages* operating in New Spain with a workforce of around 6,000 laborers. Rough estimates indicate that *obraje* production in New Spain rose from around 1.5 million pesos in 1600 to between 1.5 and 2 million pesos at the end of the seventeenth century. By the end of the eighteenth century production had decreased to between 1 and 1.5 million pesos and it was negligible by 1812.²³

In the Audiencia de Quito the expansion of the *obraje* economy took place during the seventeenth century, reaching a peak in 1690. There were 56 *obrages* operating by 1600 and 174 one century later, employing a minimum of 10,000 adult Indians. The total value of the annual output of Quiteño *obrages* in the late seventeenth century was between 1,150,000 and 1,750,000 pesos. If to this is added the production of the home or cottage industries, total output would have been between 1,500,000 and 2,000,000 pesos, similar to that of New Spain in this time period. After 1690 production declined as cloth prices in Lima, Quito's major market, decreased. Robson Tryer has estimated a total decline in the value of cloth production by as much as 50 to 75 percent from 1700 to 1800 with profound consequences for Quiteño society.²⁴

²² Richard Salvucci, *Textiles y capitalismo en México* (México City, 1992), 227–30.

²³ Viqueira and Urquiola, *Los obrajes en la Nueva España*, 138–9; Salvucci, *Textiles y capitalismo*, 222–39.

²⁴ Tryer, "The Demographic and Economic History of the Audiencia de Quito," 161, 179–80, 269, 313.

Obrajes survived despite the changing conditions they faced during the three centuries of Spanish rule. To do so they had to adapt to new situations such as changes in the geographical location of markets and production, changes in the type of labor employed, and changes in *obraje* administration. However, two factors never changed: the *obraje*'s use of coerced labor and the archaic technology employed.

The first *obrajes* established in New Spain were built by Spanish artisans using Indian slave labor (not abolished until 1550). The Indian slaves had been acquired in war or as *tlacotin* (those who sold their labor in perpetuity for a payment). The use of *encomienda* labor in the *obrajes* (outlawed in 1621) was the exception rather than the norm. *Obrajes* did not rely on *repartimiento* labor because they were not supplied with such labor by the colonial authorities. Moreover, *obraje* workers were specialized and needed a type of training not compatible with the usual *repartimiento* system of labor rotation. *Obraje* workers in New Spain were generally indebted Indians who were either "voluntarily" or "forcefully" recruited by the *obraje*. The workforce often included black slaves, apprentices, and prisoners sent to *obrajes* instead of jail. Workers usually lived within the *obraje* premises and were not allowed to go out until their debts were redeemed. However, there is also evidence of *obrajes* where at least part of the laborers came in and went out daily.

Víctor Urquiola's study of a large sample of *obraje* contracts with laborers from Puebla, Tlaxcala, Cholula, and Querétaro dated between 1591 and 1610 shows that most *obraje* workers were "voluntarily" recruited (73 percent), but only 7 percent were hired without an advance payment. About half of the workers hired were given a partial advance on their wage and 15 percent were given a full advance. The remaining 27 percent of the contracts studied were carried out with workers forced to work to redeem a previous debt (20 percent) or as prisoners in order to fulfill a sentence for other felonies (7 percent). Workers were, on average, given an advance payment that represented 77 percent of the annual wage indicated in the contract. Most of the contracts obliged workers to stay for a period of one year or less (75 percent). In general terms, there was not much difference between *obraje* contracts and those made by other enterprises.²⁵

The situation of *obraje* workers according to these findings would not appear as terrible as it has generally been considered. Yet it is difficult to assess the extent to which these contracts were complied with. Evidence

²⁵ Viqueira and Urquiola, *Los obrajes en la Nueva España*, 195–7.

from judicial records indicates that abuses were common. Several complaints refer to various ways *obrages* found to perpetuate the workers' terms of service. "Additional wages were advanced . . . food and clothing costs were added, often at exorbitant charges; fines were levied and added on to the debt; pulque and other alcoholic beverages were put on the tab; the company store . . . sold on credit items of common demand."²⁶ If a worker fled, a male family member was forced to work off the debt left by his relative. Kidnapping and imprisonment in distant *obrages* by the *enganchadores* was a common practice, as were beatings and lashes for disobedient workers. As Salvucci explains, there is no reason "to doubt the highly negative view of working conditions in the *obrages* presented by Humboldt and Bustamante."²⁷

In 1601 Philip III barred Indian labor from the textile industry (except in *obrages de comunidad*), and *obrages* were encouraged to replace native workers with black slaves. It has generally been considered that this regulation, like many others, was scarcely complied with, and that few black slaves ever served in the *obrages*. Yet recent findings indicate that soon after the decree, the viceroy of New Spain obliged *obrages* in Mexico City to open their doors and let their Indian workers go free.

Black slaves became prevalent in New Spain's *obrages* during the seventeenth century. It is difficult to assess whether this process was the result of demographic pressures or a consequence of the 1601 royal order barring Indians, but there is no doubt that it took place. In Puebla and Tlaxcala *casta* and black slave labor displaced Indians in the first half of the seventeenth century. In Querétaro it appears that after 1630, and throughout the seventeenth century, most *obraje* labor was provided by black slaves. In 1660 an inspection found 200 black slaves working in two *obrages* in Coyoacán. As the demographic trend reversed, and the population of castes and Indians increased, *obrages* shifted to "free" (that is, indebted) labor and considerably reduced the numbers of black slaves. A similar process took place in Puebla over the first half of the eighteenth century. By the beginning of the nineteenth century, its *obrages* no longer operated as "closed" work houses, but instead employed free (though often indebted) wage labor.

In the *obrages* of the Viceroyalty of Peru *encomienda* and *mita* labor were far more important than in New Spain. In the Audiencia de Quito the first *obrages* were founded in Indian villages by *encomenderos* interested

²⁶ Greenleaf, "The Obraje in the Late Mexican Colony," 241.

²⁷ Salvucci, "Enterprise and Economic Development," 198.

in increasing their tribute incomes. Although *obrages* were founded for the benefit of the *encomenderos*, they were not allowed to own them because they could not legally own real property within the territory of their *encomiendas*. Thus, the founding of these *obrages* had the active support of Indian *caciques* and it was they who mobilized the labor force for them. “*Obrajes*, as part of *encomienda* grants, became subject to royal intervention and supervision, and were removed from the direct control of the *encomenderos* by the late sixteenth century.”²⁸ These *obrages* were thereafter known as *obrages de comunidad*, or community *obrages*. At first, administrators were appointed by the viceroy in Lima to manage the *obrages*. Using the funds accrued from the *obraje*, the administrator was supposed to pay the Indians’ tribute and the *encomendero*’s financial responsibilities, such as salaries for priests and *caciques*. The *obraje* administrator enjoyed a good salary, which was normally complemented by large profits made through illegal means. In order to remedy the abuses of the administrators, a new policy of leasing out the *obrages* to local entrepreneurs was adopted in the 1630s. Patronage did not end with this policy, however, because the official post of administrator was retained and became a perquisite of the *corregidor* – a completely parasitic post.

By the late sixteenth century some *encomienda obrages* had already passed to the direct control of the Crown. Unlike the community *obrages*, whose revenues theoretically covered the Indians’ tribute obligations, the Crown *obrages* were just a source of royal revenue. They operated in a way similar to the community *obrages*; the only difference was that they faced no local competition for labor from private employers, because no other *obrages* were allowed to operate in the villages where they were established.

By the early seventeenth century there were fourteen *obrages de comunidad* and two Crown *obrages* operating in the Audiencia of Quito. Together, they constituted what Tryer called the “public sector” of the textile industry. These *obrages* were very large by any standard. The Crown *obraje* of Otavalo, for example, employed over 500 Indians, and several community *obrages* employed more than 200 people. Together, by 1680 they employed 3,086 Indian adults and fifty boys.

A very large share of the profits of community *obrages* went to support the local colonial government. They covered the financial obligations of the *encomendero* and the salaries of Crown officials and paid a percentage of the Indians’ head tax. The Indians paid the rest of their tribute through

²⁸ Tryer, “The Demographic and Economic History of the Audiencia de Quito,” 114.

their own means. *Encomenderos* received very little directly from *obraje* revenues. Yet with their financial obligations covered, they could take a high proportion of what was collected directly from the Indians. The benefit Indians obtained from having a community *obraje* in their village was practically nil. The *obrajes* paid at the most about a third of the Indians' tribute. However, individual tributes in Quito were higher than almost anywhere in Spanish America and were never standardized at reasonable rates as they were in Mexico.

Along with community and Crown *obrajes*, private *obrajes* also operated in the Audiencia de Quito. Even though they paid wages 30 to 50 percent higher for the same work, this sector faced lower production costs because private *obrajes* did not have to pay the several charges community *obrajes* were subject to. As the price of *paño* declined during the seventeenth century, community *obrajes* became unprofitable, whereas private *obrajes* were still able to operate profitably. In the 1720s community *obrajes* were closed and sold to private entrepreneurs at very low prices. The apparent cause for their closure was the enforcement of a 1704 *cédula* that prohibited forced labor in *obrajes*. However, there were also important economic and political reasons behind this decision. "Incorporating the village factories into private estates was logically the final step in establishing the colonial elite's control over textile production."²⁹

During the seventeenth century privately owned *obrajes* experienced an important expansion as a result of the steady increase in the Indian population in Quito and the maintenance of relatively high prices for *paño* in Lima. The cloth industry concentrated in the provinces of Quito, Latacunga, and Riobamba, the most populous of the audiencia. By the end of the seventeenth century, 174 *obrajes* and over fifty *obrajuelos* and *chorrillos* were operating in the city of Quito. The latter were the first to succumb in the course of the eighteenth century. Private *obrajes* were not generally provided with *mita* labor as the community *obrajes* were. Instead, they employed a large number of Indians who had left their villages to live either on *haciendas* or in the towns. Nonetheless, some private *obrajes* were able to secure licenses that included grants of *mita* labor, sometimes by bribing officials. The Crown also assigned Indians to private *obrajes* for the payment of *encomienda* tribute debts, which were large by the early seventeenth century. The difference between the annual wage (24–32 pesos) and the rental rate (18–36 pesos) for Indian labor was paid to the royal treasury as credit

²⁹ Tryer, "The Demographic and Economic History of the Audiencia de Quito," 142.

on tribute arrears. As time went by, however, the *mitayo* labor force became scarcer as Indians left the villages to live on the *haciendas* or in towns. By the end of the eighteenth century *haciendas* with or without *obreros* had absorbed 50 percent or more of the Indian population of each *corregimiento* in the Audiencia of Quito. Since coin was scarce most wages were paid in kind and the *hacendados* and *obreros* assumed the responsibility of paying the tributes of their *indios conciertos*. Given the rural character of the Quiteño *obreros*, Indians do not seem to have fared as badly as in the urban *obreros* of New Spain. It was a common practice in the eighteenth century to distribute free plots to the *indios conciertos* and they often divided their time between working in the *obrero* and other rural chores, such as farming, sheepherding, or working as muleteers.

As in New Spain, debts were a common means of securing labor for the Quiteño *obreros*. Yet, in many *haciendas*, Indians had the opposite problem, because it was the *obreros* who owed their workers huge sums of money. This practice also served the purpose of retaining labor because, though theoretically free to leave the employer, the workers could not do so without losing their unpaid wages. It appears, however, that this practice was more a result of necessity than of design, because the *obrero* economy was hit hard during the eighteenth century. The system of labor recruitment used by *obreros* in the Quito valley appears to have been similar to those in other regions of the Viceroyalty of Peru, such as Cuzco and Huamanga.

Changing economic conditions brought about regional changes in *obrero* production. Whereas until 1630 most of the *obreros* in New Spain were located in Puebla, Tlaxcala, and the Valley of Mexico, thereafter the principal *obrero* center was Querétaro and other nearby cities of the Bajío. This region had a comparative advantage due to its geographical proximity to a plentiful supply of wool and to the northern markets, which were expanding rapidly. Puebla, the principle center of *obrero* production in the sixteenth century, had forty *obreros* in 1579, but only twenty-two in 1622. In the 1790s it had only two *obreros* left. A similar decline occurred in Cholula, Tlaxcala, Texcoco, and Mexico City. However, the number of *obreros* in Querétaro went from six in 1640 to thirty in 1743, stabilizing at that number until 1781. By the beginning of the nineteenth century there were still nineteen *obreros* operating in that city, but the Wars of Independence had disastrous consequences for *obreros* and by 1812 only five remained, all with a very reduced output.³⁰

³⁰ Miño, *La protoindustria colonial*, 63; Salvucci, *Textiles y capitalismo*, 203–13, 238–9.

The economic geography of *obreros* in the Viceroyalty of Peru also changed as *paño* prices declined in the eighteenth century. Textile production closer to the mining centers survived longer than that of the Audiencia of Quito. The expansion of Cuzco's *obreros* lasted from the seventeenth century until the 1760s. In contrast, in Huamanga, it was not until the 1780s that an economic contraction was felt. The decline of *paño* exports from Quito to Lima at the end of the eighteenth century partially alleviated the situation of Peruvian *obreros*; they began sending cloth to Lima in the 1770s. Similarly, it appears that the expansion of *obreros* in Córdoba, La Plata, and La Paz at the end of the eighteenth century was the result of the collapse of the industry in Cuzco and Puno, which had previously supplied these regions. By the beginning of the nineteenth century, however, all *obreros* in the empire were fast disappearing.

It is difficult to make a case for the *obrero* as a proto-industry. Its production system was very different from the European putting-out system, which preceded the Industrial Revolution. Because *obreros* were based on coerced labor and archaic technology, they could not serve as the basis for modern industrialization. However, the development of cotton textile manufacturing that took place in several parts of colonial Latin America during the eighteenth century did parallel to some extent the European proto-industrial evolution occurring at the same time.

THE DEVELOPMENT OF COTTON MANUFACTURES DURING THE EIGHTEENTH CENTURY

During the eighteenth century, several regions of colonial Spanish America experienced the expansion of "a home-based cotton textile industry, with spinning in the hands of Indian, often rural households, and weaving controlled by Spanish or occasionally mestizo weavers, backed by merchant capital...."³¹ Puebla, Guadalajara, Antequera, Valladolid, Mexico, Cuenca, Nueva Granada, Trujillo, Cochabamba, La Paz, Córdoba, Tucumán, and Arequipa experienced some version of this process in one way or another.

The reasons for the growth of the cotton textile industry were in part demographic. The sustained growth of the Indian population from the mid-seventeenth century on and, most importantly, the increase in the

³¹ Guy Thomson, "The Cotton Textile Industry in Puebla During the Eighteenth and Early Nineteenth Centuries," in Nils Jacobsen and Hans Jürgen Puhle, eds., *The Economies of Mexico and Peru During the Late Colonial Period, 1760–1810* (Berlin, 1986), 169.

number of mestizos and creoles were fundamental variables in this equation. Economic factors were also important: a decrease in economic activity that reduced opportunities in other sectors was necessary for a large mestizo and Spanish population to be willing to become cotton weavers.

Measures taken by the Crown to encourage the Catalan cotton textile industry had important side effects for the colonial industry. These included “the prohibition on Asian cotton and silk imports, the removal of the *alcabala* on raw cotton, and the prohibition of cotton cloth imports from other European countries.”³² Together with the recurrent hostilities in the Atlantic world during the late eighteenth and early nineteenth centuries, these changes gave the colonies, during certain time periods, the needed protection for cotton manufacturing to develop.

In some regions, such as Cochabamba (present-day Bolivia), the development of the cotton textile industry was a short-lived bonanza that resulted from the temporary protection European warfare gave it. In Cochabamba this took place between 1796 and 1802 “when trade between Europe and southern Atlantic ports collapsed as a result of war and the breakdown of Spanish military control of the La Plata river basin.”³³ When the British lifted their blockade in 1802 the ruin of the industry came shortly after.

During its short-lived existence, Cochabamba produced a cheap cotton cloth – *tocuyo* – destined for local markets since it could not compete with European textile manufactures in the more distant markets. In this sense, the Cochabamba *tocuyo* industry resembles the case of Huamanga and those other *obrero* regions that experienced a brief expansion when colonial markets contracted. In Cochabamba, cotton manufacturing was a dispersed cottage industry that sprang up in the towns of the region and the surrounding countryside. At first, spinning and weaving were subsidiary to agricultural work. But as opportunities for commercial gain increased, a population of professional weavers sprang up in the towns and loosely associated themselves in craft guilds, most of whose members were cholos or mestizos. Merchants deployed credit devices to stimulate textile production. However, they played a relatively minor role in the organization of textile production in comparison with the Puebla region of Mexico, which we will analyze later.

³² Thomson, “The Cotton Textile Industry,” 197.

³³ Brooke Larson, “The Cotton Textile Industry of Cochabamba, 1770–1810: The Opportunities and Limits of Growth,” in Jacobsen and Puhle, *The Economies of Mexico and Peru*, 157.

Cochabamba was prevented by royal regulations from producing raw cotton. The region's industry was dependent on the raw cotton produced along the Peruvian coast. Progressive textile producers tried unsuccessfully to change this regulation. "Raw material costs... placed a dead weight on industrial expansion, apart from the shifting winds of the market." And thus, "the great *tocuyo* export boom of 1796–1802 did not signal the beginning of a transition towards capitalist enterprises in the region."³⁴

In other places, a more stable and steady evolution of the textile industry developed. However, nowhere in colonial Latin America was the cotton textile industry on more solid ground than in Puebla. This industry had its origins during the late seventeenth century, growing rapidly in size over the eighteenth century, by which time it had extended to most of the villages of the central region of the province. A well-established network linked the different parts of cotton manufacturing from the cultivation of cotton to the final markets. Merchants in Puebla or in Veracruz known as *aviadores* invested in cotton agriculture by advancing *avíos* in cash or manufactured goods to cotton growers at annual fairs. They received commercial backing from and were agents for the large import-export merchants of Puebla, Oaxaca, and Veracruz. Dealers, known as *algodoneros* or *regatones*, bought raw cotton from the merchants and muleteers, who transported the fiber from the lowlands and sold it to spinners or weavers, who managed their own spinning. In the course of the eighteenth century they increased their control over the raw cotton and spun cotton business, linking the two principal agents of production, the spinners – usually Indians living in small villages – and the weavers – an independent and culturally distinct creole artisanate usually located in larger towns.

Although weaving generally offered only the barest subsistence it was very much a hispano-mestizo occupation. A prosperous body of weavers specialized in *rebozo* production and constituted an artisanal aristocracy. The marketing of Puebla's cottons was managed by wholesale merchants because few cotton weavers possessed the capital, enjoyed the contacts, or could afford the delay in payment that long-distance trade involved. These merchants advanced credit to weavers and extended their influence beyond the weaving *barrios* of the city to the entire central region of the province over the middle and later decades of the eighteenth century. However, the weavers never entirely lost their independence.

³⁴ Larson, "The Cotton Industry of Cochabamba," 164.

The most important market for Puebla's cloth was in the provinces north and west of the Valley of Mexico, known as *tierra adentro*. Regions as far as Chihuahua and Coahuila consumed Puebla's *mantas* and *rebozos* before the Wars of Independence. *Mantas* had a more restricted market than *rebozos* because they had a lower price per weight, and faced the competition of the cotton manufactures that proliferated in the eighteenth century throughout southern, central, and northwest central Mexico. *Rebozos*, on the other hand, were a specialized and finer item consumed even in those regions, such as Guadalajara, where a local cotton textile industry had developed. *Rebozos* were also sent from Puebla to Guayaquil and Peru before independence.

Much of the expansion of the Puebla textile industry during the eighteenth century took place by the multiplication of small units of production. However, during the last decades of the century, financiers and dominant cotton masters managed to concentrate the industry into larger units. This trend accelerated during the first decades of the nineteenth century, so that by the late 1840s there were several large weaving shops with between 20 and 100 looms.

Mechanization of the cotton textile industry did not take place in Mexico until the 1830s. Merchants in Mexico and Celaya had introduced mechanical deseeding and carding devices in the early 1770s, but this practice was not followed in Puebla. Apparently the reason was that "when mechanically ginned cotton was sent up to Puebla from Veracruz in 1807, it proved to be unsuitable for the city's spinning wheels which responded better to caned cotton with its fiber more intact."³⁵ Puebla's cotton guild opposed mechanical spinning, claiming that the reputation of Puebla's *rebozos* and *mantas* was in part due to the caning of the cotton by the spinners who would be replaced by these devices. Nonetheless, if the prosperity of the industry had not been so abruptly interrupted by the Wars of Independence, it is likely that mechanization would have occurred earlier than it did.

The devastating effects of the Wars of Independence on the Mexican economy affected the development of the cotton textile industry. However, cotton manufacturing was able to cope better with the crisis than *obreros* did. When political instability was briefly surmounted during the 1830s and 1840s, the mechanization of the industry finally took place. This process was aided by government policies that gave it both the necessary protection and the financial support required, through the creation of a development bank, the *Banco de Avío*. The birth of mechanized textile mills had strong

³⁵ Thomson, "The Cotton Textile Industry," 182.

roots in the previous development of Puebla cotton manufactures. The protectionist polices adopted after 1821 by the governments of the new nation were partly a result of the pressure exerted by Puebla's weavers and the influence of businessmen linked to the Puebla textile industry, such as Estevan de Antuñano. The son of Spanish merchants of Veracruz, Antuñano moved to Puebla in 1816 to sell imported cloth. In 1835 he established the first lasting mechanized textile mill in Mexico, *La Constancia Mexicana*.

During the first part of the nineteenth century the mechanization of the industry did not go against the weavers' interests, because most of the textile mills' production was yarn to be sold to weavers. Cheaper yarn allowed weavers to produce a more competitive product, earn a larger income, and survive longer in their trade – until the 1890s when factory weaving finally replaced the hand loom throughout Mexico.

Mechanization also took place in the production of woolen textiles in Puebla. The first steel looms introduced in Puebla were brought by a Catalan, Francis Puig, into his *obrero* in the early 1820s. The technical transformation of wool spinning followed closely the revolution in cotton spinning during the 1830s, but it faced the resistance of artisans who destroyed the machinery of the first wool spinning mill to be established in Tlaxcala.

Mexico's early industrialization was slowed by difficult conditions until the last decades of the nineteenth century. Besides the high transport costs that restricted its markets, political instability hindered Mexican governments from implementing policies to promote industry. This environment of institutional frailty "generated a captured tariff policy that gave low effective protection to the industry, a backward financial market that limited resources available for industrial growth, and increased transportation costs through inter-state tariff barriers."³⁶

Mechanized textile mills did not appear elsewhere in Latin America until even later in the nineteenth century. In Peru, the first cotton factories were not set up in Lima until the 1850s, and quickly went bankrupt when the government abandoned protectionist tariffs. The first textile mill in Brazil was established in 1844 in Bahia, but by 1853 there were only eight mills operating in that country with only 4,499 spindles, whereas ten years earlier Mexico's textile manufacture included fifty-nine mills with more than 100,000 spindles.

³⁶ Aurora Gómez-Galvarriato, "Industrial Development under Institutional Frailty: The Development of the Mexican Textile Industry in the Nineteenth Century," *Revista de Historia Económica* (1999): 191.

CONCLUSIONS

The study of the sugar and textile industries before 1850 makes it clear that more manufacturing was taking place in colonial and early postcolonial Latin America than has generally been assumed. Yet it was not the kind of manufacturing development that would naturally lead to industrialization.

Technological change took place throughout the period studied in sugar manufacturing. Some of the technical innovations, such as the development of the three-roller mill, the battery of cauldrons, or the "Jamaica train," were invented in the sugar colonies. The pace of technological innovations in the sugar industry increased during the nineteenth century. These later innovations, however, were carried out by English and French technicians and introduced in machinery manufactured by European and North American machine-making companies.

In the textile industry *obreros* represented an important organizational innovation. Yet no technological change took place in the industry during the three centuries of colonial rule. It was only at the beginning of the nineteenth century that the new textile technologies developed in Europe were introduced in the industry. This process did not take place throughout Latin America but in just a few regions of Mexico until the second half of the century.

The failure of the industry in colonial Latin America to adopt new technologies was not the result of lack of capital, entrepreneurship, or managerial skill, as the study of the sugar and textile industry demonstrates. One explanation for Latin America's industrial backwardness, found in the literature since Humboldt's writings, focuses on the harm colonial mercantilist policies caused to the growth of manufacturing. The study of the sugar industry gives us some grounds to claim that colonial mercantilist policies distorted costs and benefits and placed severe limits on the development of the industry. Yet the end of colonialism and the triumph of liberalism over mercantilism did not put an end to some of the worst traits of the old colonial policies. The subsidy European and North American countries gave to beet sugar and the protection they provided to their refining industry, as well as the different tariff levels offered to exporting countries in the pursuit of national interests, generated severe economic distortions in the world markets. Price instability in sugar resulted not only from the natural price fluctuations of the product, but also from the potential closure of markets through antitrade actions, a situation that did not end with the abandonment of mercantilism.

The case of the textile industry is somewhat different. The effect of mercantilist policies on the industry's development is still an ongoing debate. There is agreement on the fact that early on the Crown sponsored the production of textile manufactures in Spanish America. However, labor regulations passed by the Crown from the mid-sixteenth century on that restricted the *obreros'* use of Indian labor probably hurt the industry and curtailed its growth, though these regulations were not always enforced.

There is some consensus on the view that "the Crown played no positive role in facilitating the growth of the textile industry nor did it effectively try to restrict that growth. Rather it merely tried to make money off the facto expansion of the weaving industry."³⁷ As we have seen, some measures taken by the Crown benefited rather than harmed the industry. Yet, when this happened, it was not the result of a conscious policy of promoting colonial manufactures but the side effect of policies taken to promote the industry in the Iberian peninsula, or, as in the case of Quito, policies meant to protect an industry that provided substantial wealth to the Crown, in a region where no alternative sources of revenues could be found.

It is clear that mining, not manufacturing or agriculture, was where the Crown vested its interests. If other activities were to exist, it was because they provided the goods mining required, in a cheaper way than if they had been brought from Spain. There is no question that colonial revenues were not used to foster colonial economic growth: roads were badly kept, education poorly promoted, and public services unevenly provided. Instead, fiscal revenues were used to subsidize Hapsburg and later Bourbon dynastic wars and Spanish rule in the Caribbean and the Philippines. In the era of the Bourbon reforms, revenues also went to promote the mining industry in a period of rising marginal costs, draining resources from other uses. These policies were certainly not conducive to the development of manufacturing.

There were other factors that affected Latin America's possibilities for early industrialization. As we have seen, the two most prosperous manufacturing sectors, sugar and cotton textiles, were both based on slavery or other forms of coerced labor. This did contribute to the uneven distribution of income, and to the lack of diffusion of education among the population. Until the late eighteenth century there does not seem to have been a conflict between the skilled jobs required in the textile and sugar industry and slavery or other types of coerced labor. The nineteenth century technological changes, however, required skills, such as literacy, not

³⁷ Tryer, "The Demographic and Economic History of the Audiencia de Quito," 150.

acquired through apprenticeship, but through formal education. Schooling was not compatible with coerced labor and high levels of income inequality. The low literacy rates that prevailed in those countries where slavery (or other types of coerced labor) existed were indeed a reason for the slow industrial development of Latin America during the nineteenth century. Illiteracy constrained industrial development by limiting the availability of the skilled workers the new industry required, making them scarce and expensive. Moreover, lack of education acted as a huge barrier on the innovative capacities of Latin American industries and their capacity to adopt better techniques.

High transport costs, as Humboldt explained, were at first a crucial factor in favor of the development of manufacturing products for internal consumption in Latin America, but they also became an important hindrance to further industrial development. Geography did not allow the formation of large markets, but low investment in roads and high regional trade taxes (*alcabalas*) did not help either. Moreover, what Thomson termed human geography, meaning the poverty in which much of the population lived, further restricted market size. Yet poverty was partly a result of colonial policies including high tributes, taxes on the indigenous population, regimes of forced labor, and other extortions such as the expropriation and compulsory sale of goods. However, poverty did not diminish when colonial rule ended.

Certainly colonial institutions were not conducive to producing the innovation, competitive entrepreneurship, capital investment, and increased productivity that modern industrialization required. Unfortunately, most colonial institutions were too deeply rooted in Latin America to be rapidly liquidated with independence. Moreover, independence brought with it many other hazards, particularly political instability, that affected most of Latin America during the nineteenth century. Unfortunately, Mexico, the country most likely to have been able to industrialize early, as the development of its cotton textile industry during the eighteenth century foretold, suffered from greater political instability, social upheaval, and foreign intervention than most of Latin America. There are many other reasons that explain why Manchester instead of Puebla led the Industrial Revolution. This, however, would lead us to the rich discussion that has occupied many of the leading economic historians on why sustained economic growth occurred first in the West.

COMMERCIAL MONOPOLIES AND EXTERNAL TRADE

GRACIELA MÁRQUEZ

INTRODUCTION

The first image that comes to mind when one thinks of trade in Latin America during the colonial period is that of the Spanish imperial trade monopoly with its axis in the *Casa de Contratación* in Seville. The accumulation of precious metals by means of trade surpluses was the chief mercantilist idea behind the monopolistic control of trade that Spain and Portugal imposed on their colonies. The success of this type of monopoly depended to a great extent on the mother country's ability to acquire exclusive rights to the gains from trade through regulations and trade restrictions. In practice, such monopolies were difficult to enforce and the gains often elusive. The colonial trading system had problems from its inception and was constantly subject to external pressures, which meant that the system became less and less functional as time progressed. During the sixteenth and seventeenth centuries, the rigidity of the trade system imposed high transaction costs for consumers in the colonies, who paid higher prices for imported goods. The reforms implemented in the eighteenth century eliminated some of the trade restrictions on trans-Atlantic trade, but imperial policies continued to distort the prices and volume of trade in Latin America.

This chapter studies the impact of the colonial trading system on the prices and volume of trade. The following section presents the mercantilist principles that guided the design of Spanish and Portuguese commercial policies in the sixteenth and seventeenth centuries. There is also a brief discussion of the breadth and scope of the reforms that took place in the eighteenth century. The second section includes a description of the rules of operation and regulations of the trade system in force in the first

two centuries of colonial rule, as well as the changes introduced in the eighteenth century. The third section focuses on the costs of Spanish and Portuguese commercial policies and compares them to alternative trade practices developed in the colonies.

MERCANTILISM AND COMMERCIAL POLICY IN SPAIN AND PORTUGAL

In a review of the literature on colonial Latin America, it becomes clear that one of the few points upon which most scholars agree is that Spanish trade policy from the sixteenth to the eighteenth century was shaped by mercantilist principles.¹ Nevertheless, scholarly agreement does not go much further. Differences arise upon closer examination of the concept of mercantilism underlying each author's argument, a phenomenon not exclusive to studies of Latin America; it merely reflects the difficulties in defining and using a term as broad and complex as mercantilism in historical and theoretical terms.

For some, mercantilism serves only to define the historical period of the consolidation of nation-states from the fifteenth to the eighteenth centuries. Others assign a wider meaning to the term, defining it as the system that influenced the international power structure worldwide and regulated the transformation of the domestic economies in a period of transition to capitalism. There are also authors who associate the term more narrowly with the rules of economic policy that guided the behavior of government officials in premodern societies.² A further complication is the fact that the body of work produced by theorists of mercantilism lacks unifying concepts that might help limit the notion of what mercantilism did and did not consist of. Therefore, it is not surprising to find the term mercantilism associated with British economic policy, the protectionist policies implemented under Minister Colbert in seventeenth-century France, the Spanish trade system in the sixteenth century, and the Bourbon reforms in the eighteenth century.

For the purposes of this chapter, the term mercantilism will be used to refer to the set of principles that guided Spanish and Portuguese economic

¹ The exception is Antonio García-Baquero González, *Cádiz y el Atlántico (1717–1778): El comercio español bajo el monopolio gaditano* (Seville, 1976), chap. 1.

² See Eli F. Hecksher, *Mercantilism* (London, 1934); Leonard Gomes, *Foreign Trade and the National Economy* (London, 1987); Robert Ekelund and Robert D. Tollison, *Mercantilism as a Rent-Seeking Society: Economic Regulation in Historical Perspective* (College Station, TX, 1981).

policy from the sixteenth to the eighteenth century. The most common claim associated with mercantilism is that the wealth of nations depended on the accumulation of precious metals. Consequently, countries needed to accumulate balance of payments surpluses to avoid outflows of bullion. Mercantilist thinkers believed that wealth existed in a fixed quantity and therefore the economic advancement of a country depended on its capacity to enlarge its share of global wealth, thus affecting the relative positions of other countries. In other words, the distribution of wealth at the global level was a zero-sum game in which gains and losses compensated for each other. Hence, given that trade surpluses were the essential goal of mercantilist policies, accumulation of precious metals could only be achieved at the expense of others. In seeking trade surpluses, the menu of mercantilist policies included the substitution of imports by fostering home industries and fiscal incentives to exporters.

From a mercantilist perspective, the territorial conquest of the New World and the exploitation of its gold and silver mines offered the Spanish Crown an exceptional opportunity to build a rich and solid economy, provided it could find the means to protect its newly discovered wealth. A first step toward the commercial control of the New World occurred when Spain obtained monopolistic control of the newly discovered territories under the Treaty of Tordesillas (1494). Spain ceded to Portugal the right to conquer the African coast (and inadvertently Brazil as well) in exchange for recognition of Spanish claims in the New World. Once the great mineral wealth of New Spain and Peru was discovered, the Spanish Crown imposed a set of trade restrictions that entailed control of trade by nationals, protection and privileges for Spanish agriculture and manufacturing, and restrictions and prohibitions on foreign participation in trade with the New World. Moreover, supplying European products in the colonies was reserved solely for Spanish producers. Spain and Portugal were not the only European powers to impose mercantilist restrictions on trade, but their goals differed significantly. Whereas for Spanish and Portuguese rulers revenue collection was the chief goal of the trade monopoly, for the Netherlands, France, and England mercantilist policies aimed primarily to reduce costs and to promote specialization and technological innovation.³

The aim of Spanish mercantilism in the sixteenth century was to bring the highly coveted mineral wealth of the New World into a circuit that was perfectly regulated and controlled by the Crown. Attacks upon Spanish ships by pirates and buccaneers from England, France, and the Netherlands

³ Jan de Vries, *The Economy of Europe in an Age of Crisis, 1600–1750* (New York, 1976), chap. 8.

increased the pressure for maintaining constant vigilance of the commercial flow between the colonies and the Iberian peninsula. This led to the creation of a complex system of convoys (caravans) traveling between Seville, Spain and final destinations at Veracruz, Mexico and Portobello, Panama.

Even though it was protected, the trade circuit of the Spanish empire had to confront various obstacles from inside and outside the Spanish economy that prevented the Spanish rulers from fulfilling their objectives. Institutional aspects of the domestic economy impeded the development of a solid export sector. For example, in the case of the textile industry the interests of wool producers – protected under the monopoly known as the Mesta – prevailed and wool production was exported mainly to northern Europe, depriving the domestic manufacturing industry of raw material. The competitiveness of Spanish manufacturing fell, and with it the benefits that could have been derived from the markets in the American colonies. The ruin of the textile industry becomes even more serious if the efforts on the part of the Crown to prohibit textile manufacturing in its colonies are taken into account. Spain became more and more dependent upon the goods produced in other European countries. The mineral wealth of the Americas soon formed part of the trade circuits of northern Europe. The outflow of bullion from Spain to pay for imports may have contributed to an inflationary process throughout Europe later known as the price revolution of the sixteenth century. In addition to its initial effects on prices, silver bullion from the New World shifted the locus of trade operations in Europe from the Mediterranean basin to the northern cities of London and Amsterdam.⁴

Eventually, growth in the means of payment facilitated the expansion of intercontinental trade, in which the major participants were England, the Netherlands, and France. Spain and Portugal remained as territorial powers but with little participation in the benefits of growing trade. Silver from the New World, however, fueled the expansion of trade circuits worldwide in the sixteenth and seventeenth centuries, thus creating a first cycle of globalization.⁵

In addition to the inflationary pressures in Europe, silver from the New World produced another related effect on monetary regimes. The gold and

⁴ Ronald Findlay and Kevin H. O'Rourke, "Commodity Market Integration, 1500–2000" (Working Paper, National Bureau of Economic Research, 2001), 11–12.

⁵ John H. Coatsworth, "Cycles of Globalization, Economic Growth, and Human Welfare in Latin America," in Otto Solbrig et al., eds., *Globalization and the Rural Environment* (Cambridge, MA, 2001).

Table II.1. *Gold–silver ratio in Castile*

| Years | Ratio |
|-----------|------------|
| 1497–1536 | 10.11 to 1 |
| 1537–1565 | 10.61 to 1 |
| 1566–1608 | 12.12 to 1 |
| 1609–1642 | 13.33 to 1 |
| 1643–1650 | 15.45 to 1 |

Source: Earl Hamilton, *American Treasure and the Price Revolution in Spain, 1501–1650* (New York, 1965), 71.

silver parity had remained around 10 to 1 for centuries before the discovery and conquest of the New World. The increase in the supply of silver reversed this trend by reducing the relative price of silver in terms of gold. The immense quantities of silver produced by American mines outdistanced gold production worldwide, thus causing a fall in the price of silver. The parity ratio between these two metals changed from 10 to 1 in the early sixteenth century to approximately 15 to 1 in the mid-seventeenth century, and remained almost unchanged for the next two centuries.⁶ According to the legal mint ratio in Castile, the silver to gold ratio from 1497 to 1650 rose by over 50 percent (see Table II.1). Variations outside Spain followed the same pattern: a steady fall in the ratio until the end of the seventeenth century.⁷

At the core of Spanish mercantilist policies in the sixteenth century was the production of precious metals. These policies served the interests of the Crown as well as those of the merchant class. On the one hand, the exploitation of silver mines produced revenues for the Crown through taxes on production. Silver mining was thus crucial for royal finances continuously running in deficit. On the other hand, the closed trading circuit designed by Spanish rulers allowed participant merchants in Seville to charge high prices on their exports to the colonies in America. But the fall in the gold–silver ratio reduced the gains of the convoy merchants in

⁶ For the effects of American silver mining on the parity ratio, see J. Laurence Laughlin, *A New Exposition of Money, Credit and Prices* (Chicago, 1931), 96–110; Earl Hamilton, *American Treasure and the Price Revolution in Spain, 1501–1650* (New York, 1965), chaps. 4–6; Gabriel Tortella and Francisco Comín, “Fiscal and Monetary Institutions in Spain (1600–1900),” in Michael D. Bordo and Roberto Cortés Conde, eds., *Transferring Wealth and Power from the Old to the New World* (New York, 2001).

⁷ For mint ratios in Europe from 1501 to 1700, see Laughlin, *A New Exposition of Money*, 96–7.

terms of gold, canceling out the potential gains of the trade monopoly by reducing commercial profits.⁸

In sum, mercantilist policies in colonial Latin America were neither effective for the accumulation of precious metals nor sufficient to induce domestic development in Spain or Portugal. Instead, their persistence reflected the incapacity of the metropolis to generate institutional changes that might have allowed them to benefit from the opportunities opened up by the discovery and conquest of vast territories of the New World. Over these two centuries, all efforts to regulate trade flows failed to foster institutional change and sustained economic growth in the metropolis. In this sense, not even the most perfect system of regulation could have avoided Spain's loss of silver bullion.

THE *CARRERA DE INDIAS* AND THE GEOGRAPHY OF TRADE

Shipping and trading between Spain and Portugal and the New World encompassed three major routes in the Atlantic Ocean and one in the Pacific Ocean. The *Carrera de Indias*, as these routes came to be known, became the backbone of the mercantilist policies implemented by Spain and Portugal. Regulating trade with the New World territories had been of interest to royal authorities from the initial discovery of the Americas by Europeans. In 1503, Ferdinand and Isabella established the *Casa de Contratación de Indias*, located in Seville, a royal body in charge of inspecting and regulating trade with Spain's overseas possessions. Originally chartered as a royal monopoly for trade with the Indies, the *Casa de Contratación* eventually accepted the participation of the powerful merchant's guild of Seville, the *Consulado de Comerciantes*. Besides levying taxes, licensing vessels, planning new expeditions, and inspecting cargo, the *Casa de Contratación* was the commercial agent of the Crown, managing the trade transactions of royal monopolies such as mercury. The concentration of departures to and arrivals from the New World gave the *Consulado* a privileged position in the colonial trade system. Seville, at the shores of the Guadalquivir, eighty-three kilometers from the Atlantic coast, had no obvious advantages relative to competing ports in northern Spain. However, as capital of Andalusia, Seville possessed

⁸ John H. Elliot, "Spain and America before 1700," in Leslie Bethell, ed., *The Cambridge History of Latin America*, vol. 1 (Cambridge, 1984), 103.

a well-established commercial class, its geographic position made it suitable for supplying agricultural products from the hinterland at relatively low cost, and the size of caravels – the most common type of vessel in the early years of the *Carrera* – did not pose any problem for navigation on the Guadalquivir. Two other geographic factors worked in favor of Seville in comparison to the ports on the Bay of Biscayne. Seville's location inland from the Atlantic coast protected it against foreign attacks, and its proximity to the westward ocean currents and winds facilitated travel to America. As center of the trade system with the Indies, the *Consulado* of Seville defended its rights to collect rents from the monopoly, which made it very difficult to change its status, even when other ports proved to have a better location or conditions for trade. For instance, in the 1520s Charles V attempted to open other ports for navigation to the New World, but the decrees were never carried out because of the fierce opposition of the *Consulado*. However, restrictions were not absolute. Intermittently, in the early 1600s, several decrees authorized Cadiz as an alternative port to Seville because of the difficulties of navigating vessels of larger size along the Guadalquivir. In 1717, Seville lost its monopolistic rights to Cadiz, which had controlled more than 30 percent of trade since 1630.⁹

During the first half of the sixteenth century, the *Casa de Contratación* authorized individual ships to travel to the New World. Ventures differed greatly in terms of size and scope, but in all of them the *Casa de Contratación* required a minimum size for ships crossing the Atlantic, and eventually a certain capacity to repel pirate attacks. On the return trip, ships had to call at Seville for merchandise inspection and duty payments. Only members of the *Consulado* had the right to purchase commodities for further distribution and sale in Spain and Europe. As the value of cargo to and from the Indies grew in the second half of the century, attacks from pirates and buccaneers increased, especially in the Caribbean Sea. In the 1560s the Crown, through the *Casa de Contratación*, proceeded to restrict individual voyages, forcing ships to travel in escorted groups, thus creating the fleet system for traveling between Seville and few loyal ports in the New World. Convoyed fleets traveled between Seville and Veracruz and Portobello once a year. Upon arrival at colonial ports, wholesale merchants from local *Consulados* would purchase European goods for reselling and distributing across the territories under Spanish control. The fleet destined for Veracruz had to begin

⁹ Antonio García-Baquero González, *La Carrera de Indias: Suma de la contratación y océano de negocios* (Seville, 1992).

its trans-Atlantic crossing in May. Once outside the region of Seville–San Lúcar–Cádiz, the fleet would make one stop in the Canary Islands to stock up on food and water. With the help of the trade winds, the fleet continued to the Lesser Antilles, generally to Puerto Rico, in order to restock with food and water. Finally, it was beneficial for the fleet to arrive in Veracruz prior to the month of August, thus avoiding the hurricane season, which of course made navigation in the Caribbean Sea very difficult. The 8,000-kilometer journey between Seville and Veracruz normally took between two and three months.¹⁰ Given that Veracruz was not highly conducive to commercial trade, because of the unsanitary conditions that existed in the port as well as the lack of adequate installations, local merchants selected the city of Jalapa, twenty-two leagues from Veracruz, for the annual trade fair. It was not until 1720, however, that Jalapa became the official site of the fair. In theory, access to European goods was controlled by the Mexico City *Consulado de Comerciantes*, which held the monopoly on bulk acquisition and later sale and distribution of goods in the rest of the territory of New Spain.

The fleet supplying the Peruvian viceroyalty, known as *Galeones a Tierra Firma*, took a less direct route. Although it followed the same path to the Lesser Antilles, it made its initial stop in the port of Cartagena, with a duration of between two and three weeks. At Cartagena, local merchants acquired European merchandise for the hinterland of New Granada. The *Galeones* then continued to Portobello on the Isthmus of Panama. There, one of the most important trade fairs at the time took place with the exchange of foreign goods for Peruvian silver. The fair brought intense activity to the port; merchandise was unloaded and stored in warehouses where merchants from the Lima *Consulado* purchased in bulk. However, Portobello was not the center of consumption for most of the European merchandise; it only served as an entrepôt for the viceroyalty of Peru. Hence, from Portobello merchandise was transported across the Isthmus of Panama by mule trains and small vessels on the Chagres River. The goods were then transferred to small boats for the maritime journey down the Pacific coast to Callao, the port of Lima. The trip from Panama to Callao was very difficult to navigate because the currents and winds forced the vessels to detour, first making a stop over in the port of Paita, where a part of the passengers and cargo continued the journey overland. The

¹⁰ Clarence H. Haring, *Trade and Navigation between Spain and the Indies in the Time of the Hapsburgs* (Cambridge, MA, 1918).

arrival of the shipments at Callao took between 90 and 120 days, because it was a difficult route with a high cost in terms of time.¹¹

When the fleet originating in Seville arrived at the port of Cartagena, messages were sent by land to Lima announcing its arrival. From that moment, the shipments of silver were prepared to be sent to Panama. Peruvian silver was transported to Portobello, protected by the *Armada de los Mares del Sur*, also known as the *Armadilla*. In total, the journey did not exceed one month because the navigators could take advantage of favorable winds and currents. In Panama, the silver was transported by mule trains to Portobello, and there met the fleet from Spain.

After wintering in the Indies, in March both fleets assembled in Havana for the return voyage to Spain. The return trip rarely followed the schedule originally laid out. Of the twenty-one occasions in which the fleets returned together, only twice did they do so within the dates originally planned. The slowness and the periodic irregularity of the fleets rendered them inoperable for communication and transportation services that required greater speed and dependability. In addition to the fleets, the Spanish Crown granted permission for the operation of dispatch ships (*navíos de aviso*) and ships transporting mercury (*navíos de azogue*). The later were small boats capable of crossing the Atlantic in a much shorter time than the galleons and other large merchant vessels. The *navíos de aviso* informed colonists on the dates of departure of the fleet and returned to Spain with news regarding the colonies. The *navíos de azogue* transported mercury, mainly to New Spain, for use in processing silver ore. In 1559, mercury had become a state monopoly. Spanish rulers prohibited both *navíos* from carrying goods and passengers, although this restriction was relaxed at the end of the sixteenth century when the *navíos de aviso* were permitted to carry between twenty and thirty tons of cargo in the form of goods. In the middle of the seventeenth century, the *navíos de azogue* were also granted the right to carry goods, in addition to the military ammunition they had carried hitherto.

The *Carrera de Indias* also included a third maritime route, one connecting Spain and the Philippines. Trans-Pacific navigation began in 1565 when Andrés de Urdaneta first demonstrated that winds and currents made it possible to return eastward at latitudes north of the westward route pioneered by Magellan in 1519–20. Trade links between the ports of Manila

¹¹ Alfredo Castillero Calvo, "Los transportes y las vías de comunicación en Hispanoamérica," in Alfredo Castillero Calvo and Allan Kuethe, eds., *Historia general de América Latina*, vol. 3 (Madrid, 2001), chap. 18.

and Acapulco were first established in 1567. Ships traveling from Manila to Acapulco sailed north between parallels eleven and twenty-two, and then they headed to Cabo San Lucas in Baja California, finally reaching Acapulco on the west coast of New Spain after a six-month journey. The route from Acapulco to Manila included a stop at Guam for refueling and rest, and eventually reached Manila in three months. The Crown only authorized one annual trip, consisting of one or two large galleons of 300 tons for the sixteenth century, and 1,000 tons at the end of the seventeenth century. The so-called *Nao de China* brought into New Spain silk textiles and clothing, tea, and spices in exchange for silver, the only means of exchange accepted in the Far East. As the only vessel sailing between Spain and the Philippines, the *Nao de China* was essential for the communication and control of Spain's furthest outpost in Asia. However, the drainage of silver bullion and the competition from silk products preoccupied royal authorities who had always shown concern regarding this trading link with Asia. The Crown attempted various measures to restrain the influence of commercial exchanges with the Far East. In 1581 Acapulco was the only port authorized to trade with the Philippines, thus canceling authorizations previously granted to the ports of Callao and Panama just two years earlier.¹² Further restrictions were imposed on the reexportation of goods from the Far East via New Spain to Peru or any other colony in the New World. In theory, only New Spain and Spain had access to the *Nao de China*'s cargo, but due to smuggling, silk textiles, spices, and porcelain wares reached many other parts of the Spanish Empire in America.

The pattern of colonization of Brazil differed from the areas under Spanish control in terms of the degree of interference by royal authorities. This resulted in a more flexible colonial regime with colonists having more independence from Lisbon. Still, monopolistic control over trade pervaded in key sectors of the colonial economy. In the sixteenth century, Portuguese rule in Brazil fostered the development of a strong export economy based on sugar and forest products. During most of the sixteenth century, the exploitation of brazilwood dominated trade, but this first export boom was replaced by the expansion of sugar production at the end of the century. As European markets demanded increasing quantities of sugar, the export economy became concentrated on the output of the sugar plantations, particularly after 1580. In exchange for sugar, Brazil imported slaves and staples. Portuguese mercantilist policies consisted mostly of licensing

¹² John R. Fisher, *Relaciones económicas entre España y América hasta la independencia* (Madrid, 1992).

merchant ships to carry export crops. In turn, the Crown imposed customs duties on imports to as well as exports from the colony. Portugal found it difficult, however, to exclude foreign powers from trading with Brazil. Foreign powers challenged Portuguese rule and threatened its commercial monopoly. As early as the 1510s, French privateers raided the Brazilian coasts, trading in dyewoods directly with Indians. Portugal responded to foreign aggression by strengthening coastal patrols and pursuing an extensive settlement policy. From 1630 to 1654 the northeast region of Brazil fell under the control of Dutch forces. The Dutch occupation ended after a continuous war effort that depleted royal finances and impeded provision of protection for trans-Atlantic shipping.

By the mid-seventeenth century, warfare and continuous threats from foreign powers forced Portugal to organize a system of fleets to retain control of the trade monopoly with Brazil. The fleet system not only provided the protection needed to escort merchant ships through a system of convoyed voyages, but also reduced the strain on the royal treasury by financing protection through a direct charge on merchandise. The establishment of the *Companhia Geral do Comercio* in 1649 marked the beginning of the fleet system. To cover the expenses of protection, the *Companhia Geral* collected dues on cargo and held the monopoly on brazilwood. The fleet, under the command of the *Companhia Geral*, also held the monopoly for the introduction of staples, such as flour, wine, oil, and codfish into Brazil. By 1660, the Crown ordered all ships crossing the Atlantic to travel in convoys. A year later, however, complaints about the operation of the *Companhia Geral* converted it into a state-managed enterprise under the authority of the Treasury Council (*Conselho da Fazenda*). Following the pattern of the *Companhia Geral*, in 1678 the Crown established the *Companhia do Maranhão*, which monopolized the introduction of slaves in the Maranhão–Pará region.

EIGHTEENTH-CENTURY REFORMS IN COLONIAL TRADE

The crisis in the Spanish fleet system was obvious by the beginning of the eighteenth century. Added to the problems that derived from the operation of the convoys was the irregular departure of the fleets to the New World (see Table 11.2). The increase in costs due to fiscal pressure and war, the crisis in the Spanish shipping industry, the rigid regulation in the

Table II.2. Spanish fleets, 1680–1739

| Period | Fleets | Galleons |
|-----------|--------|----------|
| 1680–1700 | 9 | 4 |
| 1700–1713 | 4 | 2 |
| 1713–1720 | 3 | 1 |
| 1720–1739 | 7 | 4 |

Source: Fernando de Mordejé y Morencos, *Tráfico de Indias y Política Oceánica* (Madrid, 1992).

departures and arrivals of the convoys, and the ever-increasing competition from contraband brought to the fore the crisis in the fleet system.

The inoperability of the trade monopoly created the need for substantial modifications to the trade system between the metropolis and the colonies in the New World. At the beginning of the eighteenth century, the reticence of Spain to cede to pressures from foreign powers impeded a substantial reform of the colonial trade system. The presence of foreign merchants had been constant in the *Carrera* through the use of legal intermediaries who loaned their names (*prestanombres*). A large share of the merchandise and capital mobilized through the regulatory framework of Seville actually belonged to foreigners in collusion with Spanish merchants and officials. Instead of radical change of the trans-Atlantic trading system, solutions were repeatedly sought from within the operation of the monopoly.

During the War of Spanish Succession (1702–13), France exercised a notable influence over Spanish colonial policy, but the modifications proposed by French advisors were repeatedly rejected or simply postponed by Spanish authorities. France capitalized on its support for Spain to secure trade privileges in America. In 1702, the highly coveted *Asiento de Negros* passed into the hands of the French Guinea Company, which allowed France not only to monopolize the sale of slaves to Spanish America, but also to legally export merchandise worth up to 2,000 French pounds in the warships that escorted the convoys of the *Carrera*. This opportunity notably increased French business with Spanish colonies. At least fifty ships arrived in Veracruz between 1701 and 1707, and regular arrival of French ships on the coasts of Peru and Chile led to the establishment of merchant houses in the first two decades of the eighteenth century.¹³ The French presence

¹³ García-Baquero González, *La Carrera de Indias*, 43; Pablo Emilio Pérez-Mallaína Bueno, *La política naval española en el Atlántico, 1700–1715* (Seville, 1982), 65; Carlos D. Malamud, *Cádiz y Saint Malo*

in American markets was well received by the colonies, although with a certain suspicion, because the French trade not only alleviated the lack of foreign goods, but also achieved a reduction in import prices. Those who were affected by the expansion of French trade, legal and illegal, were the English and Dutch contrabandists who lost market shares to their French rivals, as well as the merchants of Seville whose monopolistic power in the markets of South America was somewhat weakened, as demonstrated by the failure of the Portobello fairs of 1708 and 1713. The Spanish control of colonial trade had better luck in the case of the fleets to New Spain. From the onset of the hostilities and until the signing of the Treaty of Utrecht, four fleets made the return trip from Veracruz. In addition to the fleet system, trade contact with America was maintained with licensed ships, whose importance would grow throughout the eighteenth century. In fact, 10 percent of the tonnage transported from Spain to America during the period 1700–15 was by means of licensed ships.

At the end of the War of Succession, the legal margins for foreign involvement in the Spanish colonies in America expanded. By means of the Treaty of Utrecht of 1713, Great Britain secured the *Asiento de Negros*, which had been in French hands since 1702, for the South Sea Company. Two years later, Great Britain achieved an additional concession that consisted of the legal admission of a ship (the so-called English annual ship) with a shipment of 500 tons to the ports of Veracruz and Portobello, coinciding with the arrival of the fleets and galleons and the fairs organized for the occasion. Given the characteristic irregularity of the escorted convoys, in 1716 the Spanish Crown agreed that the Company could sell its cargo regardless of whether a fair was held or not. By 1720, three "annual ships" had arrived in Spanish America, having a noticeable effect on the markets. Without the burden of heavy taxation, English goods had a significant price advantage over those goods dispatched from Seville. In addition, the disorganization of the fleet system offered but little resistance to the penetration of the English merchants in undersupplied colonial markets.

The success of the English annual ship demonstrated that without reform the commercial connection between Spain and its colonies could collapse and fall under the control of foreigners. In order to hinder the foreign presence in colonial trade, the Spanish government devised a series of changes aimed at strengthening its trade monopoly by reducing the fiscal

en el comercio colonial peruano, 1698–1725 (Cádiz, 1986), 48–9; Simon Collier and William F. Sater, *Historia de Chile 1808–1994* (Cambridge, 1998), 27.

burden and speeding up navigation. This new phase in commercial relations with the New World was synthesized in the *Proyecto de Flotas y Galeones* (known as the *Real Proyecto*) decreed in 1720. It acknowledged the transfer of the *Casa de Contratación* from Seville to Cadiz, in force since 1717, and reformed taxation by replacing ad valorem duties with the *palmeo* tax based on cubic volume. Fostering the Spanish shipbuilding industry was another goal attempted by the *Real Proyecto* by requiring that all ships crossing the Atlantic be of Spanish origin. These changes left the structure of the fleet system virtually unchanged, because many of the monopolistic characteristics still remained as well as its costs for the colonial trade. But the Spanish Crown expected that increasing the efficiency of the monopoly would be enough to recover the ground lost to foreign rivals and turn the colonial markets into a platform for Spanish development.¹⁴

In the 1720s the fleets to New Spain and the galleons to Peru proved that the *Real Proyecto* was insufficient to overcome the pervasive problems in colonial trade. Contraband, British commercial successes, and growing confrontations with merchant guilds from the colonies all contributed to the failure of the reforms of the *Real Proyecto*. The colonies did not find relief from the irregular arrival of shipments or from the excess price paid for foreign merchandise, legal or illegal. A departure from the monopoly system and its restrictions was thus unavoidable, either in the form of a radical reform or by authorizing alternatives to the fleet system.

Once again, partial reforms were attempted to revive trade and protect Spanish interests against foreign intrusion. Following the example of the British and Dutch commercial companies, whose successful overseas trade increased the hegemony of Great Britain and the Netherlands, Spain promoted commercial companies as an alternative to the imperial trading system. However, the companies thus created did little to alter the operation of the fleets and galleons system because their operation was restricted to trade in areas outside the monopoly's routes. The *Compañía Guipuzcoana de Caracas*, established in 1728, was the most successful and long-lived commercial company in Spanish America. Its purpose was to take over the cacao trade from Dutch merchants who were trading illegally in Venezuela. The high demand for cacao in European markets ensured the success of the *Compañía Guipuzcoana*. The Spanish Crown found it difficult to replicate the experience of the *Compañía Guipuzcoana* in its

¹⁴ "The Crown was clearly intending that the Real Proyecto should also serve as a foundation upon which to base a wider improvement of Spain's general economic fortunes." Geoffrey J. Walker, *Spanish Politics and Imperial Trade, 1700–1789* (London, 1979), III.

various attempts at establishing other companies – Campeche, 1734; San Cristóbal de la Habana, 1740; San Fernando de Sevilla 1747; and Barcelona, 1775 – because their monopolistic privileges were restricted to limited geographical areas and their fiscal status did not exempt them from the heavy duties that affected colonial trade.¹⁵

Trade reforms not only produced disappointing results for the Crown in its efforts to transform the colonies into agents of growth for the Spanish economy, but also did little to benefit the colonies themselves. The reforms alienated merchants in the New World who feared that metropolitan intervention in trade affairs would work against their former independence. The manipulation of colonial markets in favor of metropolitan interests hurt many concerns in the New World and resistance ensued. Lack of cooperation from merchant guilds in New Spain and Peru increased the risk involved in the Atlantic trade, seriously damaging the profitability of the fleets and galleons that set sail after 1720.

The War of Jenkins' Ear (1739–48) altered Atlantic trade practices and seriously weakened the already decadent fleet system. The destruction of Portobello by English raiders put an end to the commercial route that had connected Spain with the viceroyalty of Peru since the sixteenth century. The British blockade forced Spanish authorities to turn to licensed ships as an alternative to the monopoly routes. Licensed ships supplied traditional markets as well as areas that had remained excluded from the direct trade circuits. For the Peruvian market, licensed ships increasingly used the port of Buenos Aires and the route around Cape Horn. As a result, there was an upsurge in the volume of trade, which confirmed to many that the restrictions of the trade monopoly had been hindering commerce.

After the war, the restoration of fleets and galleons depended on the capacity of the Crown to reconcile the interests of powerful merchant groups on both sides of the Atlantic. During the previous decade, merchants at Cadiz had profited from the greater flexibility allowed by licensed ships. Instead of incurring the costs of preparing a convoyed voyage on fixed dates only to find American markets overstocked by contraband, they dispatched smaller shipments and engaged in direct business on the coast as well as inland, thus circumventing the conditions imposed by local guilds. Local monopolists who lost their role as intermediaries in the legal circuit soon resented the competition of Spanish merchants conducting business in the

¹⁵ Joseph Fontana and José María Delgado, "La política colonial española, 1700–1808," in *Historia general de América Latina*, vol. 4, 20.

colonies. Hence, merchant guilds in the New World, and in particular in Mexico City, favored the restoration of convoyed voyages, provided that the guilds recovered the power to manipulate local prices and gained full benefits from their monopolistic role. In effect, they were asking for “the continuance in theory but the failure in practice of the traditional fleet system, for such a situation represented the nearest thing to complete commercial independence to which [they] aspired.”¹⁶

The Spanish authorities failed in their efforts to restore the galleons as the only trade channel with Peru. The preparation of galleons for voyages to *tierra firme* was postponed until Portobello could be rebuilt and because of low demand in the viceroyalty after years of being regularly supplied by licensed ships. Licensed ships thus continued to be the predominant means of commerce between South America and Spain. An administrative innovation eased acceptance of the abandonment of the trade monopoly by Peruvian merchants. In 1749, the Crown decreed that Lima’s merchants could place orders for specific products directly with businessmen in Cadiz by sending money in advance. Reduction of transshipment and protection costs, as well as the opportunity to engage in direct business with metropolitan merchants, lowered prices, thus improving prospects for profits.¹⁷

The fleet to New Spain survived a little longer than the galleons to *Tierra Firme*, with six convoyed voyages between 1757 and 1776. Formal abolition waited until 1789. The fleet was scheduled to depart every two years; the Crown sought to preserve monopolistic privileges in the commercial circuit with New Spain by curtailing any authorization of licensed ships during the intervening years. Trade fairs in Jalapa upon the arrival of the fleet in 1758 and 1760 found a sluggish market, and most of the transactions involved small merchants who had displaced monopolists from Mexico City. In 1760 demand for imported goods plummeted as the Anglo-French war opened the possibility of replacement of fleets by licensed ships. Perhaps more significant was the reaction of Viceroy Cruillas, following the English capture of Havana in 1762. Fearing an attack, he ordered that unsold merchandise in Jalapa be dispatched to the interior, despite the opposition of *Consulado* merchants.

The reestablishment of the fleet system in New Spain encountered the same difficulties that had characterized the monopoly since the sixteenth century. Convoy charges and delays imposed a heavy burden on the trans-Atlantic trade. The *Carrera* was in its final phase as the Crown

¹⁶ Walker, *Spanish Politics*, 214.

¹⁷ Walker, *Spanish Politics*, chap. II.

increasingly sought the solution to the decay of the Spanish economy in colonial trade. This time the reforms would challenge the principles that had guided Spain's commercial relationship with the New World. In an effort to recover the colonial trade from foreign control the Spanish authorities attempted to implement a far-reaching program of economic reconstruction. At the core of this program was the idea that the colonies should become not only protected markets for Spanish goods but also producers of raw materials to supply metropolitan needs. The Bourbon reform of the colonial trade system preserved its mercantilist character, but commercial policy had evolved from the bullionist stance of the early days of the *Carrera* to projects whose goals included the economic development of the Spanish economy.

The Spanish government was not alone in its preoccupation with ensuring that its overseas possessions render maximum benefits to the metropolitan economy. Other European powers had also realized that the preservation of their monopolistic powers in colonial trade circuits could only be achieved by eliminating the incentives for contraband and illegal practices. Granting freedom to trade was thus a mechanism for expanding trade and reducing costs, which, in turn, rendered smuggling less profitable. Together with less restrictive trade practices during the war period came an increase in contraband, particularly in North America, where the illegal trade between the thirteen colonies and the Spanish and French islands in the Caribbean intensified and led to subsequent financial losses for the metropolis. The first step toward a freer trade policy was made by Denmark, which decided to open the ports of Saint Thomas to foreign trade in 1765. A year later, Great Britain enacted the Free Ports Act, which opened up ports in the Caribbean islands and legalized Anglo-American trade with the French islands. Likewise, French colonial interests demanded more freedom in trade. In 1867, Saint Domingue and Saint Lucia were allowed staple trade with foreigners, a policy that was extended to other ports in the following years.

The policy shift in Spanish America, known as *comercio libre*, began with the Royal Decree of October 1765. It ruled that Cuba, Santo Domingo, Puerto Rico, Margarita, and Trinidad in the Caribbean and Alicante, Barcelona, Cadiz, Cartagena, Gijón, La Coruña, Málaga, Santander, and Seville in Spain were legally authorized to engage in direct trade. The decree of 1765 also substituted the *palmeo* for ad valorem duties, eliminating the cumbersome practice of taxing cargo by cubic volume. Limited at first to a handful of ports in the Caribbean, the *Reglamento y Aranceles Reales* of 1778 extended the policy of *comercio libre* to Nueva Granada, Guatemala,

Table 11.3. *Export performance in Latin America c. 1790 (in millions of pesos)*

| | |
|------------------------------|------|
| British West Indies, 1783–7 | 17.3 |
| French West Indies, 1787 | 30.5 |
| Spanish colonies, early 1790 | 34.0 |

Source: David Brading, "Bourbon Spain and its American Empire," in Leslie Bethell, ed., *The Cambridge History of Latin America*, vol. 2 (Cambridge, 1984).

Peru, Chile, and Buenos Aires – the same policy had been extended to Louisiana, Yucatan, Campeche, and Santa Marta between 1768 and 1777. The exclusion of New Spain from the regime of *comercio libre* was justified on the basis that the most prosperous colony in the New World would naturally divert trade from less developed areas, thus reducing the effects of the commercial reform. However, the special treatment received by New Spain was also the result of lobbying against the reforms by the *Consulado* merchants whose profits depended on the monopolistic privileges of the fleet system. Another excluded region was Venezuela, because the profitability of the *Compañía Guipuzcoana de Caracas* depended on its monopoly of the cacao trade. Eventually, however, even the exceptions disappeared: in 1789 *comercio libre* finally reached New Spain.

Toward the end of the eighteenth century, the export sectors of the New World economies had acquired a new dynamism. The key question is the role that trade policy played in this outcome. The growth of exports presented differentiated patterns in the distinct regions of the Americas. By 1790, more than half of Spain's imports from its colonies continued to be precious metals. Bullion still dominated the structure of exports in New Spain, Buenos Aires, and Colombia. The most notable example of trade expansion in tropical products was that of Cuba, where the exportation of sugar had increased substantially by the end of the century. From the perspective of the Spanish empire, trade had expanded to unprecedented levels and involved regions that hitherto had remained isolated. Taking a broader perspective, Table 11.3 suggests that the export sectors of British and French possessions in the Caribbean performed much better than Spanish colonies following the trade liberalization of the Bourbon reforms.

The external sector in Brazil also experienced significant changes in the eighteenth century due to both changes in the structure of trade and increased intervention that resulted from mid-century policy reforms. In

the eighteenth century, trade relations between Portugal and Brazil went through two different stages, marked by the exportation of gold and tropical products. At first, the exploitation of gold deposits, and to a lesser extent of diamonds, increased the demand for foodstuffs from the exterior. However, this demand was fleeting given that the appearance of cattle ranches and farms in the interior meant these needs could be met by production within the colony. Gold and diamond mining did, however, increase demand for slave imports.

For Portugal, Brazil had declined in importance due to the deterioration in the terms of exchange for Brazilian exports in the late seventeenth century. With the exploitation of mineral wealth not only was this situation reversed, but also the import capacity of the Portuguese economy was considerably increased. This undermined domestic industry and led to a greater dependence on imported manufactured goods. This was officially sanctioned by the signing of the Treaty of Methuen in 1703, which granted certain advantages to British textiles in exchange for preferential treatment of Portuguese wines and oils.

Through monopolistic controls, Portugal tried to capture the benefits derived from the expansion of gold exports to the metropolis. However, because contraband goods, as well as goods acquired through the fleet system, were not subject to payment of duties, these controls made the illegal trade in gold more attractive and thereby facilitated the introduction of foreign products into the Brazilian market.

By 1750 the gold cycle had reached its peak and therefore, in keeping with the mercantilist ideas that prevailed in the mid-eighteenth century, it was essential for Portugal to modify its relations with the largest and most valuable of its colonies. What followed in Portuguese colonial policy was an attempt to revive trade between the metropolis and its colonies, with the dual objective of increasing fiscal revenue and reducing Portuguese dependence upon Great Britain. To achieve this, the undertaking of a broad administrative, fiscal, and trade reorganization was indispensable. At the forefront of these reforms was Sebastião José de Carvalho e Mello, better known as the Marquês de Pombal.

The Pombaline reforms promoted greater freedom for production as well as commercial traffic. As in the Spanish colonies, the fleet system was inefficient and in practice had been reduced to the ports of Rio de Janeiro and Bahia. As an alternative to liberalizing trade, Portugal turned to the formation of trading companies. This was not the first time Portugal had created these companies. In the seventeenth century the Crown established

two companies with privileges to sell slaves and export brazilwood. Pombal organized three government-sponsored companies: the *Companhia Geral do Comercio do Grão Pará e Maranhão* (1755–78), the *Companhia Geral do Comercio de Pernambuco e Paraíba* (1759–79), and the *Companhia de Pesca da Baleia das Costas do Brasil* (1765). Although they also enjoyed monopolistic privileges over the Brazilian ports of Belem do Pará, São Luis do Maranhão, and Pernambuco, the objective behind the new trade companies was the expansion of trade in tropical products and an increase in the consumption of metropolitan manufactured goods.

The convoy system of fleets was finally abandoned in 1765 and in its place Portugal permitted the navigation of licensed ships to Rio de Janeiro and Bahia. In all, between 1750 and 1777 the Pombaline reforms eliminated many monopolistic privileges and deregulated trade. Pombal's successors implemented free trade in all Brazilian ports, which ended the monopolistic rights of the commercial companies in the northern ports, further advancing the metropolitan goals of trade expansion.

Deregulation coupled with investments in the productive capacity of the country turned Brazil into one of the most open economies in Latin America in the late eighteenth century. International conflicts (the American, French, and Haitian revolutions) that disturbed the Atlantic economies became an additional stimulus to export producers in Brazil, especially those of cotton and indigo. Sugar and tobacco exports also benefited from a demand-driven market in Europe.

THE TRADE MONOPOLY AND ALTERNATIVE TRADE PRACTICES: SIXTEENTH AND SEVENTEENTH CENTURIES

The mercantilist policy that the Spanish Crown implemented to maintain the trade monopoly produced poor results for its home economy. Similarly, Portugal had enormous difficulties in monopolizing colonial trade with Brazil. Neither Spain nor Portugal succeeded in retaining its commercial monopolies in the New World. Because it was not a natural monopoly, the trade system that Spain and Portugal implemented in their respective colonies depended upon their capacity to impose an efficient regulatory framework within their overseas possessions as well as outside. Without sufficient institutional force, the appropriation of rents from the monopoly was complicated. As rents were diverted to other parties or agents in northwest

Europe, the trans-Atlantic trading system failed to retain control of the precious metals produced in the colonies and thus failed to generate economic growth for the metropolis.

For the colonies, the regulations on trade generated high costs. By establishing Seville as the single port of entry and departure, and by granting *Consulado* merchants the exclusive right to trade with the colonies, Spanish rulers created a singular trade complex in which Seville's monopoly power was reinforced by the oligopolistic nature of the *Consulado* merchants. The systematic manipulation of quantities and prices became crucial for the operation of the *Consulado*. For the consumers in the colonies the government-sanctioned monopoly led to undersupplied markets and overpriced imports.

The failures of the monopoly and its subsequent deterioration throughout the seventeenth century created trade alternatives for the colonies. These alternatives also generated transaction costs that maintained trade barriers for the colonial economies. What follows is an example of the impact of the taxes and protection costs imposed by the mercantilist policies of Spain and Portugal in America.

To the monopolistic rents extracted via the fleet system were added the direct tax burden on imports and exports, confiscations, and obligatory loans. Spain used the *almojarifazgo* (an *ad valorem* duty) to tax imports and exports. Up to 1548, the Spanish Crown taxed European goods shipped to the New World with a 7.5 percent duty, collected by royal officials in American ports. Between 1548 and 1565, the *almojarifazgo* on exports to America was 2.5 percent in Seville and 5 percent upon arrival in the New World. In 1566, *almojarifazgo* rates increased to 5 and 10 percent in Seville and the New World, respectively. Beginning in 1548, colonial exports to Spain paid *almojarifazgo* equivalent to 15 percent *ad valorem*, thus equating export and import *almojarifazgo* rates. By 1568, all exports to Spain were covered by an additional 2.5 percent to be collected upon exiting ports in the New World. The *almojarifazgo* on Spanish imports from the Indies was abolished in 1660 when the Crown did away with all *ad valorem* taxes on imports. Besides the *almojarifazgo*, the Spanish Crown imposed other taxes based upon tonnage, generally known as *derecho de toneladas*. Various rates applied to shipments sailing to ports other than those established in the *Carrera*. The *derecho de toneladas* was levied on goods exported to Cartagena or Veracruz served to finance the navigation school at Seville, whereas the *derecho de extranjería* was charged for the right to send foreign-built ships with the fleets.

During the sixteenth and seventeenth centuries piracy was a constant menace to the transportation of goods, which further elevated the price of merchandise imported by colonists. The risk of undergoing an attack during a voyage increased the incentive to protect the shipments with armed naval vessels. Shippers covered the said protection costs through a tax known in Spain as *avería* (*avaría* in Portugal). The *avería* varied according to the volume of cargo and the protection cost of each individual fleet. The *avería* rate was very sensitive to warfare and piracy. In 1596, the *avería* rate on the Veracruz fleet amounted to 14 percent *ad valorem*, whereas in 1631, when the navigation risks increased as a result of the Thirty Years War, the *avería* jumped to 35 percent *ad valorem* on the Veracruz fleet.¹⁸ By 1660, a royal decree replaced the *ad valorem* rates with a fixed amount of 790,000 ducats for each fleet. Occasional duties and variations in *avería* rates and tonnage charges make it difficult to compute the precise tax burden on the goods transported in the *Carrera*. Antonio García Baquero has calculated an estimate for the lower limit of taxation on the merchandise crossing the Atlantic in the sixteenth and seventeenth centuries at 35 percent *ad valorem*.¹⁹ Yet, as in the example mentioned earlier, in 1631 the *avería* alone amounted to 36 percent. Therefore, at the very least, a third of the price paid by the colonists went just to cover taxes and protection expenses.

Despite precise regulations on departure dates for convoyed fleets, the regularities found in the early years of the *Carrera* tended to disappear as the seventeenth century progressed. As documented by Pierre and Huguette Chaunu, only a small percentage of fleets sailed on the pre-established dates. For instance, between 1560 and 1650 only 14 percent of fleets to New Spain left in May as required by the regulations of the *Casa de Contratación*.²⁰ As early as 1565 the *Galeones* to Portobello sailed biannually, and the fleet to New Spain was on an irregular schedule from 1620 onwards. In the second half of the seventeenth century, the number of fleets crossing the Atlantic declined considerably. Only twenty-five fleets arrived at Veracruz and sixteen at Portobello. Warfare and news of possible pirate attacks discouraged preparations of the fleet. These two factors were particularly important at the end of the sixteenth century and during the first half of the seventeenth century. During this period, not only did pirate attacks reach their height,

¹⁸ Francisco R. Calderón, *Historia económica de la Nueva España en tiempos de los Austrias* (Mexico City, 1988), 549–56.

¹⁹ García-Baquero González, *La Carrera de Indias*.

²⁰ Pierre and Huguette Chaunu, *Seville et l'Atlántic* (Paris, 1959), vol. 8.

but Spain also became involved in large-scale and intense warfare with its European rivals.

The merchants of the *Consulado* of Seville also played an important role in determining the schedule of the fleets. On many occasions, the *Consulado* forced delays in the departure of the fleets as part of an attempt to increase their earnings. The scarcity of European goods in the colonies increased their prices and therefore the profits that could be earned, in particular with low-priced goods that had a correspondingly low profit margin. In the long run this was a self-defeating strategy because it gave smugglers an even greater incentive to meet the unsatisfied demand.

As the Iberian colonies expanded during the sixteenth century, the demand for European products grew apace. At first, the Iberian economies responded satisfactorily to a shift in the demand, supplying fine textiles and clothing, paper, iron, hardware, mercury, oil, wine, vinegar, and weapons. However, the response of Spanish industry lagged behind increases in demand, a situation aggravated by the monetary consequences of the inflow of precious metals from the New World. The inflation caused by the flow of silver from the mines in New Spain and Peru made goods from other countries more attractive. Eventually, non-Spanish products dominated shipments to the New World, either smuggled into Seville or simply acquired by the *Consulado* merchants for re-export to the Indies. In the long run, Spain was unable to compensate for the inflow of precious metals with the export of domestically produced goods. The aim of accumulating precious metals through a surplus in foreign trade accounts turned out to be unfeasible for the Spanish economy, whose institutional weaknesses did not foster domestic industries.

The low capacity for response on the part of Spanish agriculture and industry – that is, the inelasticity of supply – led to import substitution in the colonies of the New World, which eventually caused a reduction in the demand for products such as textiles, wine, oils, and wheat flour. During the sixteenth century, the Crown itself promoted a process of import substitution in the colonies for the main consumer goods of the Spanish communities settled in the New World. Local production of wheat, wine, olive oil, and textiles flourished in New Spain and Peru. Although the high costs of the monopoly encouraged the diversification of intracolonial production, especially in New Spain, to the detriment of trade with Spain and the rest of the colonies, the high prices for inputs reduced the possibilities for import substitution on a larger scale.

Although it reached varying levels of efficiency, production in some regions reached such a high standard that it could compete with the European products, to the point of making intercolonial trade profitable. This was the case with the production of wine and oil in Peru and wheat in Chile, whose trade with New Spain in exchange for goods from the Far East grew significantly between the end of the sixteenth century and the beginning of the seventeenth century. The fear of losing colonial markets and increasing the diversion of silver to the Far East pushed the Crown to discourage direct links between the different colonial entities. Yet, despite repeated attempts on the part of the Crown to prohibit it, this interregional exchange was even further diversified as the seventeenth century progressed. The series of partial prohibitions that had begun from the end of the sixteenth century culminated in 1631 with the prohibition of trade between the viceroyalties of Peru and New Spain. Far from making the economic exchanges between the colonies disappear, this prohibition simply opened up new space for contraband activities. Regardless of the formal restrictions on trade, the commercial links in the American colonies continued throughout the seventeenth century. In the second half of that century, products from the Far East and textiles from New Spain were exchanged for cocoa from Caracas, and wine, olive oil, and wheat from Peru supplied the markets of New Spain and the *Tierra Firme*. Nicaragua supplied provisions for Panama and lumber for the shipyards of Guayaquil, whereas in the extreme south of the Americas, Buenos Aires soon emerged in the area of the Río de la Plata as the center of a network of local and regional exchanges. Brazil also developed intercolonial trade with the Portuguese territories in Africa, as well as with ships originating in India en route to Lisbon.

The illegal trade would continue as long as its costs were lower than those of goods transported by the fleets. Even when the trade between the colonial entities had to fall back upon overland routes due to threats from pirates or lack of currency, the persistence of the economic exchanges was a sign of the heavy burden that the system of fleets implied.²¹ The prohibitions on intercolonial trade, together with piracy and the lack of means of payment, raised costs on the illegal exchange of goods. However, for the prohibitions to be truly effective, the costs of the contraband between the different colonies had to be high enough to compensate for the costs of the goods imported by the fleet system. The persistence of intercolonial

²¹ Murdo MacLeod, "Spain and America: The Atlantic Trade – 1492–1720," in *Cambridge History of Latin America*, vol. 1 (Cambridge, 1984), chap. 10; Pedro Pérez Herrero, *Comercio y mercados en América Latina colonial* (Madrid, 1992).

trade indicates that in many cases the costs did not exceed the costs imposed by the trade monopoly.

In addition to interregional trade, contraband also developed as an alternative to the trade monopoly. Illegal trade in the Spanish colonies took on a number of different forms, and its importance varied during the sixteenth and seventeenth centuries. At the beginning of the *Carrera*, merchants from different parts of Europe illegally introduced goods into Seville, which were subsequently transported to the New World. Another form of contraband arose as a reaction to the predatory practices of the Spanish Crown toward merchants. Throughout the sixteenth and seventeenth centuries, military conflicts in Europe put a severe strain on Spanish royal finances. No fiscal reform seemed to work because of the difficulty of keeping pace with ever-increasing expenses. The Crown, several times on the brink of bankruptcy, resorted to desperate measures, such as confiscation and forced loans. As royal finances deteriorated, merchants preferred to divert trade from legal circuits as a protective device against unanticipated fiscal exactions.

Contraband on the Caribbean Sea, perhaps the most important in terms of volume and economic impact on the colonies, was consolidated when the European rivals of Spain and Portugal acquired territorial rights in the Antilles. By the mid-seventeenth century, Curaçao was under Dutch domination, whereas Martinique and Guadalupe were already under French control. A larger group of islands, which included Barbados, St. Christopher, Antigua, and Jamaica, had been seized by Great Britain. Territorial control allowed the foreign powers to establish supply points and closer trade links with Spanish colonies and Brazil. The greater trade openness of Brazil was also a favorable condition for the expansion of contraband. The foreign presence in trade within the colony increased with the signing of the peace treaties of 1642 and 1654, which conceded privileges to Great Britain in the fleet system directed by the *Companhia Geral*.

Smuggling, piracy, and territorial occupation were not the only forms of foreign intrusion into colonial trade circuits. Through contracts, foreign powers achieved control of segments of the trade between the Iberian economies and the New World. In particular, the Spanish crown ceded the slave trade to foreigners through a contract known as *Asiento de Negros*. The Treaty of Tordesillas prevented Spain from initiating conquests or exploration of territory on the African continent, and therefore forced Spain to depend upon foreign powers for its supply of slaves. In consequence, Spain established the *Asiento de Negros*, which was in effect a contract between the Spanish Crown and foreign companies for the introduction of slaves

to the territories under Spanish domination. The foreign companies in charge of this trade were permitted to arrive directly at the American ports to carry out the sale of slaves without any obligation to register or leave from Seville. Portuguese merchants dominated the slave trade in Spanish America during the temporary union between the two Crowns (1580–1640), even though Portugal did not always have exclusive rights. In reality, the Portuguese competed fiercely with the Dutch and English for the *Asiento de Negros*, given that this represented not only direct earnings but also direct access to Spanish colonies' markets without the restrictions imposed by the monopoly. As was to be expected, the foreign companies in charge of the *Asiento de Negros* took advantage of the opportunity to trade not only in African slaves but also in goods of all types. The slave trade revealed one of the fissures in the Spanish trade monopoly that, in addition to liberating a whole segment of trade from the rigid laws that surrounded it, also created another opportunity for contraband.

In spite of the fact that by the end of the seventeenth century entire regions of the New World depended upon contraband for their regular supply of foreign goods, the illegal trade lacked formal mechanisms; its irregularity was only surpassed by that of the decadent system of fleets. Contraband trade implied bribing royal officials who permitted smugglers to violate or simply ignore the trade laws and decrees; it also relied on the use of ports and overland routes far from the centers of consumption, or with little or no infrastructure. These were some of the factors that rendered contraband less profitable.

TRADE COSTS AND COMMERCIAL REFORM IN THE EIGHTEENTH CENTURY

The trade reforms of the Bourbon era did not eliminate the burden of colonial trade costs altogether. The Bourbon and Pombaline reforms aimed chiefly at reviving metropolitan trade connections with colonies in the New World. Ultimately, these reforms dismantled the trade monopoly that had existed since the sixteenth century. But the Spanish and Portugal authorities remained firmly committed to mercantilist policies to foster metropolitan industries by securing them markets and raw materials. Changes came about gradually. For the first half of the eighteenth century, reforms tinkered with the structure of the monopoly and thus trade costs for the colonies remained high. The Spanish Crown resorted to licensed ships to alleviate shortages produced by the irregularity of fleets and the periods in which international

conflicts disturbed trade routes. Licensed ships had various advantages over the *flotas* and *galeones*. Flexibility in departure dates, lower protection costs, and lighter cargos that increased the probability of sale of goods at a profit in colonial markets tended to reduce prices of the goods carried by licensed ships.

The commercial companies that were tried during the process of trade reforms also improved the flow of trade. These private enterprises enjoyed exclusive rights to trade with regions outside the routes of the fleet system. The metropolitan governments granted them monopolistic rights over colonial exports, such as cacao and brazilwood; exclusive access to ports, such as Caracas, Belem, and São Luis; and privileges in the introduction of metropolitan goods, such as staples and slaves. Territories supplied by commercial companies benefited from the regularity of shipments, which mitigated the conditions of chronic undershipping that prevailed under the fleet system. But prices of imports charged by commercial companies remained very closed to those that prevailed under the fleet system. This price behavior was one of the reasons that merchants in Brazil lobbied against commercial companies in the 1760s and 1770s.²²

FINAL COMMENTS

From the mercantilist perspective, the regulations that maintained the trade links between Spain and Portugal and their respective colonies in the New World were intended to guarantee surpluses in the balance of trade, and therefore an accumulation of precious metals. However, due to the structural weaknesses of the Iberian economies, home-produced goods could not balance the flow of American silver and other colonial products such as sugar and brazilwood. In addition, the threat from foreign powers and the substitution of imports in the colonies debilitated the trans-Atlantic trading system to the point that toward the end of the seventeenth century the colonial monopoly existed mainly in theory.

For the colonies, the monopoly was an obstacle to trade with the rest of the world and therefore became a serious constraint on economic growth. Trade gains were appropriated only by those groups, such as the guild merchants, that enjoyed privileged positions in the structure of the trade

²² "Ever since these [commercial companies] had been set up they had become ever more unpopular with merchants in Portugal and Brazil and with colonial landowners who were critical of their pricing policies, especially with respect to slaves." Andrée Mansuy-Diniz Silva, "Imperial Re-Organization, 1750–1808," in Leslie Bethell, ed., *Colonial Brazil* (Cambridge, 1987).

monopoly. The Crown maintained the monopoly because it reaped benefits from it through taxes and fees charged on imports and exports. Merchants from the *Consulados* also enjoyed monopolistic rents that led them to defend the trading system. Piracy and foreign attacks imposed protection costs (equivalent to higher transport costs) that further increased the price of imports for the colonies.

Alternative practices did exist. Illegal trade flourished whenever smugglers could supply merchandise at lower prices than those of the monopoly. Moreover, lack of compliance with the fleets' rigid schedule and official acceptance of foreign participation in colonial trade – the English annual ship, for example – are indications that the virtually inoperative monopoly survived only because it rendered profits to public and private interests. Nonetheless, the costs associated with illegal circuits of trade (bribes, risks of confiscation, etc.) were also passed on to colonial consumers. In the long run, crucial resources for expanding the productive capacity of the colonies were lost to pay monopolistic prices or diverted to third parties in exchange for smuggled goods.

The late Bourbon policies of *comercio libre* were still restrictive because they still forced the colonies to pay higher prices for their imports. Bourbon and Pombaline reforms in the New World eliminated the most restrictive and inefficient practices of the fleet system. But freedom of trade in the second part of the eighteenth century was no more than “the combination of freedom and protection that would... develop the empire as a market for Spanish products and a source of raw materials for Spanish industry.”²³ Restricted routes, exclusion of foreigners, taxes, and other regulations still raised import prices in the colonies, though the burden was somewhat less than under the monopoly. This situation had welfare consequences for consumers, who paid higher prices, including taxes. Moreover, the Crown failed to reinvest in the colonies for the provision of public goods, which worsened economic conditions still further.

The mercantilist policies followed by the Iberian powers in their colonies increased transaction costs. In the case of goods with price elasticities higher than one, demand diminished, with the concomitant consequences for the economic development of the colonies. For highly inelastic goods, colonists turned to contraband. In both cases, the economies of colonial Latin America found restrictions on trade a serious constraint on their development.

²³ Fisher, *Relaciones económicas*, 14.

12

MONEY, TAXES, AND FINANCE

CARLOS MARICHAL

The wars of independence in Spanish America marked not only the demise of the most ancient and far-flung European overseas empire but also the end to what was probably the largest monetary union then in existence. For three centuries the Spanish Crown had maintained a common silver and gold currency in the metropolis, in the vast territories of Spanish America, and in the Philippines. Moreover the silver peso (*peso de plata*) had become the most universally used coin in the world, circulating in China, South Asia, and Europe as well as throughout the Americas.

The end of the colonial regime also marked the end to what was the most extensive fiscal structure of the *ancien régime* in the Atlantic world. Adam Smith, in his classic work *The Wealth of Nations* (1776), emphasized the fact that the tax administration of the Spanish Crown in the Americas was a much more efficient extractive machine than that of Great Britain in its colonies. Nonetheless, the Spanish American empire eventually collapsed as a result of the succession of international conflicts that took place during the Age of Revolution, beginning with the wars of independence of the United States (1775–83) and concluding with those of the Latin American nations (1810–25).

The fiscal and financial transition from colonies to nations proved extraordinarily problematic in most of Spanish America as well as in Brazil, a fact that has frequently been attributed by historians to colonial legacies.¹

¹ A recent reaffirmation of this overly negative view of colonial rule can be found in the introduction by John Coatsworth, ed., *Latin America and the World Economy since 1800* (Cambridge, MA, 2000). In this text colonial institutional constraints and practices are held largely accountable for underdevelopment in Spanish America.

Recent historical research, however, has raised serious doubts about what has long been presupposed to be the negative inheritance of the entire colonial experience.² In fact, analysis of the unified and stable monetary, fiscal, and financial regimes of the colonial era suggests that from the perspective of institutional stability, clarity of norms, and rational expectations, there is much to debate with regard to the costs of Latin American independence. In contrast to the United States, where independence did not impede but rather favored financial development and a fiscal system that worked well, in Latin America the reverse was true.

With independence each new state in the subcontinent sought to affirm its political and financial sovereignty. Among the most serious obstacles to the construction of stable and solvent governments were monetary fragmentation and difficulties in carrying out fiscal reforms, both of which had negative consequences for the public and private economies, particularly in regard to transaction costs. The transition from the well-organized if exploitative colonial tax system to the mixture of centralist and federalist tax regimes prevalent in most of Latin America after 1825 proved extremely difficult. The destruction of a large part of the Bourbon administrative system led to a weak and inefficient public sector for decades. In addition, after 1820, monetary problems began to plague many of the newly independent Latin American states, which adopted a considerable variety of monetary standards: pure silver standard in old silver-mining economies such as Mexico, Peru, Bolivia, and Chile, inconvertible paper money standards in Brazil and Argentina, and so forth. Weak monies and inflation, public deficits, and capital flight caused by the wars destabilized post-independence economies and undermined the reconstruction of domestic financial markets.

In sum, although liberal political reforms and institutions were ratified throughout Latin America from the 1820s, their practical effect was quite different from that in the United States. Economic development was virtually stagnant until the 1850s, with a handful of regional exceptions. Foreign trade was one of the few relatively important engines of growth, but it

² For instance, an expert on Peruvian financial history has affirmed that it is incorrect to argue that the weakness of the nineteenth-century financial system in Peru was due to its colonial legacy, because eighteenth-century financial institutions were quite strong. See Alfonso Quiroz, "Consecuencias financieras y económicas del proceso de independencia en Perú, 1820–1850," in Samuel Amaral and Leandro Prados de la Escosura, eds., *La independencia americana: Consecuencias económicas* (Madrid, 1993), 124–56.

was not accompanied by sufficient advances in domestic economies. In this regard, it is our argument that fiscal, monetary, and financial obstacles played a major role in the slow economic development in this era. We base this hypothesis on the recent and relatively abundant literature that has explored these issues for several of the larger Latin American nations, in particular Argentina, Brazil, Chile, Colombia, Mexico, and Peru, as can be seen in our bibliographical essay.

A second thesis of the present chapter is that although the economic recession of the first decades after independence was deep, recovery in Latin America actually began from mid-century. It was in the period 1850–73 that a series of export booms began to allow relatively sustained economic growth in the more dynamic nations of the region. This period also witnessed marked improvements in the fiscal situation of many states, accompanied by an early and powerful international inflow of foreign capital (mostly in the form of government loans). These years were also the time of the birth of banking in Latin America. Hence, financial factors played an important part in this early phase of economic development that, in spite of being uneven, allowed high growth rates in a number of regions.

The present chapter provides an overview of the diverse and parallel trajectories of the fiscal and financial history of the Latin American nations in their transition from the colonial empires of the eighteenth century to the independent states of the nineteenth century. Particular emphasis is placed on the fact that the process of nation-building in both political and economic terms was protracted and often discontinuous.

The four sections that make up this chapter deal successively with the following subjects: (a) the colonial monetary, fiscal, and financial regimes; (b) the tax reforms of the early independent era and the emergence of chronic public deficits; (c) the gradual establishment of tax states with a more consistent capacity to generate revenue; (d) the debt cycles of the Latin American states in the nineteenth century and the changing priorities of public expenditures. These are large questions, all of which relate to the central theme of the difficult transition from colonies to nations. Hence, our opening question: What happens to the economy as a result of the bankruptcy and fragmentation of an imperial state? To answer the question we must first review the nature of the colonial monetary, fiscal, and financial system and then address the issue of the impact of the wars of independence.

THE COLONIAL MONETARY AND FISCAL ORDER: SPANISH AMERICA AND PORTUGUESE BRAZIL

To attempt to understand the monetary, fiscal, and financial legacy of three centuries of colonial government in Spanish America and Brazil it is essential to keep institutional contexts in mind. Metropolitan models were fundamental, but colonial adaptation was considerable. For instance, it is well known that the monetary regimes of colonial Brazil and Spanish America were molded, respectively, by the monetary systems and standards of the Portuguese and Spanish monarchies. Nonetheless, in each of the colonies some aspects of the nature of monetary circulation were distinct, especially with regard to local fractional currency, much of which was based on tokens and commodities that served as money.

Similarly, the fiscal regimes in America were in part the result of the transposition of a number of taxes that already had a long history in the respective metropolises. But there were also innovations as a large number of entirely different new, local taxes were established in the colonies, for example, the taxes on silver production and Indian tribute in Spanish America, or the exactions based on brazilwood, sugar production, and the sale of slaves in Brazil. Furthermore, if we analyze the credit regimes of the colonial societies, it must be emphasized that although the basic credit norms and loan instruments were essentially those of the Catholic European old regimes – being controlled largely by ecclesiastical and mercantile corporations – the actual functioning of financial markets in the colonies was quite different in some instances from that in the societies of Portugal and Spain. It is to these problems – the monetary, fiscal, and credit regimes of Spanish America and Brazil – that we now wish to direct the attention of the reader.

COLONIAL MONETARY REGIMES

From the sixteenth century to the nineteenth century, Spanish America, and later Brazil, provided the bulk of the silver and gold essential to the functioning of metallic monetary systems around the globe.³ Given these

³ For a recent overview, see Carlos Marichal, “El peso o real de a ocho: Moneda universal de España y América, siglos XVI–XVIII,” in Banco de España, *El camino hacia al euro: El real, el escudo y la peseta* (Madrid, 2001), 25–38.

mining riches, it might be presumed that the colonies themselves would have enjoyed a widespread circulation of silver and gold currency, and that this would have served to buttress a dynamic credit system with a presumably beneficial impact upon all social and economic sectors. In fact, however, the actual circulation of metallic currency within both Spanish America and Brazil was fairly limited, a fact so paradoxical that it has provoked considerable debate among historians who have been hard put to explain the scarcity of cash in circulation within what were eminently silver- and gold-producing economies.

Several explanations have been advanced for the relative scarcity of metallic currency in daily circulation. To begin with, historians have studied the voluminous and constant export of precious metals to Spain and Portugal from the earliest days of colonization of the Americas. In fact, these remittances increased over time, reaching their peak in the eighteenth century. Moreover, within the colonies themselves most of the silver and gold (in bars and coin) did not remain in circulation long but was soon withdrawn from local markets. This was a consequence of the fact that heavy silver and gold stocks were held for long periods by the state as well as by corporations and rich individuals, although not mainly for the purpose of hoarding. Rather, the nature of the colonial economy and polity explains this accumulation of large stocks of silver and gold.

First, it is important to note that all colonial tax administrations in the principal mining regions retired a significant portion of metallic currency from circulation in order to reserve it because they had instructions to send large sums to the metropolis: they wished to ensure that when the warships sent from Seville or Lisbon arrived, there would be little delay in loading them with the precious metals. Additionally, silver had to be saved in order to meet the annual remittances for colonial outposts with insufficient revenues to cover their local, military, and administrative expenses.

Second, private actors also accumulated huge stocks of precious metals and coin. From the sixteenth century until the end of the eighteenth century, the oligarchies of wealthy merchants in Mexico, Lima, Cartagena, Havana, Bahía, and Rio de Janeiro made a point of concentrating large silver and gold stocks in their firms, which they held onto for months in order to have sufficient funds to buy practically all the imported products sold at the great annual fairs held in each colony after the arrival of the convoys of ships (*flotas*) from Spain or Portugal.

Finally, the powerful ecclesiastical institutions in all of Spanish America and Brazil extracted large amounts of silver through tithe collection and

other ecclesiastical taxes and, hence, accumulated large stocks of silver, which were used in part to ensure both future expenditures and the continuous flow of credit operations that ecclesiastical organizations carried out on behalf of large property owners.

The fact that much silver and gold was exported and held outside of consumer markets for long periods helps to explain the relative stability of colonial prices over the long run. Despite high production of precious metals, there was not much abundance of coin in domestic circulation. Therefore, prices rose only slowly, except at times of agrarian and commercial crisis. Nonetheless, recent research on markets in late Bourbon Mexico indicates a fairly sustained price rise of basic agricultural commodities at the end of the eighteenth century. Another striking feature of the colonial monetary regimes was the extraordinary stability of the standards and units of account of the metallic monetary system over a period of three centuries. Silver and gold coins were the most important instruments of that system in Spanish America and Brazil, although, as we shall note later, small-scale transactions required the development of alternative fractional currencies and a set of complex credit mechanisms linked to both consumption and salaries. In Spanish America, as Cortés Conde notes: "The most common silver coins were the real and its multiples: the real of two (later the peseta) real of four (half peso) and real of eight (the peso, an ounce of silver). Fluctuating over time, between sixteen and seventeen silver pesos were equivalent to one gold peso (one ounce of gold)."⁴ Quite quickly, silver pesos became the most widely circulating currency in the world. Indeed, from the late sixteenth century, the silver peso had already found a fundamental niche in the monetary vocabulary in most nations. In his monumental study of the worldwide circulation of American silver and gold in the seventeenth and eighteenth centuries, Michel Morineau points out that among the most common terms used in different languages to describe the silver peso were *pieces of eight, stuken van achten, pieces de huit réaux, pesos fuertes, piastres fortes, piastres, and patacones*.⁵

However, it is important to recognize that for a long time monetary policy and practice in the colonies were not closely regulated by the state.

⁴ Roberto Cortés Conde and George T. McCandless, "Argentina: From Colony to Nation. Fiscal and Monetary Experiences of the Eighteenth and Nineteenth Centuries," in Michael Bordo and Roberto Cortés Conde, eds., *Transferring Wealth and Power from the Old to the New World: Monetary and Fiscal Institutions in the 17th through the 19th Centuries* (Cambridge, 2001), 384.

⁵ Michel Morineau, *Incro�ables gazettes et fabuleux m茅taux: Les retours des tr猫sors am茅ricains d'apr猫s les gazettes hollandaises xvie-xviiie si鑒cles* (Paris, 1985), 51.

In the same way that it farmed out taxes, during the seventeenth century the Spanish Crown extended concessions to a small group of silver bankers who took charge of the minting of money. The leading silver merchants established close alliances with large silver miners, but their power was challenged after the 1730s as a result of new monetary policies of the Bourbon monarchy. Hence, much closer state regulation and control was established over monetary affairs. This became especially clear in New Spain when complete control of the *Casa de Moneda de México* (the only mint in the viceroyalty) was taken by the viceregal government in 1733. Important technical advances were introduced, and the quality of the silver coins improved notably, reinforcing the vast international demand for Mexican silver pesos. The importance of this mint for world economic history was registered by Humboldt on his visit there in 1803: "It is impossible to visit this building . . . without recalling that from it have come *more than two billion pesos* over the course of less than 300 years . . . and without reflecting on the powerful influence that these treasures have had on the destiny of the peoples of Europe."⁶

In contrast to Mexico and Peru, which were the great silver producers of the *ancien régime*, Brazil became the main source of gold for the world economy from the late seventeenth century, although the real Brazilian gold boom took place in the first two-thirds of the eighteenth century. Brazil thus became the greatest producer and exporter of gold in the eighteenth century, much of it ending up in England, which subsequently adopted the gold standard, in contrast to Spain, France, and Italy, which remained on bimetallic standards until the last third of the nineteenth century. In short, colonial legacies clearly have had considerable importance for international monetary history.

Colombia and Chile were also gold producers in the eighteenth century, but paradoxically they also suffered from relative scarcity of metallic currency, because the bulk of the gold was exported to Spain because of its high price. In any case, gold coins were never much used much for local trade. The silver peso and silver real were the most widely used monetary instruments for all wholesale and a fair number of retail transactions throughout Spanish America and southern Brazil.

Despite their extraordinary silver and gold riches, historians have insisted time and again that it is necessary to explain the monetary paradox of these colonial societies. As Ruggiero Romano and other specialists have argued,

⁶ Alexander Humboldt, *Ensayo político de la Nueva España* (Mexico, 1991), 457.

the metallic monetary system in Spanish America was basically controlled by elites. Hence, monetary stocks (and wealth in general) were highly concentrated. Popular sectors suffered the consequences, for they had considerable difficulty in obtaining the silver coin that they required both for payment of taxes and for mercantile transactions. Nonetheless, numerous ways were found to circumvent the shortages of fractional currency. A parallel monetary system developed that was based on nonmetallic monetary instruments, including a great variety of coin tokens issued by merchants in cities, towns, and haciendas. These were generally known in Peru as *moneda de la tierra* and in Mexico as *tlacos*.

The result was that there developed a dual monetary system that reflected the existence of a highly stratified economy and society. On the one hand, there stood small but powerful elites that included mineowners, great merchants, and large landowners, all highly monetized. The wealthy corporations such as the Church and *Consulado* that represented these elites held, or had access to, enormous metallic monetary stocks. There was some spillover to other social sectors, but it was quite limited. Medium-sized merchants, mine workers, and state functionaries received salaries in silver, but most of the rest of society lived on the fringes of the monetary economy. Indian peasants, who formed the bulk of the rural population in the viceroyalties of Mexico and Peru, participated in the monetary economy, but also frequently carried on barter. Slaves in Brazil and throughout Spanish America had occasional access to metallic currency, but on a very small scale. Not surprisingly, the result of such a stratified society and economy was that the mass of the population tended to suffer from lack of metallic currency as well as of other fractional currency instruments, and this clearly made for low levels of individual savings.

The dual monetary system also contributed to the existence of a dual credit regime. Substantial sources of credit existed for the wealthy and for powerful corporate institutions. Much less credit was available for the rest of society, although, as we shall see, there were some important institutional instruments that can be identified as popular savings organizations. With regard to the private credit system for the elites, it is important to recognize that in Spanish America and in Brazil the institutional framework of financial transactions was defined by the norms of what European historians (particularly of Catholic Europe) have denominated the *ancien régime*. Most credit transactions, for example, were governed by a complex and highly codified set of rules established by the Catholic Church, on the one hand, and by mercantile corporations (such as the *Consulados*),

on the other. A review of the ecclesiastical and mercantile codes used in New Spain (Mexico) in the eighteenth century demonstrates that there were great similarities to the equivalent norms utilized in Bourbon Spain. In other words, despite the manifest social and ethnic differences between colonial and metropolitan society, the parallels in rules of economic behavior were striking.

In the colonial societies, credit for artisans, mine workers, and peasants was often linked to coercive instruments. For instance, shops in towns and cities throughout Spanish America extended credits for daily consumption that often led to excess charges. Similarly, merchants with establishments on large haciendas and mining sites advanced commodities at high prices against the future salaries of laborers. As a result, many workers became permanently indebted, with the result that they were reduced to a semiservile status.

It is also true, however, that a number of more equitable, corporate forms of credit also existed for some nonelite sectors. Within artisanal guilds in the cities as well as in the Indian towns, known as *repúblicas de indios*, there were numerous religious lay brotherhoods (*cofradías*) that served as primitive savings institutions that extended credit. Nonetheless, it should be noted that these archaic credit forms did not imply that there existed a truly efficient credit system. As is well known, the relative volume of credit depends markedly upon volume of circulating money but also upon velocity. The velocity of circulation of money was slow in the colonial economies, a fact that tended to reflect the skewed distribution of metallic money stocks.

THE TAX MACHINES OF COLONIAL ADMINISTRATIONS

Similar in complexity to the monetary and credit regimes of the colonial economies were the fiscal structure and dynamics in Spanish America and Brazil. Both the Spanish and Portuguese monarchies had long reaped substantial fiscal benefits from their overseas colonies. First, the taxation regimes established in the sixteenth century were based on the principle that the colonial societies would pay their way by raising local taxes that would cover virtually all local government expenditures. Second, the most productive colonial treasuries (particularly those with high income from mining taxes) were expected to pay for administrative and military expenses of those administrative units that had little tax income. These intra-American tax transfers, known as *situados* in the Spanish Empire, included regular

payments from the treasury of Mexico to the colonial administrations of the Spanish islands in the Caribbean as well as to the Philippines. Similarly, the Viceroy of Peru ensured a regular stream of remittances of silver revenues from Lima and Potosí to maintain the military administrations in far-off Buenos Aires and Santiago de Chile.

Under the Spanish and Portuguese regimes, the colonies were also expected to provide fiscal surpluses to the metropolises. However, such transfers were highly cyclical during the sixteenth and seventeenth centuries. For instance, during the Thirty Years' War in Europe (1618–48), the Spanish Crown obliged the American colonies to provide extraordinary sums, a portion in taxes, and the rest in the shape of forced loans as well as interest-paying loans. During this time, the shipments of Peruvian silver to Spain and, hence, to Spanish armies in Italy, Germany, and Flanders was truly extraordinary. Subsequently, the remittances of American taxes in silver and gold diminished notably, a fact that some historians have linked to the so-called long depression of 1650–1700.

Another explanation for the cyclical nature of fiscal transfers would attribute it to the fact that before the eighteenth century, colonial governments throughout Spanish America as well as Brazil did not have a sufficiently large and professional tax-collecting corps to manage their extensive and multilayered fiscal systems effectively. Tax farming was a common solution – in fashion similar to the fiscal administrations of the states of Catholic Europe – but this method tended to reduce the efficiency of revenue collection.

From the early eighteenth century, however, increasing military and administrative expenditures obliged the imperial governments of both Spain and Portugal to press for an increase in the efficiency of tax administration through adoption of a number of administrative and fiscal reforms. Tax farming of the most productive tax branches was eliminated. For example, mints in Mexico and Peru were transferred from private merchant bankers to the Crown. Simultaneously, the collection of sales taxes (*alcabalas*) was taken out of the hands of the merchant guilds and made the responsibility of the growing staffs of professional tax collectors and accountants of the royal administration. Likewise, in Brazil the colonial administration took over a more direct role in the collection of taxes on gold and sugar production. In both Spanish America and Brazil, royal monopolies – on tobacco, mercury, blasting powder, and diamond production – were established and began to produce substantial increases in revenues.

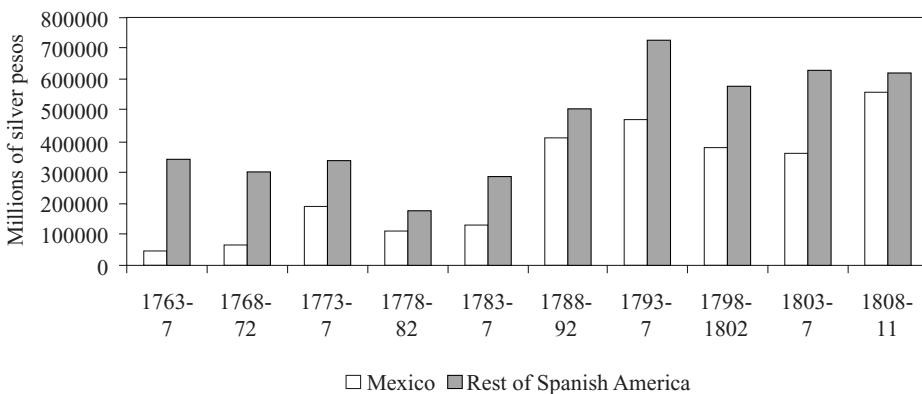


Figure 12.1. Tax remittances from Spanish America to Spain (18th century).

Source: Carlos Marichal, *La bancarrota del virreinato: Nueva España y las finanzas del imperio español, 1780–1810* (Mexico City, 1999), 56.

These measures, known as the Bourbon reforms in Spanish America, gained particular force from mid-century during the regime of Charles III in Spain (1759–88). In the case of Portugal and Brazil, a similar set of fiscal, administrative, and military innovations came to be known as the Pombaline reforms in honor of Sebastian de Pombal, the forceful prime minister of the monarch Joseph I of Portugal (1750–77). In both cases, the result was a notable increase in fiscal collection that would allow the transfer of rising amounts of tax surpluses to the respective metropolis.

Recent historical research on Spanish America, in particular, has accumulated vast amounts of evidence on the rise in tax revenues, particularly in Spanish America. The quantitative studies initiated by the historians John Te Paske and Herbert Klein, who reconstructed the accounts of the treasuries New Spain, Peru, and Buenos Aires, opened the way to a new evaluation of the imperial tax machine of the Bourbon regime. The large size of the fiscal surpluses remitted to Spain in the eighteenth century are testimony to the fact (see Figure 12.1).

The results of these and many subsequent historical studies have confirmed the argument espoused by the great economic theorist Adam Smith in his famous work *The Wealth of Nations* (1776) to the effect that the Spanish and Portuguese empires in the Americas produced very substantial fiscal surpluses for the mother countries. The distinguished Scottish economist argued that these transfers to the Iberian peninsula stood in stark

contrast to England and France, which always had to pay more in fiscal terms for the maintenance of their American colonies than they received.

Research on the colonial tax administration in Spanish America raises important questions for modern theories on the long-term evolution of tax systems. For instance, historian Richard Bonney and his colleagues who have worked on the history of European tax systems between the fourteenth and eighteenth centuries have underscored the shift from patrimonial states that collected taxes to cover expenses of the Crown to tax states that devoted most of their revenues to autonomous civil and military administration.⁷ Clearly, the Spanish administration in the Americas was something more complex than the Weberian patrimonial state, but one must ask exactly what kind of tax state was it? This, in turn, raises a large number of questions about the varied characteristics of imperial states in the eighteenth century.

The historical geography of Spanish fiscal administration in the Americas indicates that there were major shifts in the relative productivity of the different colonial treasuries. From the late sixteenth century until the early eighteenth century, the Viceroyalty of Peru was the jewel of the Spanish Crown, largely because of the productivity of the great silver mines in the Andes, among which Potosí stood out above all others. The tax revenues derived from silver production were quite extraordinary, but from the mid-seventeenth century decline was evident. Moreover, Peru would soon be replaced by the viceroyalty of New Spain as the premier tax machine of Spanish America.

In the eighteenth century, Bourbon Mexico produced a large and growing fiscal surplus that was used to buttress not only Spain but also its imperial administration in the Caribbean islands. This was of strategic importance following the brief British occupation of Havana (1762), which threatened Spanish control of its American empire. The building of fortifications throughout the Caribbean, as well as the buildup of land and naval forces in the last decades of the century, required formidable financial resources. The large size of the Mexican contributions can be seen in Figure 12.2, which analyzes both fiscal transfers to other colonies, known as *situados*, and direct tax remittances to Spain.

But where did this great volume of funds come from? A review of the tax regime in Bourbon Mexico in the late eighteenth century provides a clear illustration of the major sources of revenue of the colonial administration in Spanish America. The most archaic and *sui generis* of the colonial fiscal

⁷ Richard Bonney, ed., *Economic Systems and State Finance* (London, 1995).

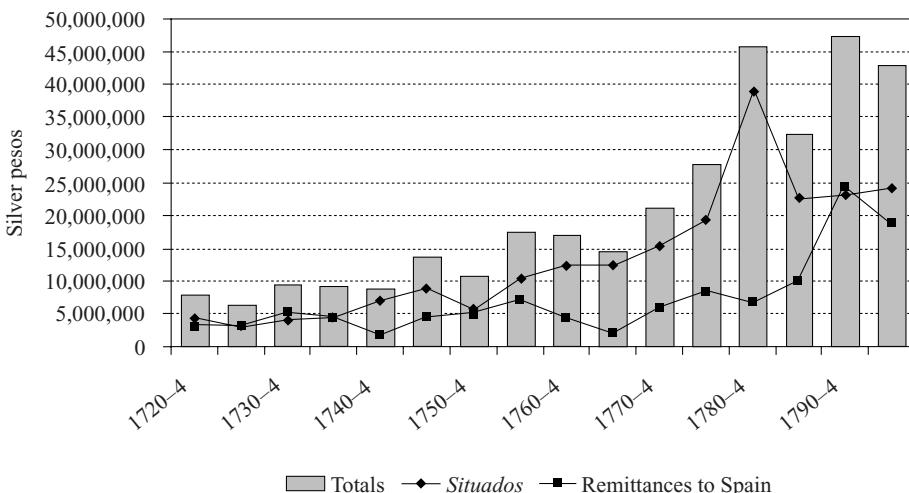


Figure 12.2. Fiscal remittances from Mexico, 1720–99. *Situados* to Caribbean and remittances to Spain.

Source: Marichal, *La bancarrota del virreinato*, 45.

exactions was the tribute tax (*tributo*) levied on all heads of households in the Indian towns (the so-called Indian republics or communities).⁸ The rate was approximately two silver pesos (two dollars) to be paid yearly by every *tributario*. It was charged uniformly on Indian peasants who lived on and cultivated their own land but only occasionally on peasants who worked on haciendas or plantations. As can be seen from Table 12.1, the annual income generated from this source was slightly over 1 million pesos, making up approximately 7.6 percent of the net income of the viceregal government in the 1790s.

A second traditional revenue source for the colonial administration consisted of a collection of mining taxes, the most important being the *diezmo minero*, a 10 percent duty levied on all silver produced. This tax was charged at the royal mints where all silver from the viceroyalty was brought to be coined.

Although the direct tax on mine production was the single most important item in the varied list of exactions that fell upon Mexican and Peruvian silver, a close runner-up was income derived from seigniorage (*amonedación*

⁸ This tax was derived from the tribute paid to the Aztec emperors by all subject peoples and therefore can be considered to be an “American” tax and not a European legacy.

Table 12.1. *Tax income of government of New Spain, 1795–99 (annual average in silver pesos)*

| Branches | Net income | Percentage |
|-------------------------|------------|------------|
| Mining taxes | 3,988,095 | 26.0 |
| Trade taxes | 3,730,038 | 24.3 |
| Indian tribute | 1,159,951 | 7.6 |
| State monopolies | 4,819,632 | 31.4 |
| Church fiscal transfers | 658,254 | 4.3 |
| Administrative income | 91,615 | 0.6 |
| Other income | 224,839 | 1.5 |
| Forced loans | | |
| Total | 15,324,749 | 100% |

Source: Carlos Marichal and Marcello Carmagnani, "From Colonial Fiscal Regime to Liberal Financial Order, 1750–1912," in Michael Bordo and Roberto Cortés Conde, *Transferring Wealth and Power from the Old to the New World* (Cambridge, 2001), 288.

de oro y plata). Additional income was derived from the sale of the products of the state-owned mercury monopoly. Mercury was an essential ingredient in silver refining processes, but the bulk of the income thus generated was used to buy more mercury. The net revenues obtained in Bourbon Mexico from mining taxes – directly and indirectly – were close to 4 million pesos in the 1790s, approximately 26 percent of total net income of the viceregal government.

A third branch of income was that derived from taxes on trade, most of which were duties on internal commerce (*alcabalas*) and on native alcoholic beverages (*pulques*), producing 24 percent of net receipts. Revenues from internal trade taxes increased systematically until the 1790s, in part because of increased commercialization, but also as a result of the increasing pressure exerted by collectors. It should be noted that the *alcabalas* were a European fiscal instrument introduced into Spanish America, operating in form identical to that of the sales taxes in Spain and France.

Another European and, more specifically, Bourbon tax innovation was the tobacco monopoly, which was established in New Spain in 1767. By the end of the colonial period, it had become the single largest source of public revenues, providing almost 30 percent of the government's net income. The state-owned tobacco factory in Mexico City employed over

8,000 workers by 1800. But this was only a part of the total number of people who depended on the monopoly for their livelihood – there were also some 2,000 administrative and commercial employees as well as several thousand tobacco farmers. But this great organization was not autonomous, because it maintained close financial, commercial, and productive links to the tobacco monopolies in Cuba, Louisiana, and Spain. Indeed, this far-flung state-owned firm was a vast multiregional enterprise, perhaps the largest of its kind in the eighteenth-century world.

The state monopolies also produced a great proportion of the revenues of the viceroyalty of New Granada (modern-day Colombia). As a recent study conducted by Colombian historians has shown, the outstanding characteristic of royal income in this viceroyalty in the last decades of the colonial period was the role of state monopolies, especially on liquor and tobacco. These monopolies accounted for almost 60 percent of the total revenues of New Granada in the 1780s and hence were much more important than the ordinary taxes of the local government.

Additional fiscal contributions to the colonial administrations in Spanish America included a varied group of branches, some of them relatively independent from the public treasuries. For instance, there were several categories of Church income that were collected by ecclesiastical functionaries and then transferred to the state. In summary, recent research has demonstrated that the tax machinery in Spanish America was a well-organized money-extraction mechanism that provided growing streams of income to local administrations and to the Spanish Crown.

Although there existed significant parallels between the tax regime of Spanish America and that of Brazil, the contrasts are equally striking. The initial revenues from Brazil in the early sixteenth century originated from the Crown monopoly contracts for the exploitation of brazilwood. Subsequently, between 1580 and 1680, when Brazil was the world's largest producer and exporter of sugar, the most important tax was the *diezmo*, a tenth of the harvest of each sugar producer. Later, in the eighteenth century, the taxes on gold production became central to the colonial treasury, but evasion was enormous. Unfortunately, it is difficult to evaluate the relative importance of such evasion because there are extremely few published studies on the fiscal system of this great Portuguese colony, which became the world's leading gold producer in the eighteenth century. The urgency of knowing more about the Brazilian colonial fiscal and monetary system is underlined by a recent study that notes the considerable

continuity of the fiscal regime from the early decades of the nineteenth century:

By the second decade of the nineteenth century, when the Brazilian colony was elevated to the status of United Kingdom with Portugal (1816), the main existing taxes in Brazil were the *dízimo*; export duties differentiated by ports; import duties; transit taxes between captaincies; the royal *quinto* on gold production; the royal or national subsidy, levied on meat, hides, sugar cane, brandy and rough woolens manufactured in the country . . . a tax on each sugar mill or distillery; a tenth of urban rented property; the *meiasisa* levied on the sale of sales with a profession . . .⁹

The authors mention a long list of additional exactions, which indicates that local colonists were obliged to comply with almost as many exactions as the inhabitants of the Spanish colonies in the Americas. Inevitably, after independence there was a strong pressure for fiscal reform and the abolition of a large number of the much disliked colonial exactions.

METROPOLITAN EXACTIONS AND FORCED DEBTS

Analysis of the allocation of funds received by the colonial administrations, as well as expenditures, requires a methodological approach that is somewhat at variance with studies on eighteenth-century European tax systems that focus mainly on the gradual construction of a “national” tax administration. In particular, it is necessary to emphasize that the viceroyalties and captaincies general of Spanish America were all part of a well-integrated trans-Atlantic fiscal machine. Each part of the tax administration of the Spanish empire was connected to the other part to a greater or lesser degree. In this case, the imperial logic went much beyond a more restricted “national” logic of fiscal and financial administration.

In this regard, it would appear that the recent, detailed research on the finances of the Spanish empire suggests that a profound revision of the relatively simple scheme of metropolis–colony relations is necessary to explain the fiscal dynamics of empires. More attention must be devoted in the case of the Spanish universal monarchy of the *ancien régime* to the complex functioning of its three-tiered system of management of imperial finance.

This system can be observed in the operation of the basic principles that determined the disbursement of public monies and explain the logic

⁹ Marcelo de Paiva Abreu and Luiz A. Correa do Lago, “Property Rights and the Fiscal and Financial Systems in Brazil: Colonial Heritage and the Imperial Period,” in *Transferring Wealth and Power*, 338.

of expenditures of the multiple treasuries of the empire. A first, basic, and secular principle (applied since the sixteenth century) was that the largest number of expenses should be covered *in situ* with local tax income, collected on a regional level, and accumulated in a local *caja real* (treasury). However, when a local treasury office produced a fiscal surplus, this would normally be transferred to another regional *caja* that had a deficit. But these remittances were not necessarily limited to the viceroyalty – they were also shipped abroad to different points of the empire, to other colonial administrations that had insufficient funds to maintain themselves, or to the metropolis itself (see Figure 12.2).

Metropolitan exactions increased over time and reached their peak at the end of the eighteenth century as the Spanish Crown became involved in successive international wars against its great rivals, Great Britain (1763–7, 1779–83, 1796–1803), and France (1793–5, 1808–14). As a result, the demands of the Madrid treasury rose, and colonial administrators were instructed to remit as much fiscal surplus as possible. A recent study has demonstrated that Bourbon Mexico alone was forced to send 250 million silver pesos of net fiscal surplus to Spain between 1760 and 1810.¹⁰ At an annual average of 5 million pesos this sum was equivalent to extracting 2 percent of colonial Mexico's gross product each year. Considering that the *ancien régime* economies normally grew by no more than 1 or 2 percent of gross product per year, these fiscal extractions reduced possibilities of growth. This is the conclusion of Richard Garner's careful quantitative analysis of the Mexican eighteenth-century economy, which demonstrates that there was little growth in productivity or investment.¹¹

Beyond the extraction of fiscal revenues, by the end of the eighteenth century the Spanish Crown also required loans from its colonies to cover its phenomenal public deficits in the 1790s and just after the turn of the century. Historical research has revealed that more than 30 million pesos were raised by means of forced loans and interest-paying loans in Mexico in these years and transferred to the metropolis. On the one hand, these extractions wiped out a significant portion of the investment capital available in the viceroyalty; on the other, they constituted an extremely burdensome legacy after independence, as holders of these debts demanded that independent governments reimburse them for the sums advanced. This situation was

¹⁰ For a detailed analysis of these remittances, see Carlos Marichal, *La bancarrota del virreinato, 1780–1810* (Mexico City, 1999).

¹¹ Richard Garner, *Economic Growth and Change in Eighteenth Century Mexico* (Gainesville, FL, 1993).

similar throughout Spanish America, as is confirmed by historical studies on the Peruvian and Bolivian colonial debts, which weighed for decades on their exchequers with little possibility of liquidation.

INDEPENDENCE: MONETARY FRAGMENTATION AND PUBLIC DEFICITS, 1820–1850

To understand the complexity of the transition from colonial to independent regimes it is indispensable to explore the long-term economic impacts of the wars of independence. Although this subject is discussed in a subsequent chapter in this volume, it should be noted that the specific fiscal and monetary impacts of independence differed from nation to nation.¹² In the short run, it is clear that the nations that experienced the most prolonged conflicts also tended to suffer greater disruption of public and private finance. In the long run, other factors, including trade trends and monetary policies, as well as domestic political conflicts, were fundamental in determining whether a given state was able to achieve fiscal stability or was ravaged by chronic public deficits.

Analysis of the difficult transition from colonies to nations in Latin America can allow a particularly interesting contrast with the less traumatic experience of the thirteen Anglo-American colonies that became the United States. The latter were successfully able to resolve the fiscal and financial challenges posed by independence and the creation of a new federal state. As Richard Sylla has convincingly argued, the tax, monetary, and financial reforms designed by Alexander Hamilton offered the new republic a solid foundation for its incipient public finances.¹³ Indeed, a number of the constitutional and fiscal reforms established by the early United States were adopted by the elites of different Latin American nations in the 1820s, but this did not guarantee similar results. The legal ratification of worthy fiscal and financial institutions did not ensure efficient or successful implementation, a fact that reveals the complex and often contradictory interface between institutions and practice. However, much additional research needs to be done to explicate this conundrum. Therefore, our brief

¹² See the chapter by Leandro Prados de la Escosura in the present volume.

¹³ See the chapter by Richard Sylla in *Cambridge Economic History of the United States*, vol. 2 (Cambridge, 1999).

summary merely offers a sample of some of the intriguing questions that historians have begun to explore in this terrain. In this regard, it should be suggested that the history of the widely diverging fiscal and monetary experience of the new Latin America states offers a particularly rich laboratory for future comparative studies.

STATE FORMATION AND NEW MONETARY REGIMES

Traditionally, the historiography of the wars of independence emphasized the impact of military and political conflict on trade and the traditional silver mining sector. But equally important were the widespread fiscal and monetary effects. To begin with, the independence of the Latin American states between 1810 and 1825 broke the backs of the vast monetary unions of the Spanish and Portuguese empires. Each of the new governments in the region sought to affirm its monetary sovereignty and, not surprisingly, the outcomes differed markedly from nation to nation and even from region to region. The costs of the fragmentation of the colonial monetary order are difficult to evaluate and pose a major challenge to future analysis by economic historians. However, it may be suggested that the study of this problem should be high on the research agenda because the legacy of relatively weak and unstable monetary regimes has been one of the most important and debilitating factors in the evolution of all Latin American economies from independence to the present day.

Generally speaking, after 1820 the countries with greatest silver mineral wealth continued on a metallic monetary standard, using the classic silver peso (*peso fuerte*) or some relatively close variation. Mexico, Peru, Chile, and Bolivia continued to mint silver pesos on a large scale throughout the nineteenth century. On the other hand, countries such as Brazil, Colombia, or Guatemala that had important gold (but not silver) deposits found it difficult to increase production and therefore sought alternative monetary solutions. Brazil, for instance, began to experiment with a paper money standard in the early nineteenth century. Simultaneously, in the Argentine Confederation a dual monetary system developed – whereas the provinces of the interior continued to depend largely on silver currency (mostly Bolivian pesos), the dynamic state of Buenos Aires began a long and complex experiment with a paper money regime.

In most nations, the wars of independence had themselves caused radical changes in the old monetary systems. In the first place, mining production and therefore the minting of silver and gold coins declined dramatically.

In the second place, a large number of new coins (either debased silver or copper coins) and other monetary instruments (promissory notes known as *vales*) were circulated by insurgent armies. As a result, after the wars there emerged a set of diverse monetary systems with multiple media of exchange – old silver and gold coins from the colonial era, debased coins minted during the years of insurgency, considerable amounts of government promissory notes, and an increasing inflow of foreign coins (mainly European) as a result of the introduction of free trade.

The monetary changes wrought by war posed great problems for the new states and their political leaders. A secular experience of monetary stability had not prepared local elites for the reform or adoption of new monetary standards. Generally speaking, debates in the 1820s in the young Latin American legislatures on changing monetary regimes and policies were as yet not well-informed. Post-independence monetary experiments with paper money and the issue of copper coin for fractional currency were common but were generally failures in these early years. Nonetheless, several representative examples are well worthwhile reviewing in the light of the region's subsequent monetary history.

Among the most important of the old silver mining economies, the case of Mexico merits special attention. It would continue to be the major supplier of silver coin to the world economy during the first three quarters of the nineteenth century. In fact, until the 1880s silver consistently represented close to 80 percent of total Mexican exports. Not surprisingly, the silver peso remained the basic medium of monetary exchange within the domestic economy. However, in contrast to the colonial era, the monopoly position of the Mexico City mint was broken during the wars of independence and several regional mints began operating, the most important being those of Chihuahua, Durango, Guadalajara, Zacatecas, and Guanajuato.

These regional mints subsequently served to finance regional caudillos and therefore fuelled federalism. A striking example was that of Zacatecas, where the abundance of mining production and its flourishing mint contributed to the financing of a regional militia that successfully confronted the central army of the republic until 1835. Monetary disarticulation thus contributed to political fragmentation, reflected in weak national administrations, which suffered an appalling turnover of presidents and ministers.

An additional problem that confronted the governments of many nations in the 1830s and 1840s was the relative scarcity of silver coin in circulation (most of it being exported to pay for imports and for contraband). As a result, finance ministers were often tempted to mint considerable quantities

of copper currency, alleging, in general, that it was required to cover the demands of fractional currency by both consumers and shopkeepers. Not surprisingly, the excess circulation of copper currency had the effect of further accentuating the scarcity of silver, because – according to Gresham's law – the baser currency inevitably tends to expel the higher quality money from circulation. To counter this trend, experiments were instituted in various countries to retire the considerable amounts of copper coin in circulation. In Mexico these policies led the central government to create the *Banco Nacional de Amortización del Cobre* in 1837, which managed to retire much of the copper after strenuous efforts and considerable expense.

Another and, in some regards, more successful case of experimentation with metallic currency was that of Bolivia, the other great silver producer of the Americas during the decades from the 1830s to the 1870s. In 1829, the new head of state, General Andrés de Santa Cruz (1829–39), decided to modify the new nation's monetary standard by authorizing the mints to combine production of high-quality silver pesos with a complement of debased coins known as *febles*, which had only 75 percent silver content, the rest being copper and nickel. The silver pesos were exported to pay for European imports, whereas the *febles* were used both to cover state and army expenditures, as well as to serve commercial transactions in a very broad set of economic regions that overlapped various countries: Bolivia, southern Peru, northern Argentina, and Chile. In essence, as historian Antonio Mitre has demonstrated, the circulation of the *feble* constituted a fairly successful attempt to sustain the mercantile circuits between these regions that had been operative for over two centuries during the colonial era.

Whereas silver-rich Mexico and the Andean countries continued on metallic currency standards, several dynamic economies on the Atlantic seaboard (which suffered from scarcity of silver and gold) began to experiment with paper money standards from early in the nineteenth century. The Empire of Brazil (established formally in 1822) inherited an official bank – the *Banco do Brasil*, founded by the Portuguese monarch in Rio de Janeiro in 1808 – that issued considerable quantities of paper currency. The early history of this banking institution has been studied by several historians, and there would appear to be a consensus that its failure in 1829 was closely linked to expenditures on the Argentine–Brazilian war of 1826–9, which consumed most of the resources of the government and its bank.

A more complex paper money story was that of the government of Buenos Aires between 1822 and 1854. The earliest banking institution established was the *Banco de Descuentos de Buenos Aires* (1822–5), which was promoted

by a local consortium of wealthy domestic and British merchants who obtained government approval for the initiative. In addition to its original capital, the state authorities helped the bank by depositing the proceeds of the first Argentine foreign loan of 1824 in the coffers of this private firm. With large metallic reserves, the bank officers were able to issue convertible paper money successfully for four years, contributing to a short-lived mercantile boom in Buenos Aires.

Subsequently, however, this private bank was forced to provide heavy advances to the Argentine government for its military expenses, with the result that convertibility was abandoned. The state authorities nationalized the bank – now named *Banco Nacional* (1826–35) – but it became essentially an adjunct of the public treasury. In 1835, with the consolidation of the government of Juan Manuel de Rosas in the state of Buenos Aires, the bank was formally closed and the authority to print paper money was transferred to the old mint, the *Casa de Moneda*, which became the first government institution in Latin America to issue paper currency on a systematic basis in these years. Most of the paper money issued was used to cover the considerable deficits suffered by the Rosas administration, particularly during the years of naval blockades by French and British warships, which provoked sharp drops in import tax revenues. Despite the inflationary nature of the paper money regime, it survived and actually allowed the financing of an expanding regional economy. This surprising monetary experiment has been analyzed by economic historians Samuel Amaral, Roberto Cortés Conde, and Alejandra Irigoin. As the last affirms:

During this period (1835–1854) the state – in the province of Buenos Aires – was financed by the so-called inflationary tax. Inconvertible paper money became an actual fiduciary currency, and the means of payment for domestic transactions in the province. Bullion did not entirely disappear though; it was currency standard in neighboring economies... This bi-monetary (non bimetallic) system was an extraordinary phenomenon in contemporary monetary history.¹⁴

Finally, it is worthwhile noting the rather singular trajectory of public finance in the autonomous state of Buenos Aires before its union with the other provincial governments of Argentina in 1862. During several decades following independence, occasional large deficits were caused by military conflict and several foreign naval interventions, but the Buenos Aires administrations used novel credit and monetary instruments to cover

¹⁴ Maria Aljandra Irigoin, "Inconvertible Paper Money, Inflation and Economic Performance in Early Nineteenth Century Argentina," *Journal of Latin America Studies* 32, 2 (May 2000), 333–59.

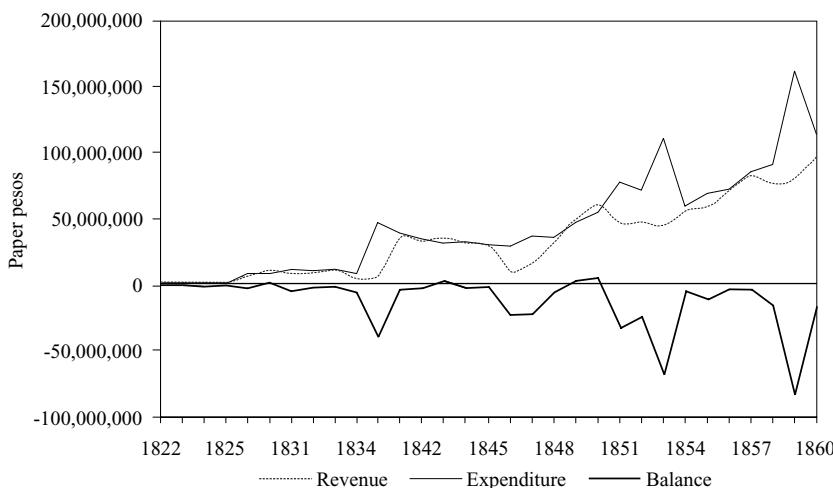


Figure 12.3. Government of Buenos Aires: revenue, expenditure, and balance, 1820–60.
Source: María Alejandra Irigoin, "Finance, Politics and Economics in Buenos Aires, 1820–1860: The Political Economy of Currency Stabilization" (Ph.D. dissertation, London School of Economics, University of London, 2000).

expenditures. We have already mentioned some of the monetary experiments that merit attention. As Figure 12.3 indicates, the increasing prevalence of public deficits can be clearly identified.

TAX REFORMS AND PUBLIC DEFICITS, 1820–1850

Although the establishment of monetary sovereignty was part and parcel of the process of construction of new political sovereignties, fiscal reforms were even more important. The ratification of liberal constitutions in the Latin American nations in the 1820s and the early adoption of parliamentary governments and liberal legislation (molded on existing models of Europe or the United States) led to intense debates on the means to transform colonial fiscal structures and create more modern ones. In practice, the transition from colonial to independent tax regimes proved remarkably difficult and was, perhaps, one of the major obstacles to a sustained process of economic growth.

A contradictory aspect of the fiscal reforms of the 1820s in nations such as Mexico, Gran Colombia, and Central America was the superimposition of the U.S. federalist tax model upon colonial Spanish administrations, which had been characterized by a high dose of centralism, tempered by a certain

degree of flexibility with respect to the distribution of tax funds among the regional treasuries. Paradoxically, instead of allowing flexibility, the new tax systems established after independence proved to be rigid, inefficient, and prone to intensify bitter rivalry among federal and state fiscal bureaucrats for the appropriation of revenues.

A second source of conflict arose from the weakening of the old colonial bureaucracy, which despite its faults had been effective in collecting taxes and maintaining accurate accounts on an incredibly complex range of sources of state income. The dilution of the tax administration and increasing subordination of fiscal employees to local military and political caudillos in many countries made revenue collection increasingly anarchic after independence, and accounting methods suffered notably. As a result, neither authorities in the governments nor those in the armies had a real grasp of how much money would be available, nor did they have a precise idea of how it was being spent. Indeed, the contrast with the extraordinarily detailed fiscal reports of the late eighteenth century is still a cause for surprise among historians.

A review of the tax reforms in Mexico, which had been the richest Spanish American colony, can perhaps shed some light on the nature of a few of the fiscal problems confronted by the new states. To begin with, two major sources of income of the colonial administration – the Indian tribute tax and mining taxes – were abolished. This implied a nominal reduction of the potential income of the state by almost 30 percent – at the levels current in the late colonial period. Other colonial taxes were also lost to the federal government, being transferred to the state governments as part of the political pact among regional elites that led to the ratification of the Mexican Constitution of 1824. The most important of these were the levies on internal trade (*alcabalas* and *pulques*), which became the backbone of most state governments for almost half a century (see Table 12.2).

In fact, local sales taxes known as *alcabalas* became the basic source of income for half a century for most provincial governments in Latin America, with the exception of Chile and Brazil. Historians have begun to explore fiscal records to attempt to measure the importance of these taxes for local government and, perhaps more important, their impact on domestic trade. Preliminary evidence would seem to suggest that the combination of regional sales taxes and transit taxes known as *peajes* (which were applied throughout Latin America) constituted significant obstacles to interstate trade. Hence, in contrast to the United States, which experienced a strong movement toward the integration of regional markets into a national market

Table 12.2. *Tax income of the Mexican government, 1826–31 (silver pesos)*

| Revenue sources | 1826–7 | 1827–8 | 1828–9 | 1829–30 | 1830–1 | 1826–31 | 1826–31 (%) |
|------------------------------|------------|------------|------------|------------|------------|------------|-------------|
| Foreign trade taxes | 8,474,403 | 6,074,551 | 6,516,817 | 5,503,515 | 10,369,150 | 7,387,687 | 54.1 |
| Internal trade taxes | 925,940 | 1,008,916 | 934,300 | 966,349 | 1,731,266 | 1,113,354 | 8.2 |
| Fiscal transfers from states | 979,145 | 1,381,412 | 1,621,079 | 1,960,873 | 1,356,563 | 1,459,814 | 10.7 |
| State monopolies | 1,236,552 | 1,408,174 | 1,291,883 | 1,031,520 | 1,231,851 | 1,239,996 | 9.1 |
| Other sources of income | 2,411,763 | 1,611,600 | 3,334,425 | 2,573,946 | 2,317,517 | 2,449,850 | 17.9 |
| Totals | 14,027,803 | 11,484,653 | 13,698,504 | 12,036,203 | 17,006,347 | 13,650,702 | 100.0 |

Source: *Memorias de Hacienda*, 1827–32.

in the first half of the nineteenth century, Latin American economies were confronted by marked fiscal obstacles to domestic trade transactions.

In order to compensate for the abolition or transfer of many colonial taxes, the elites of virtually all the new Latin American governments approved measures that made customs duties on foreign trade the backbone of the new fiscal systems. Once again, the United States served as a model in this key reform, but the results were not generally as satisfactory as expected. While customs receipts increased markedly in the years 1822–5, they subsequently declined or stagnated.¹⁵ Prolonged economic recession affected the income of most Latin American states, which, in many cases, had to revert to varied forms of emergency finance to cover deficits.

All of the Latin American republics except Brazil and Chile suffered chronic public deficits from the mid-1820s through to the early 1850s. The deficits were caused by the stagnation of tax revenues but also by the continued high expenses of military forces, which absorbed on average between 60 and 80 percent of the public expenditures of most states until well past mid-century. Weak fiscal administrations could not successfully confront demands for increased expenditures by money-voracious military forces and these, in turn, intervened constantly in politics, further weakening governments.

Paul Gootenberg has underlined the complex fiscal dynamics of militarized politics in the case of early republican Peru, but his observations are pertinent for many other countries in the region:

The general problems of caudillo finance are well known, its solutions are not... Caudillo regimes between 1825 and 1845 across the region were systematically bankrupt, fiscal desperation a constant. Military expenses ran high (more than 70 percent in primitive budgets), unforeseeable outlays remained the norm (mobilization for new revolts) and concrete rewards on short demand were critical to maintain bloated cadres of officers, clients and bureaucrats; or else, the logic went, risk another revolt and disintegration of the central state.¹⁶

Thus, a vicious cycle was initiated in which fiscal deficits led to weak government, which, in turn, stimulated frequent challenges to the political or military elite in power. As a result, civil strife proliferated, particularly as national military leaders frequently forged political alliances with

¹⁵ Victor Bulmer-Thomas argues that the stagnation of Latin American foreign trade in these years was a major cause of slow economic growth and hence underdevelopment. *An Economic History of Latin America since Independence*, 2nd ed. (Cambridge, 2003).

¹⁶ Paul Gootenberg, *Between Silver and Guano: Commercial Policy and the State in Postindependent Peru* (Princeton, NJ, 1989), 101.

disaffected regional elites. The high expenditures of these disjointed, albeit highly militarized, states provoked severe deficits that could only be covered with emergency loans from domestic merchant bankers. Inevitably, much of each country's tax revenue was mortgaged to moneylenders and, consequently, even worse fiscal conditions prevailed, provoking even more internal strife.

Mexico, which had been the richest colony, fared the worst among the new Latin American states in the forty years following independence. It suffered not only from a great number of domestic military conflicts but also from two major foreign invasions, which can be attributed in good measure to its fiscal and military weakness. The invasion of Mexico by the United States in 1847 led to the loss of vast territories in the north, including the modern U.S. states of California, Nevada, Colorado, Arizona, New Mexico, and Texas. Later in 1862 the Anglo-French-Spanish occupation of Veracruz led to full-fledged occupation of the nation by a French army of 30,000 men who remained until their defeat in 1867.

TAXES ON TRADE AND THE BUILDING OF NATION-STATES IN NINETEENTH-CENTURY LATIN AMERICA

The dark picture that we have drawn of fiscal reform in post-independence Latin America was tempered by several notable success stories. Brazil and Chile, in particular, maintained centralized administrations that were relatively successful in limiting military expenditures and able to obtain sufficient tax revenues (basically from import duties) to avoid the buildup of large deficits. Other countries were not so fortunate in good measure because their foreign trade was sluggish and because of the high prevalence of contraband. Moreover, from the 1820s through the 1840s, protectionism was widespread and discouraged many imports. Generally speaking, low foreign trade meant low government income because customs taxes were such an important portion of public revenues.

After a quarter century (1826–49) of stagnation in foreign trade, the decade of the 1850s marked a decisive economic and fiscal inflection for many nations, as exports expanded rapidly in Brazil, Chile, Peru, Buenos Aires, Colombia, and Central America. This first export boom lasted from mid-century until approximately 1873. Brazilian exports, which had remained at an average of 6 million pounds sterling during the 1840s,

rose to more than £10 million in the 1850s and £20 million by the early 1870s. (The quantum leap in physical volume of production was even more marked because coffee prices tended to decline after the mid-1840s.) During the same period in Colombia, government income rose markedly, with a notable expansion of foreign trade between 1850 and 1875 as exports rose from an average of less than 3 million dollars in the late 1840s to an average of close to 8 million dollars in the 1850s and 20 million dollars in the early 1870s. In fact, Colombia would not again attain the same level of exports until well into the twentieth century.

In Central America, coffee exports expanded rapidly. In Costa Rica they went from less than 1 million pounds sterling in the early 1850s to more than £2 million in the 1860s and close to £5 million in the mid-1870s. Similar trends are found in the trade statistics of Guatemala and El Salvador. The fiscal result was that the weak Central American states finally began to count upon sufficient tax revenues to attempt modernization. Hector Lindo-Fuentes argues:

In all Central America at mid-century approximately half of all fiscal revenues were derived from the tobacco and liquor monopolies . . . As foreign trade increased, customs duties rose in importance. . . . During this period (after 1855) it is possible to observe a clear increase in the capacity of the State to raise taxes, which suggests that the export expansion allowed for the consolidation of the government.¹⁷

From mid-century, therefore, it appeared that liberal reforms and rising trade had finally made it possible to launch relatively efficient tax states in Latin America. But how liberal were these new tax regimes? A comparative review of the tax structures of leading nations of the North Atlantic world in the nineteenth century leads to the conclusion that there was no specifically “liberal” type of fiscal policy, because fiscal constitutions and structures varied considerably. The centralist governments of Spain and France, for example, relied on tax structures that placed much emphasis on land taxes and state monopolies. In contrast, the federal government of the United States (during the entire century) and in Germany (after 1875) relied on customs taxes as the key to fiscal prosperity. The contrast between liberal states with centralist governments and those with federal administrations appears striking and therefore would seem to offer a key to the question posed. In this respect the great expert on fiscal history, Gabriel Ardant, argues that “the growth of customs income had a particularly striking effect

¹⁷ Hector Lindo-Fuentes, “Consecuencias económicas de la independencia en Centroamérica,” in *Las consecuencias independencia americana*, 54.

on the financial strength of federalist nations . . .”¹⁸ But what can be made of the case of Great Britain, which also had a strong central government yet relied on customs duties as the foundation of its fiscal system, at least during the first half of the nineteenth century?

A similar set of questions can prove useful to analyze the building of the tax systems of liberal states in Latin America during the nineteenth century. Most conformed (from 1820 onwards) to the federal model suggested by Ardant, in which customs taxes constituted the main source of income for national governments. The fact that most of the national governments of Latin America depended on import/export taxes as the main source of revenue for over a century (actually, until 1930) suggests that there were important connections between this type of fiscal policy and foreign trade policy in this long period during which “liberalism” was, to all intents and purposes, the dominant political ideology among Latin American ruling elites.

The fiscal system in early-nineteenth-century Brazil has been less studied than that of other nations of Latin America, but its importance should be emphasized because – in contrast to many of its neighbors – it did not suffer a drop in tax or trade income. Much to the contrary, Brazil had the highest volume of exports of all Latin America economies from the 1820s almost until the end of the nineteenth century. The imperial government derived over 60 percent of all of its income from taxes on imports and exports. Deficits were significant but covered by issue of external and internal debt, which did not become an overwhelming burden as in other nations, such as Mexico or Peru (see Figure 12.4).

Another clear example of reliance (not to say dependence) on trade for government income was Chile, where customs revenue was sufficient to finance practically all government expenditure for the first decades after independence without incurring burdensome deficits (see Figure 12.5). Chile’s prudent fiscal and financial management was reflected in the fact that in the 1830s the value of the Chilean currency rose relative even to the dollar and pound sterling. During the years 1850–73, when Chile experienced a boom in copper, silver, and wheat exports, imports rose consistently, and continued to provide the government with most of its income. However, from the 1880s on there was a notable shift to export taxes, as exactions on the great nitrate export trades provided a rapidly growing portion of total revenues.

¹⁸ Gabriel Ardant, “Financial Policy and Economic Infrastructure of Modern States and Nations,” in Charles Tilly, ed., *The Formation of Nation States in Western Europe* (Princeton, NJ, 1974), 222.

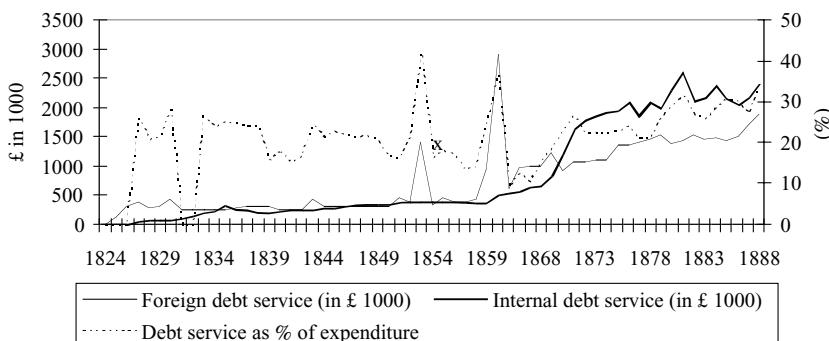


Figure 12.4. Brazil public debt service, 1824–1888.

Source: Based on data from Marcelo de Paiva Abreu and Luiz A. de Correa do Lago, “Property Rights and the Fiscal and Financial Systems in Brazil,” in Michael D. Bordo and Roberto Cortés Conde, eds., *Transferring Wealth and Power from the Old to the New World: Monetary and Fiscal Institutions, 17th–19th Centuries* (Cambridge, 2001), 327–77.

Another special case that should be mentioned is that of Colombia, which despite poor macroeconomic performance benefited from a government that maintained a fairly efficient tax administration after 1830. But the income climbed much higher during the early export boom of 1850–73, which also contributed to important fiscal changes as the Colombian government was able to reduce its traditional dependence on the liquor and

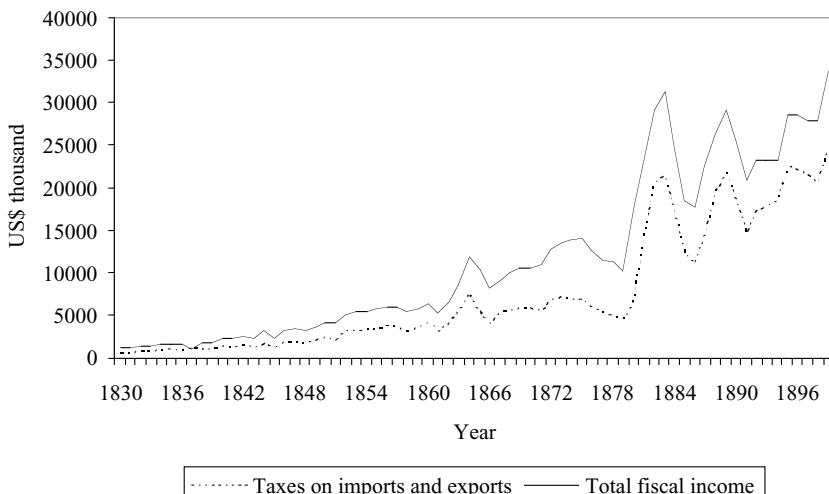


Figure 12.5. Tax revenues of the Chilean government, 1830–99.

Source: Carmen Cariola Sutter and Osvaldo Sunkel, *Un siglo de historia económica de Chile, 1830–1930* (Madrid, 1982), 123–5.

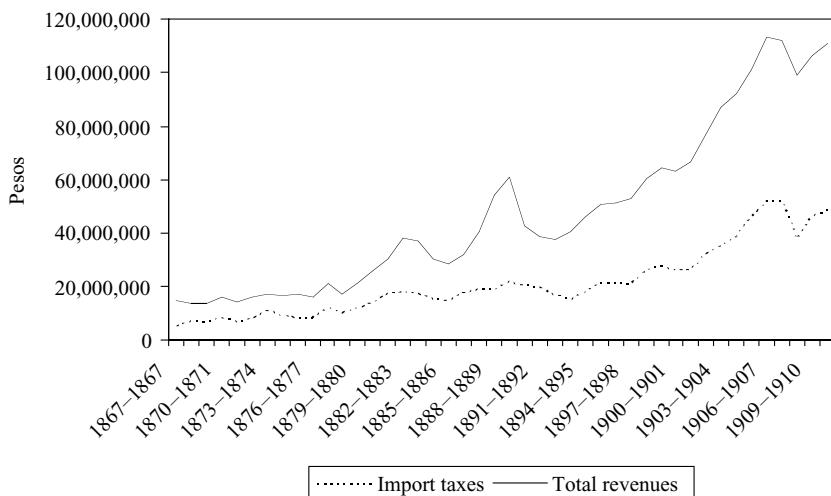


Figure 12.6. Tax revenue of the Mexican government, 1867–1910.

Source: Marcello Carmagnani, *Estado y mercado, 1850–1911* (Mexico City, 1994), Appendixes.

tobacco monopolies and came to rely more fundamentally on duties on imports, in consonance with trends in most other Latin American nations.

The most stunning export boom was that experienced by Peru, which benefited from the expansion of exports of guano, nitrates, sugar, and cotton between 1850 and 1875. In particular, the state-owned monopoly of guano allowed extraordinary fiscal windfalls, transforming the Peruvian government into the richest state in Latin America during two decades. Peru was the only nation in which exports directly provided most fiscal income. In practically all the other countries import taxes constituted somewhere between 80 and 90 percent of total trade taxes, although in many countries there continued to be some (relatively moderate) taxes on exports. By the end of the century, on the other hand, export taxes were generally eliminated.

One of the few larger countries that did not benefit from this early export boom was Mexico, mainly because of the impact of the two foreign invasions of its territory, which further destabilized its already weak economy. Nonetheless, by the early 1880s, recovery was in full swing. The administrations of presidents Manuel González (1880–4) and Porfirio Díaz (1884–1910) were able to build a strong state on the basis of increased tax income, most of it derived from import taxes, although the internal tax known as *timbre* also produced an increasing volume of resources (see Figure 12.6).

SLOW DEVELOPMENT OF FINANCIAL MARKETS AND BANKS

The fragmentation of monetary regimes and chronic public deficits not only delayed the establishment of stable and strong states but also constituted serious obstacles to the formation of modern financial markets throughout Latin America in the first half of the nineteenth century. Economic historians have only begun to explore the fundamental problems raised by the protracted development of financial markets in the region. In order to understand the nature of financial backwardness, it is important to analyze some of the major causes of the late development of banks, the slow growth of capital markets, and the difficulties in coordinating public and private finance.

First, attention should be directed to the consequences of the destruction of colonial credit organizations and mechanisms throughout Latin America in the early nineteenth century. The colonial financial markets had been much more sophisticated than traditional historiography supposed. Both the wars of independence and subsequent conflicts provoked substantial capital flight. In addition, the economic decline of the Church – which had been the largest lender in the colonial era – also weakened traditional credit markets and practice.

Second, it is necessary to evaluate the institutional limitations caused by the slow shift from colonial legislation to liberal legislation with regard to both credit and other economic activity. In many nations colonial norms remained in practice for decades. Indeed, modern civil and commercial codes were not ratified until well after mid-century. The lack of modern financial institutions, the weakness of judicial systems, the prevalence of corruption among public functionaries, and the arbitrary exercise of political power generated high levels of risk for most transactions. Uncertainty was the keynote of business for decades. Hence, both commercial credit and mortgage credit suffered.

A third and fundamental obstacle to the development of modern financial markets in the first half of the century was the great difficulty in creating relatively open, domestic markets for public securities. During the first half century following independence, interest rates on (short-term) government loans tended to be extremely high due to political risk (in the case of Mexico fluctuating wildly between 30 and 200 percent). As a result, most potential investors could not be attracted to long-term investments that offered lower rates. In the majority of countries of the vast region, the unstable debt policies of federal governments stymied the effective development of domestic short-term capital markets as well the birth of stable and open markets

in long-term public and private securities. In this regard, it seems worth recalling that the historical experience of advanced economies indicates that the operation of a broad and stable market for public securities was one of the key preconditions for the development of modern financial markets. In Latin America it would not be until the 1850s that governments were able to consolidate domestic debts and to renew service on early foreign loans.

With the gradual recovery and stabilization of public finance in the 1850s came the possibility of establishing more modern financial institutions, such as private and public banks, which began to appear in a good number of the major cities and ports of the subcontinent from the 1850s and 1860s. These financial innovations were largely predicated on the improvement in the tax revenues of the majority of the Latin American states, a trend that – as we have previously argued – gained strength only after mid-century.

As most Latin American states began to obtain substantially more tax income, they also begin to break out of the debt traps in which they had been ensnared since independence. A key objective of liberal reforms in the 1850s was consolidation of domestic debts. In Peru, guano revenues were used on a large scale to pay off a broad range of lenders to the government, but as Alfonso Quiroz has demonstrated the commercial bourgeoisie of Lima was the particular beneficiary. In Mexico and Colombia a policy of disentitlement and sale of Church properties by the state was initiated to consolidate old, internal debts. This liberal program allowed for the transfer of important amounts of ecclesiastical urban and rural real estate to merchants and landowners who acquired these properties by paying with a combination of cash and domestic debt securities that were accepted at face value, despite the huge price discounts for such paper in financial markets.

Apart from consolidation of debts, perhaps the most frequently used catchword of state policy from these decades was *progreso* (economic development), and special government agencies were established to further this end. Paradoxically, the poverty-stricken Mexican state was one of the first in Latin America to create a public agency specifically aimed at promoting national economic development. The establishment of the Mexican *Secretaría de Fomento* in 1853 preceded the first economic development ministries of other Latin American nations, most of which came into being in the 1860s or 1870s under a variety of names: *Ministerio de Agricultura, Comercio e Obras Públicas* (Brazil, 1861), *Ministerio de Fomento* (Guatemala, 1871, and Venezuela, 1874), *Ministerio del Interior* (Argentina, 1863). Hence, the role of the state as promoter of economic growth began to be important in these early decades, in what one could perhaps describe as Gershenkronian-style development.

Financial modernization and investment were among the most important keys to development. The increase in tax revenues plus consolidation of domestic public debt contributed decisively to the gradual (albeit still limited) modernization of domestic financial markets. Until mid-century, financial backwardness had been a common feature of all Latin American economies. The prime indicators of this situation were the lack of banking institutions, the erratic fluctuations of exorbitant interest rates, the lack of modern commercial and financial legislation, and the nonexistence of formal stock markets. But from the 1850s and 1860s this situation slowly began to change. These decades were witness to the birth of numerous banks and insurance firms in the more important cities and ports of the subcontinent, as well as of several small stock markets in Rio de Janeiro, Buenos Aires, Lima, and Santiago de Chile. Simultaneously, the governments of the larger nations began to collaborate with domestic and foreign entrepreneurs and bankers in the promotion of the first railroad firms, the modernization of ports, and other infrastructure projects, including construction of roads, bridges, and telegraph lines.

In Argentina, the development-oriented *Banco de la Provincia de Buenos Aires* (1854) provided loans to the first railroad, the state-owned *Ferrocarril Oeste* (1857), which became a very profitable enterprise. In Brazil, the first Latin American investment bank, the *Banco Mauá*, promoted railroad, steamship, and other infrastructure projects from the 1850s to the mid-1870s. In Peru, almost a dozen banks sprang up in Lima in the 1860s, spurred by the dynamism of the guano boom. Similarly, in Santiago de Chile, the 1860s and early 1870s were a time of financial modernization, leading to the establishment of numerous banking establishments as well as a vibrant if small stock market.

EARLY FOREIGN DEBTS AND FINANCIAL CRISES

Special emphasis has been placed in this chapter on the domestic factors (monetary, fiscal, and financial) that influenced the uneven evolution of the Latin American economies and states in the nineteenth century. This follows in the footsteps of the recent research of economic historians, who have produced excellent studies that require revision of much of the traditional economic history of the region and, particularly, of the traditional dependency interpretations, which tended to focus most attention on the

role of external factors in economic development and underdevelopment. Nonetheless, as has already been suggested in our analysis of the relation between domestic tax dynamics and international trade, it would be unwise to neglect the intersection of the trajectories of the Latin American economies and of international economic trends and forces. For the Latin American economies did indeed need international markets and capital. It was precisely in the periods of greatest expansion of the foreign trade of Latin America (1850–73 and 1880–1914) that one can observe the most solid advances in the modernization of states and economies throughout the region.

That international markets were essential to exports is evident. And so is the fact that foreign trade was one of the most important engines of growth as well as of revenues for governments. On the other hand, less clear is the reason that virtually all Latin American nations turned so heavily to international capital markets, in particular for state loans. Certainly the loans provided important sources of capital, but the money was not always wisely spent and, furthermore, the burdens of the debt service were not generally anticipated, leading to frequent debt crises. Yet in spite of the repeated financial debacles, Latin American governments returned again and again to European capital markets for new loans. The history of Latin American foreign loans can be described in terms of a series of cycles that correspond quite closely to the financial cycles described in the classic economic literature on international business cycles. The first loan boom in Latin America took place in the years 1822–5, followed by a series of suspensions of payments in 1826–8 and subsequent moratoria that generally lasted until the 1840s or 1850s. A second wave of international loans subscribed by virtually all the Latin American governments took place between the late 1850s and 1873, when a new economic crisis halted capital flows to the region and led to a traumatic debt crisis. Finally, in the 1880s, a new cycle of loans gained strength with extraordinary rapidity, concluding with financial crises in Argentina and Uruguay in 1890–1, and in the next two years in Brazil and Chile.

The cyclical nature of these trends is discussed in another chapter in this volume,¹⁹ and therefore in the closing section of this chapter, we will focus on the uses to which the loan monies were put. The aim is to raise the question of whether the funds obtained in European capital markets contributed to economic development in Latin America. In the earliest loan boom

¹⁹ See the chapter by Alan Taylor in Volume II.

of 1822–5, it can be readily established that the bulk of the funds taken by the new states was invested in military expenditures. This was logical, considering that achieving independence was still in process – the final defeat of the Spanish forces in South America only took place in December 1824 with the decisive battle of Ayacucho. Moreover, in subsequent years, Spain – with the support of the Holy Alliance – threatened various Latin American nations repeatedly with new attempts at reconquest. The early foreign loans therefore were destined to military purposes and did not directly serve to spur economic growth.

Substantial changes took place during the next loan boom in the period 1855–73. Practically all Latin American governments turned to European capital markets for loans in this period, using the monies for three main purposes: refinancing debts, military expenditures, and public works development (see Table 12.3).

Close to a third of the new loans were used by governments for refinancing operations. It is undeniably correct to argue that the refinancing of old debts with new loans obtained on better terms (lower interest rates and longer amortization) may prove to be a boon to public finance. Certainly some of the loans obtained in this period did fulfill this objective and allowed the Latin American economies to reenter European financial markets, from which they had been excluded since the widespread suspensions of debt payments in the late 1820s. But other refinancing loans – such as the Peruvian foreign loans of the 1850s and early 1860s – were simply used to pay off local mercantile elites who pressured for repayment of the government short-term debt they were holding.

Other foreign loans were used essentially to finance military expenditures. Examples abound, including the nefarious Mexican imperial bonds issued to finance the invasion of Mexico by a French army that installed the Austrian archduke Maximilian as local emperor (1863–7). Not surprisingly, after the expulsion of the French troops in 1867, the Mexican authorities refused to recognize these securities as legitimate debts. Other loans issued for military expeditions included the very large volume of sterling bonds issued by the Argentine and Brazilian governments to finance their joint invasion and occupation of neighboring Paraguay (1865–70). Clearly, such financial operations did not contribute in a constructive way to economic development.

Finally, it is important to keep in mind a set of loans issued for public works, in particular railway construction and port modernization. Argentina, Brazil, Chile, Peru, and various Central American republics

Table 12.3. *Latin American foreign loans, 1850–75*

| | Total no. of loans | Nominal value (£ thousands) | Purpose (%) | | |
|---------------|--------------------|-----------------------------|-------------|--------------|-----------|
| | | | Military | Public works | Refinance |
| Argentina | 7 | 13,488 | 20 | 68 | 11 |
| Bolivia | 1 | 1,700 | — | 100 | — |
| Brazil | 8 | 23,467 | 30 | 13 | 57 |
| Chile | 7 | 8,502 | 37 | 51 | 12 |
| Colombia | 2 | 2,200 | — | 9 | 91 |
| Costa Rica | 3 | 3,400 | — | 100 | — |
| Ecuador | 1 | 1,824 | — | — | 100 |
| Guatemala | 2 | 650 | — | 77 | 23 |
| Haití | 1 | 1,458 | — | — | 100 |
| Honduras | 4 | 5,590 | — | 98 | 2 |
| Mexico | 2 | 16,960 | 70 | — | 30 |
| Paraguay | 2 | 3,000 | — | 80 | 20 |
| Peru | 7 | 51,840 | 10 | 45 | 45 |
| Santo Domingo | 1 | 757 | — | 100 | — |
| Uruguay | 1 | 3,500 | — | — | 100 |
| Venezuela | 2 | 2,500 | — | 30 | 70 |

Combined Subtotals by Subperiods

| | Total no. of loans | Nominal value (£ thousands) | Purpose (%) | | |
|---------|--------------------|-----------------------------|-------------|--------------|-----------|
| | | | Military | Public works | Refinance |
| 1850–59 | 9 | 10,862 | — | 32 | 68 |
| 1860–69 | 20 | 56,705 | 41 | 12 | 47 |
| 1870–75 | 22 | 73,270 | — | 60 | 40 |

Source: Carlos Marichal, *A Century of Debt Crises in Latin America: From Independence to the Great Depression, 1820–1930* (Princeton, NJ, 1989), 80.

were particularly active in attracting money for the building of infrastructure that was essential to the promotion of both domestic transport and markets and to export growth in the years 1860–73. A portion of these funds allowed important investments that soon had a significant impact on economic growth, particularly in Argentina, Chile, and Brazil. On the other hand, the huge railway loans of Peru and the lesser ones of Honduras proved unwise adventures – the lines remained unfinished for decades and much of the money was siphoned off in corruption by bankers, contractors, and politicians.

In summary, during the first three-quarters of the nineteenth century, the slow and uneven process of financial modernization in the Latin American nations engendered formidable obstacles to economic development. Persistent difficulties in the construction of efficient tax administrations contributed to public deficits and led, in numerous cases, to the adoption of a variety of risky financial policies. Experiments with inflationary monetary instruments proved costly in both political and economic terms, as did the accumulation of an excess volume of short-term domestic debt and long-term foreign loans. Domestic financial markets were undermined by the persistence of inefficient judicial and institutional frameworks that, in turn, contributed to the late emergence of banking and the weakness of formal capital markets throughout Latin America. Progress was the catchword of the era but proved remarkably difficult to achieve.

Part IV

THE ECONOMIC IMPACT OF INDEPENDENCE

13

THE ECONOMIC CONSEQUENCES OF INDEPENDENCE IN LATIN AMERICA

LEANDRO PRADOS DE LA ESCOSURA

In his classic work on Latin America, Victor Bulmer-Thomas concludes, “The economic development of Latin America since independence is a story of unfulfilled promise,” and stresses that “the gap between living standards in Latin America and those in the developed countries has steadily widened since the early nineteenth century.”¹ This view has been qualified by Stephen Haber, who pointed out that the income gap between Latin America and Anglo-Saxon America “is not a product of the twentieth century.”² John Coatsworth, in turn, added that today’s Latin American underdevelopment arose during the colonial era and in the aftermath of independence.³ Evidence on levels of per capita income supports the view that Latin America as a whole did not worsen its position relative to the United States during the twentieth century (Table 13.1).

Independence, achieved in most of Latin America between 1808 and 1825, and the resulting insertion into the international economy (a long process that gathered momentum between 1850 and 1873) appear as the

¹ Victor Bulmer-Thomas, *The Economic History of Latin America since Independence*, 2nd ed. (Cambridge, 2003), 392. This essay focuses exclusively on the effects of independence on economic performance and does not address the background to struggles for independence. A comprehensive coverage of the process of independence and its aftermath can be found in Leslie Bethell, ed., *The Cambridge History of Latin America* (Cambridge, 1985), vol. 3. I have received useful advice from the editors. I would also like to acknowledge Jeremy Adelman, Bob Allen, Stan Engerman, Alejandra Irigoin, Héctor Lindo-Fuentes, Carlos Marichal, Alfonso Quiroz, Joan Rosés, and especially Patrick O’Brien for their comments. I am solely responsible for any remaining errors.

² Stephen Haber, ed., *How Latin America Fell Behind. Essays on the Economic Histories of Brazil and Mexico, 1800–1914* (Stanford, CA, 1997), 1.

³ My italics. John H. Coatsworth, “Notes on the Comparative Economic History of Latin America and the United States,” in Walther L. Bernecker and Hans Werner Tobler, eds., *Development and Underdevelopment in America: Contrasts in Economic Growth in North America and Latin America in Historical Perspective* (New York, 1993).

Table 13.1. *Relative GDP per head in Latin America, 1900–5*

| | Latin America (1970 \$ PPP) | | Latin America (USA = 100) | |
|------|-----------------------------|-----|---------------------------|------|
| | Six countries | All | Six countries | All |
| 1900 | 185 | | 12.5 | |
| 1910 | 228 | | 13.3 | |
| 1920 | 235 | | 12.4 | |
| 1930 | 277 | | 12.9 | |
| 1940 | 320 | | 12.9 | |
| 1950 | 413 | 394 | 12.5 | 11.9 |
| 1960 | 521 | 487 | 13.6 | 12.7 |
| 1970 | 707 | 649 | 13.7 | 12.6 |
| 1980 | 973 | 884 | 15.4 | 14.0 |
| 1990 | 938 | 837 | 12.7 | 11.3 |
| 1995 | 990 | 879 | 12.8 | 11.4 |

Source: Pablo Astorga and Valpy Fitzgerald, "Statistical Appendix," in Rosemary Thorp, *Progress, Poverty and Exclusion. An Economic History of Latin America in the 20th Century* (Washington, DC, 1998), 353.

two most important events in assessments of economic performance in nineteenth-century Latin America.⁴

However, no consensus exists on how independence came about. Was it the result of an external shock, such as the Napoleonic Wars and the French invasion of the Iberian peninsula? Was it a consequence of institutional inefficiency or, conversely, a reaction against reforms and modernization associated with the introduction of new liberal ideas and institutions in the metropolis and, hence, an endogenous phenomenon? Was it, perhaps, the outcome of the struggle against liberal reform and modernization in central colonies (Mexico and Peru), whereas in peripheral colonies (New Granada and the Rio de la Plata), it resulted from militaristic opportunism, stimulated by smuggling interests, at the time of the Napoleonic invasion of the Iberian peninsula?

In David Landes's view, it was not the outcome of colonial initiative "but of the weaknesses and misfortunes of Spain and Portugal at home, in the context of European rivalries and wars."⁵ Samuel Amaral, writing on

⁴ See, for example, Bulmer-Thomas, *Economic History of Latin America*, and Haber, *How Latin America Fell Behind*.

⁵ David S. Landes, *The Wealth and Poverty of Nations: Why Some Are So Rich and Some So Poor* (New York, 1998), 313.

Argentina, argues that independence was a consequence of local pressure on institutions that could not provide for the needs of trade and production.⁶ And Stanley and Barbara Stein have written that “perhaps it would be more accurate to argue that many of the colonial elite hoped to maintain allegiance to embattled Spain while enjoying the right to trade directly with Europe and the United States.”⁷

Fewer research monographs than grand interpretations make assessments of independence unpersuasive. Still, while no consensus of the causes of independence exists, it is evident that the consequences were the fragmentation of political power, the militarization of society, and the mobilization of resources and men for war.⁸ Political turmoil did not end with independence. Disputes over national borders and civil wars continued for decades. In Landes’s words: “New World strongmen exploited the vacuum and seized the power . . . anarchic negativism invited macho warlordism.”⁹

A widely held view among historians is that independence was followed by a marked decline in economic activity in which per capita income did not return to colonial levels until the mid-nineteenth century.¹⁰ Moreover, the break with Spain and Portugal did not bring with it any immediate changes in the existing social and economic structures.¹¹ The land tenure system and factor markets, it has been argued, did not suffer drastic changes after independence. For example, slavery lasted until the mid-nineteenth century, and until the 1880s in Brazil and Cuba. The fiscal system remained in part: *mita* ended but *tributo* often returned. Debt peonage and forms of *repartimiento* persisted in some regions until the late nineteenth century. Finally, openness to trade and factor inflows was reduced. Change, nevertheless, was brought about by independence. Among its positive effects on

⁶ Samuel Amaral, “Del mercantilismo a la libertad: Las consecuencias económicas de la independencia argentina,” in Leandro Prados de la Escosura and Samuel Amaral, eds., *La independencia americana: Consecuencias económicas* (Madrid, 1993), 202–3.

⁷ Stanley J. Stein and Barbara H. Stein, *The Colonial Heritage of Latin America. Essays on Economic Dependence in Perspective* (New York, 1970), 131.

⁸ Tulio Halperín Donghi, “Economy and Society,” in *The Cambridge History of Latin America*, vol. 3.

⁹ Landes, *Wealth and Poverty of Nations*, 313.

¹⁰ Coatsworth, “Notes on the Comparative Economic History.” In the case of the United States, conjectural estimates show that per capita income stagnated in the quarter century after independence, whereas it grew below 0.3 percent yearly in the opening decades of the nineteenth century. Cf. Peter C. Mancall and Thomas Weiss, “Was Economic Growth Likely in Colonial British North America?” *Journal of Economic History* 59, 1 (1999): 17–40.

¹¹ Bill Albert, *South America and the World Economy from Independence to 1930* (London, 1983), 25. Neither did they take place in the former metropolis. It can be conjectured that GDP per head in the 1790s was not surpassed in Spain until the 1840s. Cf. Leandro Prados de la Escosura, *De imperio a nación. Crecimiento y atraso económico en España, 1780–1930* (Madrid, 1988), chap. 1.

growth, historians emphasize the end of the external trade monopoly and the possibility of raising capital in international markets, whereas the end of the *de facto* customs union, capital flight, and the collapse of the colonial fiscal system are stressed among its negative effects.¹²

The costs and benefits of independence have been assessed by Coatsworth, who concluded that in the short run the direct and indirect economic benefits of independence were small, as were the measurable costs of colonialism: the limited net benefits of independence were overcome by new costs, such as prolonged wars, civil strife, and economic instability. In the long run, however, there were economic benefits from the destruction of the colonial institutional order: independence led to institutional modernization.¹³

Should the costs of colonialism include not only what was extracted but what was not produced due to wrong incentives created by colonial institutions and path dependency? And why did the elimination of tax and tariff restrictions fail to promote self-sustained growth? These are recurrent, yet unanswered, questions among historians of Latin America.

To provide an answer to all these crucial questions is well beyond the scope of this chapter and its author's ability. Thus, for the remainder of the paper, I will assess grand interpretations or meta-narratives, centered on the theme of Latin America in the U.S. mirror. Then the alternative approach of evaluating postindependence Latin American performance in the African and Asian mirrors will be proposed. Finally, I will examine the empirical evidence on the main consequences of independence, resulting from the removal of the colonial burden and the opening up to the international economy. Some concluding reflections complete the chapter.

GRAND INTERPRETATIONS: LATIN AMERICA IN THE U.S. MIRROR

In the three decades after World War II, the Dependency School provided the dominant grand theory about Latin America's underdevelopment. Stanley and Barbara Stein, in their widely read book *The Colonial Heritage of Latin America*, developed an interpretive framework for understanding

¹² Bulmer-Thomas, *Economic History of Latin America*, 28–31.

¹³ John H. Coatsworth, "La independencia latinoamericana: Hipótesis sobre los costes y beneficios," in *La independencia americana: Consecuencias económicas*, 19.

Latin American independence. Why did British America and Latin America develop so differently after independence? Why did Latin America remain a primary producer while the United States industrialized? According to the Steins, the core of Iberian colonialism in Latin America was “the organization and maintenance of economies profitable to overseas metropolises and . . . through them to the key economies of western Europe: Holland, England, and France.”¹⁴ The colonial economic background (with the large estate as its key feature) was reinforced by local conditions (lack of political unity, conflict of economic interests, highly concentrated income, and poverty) and, in particular, by the economic pressure of Great Britain. “The English,” they conclude, “had been the major factor in the destruction of Iberian imperialism; on its ruins they erected the informal imperialism of free trade and investment.”¹⁵ The Steins’ main contention was that the failure to achieve sustained and balanced growth over the nineteenth century was a result of the persistence of the colonial heritage in the new republics.

Perhaps it was Christopher Platt who most firmly opposed the Steins’ views. In Platt’s assessment, independence had a very limited impact, and only after 1860 did a lagged effect become apparent. Independence brought a redirection of trade from Iberia to northern Europe and the United States, but the volume of Latin American trade did not change significantly. Independence did not make Latin America into a major primary product exporter or into a large market for foreign industrial goods. In addition, modern economic growth was constrained by lack of human and physical capital, shortage of industrial fuels, poor infrastructure, and small markets. The break with Spain, Platt argued, “far from confirming the integration of Latin America as a dependent partner in the world economy, reintroduced an unwelcome half century of ‘independence’ from foreign trade and finance,” leading to the conclusion that nineteenth-century Latin America was “shaped by domestic circumstances rather than by the planned requirements of distant metropolis.”¹⁶ Platt’s views could be perhaps rephrased by saying that Latin America became prematurely independent before the onset of the first wave of globalization with its powerful stimulus for growth.

The halcyon days of the Dependency School are long past. Empirical research within national boundaries is the way historians deal nowadays

¹⁴ Stanley J. Stein and Barbara H. Stein, “D. C. M. Platt: The Anatomy of ‘Autonomy,’” *Latin American Research Review* 15 (1980): 134.

¹⁵ Stein and Stein, *Colonial Heritage*, 155.

¹⁶ D. C. M. Platt, “Dependency in Nineteenth-Century Latin America: An Historian Objects,” *Latin American Research Review* 15 (1980): 130.

with the question of what the economic consequences of independence were. The development of the new institutional economic history in Latin America has renewed, though, the grand interpretations tradition and led to an explicit comparison with the U.S. historical experience, stressing the striking differences between British North American and Iberian American colonies. They provide, according to Douglass North, “the best comparative case . . . of the consequences of divergent institutional paths for political and economic performance.”¹⁷ Their radically different evolution reflected the imposition of distinct metropolitan institutions on each colony.¹⁸ North’s main proposition is that different initial conditions, in particular the religious and political diversity in the English colonies as opposed to the religious uniformity and bureaucratic administration of the existing agricultural society in the Spanish colonies (Mexico and Alto Peru, in particular) are responsible for differences in performance over time.

North’s interpretation has been opposed by scholars who do not accept the claim that institutions are exogenous.¹⁹ For example, for Spanish America, Engerman and Sokoloff posit that the initial inequality of wealth, human capital, and political power conditioned institutional design and, thus, performance. Large-scale estates, built on preconquest social organization and extensive supplies of native labor, established the initial levels of inequality. Elites (by 1800 less than 20% of the population was white) managed to design institutions protecting their privileges. Government policies and institutions reproduced initial conditions leading to the restriction of competition and selective policies in offering opportunities.²⁰ For example, in Mexico and Peru, a large native population, coupled with Spain’s acceptance of preexisting native practices of awarding claims on labor and natural resources to the elite, fostered highly concentrated landholdings and, consequently, social and economic inequality.²¹ All this was in sharp contrast with the white population’s demographic predominance, more

¹⁷ Douglass C. North, “Institutions and Economic Growth: An Historical Introduction,” *World Development* 17, 9 (1989): 1330.

¹⁸ Douglass C. North, *Institutions, Institutional Change and Economic Performance* (Cambridge, 1990), 102.

¹⁹ For a recent assessment, see Dani Rodrik, Arvind Subramanian, and Francesco Trebbi, “Institutions Rule: The Primacy of Institutions over Integration and Geography in Economic Development” (IMF Working Paper 02/189, November 2002).

²⁰ Kenneth Sokoloff and Stanley L. Engerman, “Institutions, Factor Endowments, and Paths of Development in the New World,” *Journal of Economic Perspectives* 14, 3 (2000): 217–32.

²¹ Stanley L. Engerman, Stephen H. Haber, and Kenneth L. Sokoloff, “Inequality, Institutions, and Differential Paths of Growth among New World Economies,” in Claude Menard, ed. *Institutions, Contracts, and Organizations* (Cheltenham, 2000), 108–34.

evenly distributed wealth, and high endowment of human capital per head in British North America.²²

Institutional historians have reacted to these factor endowment and wealth distribution arguments by emphasizing the relative independence of institutions, policies, and events from any given distribution of wealth and income. Although acknowledging that the legal system represented an obstacle to growth because the caste system constrained factor mobility, John Coatsworth and Gabriel Tortella deny the links between Iberian institutions transferred to America and the initial unequal distribution of income and wealth, stressing that “the caste system of the New World deliberately weakened the grip of local conquerors and magnates on the underlying indigenous population and placed sharp limits on the growth of inequality in the distribution of wealth by recognizing indigenous property rights and guaranteeing the majority of the indigenous population access to land independent of the colonial elite.”²³

North, Summerhill, and Weingast concede, in turn, that factor endowments were the driving force of European colonization, but are not sufficient to explain postindependence behavior, as the discrepancies between the U.S. path to world leadership and Spanish America’s violence and retardation confirm. If factor endowments determined political outcomes, they argue, “Argentina would be as rich as the United States.”²⁴ North and his associates stress the sharp institutional contrast between the independent United States (with a constitution and a stable and well-specified system of economic and political rights) and Latin America (under political instability and warfare). In their view, the absence of institutional arrangements capable of establishing cooperation between rival groups led to destructive conflict that diverted capital and labor from production and consigned the new republics to poor performance relative to the United States.

²² It should be noted that inequality in Latin America was probably comparable to that in the slave states of North America, where per capita income was, however, surely much higher.

²³ John H. Coatsworth and Gabriel Tortella, “Institutions and Long-Run Economic Performance in Mexico and Spain, 1800–2000” (*Working Papers on Latin America*, no. 02103.1, David Rockefeller Center for Latin American Studies, Harvard University, 2002).

²⁴ Douglass C. North, William R. Summerhill, and Barry R. Weingast, “Order, Disorder, and Economic Change: Latin America versus North America,” in Bruce Bueno de Mesquita and Hilton L. Root, eds., *Governing for Prosperity* (New Haven, CT, 2000), 19. It should be borne in mind, however, that by 1913 Argentina was the sixth country in the world in terms of per capita income, and in comparison to Europe second only to Great Britain. See Leandro Prados de la Escosura, “International Comparisons of Real Product, 1820–1990: An Alternative Data Set,” *Explorations in Economic History* 37, 1 (2000): 1–40.

So far, all the views surveyed take the United States as the yardstick with which to measure Latin American achievements in the nineteenth century. Is such an approach the appropriate strategy to disentangle the causes of Latin America's poor economic performance? In fact, overemphasizing the contrast with North America leads to a negative assessment of Latin America's economic and political behavior both before and after independence. The income gap between colonial British and Latin America kept widening in the half century after independence. According to Maddison, the United States doubled Latin American product per head by 1820 and more than trebled it by 1870.²⁵

However, stressing over and over again that a large gap existed has paralyzing effects on research on nineteenth-century Latin American economic history. Actually, it confuses the initial conditions in the new republics with their postindependence performance. Moreover, it diverts attention from the real issue: the extent to which Latin America underperformed in terms of its own potential. Nathaniel Leff's reflections on Brazil can be extended to Latin America as a whole. The fact that the new republics fell behind the United States or northwestern European nations does not imply that development opportunities were necessarily missed. On the basis of predictably large differences in human (and physical) capital to labor ratios it can be hypothesized that British North America and Latin America probably had different *steady states*.

The relevant question, then, would be, what are the feasible counterfactual scenarios that might have led to higher rates of growth?²⁶ These hypothetical alternatives should be clearly specified before jumping to the conclusion that Latin America failed because it followed a different and less successful path to the twentieth century than the United States or Germany. In fact, per capita income divergence between rich (core) and poor (periphery) countries is the dominant feature of the nineteenth century.²⁷ Historical research can only elucidate within the limits of feasibility, that is, the extent to which events followed the course they did as determined by a set of initial conditions and some internal logic over time.

²⁵ Angus Maddison, *The World Economy. A Millennial Perspective* (Paris, 2001), 264.

²⁶ Nathaniel H. Leff explores alternative scenarios of rising productivity in the domestic sector relative to the external sector, of higher investment in social overhead capital, and of immigration restrictions, to reject all of them as unrealistic. See "Economic Development in Brazil, 1822–1913," in *How Latin America Fell Behind*, 58–9.

²⁷ This line of reasoning has recently been applied to the study of the USSR's development by Robert Allen, *Farm to Factory: A Reinterpretation of the Soviet Industrial Revolution* (London, 2002). As Allen writes, this is so because "convergence represents the diffusion of the industrial revolution" (1–8).

As Leff put it, “the study of history can spare later observers depressing reflections that have no basis in the realm of the possible.”²⁸

Moreover, the current historical approach to Latin American economic backwardness resembles historical assessments of continental European backwardness a quarter of a century ago when countries’ success or failure depended on the extent to which they were able to replicate Britain’s industrialization experience. As a result, a common claim was to depict France as a backward country. Gerschenkron’s analysis of latecomers’ substitution for missing prerequisites and O’Brien and Keyder’s pathbreaking study of growth in France and Britain demonstrate that differences in endowments (and hence relative factor prices) and past economic policies and institutions led to different paths to economic development. Therefore, only the extent to which a country achieved its own unique growth potential should determine its success or failure.²⁹ Geography, public policies, and political institutions all mattered in shaping Latin American countries’ long-run economic performance.

LATIN AMERICA IN THE AFRICAN AND ASIAN MIRRORS

Because difficulties in modeling growth potential might render the proposal impractical, a promising line of research would be to compare Latin America with other former European colonies. It is worth noting that quite a few Asian, African, and Eastern European countries shared, at the time of their independence, some of the initial conditions of the postindependent Latin American republics, including similar demographic patterns, such as a delayed demographic transition and persistent high fertility until the late twentieth century; low population density (except in Asia); a high share of the adult population employed in agriculture; low social and human capital; poor contract enforcement; and a weak government yielding to interest groups. On top of that, a glance at levels of GDP per capita at the time of independence for the main African and Asian countries

²⁸ Leff, “Economic Development of Brazil,” in *How Latin America Fell Behind*, 59. A more complete discussion of counterfactual propositions and potential effects on Brazilian long-run growth is discussed in Nataniel H. Leff, *Underdevelopment and Development in Brazil*, 2 vols. (London, 1982).

²⁹ Alexander Gerschenkron, *Economic Backwardness in Historical Perspective. A Book of Essays* (Cambridge, 1962); Patrick O’Brien and Caglar Keyder, *Economic Growth in Britain and France, 1780–1914. Two Paths to the Twentieth Century* (London, 1978).

(Table 13.2) shows a resemblance with those of Mexico or Brazil around 1820, whereas all of them remained far below the U.S. level at the time of its independence in 1776.

Does all this mean that the current approach that depicts the independence of Latin America as part of the wave of liberal revolutions that swept throughout Europe in the post-Napoleonic era is Eurocentric and inadequate, and that a more appropriate approach would be to compare the postcolonial experience of Latin America to the postcolonial experiences that took place, later in time, in other parts of the periphery, such as Asia and Africa?³⁰

Models linking economic geography and institutions that allow for diverse colonial patterns seem useful for the purpose of placing the experience of postindependence Latin America in a more realistic context. Differences in economic prosperity across countries are linked to geographic, climatic, or ecological factors.³¹ Jeffrey Sachs, for example, concludes that technology, disease environment, and transport costs are determined by physical geography and climate.³² Acemoglu, Johnson, and Robinson, in turn, point to the disease environment at the time of European arrival as a determinant of the patterns of European settlement and the subsequent institutional development of the former colonies. In densely populated areas there were diseases (malaria and yellow fever) to which Europeans were vulnerable, preventing them from settling in large numbers.³³

In another recent contribution, Acemoglu, Johnson, and Robinson stress the differential impact of colonialism. Societies where colonialism led to the establishment of good institutions (“institutions of private property” that allow a broad sector of society to receive returns on their investments) prospered relative to those where colonialism imposed “extractive institutions” (such as forced labor and tribute), under which most of the population

³⁰ This alternative approach has also been suggested recently by Jonathan C. Brown in his review of Jeremy Adelman's *Republic of Capital. Buenos Aires and the Legal Transformation of the Atlantic World* (Stanford, CA, 1999). See Brown, *Hispanic American Historical Review* 81, 3–4 (2001): 765–71.

³¹ Jared Diamond, *Guns, Germs and Steel. The Fate of Human Societies* (New York, 1997).

³² Jeffrey D. Sachs, “Tropical Underdevelopment” (NBER Working Paper Series, no. 8119, 2001). Also, for a typology of the approaches, see John W. McArthur and Jeffrey D. Sachs, “Institutions and Geography: Comment on Acemoglu, Johnson and Robinson (2000)” (NBER Working Paper Series, no. 8114, 2001).

³³ Daron Acemoglu, Simon Johnson, and James A. Robinson, “The Colonial Origins of Comparative Development: An Empirical Investigation,” *American Economic Review* 91, 5 (2001): 1369–1401. Note, however, that a bad disease environment did not always coincide with high population density. The historical consensus on sub-Saharan Africa would be a case in point.

Table 13.2. *Per capital GDP in Latin American, Asian, and African countries at the time of independence*

| | | |
|----------------|--|-------|
| c.1776 | | |
| U.S.A. | | 1,166 |
| c.1820 | | |
| Brazil | | 646 |
| Mexico | | 759 |
| <i>average</i> | | 703 |
| 1950 | | |
| Afghanistan | | 645 |
| Bangladesh | | 540 |
| Cambodia | | 518 |
| India | | 619 |
| Laos | | 613 |
| Myanmar | | 396 |
| Pakistan | | 643 |
| Vietnam | | 658 |
| Indonesia | | 840 |
| <i>average</i> | | 608 |
| 1960 | | |
| Botswana | | 403 |
| Chad | | 569 |
| Gambia | | 650 |
| Kenya | | 726 |
| Mali | | 535 |
| Rwanda | | 656 |
| Tanzania | | 433 |
| Togo | | 698 |
| Uganda | | 713 |
| Cameroon | | 832 |
| Nigeria | | 869 |
| Sierra Leone | | 856 |
| <i>average</i> | | 662 |

Sources: Angus Maddison, *The World Economy. A Millennial View* (Paris, 2001); U.S. figure for 1820 extrapolated back to 1776 with growth rates taken from Peter C. Mancall and Thomas Weiss, "Was Economic Growth Likely in Colonial British North America?" *Journal of Economic History* 59, 1 (1999): 17–40. A lower figure of \$912 would be obtained with Maddison's own conjectures.

risked expropriation at the hands of the ruling elite or the government.³⁴ European colonialism led, paradoxically, to the development of relatively better institutions in previously poor areas, whereas it introduced or reinforced extractive institutions in previously prosperous areas. The reason is that poor areas were less densely populated, enabling Europeans to settle in large numbers and to develop their own institutions, thus encouraging investment and growth. Conversely, where abundant population showed relative affluence, establishing “extractive institutions” with political power concentrated in the hands of an elite represented the most efficient choice for European colonizers, despite its negative effects on long-term growth.³⁵

Examples of colonial “extractive institutions” can be found in Spanish America (principally in Mesoamerica and the Andes), French-dominated Southeast Asia, British India, and regions of Africa under French or British dominance. In the case of Mexico and Peru, the exploitation of silver deposits determined that economic activity would center on the locations where the deposits were found, and this conditioned population settlement, the location of urban centers, and fiscal policies.³⁶

There are interesting connections between Acemoglu, Johnson, and Robinson’s interpretation of different colonial patterns and Stanley and Barbara Stein’s conjecture thirty years ago that “had the Englishmen found a dense and highly organized Amerindian population, the history of what is called the United States would record the development of a stratified, biracial, very different society. In a larger context, the existence of a huge, underpopulated virgin land of extraordinary resource endowments directly facing Europe and enjoying a climate comparable to that of Europe represented a potentiality for development which existed nowhere else in the New World.”³⁷

It can be concluded, then, that both institutional and geographical approaches predict significantly different outcomes for colonial and postindependence British North America and Latin America, and it could be added that in empty lands more efficient institutional settings went hand

³⁴ Daron Acemoglu, Simon Johnson, and James A. Robinson, “Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution,” *Quarterly Journal of Economics* 117, 4 (2002): 1231–94.

³⁵ An exception seems to have been the American antebellum South.

³⁶ Cf. Roberto Cortés Conde and George T. McCandless, “Argentina: From Colony to Nation. Fiscal and Monetary Experiences from the Eighteenth and Nineteenth Centuries,” in Michael D. Bordo and Roberto Cortés-Conde, eds., *Transferring Wealth and Power from the Old to the New World. Monetary and Fiscal Institutions in the 17th through the 19th Centuries* (Cambridge, 2001), 379.

³⁷ Stein and Stein, *Colonial Heritage of Latin America*, 128.

in hand with better factor endowments (higher human capital/labor and physical capital/labor ratios).

Evidence on exogenous geographic factors such as climate, latitude, and distance to the seacoast, together with levels of mortality, population density, and urbanization at the time of European colonization (see Table 13.3) tend to support the view that a wider range of similarities existed between most Latin American countries and the European colonies in Asia and Africa than with British North America.

Another way of stressing the similarities between Latin America and these other colonies is comparing assessments of postindependence performance in sub-Saharan African and Latin America. There is a striking degree of similarity between the assessments of sub-Saharan Africa by present-day development economists and the assessments of Latin America by economic historians, suggesting that postindependence Africa (and, presumably, Asia) is a more appropriate benchmark of comparison for Latin America than the United States. Nonetheless, the different timing of independence in Latin America (prior to the first wave of globalization) and in Africa and Asia (during the first stages of the second wave of globalization) surely had a distinctive impact on economic growth.

Let us start with an overall assessment of sub-Saharan Africa's independence that would be accepted by most scholars as a good depiction of the Latin American postcolonial experience: "... in the move to independence... optimism was widespread. National development plans envisioned rapid growth, fuelled by industrial expansion, diversification of exports, modernization of agriculture, and public investment in health and education. Looking back, the legacy [was] mainly one of disappointment."³⁸

Assessments of different aspects of postindependence Africa and Latin America are illuminating:

THE SHOCK OF POLITICAL INDEPENDENCE

[In Latin America, there was a] complete lack of experience in autonomous decision making and government: state-building required creating institutions from scratch in an environment of change and uncertainty. In its absence, warfare was the norm.³⁹

³⁸ Benno N. Ndulu and Stephen A. O'Connell, "Governance and Growth in Sub-Saharan Africa," *Journal of Economic Perspectives* 13, 3 (1999): 42.

³⁹ North, Summerhill, and Weingast, "Order, Disorder and Economic Change," 45.

Table 13.3. *Comparative geography and historical demography of Latin America*

| | Mean annual temperature °C | % Land area within 100 km of sea coast | Absolute value of latitude | Europeans' adult mortality rates in early 19th century | Urbanization rate in 1500 | Population density in 1500 |
|--------------------|----------------------------|--|----------------------------|--|---------------------------|----------------------------|
| Argentina | 17.1 | 0.123 | 0.378 | 68.9 | 0.0 | 0.11 |
| Bolivia | 21.5 | 0.000 | 0.189 | 71.0 | 10.6 | 0.83 |
| Brazil | 23.7 | 0.093 | 0.111 | 71.0 | 0.0 | 0.12 |
| Chile | 13.4 | 0.662 | 0.333 | 68.9 | 0.0 | 0.80 |
| Colombia | 22.5 | 0.160 | 0.044 | 71.0 | 7.9 | 0.96 |
| Costa Rica | 25.1 | 1.000 | 0.111 | 78.1 | 9.2 | 1.54 |
| Dominican Republic | 25.6 | 1.000 | 0.211 | 130.0 | 3.0 | 1.46 |
| Ecuador | 19.1 | 0.368 | 0.222 | 71.0 | 10.6 | 2.17 |
| El Salvador | 23.6 | 1.000 | 0.150 | 78.1 | 9.2 | 1.54 |
| Guatemala | 21.7 | 0.425 | 0.170 | 71.0 | 9.2 | 1.54 |
| Honduras | 25.4 | 0.669 | 0.167 | 78.1 | 9.2 | 1.54 |
| Mexico | 19.0 | 0.373 | 0.256 | 71.0 | 14.8 | 2.62 |
| Nicaragua | 26.6 | 0.633 | 0.144 | 163.3 | 9.2 | 1.54 |
| Panama | 27.5 | 1.000 | 0.100 | 163.3 | 9.2 | 1.54 |
| Paraguay | 23.0 | 0.000 | 0.256 | 78.1 | 0.0 | 0.50 |
| Peru | 20.5 | 0.173 | 0.111 | 71.0 | 10.5 | 1.56 |
| Uruguay | 18.4 | 0.312 | 0.367 | 71.0 | 0.0 | 0.00 |

| | | | | | | |
|--|-------------|--------------|--------------|--------------|------------|-------------|
| Venezuela | 24.8 | 0.244 | 0.089 | 78.1 | 0.0 | 0.44 |
| <i>Central America & Caribbean</i> | <i>25.1</i> | <i>0.818</i> | <i>0.150</i> | <i>108.8</i> | <i>8.3</i> | <i>1.53</i> |
| South America | 20.5 | 0.196 | 0.209 | 72.1 | 3.2 | 0.59 |
| Southern Cone | 16.3 | 0.366 | 0.359 | 69.6 | 0.0 | 0.30 |
| Latin America | 22.1 | 0.457 | 0.189 | 86.3 | 6.3 | 1.16 |
| Non-Spanish West Indies | 26.6 | 1.000 | 0.206 | 130.0 | 3.0 | 2.97 |
| Asia | 26.1 | 0.554 | 0.160 | 74.2 | 6.9 | 10.17 |
| Northern Africa | 20.0 | 0.283 | 0.336 | 71.8 | 14.7 | 32.06 |
| Sub-Saharan Africa | 25.6 | 0.170 | 0.112 | 567.5 | | |
| United States | 11.2 | 0.112 | 0.422 | 15.0 | 0.0 | 0.09 |
| Canada | -0.2 | 0.021 | 0.667 | 16.1 | 0.0 | 0.02 |
| Australia & New Zealand | 16.9 | 0.579 | 0.378 | 8.6 | 1.5 | 0.20 |

Sources: John W. McArthur and Jeffrey D. Sachs, "Institutions and Geography: Comment on Acemoglu, Johnson and Robinson (2000)" (NBER Working Paper Series 8114, 2001); Daron Acemoglu, Simon Johnson, and James A. Robinson, "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution" (NBER Working Papers Series 8460, 2001).

In most [African] countries, neither the state, operating at national scale, nor private domestic capital . . . existed in a meaningful sense at the time of independence.⁴⁰

THE NUMBER AND SIZE OF COUNTRIES AFTER INDEPENDENCE

[The new Latin American republics did] lack self-enforcing institutions that constrained predatory action. In the face of widespread violence, political organization disintegrated into smaller units (around a caudillo for protection).⁴¹

Because of its colonial heritage, Africa has smaller countries in terms of population than other regions. Many states combined low population with low levels of income.⁴²

INDIRECT GOVERNANCE

[In Latin America,] the caste system of the New World deliberately weakened the grip of local conquerors and magnates on the underlying indigenous population and . . . recognized indigenous property rights . . . guaranteeing the majority of the indigenous population access to land independent of the colonial elite.⁴³

[The] French administrated their [African] territories federally while the British tradition of indirect colonial governance was less centralizing. They acted to reinforce ethnic identities. It was the existence of national borders that gave rise to a political management problem (local scale of economic and political activity).⁴⁴

INHERITED INSTITUTIONS OF THE METROPOLIS

[T]he struggle was imbued with ideological overtones that stemmed from the American and French revolutions. Independence [in Latin America] brought United States inspired constitutions, but with radically different consequences.⁴⁵

The inability to limit political power [in Latin America] led to the development of an authoritarian system and rent-seeking.⁴⁶

Political constitutions at the time of [African] independence were modeled on their European counterparts: British colonies, parliamentary systems; French colonies, republican ones with strong executive positions. On paper, these institutions built in substantial pluralism and political liberties. But they were not to last. By 1975, nearly all African political regimes had cast off the trappings of pluralism and replaced it with authoritarian structures.⁴⁷

⁴⁰ Ndulu and O'Connell, "Governance and Growth," 63.

⁴¹ North, Summerhill, and Weingast, "Order, Disorder and Economic Change," 44–5.

⁴² Paul Collier and Jan Willem Gunning, "Why Has Africa Grown Slowly?" *Journal of Economic Perspectives* 13, 3 (1999): 9.

⁴³ Coatsworth and Tortella, "Institutions."

⁴⁴ Ndulu and O'Connell, "Governance and Growth," 46–9.

⁴⁵ North, "Institutions and Economic Growth," 1329.

⁴⁶ North, Summerhill, and Weingast, "Order, Disorder and Economic Change," 48.

⁴⁷ Ndulu and O'Connell, "Governance and Growth," 47.

INSTITUTIONS, INFRASTRUCTURE, UNDERDEVELOPMENT

Latin America stagnated because economic institutions distorted incentives and constrained development (political risk associated with unpredictable policies and inefficient property rights and tax and regulatory systems) and high transport costs prevented exploitation of natural resources.⁴⁸

Lack of social capital and subsequent high incidence of corruption, heavily regulated financial markets with banks lending directly to the government, poor infrastructure, and poor contract enforcement (with high marginal returns for capital and low rates of investment as its consequences) were obstacles to development in postcolonial Africa.⁴⁹

Some topics for comparative research on postcolonial experiences in Africa, Asia, and Latin America emerge from this discussion. First, the consensus is that the contemporary African political map was largely determined by the nineteenth-century “scramble for Africa.” However, it is noteworthy that the same fragmentation occurred in Latin America after independence, suggesting that an endogenous explanation would be more appropriate.

Second, why did the British and Spanish often use indirect governance in their African, Asian, and Latin American colonies? High indigenous population density, the explanation suggested by Acemoglu, Johnson, and Robinson, does not seem to fit the case of sub-Saharan Africa.

Third, a move toward authoritarian regimes took place in the Latin American, African, and Asian ex-colonies after a democratic start immediately after independence. Was it because of the necessity for strong leadership when institutions are initially weak and latent conflicts strong?

ASSESSING THE CONSEQUENCES OF INDEPENDENCE: REMOVING THE COLONIAL BURDEN AND OPENING UP TO THE INTERNATIONAL ECONOMY

Most of the grand theories discussed earlier treat either institutions or factor endowments as exogenous. Moreover, they lack a time dimension and implicitly present a closed economic model. So, if static comparison between Latin America and the United States is discarded, a dynamic

⁴⁸ Coatsworth, “Economic and Institutional Trajectories,” 23–4.

⁴⁹ Paul Collier and Jan Willem Gunning, “Explaining African Economic Performance,” *Journal of Economic Literature* 37, 1 (1999): 65–75.

framework is needed that captures the impact of the breakdown of the colonial regime and the new republics' gradual incorporation into an increasingly integrated international economy. Moreover, the path to independence was quite different between regions. The way independence was achieved and the previous degree of commitment to colonial mercantilism conditioned the new republics' performance. Independence did not level off regional disparities.

In the historical literature the fiscal and trade burden of the empire has been emphasized, particularly for the case of New Spain (Mexico). The fiscal burden consisted of the taxes levied on the indigenous population to maintain the colonial system and the Indies' remittances (that is, revenue surpluses from the colonial administration that were sent to Spain). John Coatsworth estimated the fiscal burden at 4.2 percent of Mexican GDP (to my knowledge, no estimate is available for other parts of Spanish empire).⁵⁰ In the 1790s, 5 million pesos, on average, were sent annually to the metropolis.⁵¹ This represented, perhaps, more than half of all the sums sent to Spain from the Latin American colonies.⁵² Herbert Klein claimed that by 1800 residents in Bourbon Mexico paid 70 percent more taxes than Spaniards in the metropolis, whereas Carlos Marichal reduced the difference to 40 percent.⁵³ In any case, "the colonists were making a striking contribution to imperial administration."⁵⁴

Removing colonial rule got rid of the fiscal burden and *ceteris paribus* increased Latin American GDP. However, to get an idea of the net gain for Latin America, we should compare it against the increase in administrative costs derived from the multiplication of political units after independence. Reallocating resources from a big, closed economy, the colonial empire, to small, open economies surely implied a significant cost.

A fragmentation of the initial national divisions took place soon after independence. Central America separated from Mexico by 1823, but the

⁵⁰ For a figure significantly higher than that for the thirteen North American colonies on the eve of independence, see John H. Coatsworth, "Obstacles to Economic Growth in Nineteenth-Century Mexico," *American Historical Review* 83, 1 (1978): 84–5.

⁵¹ Carlos Marichal, "Beneficios y costes fiscales del colonialismo: las remesas americanas a España, 1760–1814," *Revista de Historia Económica* 15, 3 (1997): 483.

⁵² If "Indies remittances" are estimated, on average, at 178 million reales de vellón (8.9 million pesos), cf. Leandro Prados de la Escosura, "La pérdida del imperio y sus consecuencias económicas," in *La independencia americana: Consecuencias económicas*, 256–9, 269–70.

⁵³ Herbert Klein, "La economía de la Nueva España, 1680–1809: Un análisis a partir de las cajas reales," *Historia Mexicana* 34, 136 (1985): 561–609; Carlos Marichal, *La bancarrota del virreinato. Nueva España y las finanzas del imperio español, 1780–1810* (Mexico, 1999): 92.

⁵⁴ Carlos Marichal and Marcello Carmagnani, "From Colonial Fiscal Regime to Liberal Financial Order, 1750–1912," in *Transferring Wealth and Power*, 287.

Central American Federation only survived until 1838 and led to the creation of five new countries in 1839 (El Salvador, Costa Rica, Honduras, Nicaragua, and Guatemala). By 1830, Gran Colombia, comprising Venezuela, Colombia, Panama, and Ecuador, broke up into three countries: Venezuela, New Granada (present-day Colombia and Panama), and Ecuador. The Peru–Bolivia union (new republics in 1824 and 1825, respectively) was created in 1836 and collapsed in 1839. Mexico had lost half its territory to the United States by 1848. The Viceroyalty of the Rio de la Plata became four separate countries: Uruguay, Paraguay, Bolivia, and Argentina. And in Argentina the search for a political solution to conflicts between Buenos Aires and the provinces had to wait until 1861.

Despite its inefficiency, colonial administration took advantage of the increasing returns and the economies of scale that all large organizations enjoy. Separation brought with it clearly negative effects in terms of economic efficiency. Commercial links among regions, however weak in colonial times, were no longer guaranteed, costs in defense and law enforcement had to be duplicated, and coordination in the provision of public goods became more difficult.⁵⁵

Independence implied the demise of the largest monetary union and *ancien régime* fiscal structure in existence.⁵⁶ A single fiscal system within a monetary and customs union represented a significant savings compared to multiple national fiscal and monetary units. Monetary disintegration contributed to political fragmentation, reflected in weak national administrations and increasing transaction costs.

For each new republic the challenge was to create a new fiscal and monetary system and a domestic financial market. Attempts were made at superimposing the United States' federalist tax model upon colonial Spanish administrations but the outcome was a rigid and inefficient system. Customs duties became the backbone of the new fiscal systems, as had been the case in the postindependence United States. The result was that most Latin American governments suffered chronic deficits over the first half of the nineteenth century as tax revenues stagnated and military expenses rose. On top of this, there was an increasing subordination of fiscal policies to military and political caudillos at the cost of weakening tax systems.

The fragmentation of monetary regimes and chronic public deficits constituted an obstacle to the emergence of modern financial markets

⁵⁵ See the theoretical discussion in Patrick Bolton and Gérard Roland, "The Breakup of Nations: A Political Economy Analysis," *Quarterly Journal of Economics* 113 (1997): 1057–90.

⁵⁶ Marichal and Carmagnani, "From Colonial Fiscal Regime to Liberal Financial Order," 296. I am drawing on Marichal's part of this paper over the next paragraph.

throughout Latin America up to 1850. A vicious cycle emerged in which fiscal weakness led to weak governments, which led, in turn, to frequent challenges to the elite in power. Civil strife proliferated.

North, Summerhill, and Weingast provide a highly theoretical and persuasive, though untested, explanation for the fiscal and administrative problems faced by the newly independent republics. In the colonial era, the political order did not provide incentives for long-term economic growth but did set limits on groups that might have tried to expropriate or attack each other. After independence, third-party enforcement of rights vanished and no single group's aggression was costly enough to be avoided, with widespread turmoil, violence, and political instability as a result. The lack of stabilizing institutions in place meant that it was impossible to achieve efficient economic organization. Hence, a scramble to preserve colonial protections and privileges or to secure new powers occurred.⁵⁷ The break with the metropolis, North and his collaborators argue, destroyed many of the institutions that provided credible commitments to rights and property within the Spanish empire. Creoles gaining political power after independence inherited a centralized political system without inheriting critical elements of the formal and informal constraints protecting corporate groups and other elites. As a result, "state-building" failed in the new republics.

This kind of reasoning has been objected to by Stephen Haber and Armando Razo, who claim that in post-1910 revolutionary Mexico there was no necessary connection between political instability and the security of property rights.⁵⁸ Stable institutions can be impediments to growth when risk-taking is constrained and property rights are not enforced.⁵⁹

A detailed and overall assessment for the new independent republics is missing, but available national studies provide some tentative answers. In Mexico, a profound fiscal crisis took place in the 1810s during the independence wars. Destruction of the colonial treasury system occurred due to the extraordinary rise in internal military expenditures, a growing tendency to rely heavily on forced loans, and the trend toward increasing fiscal autonomy of local treasuries. This had an impact on the monetary system and led

⁵⁷ North, Summerhill, and Weingast, "Order, Disorder and Economic Change," 54–5.

⁵⁸ Stephen Haber and Armando Razo, "Industrial Prosperity under Political Instability: An Analysis of Revolutionary Mexico," in Bruce Bueno de Mesquita and Hilton L. Root, eds., *Governing for Prosperity* (New Haven, CT, 2000), 106–52. Spain's historical experience provides additional support: fast growth took place before institutional stability was achieved under the Restauración (1874–1923), and especially during the revolutionary years (1868–74).

⁵⁹ Bruce Bueno de Mesquita and Hilton L. Root, "When Bad Economics is Good Politics," in *Governing for Prosperity*, 7.

to the disintegration of local credit markets. Meanwhile, the public internal debt grew by nearly 40 percent between 1823 and 1848, as a result of growing public deficits, which reached 40 percent of total government expenditure. This situation was totally new, as there had been no deficits under colonial rule. On the contrary, Marichal has shown that there were transfers of surplus from Mexico to other colonies (*situados*).⁶⁰ Independence led to the abolition of two major sources of income of the colonial administration: the Indian tribute tax (levied on all heads of households in Indian towns) and mining taxes (10% duty levied on all silver produced). This implied a nominal reduction of potential income of the state by almost 30 percent, at the levels current in the late colonial period.⁶¹ Instability paralleled public debt growth, leading arguably to crowding out private investment.⁶²

In an assessment of the macroeconomic consequences of Mexican independence, Richard and Linda Salvucci proposed to distinguish between the short- and long-run effects of independence. In the short run, the civil war of the 1810s subverted trade, destroyed property and productive assets, and absorbed labor, causing output to decline by 50 percent. In the long run, militarism and political turmoil altered both government spending and the composition of expenditures during the 1830s–40s, and though output did not necessarily fall, growth was negatively affected through lower investment.⁶³

The case of the other main center of the Spanish empire, Peru, points in a similar direction. Independence took place, however, under different circumstances: foreign, republican armies defeated royalist elites. Alfonso Quiroz posits that, as in Mexico, the republican state, under a chronic fiscal deficit, increased taxation on mining, making its recovery difficult. Wartime destruction of fixed capital, fiscal mismanagement (foreign debt, public expenditure), and default, together with political turmoil, had a negative impact on the economy. Independence, in the end, did not deliver the conditions for sustained economic growth.⁶⁴ Quiroz poses the counterfactual proposition that had independence been delayed until 1850, Peru might have suffered much lower transition costs.⁶⁵

⁶⁰ Marichal, *La bancarrota del virreinato*, 48–52.

⁶¹ Marichal and Carmagnani, “From Colonial Fiscal Regime to Liberal Financial Order,” 298.

⁶² Richard J. Salvucci and Linda K. Salvucci, “Las consecuencias económicas de la independencia mexicana,” in *La independencia americana: Consecuencias económicas*, 30–53.

⁶³ Salvucci and Salvucci, “Las consecuencias económicas,” 45–7.

⁶⁴ Alfonso W. Quiroz, “Consecuencias económicas y financieras del proceso de la independencia en el Perú, 1800–1850,” in *La independencia americana: Consecuencias económicas*, 124–46.

⁶⁵ Quiroz, “Consecuencias económicas y financieras,” 146.

In another area of large indigenous population, Central America, political instability and war affected the economy, including the destruction of capital, obstacles to trade and transport, and increasing uncertainty for investors, whereas the government extracted forced loans from merchants.⁶⁶ The prolonged transition to private property in areas of indigenous communal landholding surely introduced uncertainty that delayed investment in land improvement and increased transaction costs.⁶⁷

Chile and Brazil behaved differently, because these countries managed to create institutions that protected groups from aggression and expropriation, though they did not achieve these results through the promotion of political competition and cooperation among subnational administrative entities.⁶⁸ Colombia, in turn, was successful in improving the colonial tax regime and, by 1850, had a much more fair, efficient, and neutral fiscal system. Colombia eliminated the unfair head tax on Indians, taxes on public employees, and *alcabalas* (a tax on all sales of domestic production) and came to rely mainly on customs taxes on imports.⁶⁹ As Jaramillo, Meisel, and Urrutia put it, “the absence of pre-Columbian structures of long-standing . . . plus a very rugged topography . . . resulted in an inability of the state to control the economy.”⁷⁰

The experience in areas of low indigenous populations such as the Rio de la Plata was somewhat different. Samuel Amaral shows how the economy Buenos Aires profited from the disappearance of a fiscal system that created disincentives for productive activities. Stable political institutions that allowed contract enforcement were introduced.⁷¹ The colonial empire provided protection (security and justice) at moderate cost to the different parts of the Viceroyalty of Rio de la Plata. With independence, new providers of protection emerged, but with lower capacity than the metropolis. After 1810, local powers provided local protection within their limited resources,

⁶⁶ Héctor Lindo-Fuentes, “Consecuencias económicas de la independencia en Centroamérica,” in *La independencia americana: Consecuencias económicas*, 54–79.

⁶⁷ The complexity of land institutions inherited from the colonial period should be taken into account, in particular haciendas, ejidos, and communal lands with ill-defined borders, and Indian communities that linked communal ownership and group identity.

⁶⁸ Marcelo de Paiva Abreu and Luiz A. Corrêa do Lago, “Property Rights and Fiscal Systems in Brazil. Colonial Heritage and the Imperial Period,” in *Transferring Wealth and Power*, 327–77; North, Summerhill, and Weingast, “Order, Disorder and Economic Change,” 40.

⁶⁹ Jaime Jaramillo Uribe, Adolfo Meisel, and Miguel Urrutia, “Continuities and Discontinuities in the Fiscal and Monetary Institutions of New Granada, 1783–1850,” in *Transferring Wealth and Power*, 414–50.

⁷⁰ Jaramillo, Meisel, and Uribe, “Continuities and Discontinuities,” 417.

⁷¹ Amaral, “Del mercantilismo a la libertad,” 204. I draw on Amaral in the following paragraph.

though the disappearance of the army limited the provision of protection services in remote areas. The Rosas dictatorship restricted property and free trade, but the lack of political freedom did not imply total suppression of economic freedom. In the interior provinces the principles of economic freedom were not easily accepted. Only in the 1853 constitution did Argentina adopt a national organization based on economic freedom, but its implementation took another thirty years.

As the separation of Uruguay and Paraguay underscored, the provinces of the Viceroyalty of Rio de la Plata failed to devise an incentive structure that could keep them voluntarily united under a single government and allow them to take advantage of economies of scale in the provision of defense and justice, thus reducing transaction costs and encouraging economic development. Military threats and trade blockades had long-lasting economic and political consequences for Paraguay. They led, according to Mario Pastore, to the collapse of public finances and to economic contraction. This caused the political demise of proponents of more representative government and freer trade and gave rise to political absolutism and redistribution of property to the state.⁷² Economic activity in the three decades following independence fell below the levels reached in the late colonial period.

Buenos Aires profited more than the interior provinces from independence, with new financial institutions, a new currency, expansion into the interior, and increased livestock production, whereas in the interior stagnation and political instability continued until 1861.

To sum up, the qualitative evidence provided here is far from conclusive and its results vary from country to country. Transaction costs increased after independence as political and economic institutions went through a period of turmoil and redefinition. On the whole, it seems that only by the mid-nineteenth century did the gains derived from escaping the colonial fiscal burden overcome the costs of increased governmental (including military) expenses that paralleled poor definition and enforcement of property rights. The promising line of research initiated on Colombia by Jaramillo, Meisel, and Urrutia may render, if extended to other Latin American countries, a more optimistic assessment of the welfare consequences of establishing new fiscal institutions after independence.

⁷² Mario H. Pastore, "Crisis de la Hacienda pública, regresión institucional y contracción económica: Consecuencias de la independencia en Paraguay, 1810–1840," in *La independencia americana: Consecuencias económicas*, 164–200.

Freedom from the trade burden imposed by the colonial system allowed the new Latin American countries to have access to expanding world commodity and factor markets. Coatsworth reckoned that the trade burden represented up to 3 percent of GDP in New Spain, again a significantly higher figure than the one estimated for the thirteen British North American colonies, but no similar guesstimate is available for other parts of the Spanish empire.⁷³ Independence permitted direct trade between the new Latin American republics and Europe and North America and thus represented a reduction in transportation and commercialization costs that, *ceteris paribus*, should have increased the volumes traded. However, in the decades following independence, warfare and political instability made adjustment to the new international trade regime difficult. Bulmer-Thomas stresses that, over the nineteenth century, the export sector was not large enough to pull along domestic economies in which nontradables represented a large proportion of output at low levels of productivity.⁷⁴

The role of trade in Latin America's economic performance has been revisited by each new school of thought. Neoclassical trade theory predicts that trade liberalization after independence would allow Latin American countries to specialize along the lines of comparative advantage. In land-abundant countries, as most of the nations in Latin America were at the time, specialization in primary products would be expected. Paraphrasing Ronald Findlay, one of the consequences of getting rid of the trade burden for Latin America would be to open up "a new 'frontier' where land could be extended . . . at a rising cost in terms of other real resources."⁷⁵ The Heckscher–Ohlin model predicts that natural resources, as the abundant factor, would be intensively used and, as a result, their price would increase relative to the price of labor. This implies, in the Stolper–Samuelson extension of the Heckscher–Ohlin model, that in so far as land, the abundant factor, is more unequally distributed than labor, inequality should rise within national borders.

Dependency School theorists, in turn, also saw trade as a cause of increasing inequality across and within countries. The well-known works of Raúl Prebisch stressed the role of declining terms of trade in the persistent

⁷³ Coatsworth, "Obstacles to Economic Growth," 84.

⁷⁴ Bulmer-Thomas, *Economic History of Latin America*, chap. 5.

⁷⁵ Ronald Findlay, "International Trade and Factor Mobility with an Endogenous Land Frontier. Some General Equilibrium Implications of Christopher Columbus," in Elhanan Helpman and J. Peter Neary, eds., *Theory, Policy and Dynamics in International Trade* (Cambridge, 1993), 47.

retardation of Latin America.⁷⁶ Hans Singer, on the other hand, saw negative implications in a hypothetical improvement in the terms of trade, because it would lead countries to commit resources to primary production, with the implicit opportunity cost of not allocating them to the domestic sector, where factor returns were higher as a consequence of increasing returns and economies of scale.⁷⁷ The new economic geography provides another hypothesis about the role of trade in Latin American development. Paul Krugman and Anthony Venables posit that gradually falling transportation costs, as was the case during the period 1820–70, period, would cause growing inequality: “when transport costs fall below a critical value, a core–periphery pattern spontaneously forms, and nations that find themselves in the periphery suffer a decline in real income.”⁷⁸ Then, they argue, as transport costs continue to decline, a second stage of convergence in real incomes eventually arrives, and peripheral countries gain against the core.

To sum up, on the basis of trade theories, a series of testable hypotheses can be suggested for early nineteenth-century Latin America. We should expect an expansion of trade and, through better resource allocation, an increase in output (and, if underemployment of resources existed, trade would provide a vent for surplus). Terms of trade, according to the Prebisch School, might decline, but the opposite would occur according to classical economists, as Latin America exported primary goods and imported manufactured products.⁷⁹ At the same time, changes in income distribution should take place, with a tendency for within-countries inequality to rise as the reward to land, the abundant and less equally distributed factor, improved relative to labor. Last, a worsening of the Latin American position in the world economy is predicted.

Location and economies of scale are stressed by the new economic geography. Location mattered in the nineteenth century, because the tyranny of distance was a determining factor in trade despite the sharp reduction

⁷⁶ Raúl Prebisch, *The Economic Development of Latin America and Its Principal Problems* (New York, 1950).

⁷⁷ Hans W. Singer, “The Distribution of Gains between Investing and Borrowing Countries,” *American Economic Review. Papers and Proceedings* 11, 2 (1950): 473–85.

⁷⁸ Paul Krugman and Anthony J. Venables, “Globalization and the Inequality of Nations,” *Quarterly Journal of Economics* 110, 4 (1995): 859.

⁷⁹ Leandro Prados de la Escosura, “Terms of Trade and Backwardness: Testing the Prebisch Doctrine for Spain and Britain during Industrialization” (Universidad Carlos III Working Papers Series 94/46, 1994).

in ocean freight and insurance rates, particularly prior to the construction of railways, which occurred on a large scale after 1870. Relative rather than absolute transport costs from alternative locations were what really mattered. Freight rates from Antwerp to Rio de Janeiro in 1850 were only 40 percent of those prevailing in 1820, but freight rates from Antwerp to New York fell even more, to one-fourth. Meanwhile, insurance rates were cut to one-half and to one-third for trips from Rio de Janeiro and Buenos Aires, respectively, to Antwerp.⁸⁰ Transport costs from Antwerp to Buenos Aires and Rio de Janeiro remained relatively stable over 1850–70 but those to Valparaiso, on the Pacific rim, fell by 40 percent, as a consequence of the convergence of transport costs to the Pacific with those to the Atlantic coast of Latin America's Southern Cone.⁸¹

Geographic constraints would imply different outcomes for international trade across regions. Coastal regions, densely populated, and with temperate climates, would be at an advantage over hinterlands in tropical areas, especially if landlocked, because migration and infrastructure development become more difficult and incentives exist for coastal economies to impose costs on them.⁸² Landlocked economies such as those of Bolivia and Paraguay, the interior regions of Mexico, Colombia, Brazil, and Argentina, and Andean countries such Ecuador and Peru were clearly at a disadvantage against coastal regions such as those of the Southern Cone and the Caribbean prior to railway expansion. In addition, countries on the Pacific rim had a transport cost disadvantage over those on the Atlantic. Table 13.4 provides some insights into the overall transport costs that emphasize the importance of internal costs of transportation.

Thus, we should expect wide regional discrepancies in Latin American integration into the international economy. In Mexico, independence brought an increase in openness and an end to laws restricting immigration and capital inflows. Trade grew from 8.1 percent of GDP in 1800 to 12.3 percent by 1845, according to Coatsworth.⁸³ Meanwhile, in Peru,

⁸⁰ Paul Schöller, "L'évolution séculaire des taux de fret et d'assurance maritimes 1819–1940," *Bulletin de l'Institut de Recherches Économiques et Sociales* 17, 5 (1951): 523, 540.

⁸¹ Schöller, "L'évolution séculaire des taux de fret," 543. Freights to Buenos Aires and Valparaiso became equal by 1868 when, by 1850, transports costs to Chile were at least one-third higher than those to Buenos Aires.

⁸² John Luke Gallup, Jeffrey D. Sachs, and Andrew D. Mellinger, "Geography and Economic Development," *International Regional Science Review*, 22, 2 (1999), 179–232.

⁸³ John H. Coatsworth, "The Decline of the Mexican Economy, 1800–1860," in Reinhard Liehr, ed., *América Latina en la época de Simón Bolívar. La formación de las economías nacionales y los intereses económicos europeos, 1800–1850* (Berlin, 1989), 38.

Table 13.4. *Transport costs in Latin America, c. 1842*

| | Average freight from England (Sterling per ton) | Internal transport cost from port to the capital (shilling per 200 lb.) |
|-------------|---|---|
| Peru | 4 | 2 |
| Mexico | 2.5 | 27.5 |
| Uruguay | 2 | 0 |
| New Granada | 2.5 | 90 |
| Bolivia | 4.5 | 38.5 |
| Ecuador | 4.5 | 30 |
| Chile | 3.75 | 4.75 |
| Argentina | 2 | 0 |
| Venezuela | 3 | 8.5 |

Source: Celia W. Brading, "Un análisis comparativo del costo de la vida en diversas capitales de Hispanoamérica (1842)," *Boletín Histórico de la Fundación John Boulton* 20 (1969): 229–66.

mercantilist policies remained in place. After an episode of trade expansion up to the mid-1820s, fixed prices, taxation, and protectionism remained as obstacles to economic activity. Only three decades later did the stimulus of international demand (the guano boom) open the country up.⁸⁴ Qualitative evidence on Central America suggests stagnation, but current imports from Britain almost doubled (while import prices were practically halving) between two peaks (1826 and 1839), to decline afterward.⁸⁵ There were few incentives to trade, because physical barriers implied high transport costs. Independence brought with it the breakup of colonial commercial networks and procedures. Links between regions of the Central American Federation weakened as export orientation increased. Together with political instability, this led to the creation of five new countries in 1839. An exogenous shock occurred as a consequence of the U.S. assimilation of California: new maritime routes through the Panama isthmus, together with the Panama railroad (1855), led to a sharp decline in transport costs, increasing trade and finance.⁸⁶ The economy of Buenos Aires profited from the disappearance of colonial regulations that forced it to trade through the metropolis. From reexporting silver from Alto Peru, Buenos Aires became an economy

⁸⁴ Quiroz, "Consecuencias económicas y financieras," 134–6.

⁸⁵ Lindo-Fuentes, "Consecuencias económicas de la independencia," 60.

⁸⁶ Lindo-Fuentes, "Consecuencias económicas de la independencia," 65–6.

Table 13.5. *Per capita exports and per capita British investment (U.S. dollars at current prices)*

| | Per capita exports | | | Per capita British investment | | |
|--------------------|--------------------|------|------|-------------------------------|------|-------|
| | 1830 | 1850 | 1870 | 1825 | 1865 | 1875 |
| Argentina | 2.0 | 10.3 | 16.5 | 9.2 | 8.4 | 51.6 |
| Bolivia | | 5.5 | 8.6 | | 0.0 | 5.4 |
| Brazil | 4.4 | 5.0 | 8.6 | 4.9 | 10.9 | 14.1 |
| Chile | 4.5 | 7.8 | 14.2 | 4.9 | 8.6 | 23.4 |
| Colombia | 2.5 | 1.9 | 6.6 | 28.5 | 13.4 | 6.9 |
| Costa Rica | | 11.4 | 21.2 | | 0.0 | 117.3 |
| Cuba | 17.7 | 22.2 | 45.9 | 0.0 | 10.4 | 5.1 |
| Dominican Republic | | 3.4 | 5.0 | | 0.0 | 18.7 |
| Ecuador | | 2.0 | 4.1 | | 8.8 | 8.8 |
| El Salvador | | 3.2 | 7.3 | | 0.0 | 0.0 |
| Guatemala | | 1.7 | 2.5 | | 0.4 | 2.4 |
| Honduras | | 4.9 | 3.6 | | 0.0 | 99.1 |
| Mexico | 1.8 | 3.2 | 2.3 | 6.2 | 14.1 | 15.0 |
| Nicaragua | | 3.7 | 3.5 | | 0.6 | 1.8 |
| Paraguay | | 1.3 | 7.2 | | 0.0 | 33.7 |
| Peru | 0.7 | 3.7 | 10.1 | 7.4 | 7.6 | 65.2 |
| Uruguay | | 54.9 | 46.6 | | 24.0 | 106.1 |
| Venezuela | 3.0 | 3.3 | 5.2 | 0.0 | 13.5 | 20.2 |
| Total | 6.4 | 5.2 | 8.9 | 5.8 | 9.5 | 20.4 |

Sources: Exports: Paul Bairoch and Bouda Etemad, *Structure par produits des exportations du Tiers-Monde 1830–1937* (Genevo, 1985); for 1830: Victor Bulmer-Thomas, *The Economic History of Latin America since Independence*, 2nd ed. (Cambridge, 2003); for 1850 and 1870: Irving Stone, “British Direct and Portfolio Investment in Latin America before 1914,” *Journal of Economic History* 37, 3 (1977): 690–722.

exporting livestock products. The main consequence of independence was the opening to foreign trade and the desire to add new lands for cultivation and livestock.⁸⁷ In contrast to Spanish America, independence in Brazil did not involve a shift in the direction of trade.⁸⁸

Table 13.5 provides current values of exports normalized by population. Though figures expressed at current prices preclude over-time comparisons,

⁸⁷ Amaral, “Del mercantilismo a la libertad,” 208.

⁸⁸ Stephen H. Haber and Herbert S. Klein, “Consecuencias económicas de la independencia brasileña,” in *La independencia americana: Consecuencias económicas*, 153–8.

they allow us to test the hypothesis of an uneven distribution of postindependence trade in Latin America for different points in time. As predicted, location conditioned the importance of trade, with the Southern Cone and the Caribbean being ahead of the rest of Latin American countries in terms of openness. The relative dispersion of per capita exports declined, however, over the entire period under consideration.⁸⁹ Evidence on capital inflow per head from Britain, the main country investing in Latin America, though exhibiting a different country pattern,⁹⁰ confirms the uneven integration of Latin American countries in international commodity and factor markets.⁹¹

To ascertain the extent to which Latin American integration into the international economy took place, we would need to deflate the nominal values presented in Table 13.5. British investment in real terms can be obtained by deflating it with the price index of the United Kingdom's exports, because those investments were used, at least in part, to purchase capital goods from Britain. Again, deflating current exports by the price of British exports provides a measure of the purchasing power of Latin American exports, because the United Kingdom was the main trading partner of the new republics (Table 13.6). Over forty years, the purchasing power of both exports (1830–70) and British investment (1825–65) per Latin American inhabitant increased noticeably, at an average annual rate of growth of 1.5 and 2.1 percent, respectively. Exports accelerated after 1850 and their per capita rate of growth moved up from 1.2 in 1830–50 to 1.8 over 1850–70, but British investment per head only took off after 1865, reaching a yearly growth rate of 9.1 percent between 1865 and 1875, a phenomenon linked to government loans and, to a lesser extent, associated with the shift of foreign investment toward railroad construction and public utilities.⁹² On average, deflated British investment per head grew at 3.5 percent over the period 1825–75.

National estimates of the purchasing power of exports in terms of imports, also known as the income terms of trade, confirm our findings.

⁸⁹ As measured by the coefficient of variation of the relevant set of countries for each pair of adjacent time observations.

⁹⁰ The correlation coefficient between per capita exports and British investment is 0.38 in 1870–5.

⁹¹ British investments amounted to more than three times French investments and more than four times U.S. investments in Latin America by 1913. Computed from figures in Carlos Marichal, ed., *Las inversiones extranjeras en América Latina, 1850–1930. Nuevos debates y problemas en historia económica comparada* (México, 1995), Appendix. The importance of British investment relative to those from other countries was even higher in earlier decades.

⁹² Irving Stone, "British Direct and Portfolio Investment in Latin America before 1914," *Journal of Economic History* 37, 3 (1977): 694.

Table 13.6. *Per capita purchasing power of total exports and British investment (U.S. dollars at constant prices)*

| | Per capita purchasing power of exports | | | Per capita British investment | | |
|--------------------|---|------|------|----------------------------------|------|-------|
| | 1830 | 1850 | 1870 | 1825 | 1865 | 1875 |
| Argentina | 2.0 | 15.9 | 21.5 | 9.2 | 12.0 | 84.9 |
| Bolivia | | 8.4 | 11.2 | | 0.0 | 8.9 |
| Brazil | 4.4 | 7.7 | 11.1 | 4.9 | 15.5 | 23.1 |
| Chile | 4.5 | 12.1 | 18.4 | 4.9 | 12.2 | 38.6 |
| Colombia | 2.5 | 2.9 | 8.6 | 28.5 | 19.0 | 11.4 |
| Costa Rica | | 17.6 | 27.5 | | 0.0 | 193.1 |
| Cuba | 17.7 | 34.3 | 59.6 | 0.0 | 14.8 | 8.4 |
| Dominican Republic | | 5.3 | 6.4 | | 0.0 | 30.7 |
| Ecuador | | 3.0 | 5.3 | | 12.4 | 14.4 |
| El Salvador | | 5.0 | 9.4 | | 0.0 | 0.0 |
| Guatemala | | 2.6 | 3.2 | | 0.6 | 4.0 |
| Honduras | | 7.6 | 4.7 | | 0.0 | 163.1 |
| Mexico | 1.8 | 4.9 | 3.0 | 6.2 | 20.1 | 24.7 |
| Nicaragua | | 5.7 | 4.5 | | 0.9 | 2.9 |
| Paraguay | | 2.0 | 9.3 | | 0.0 | 55.4 |
| Peru | 0.7 | 5.8 | 13.1 | 7.4 | 10.8 | 107.4 |
| Uruguay | | 84.8 | 60.5 | | 34.1 | 174.7 |
| Venezuela | 3.0 | 5.0 | 6.7 | 0.0 | 19.1 | 33.2 |
| Total | 6.4 | 8.1 | 11.6 | 5.8 | 13.5 | 33.6 |

Notes: Current values deflated with British export price index. Exports and investment at 1830 prices and 1825 prices, respectively.

Sources: See Table 13.5 and Brian R. Mitchell, *British Historical Statistics* (Cambridge, 1988).

Cuba's income terms of trade improved substantially (277 by 1867, 1826 = 100) because of supply increases in sugar exports.⁹³ In Mexico, no trend was exhibited over 1828–51, but then a sharp improvement took place up to the 1880s.⁹⁴ In Colombia, real exports per capita doubled between the late 1830s and 1880, but probably did not recover the 1800 level until 1870, whereas income terms of trade trebled between the 1830s and the 1860s.⁹⁵ In Brazil,

⁹³ Linda K. Salvucci and Richard J. Salvucci, "Cuba and the Latin American Terms of Trade: Old Theories, New Evidence," *Journal of Interdisciplinary History* 31, 2 (2000): 197–222.

⁹⁴ Richard J. Salvucci, "Origins and Progress of U.S.–Mexican Trade, 1825–1884: 'Hoc opus, hic labor est,'" *Hispanic American Historical Review* 71, 4 (November 1991): 697–735.

⁹⁵ José Antonio Ocampo, *Colombia y la economía mundial, 1830–1910* (Bogotá, 1984), 89, 98.

real exports per capita were multiplied by three between the 1820s and the 1850s and by four between the 1820s and the 1870s. Leff shows a substantial improvement in Brazilian income terms of trade at an annual trend rate of 4.2 percent over 1822–49 (2.8% in per capita terms).⁹⁶ Argentina also experienced a remarkable increase in the quantity and the purchasing power of its exports.⁹⁷ Chilean real per capita exports, in turn, were multiplied by seven between independence and 1870.⁹⁸ Preliminary computations for Latin American income terms of trade with Britain suggest that they were multiplied by more than five over the three decades after independence, and up to twelve times if the whole period 1825–75 is considered (Table 13.7).

In the trade literature, the net barter terms of trade, that is, the ratio of export to import prices, which provides a measure of the purchasing power per unit of exports, have been depicted as a “productivity index” of trade. Recent research provides estimates of net barter terms of trade for the major Latin American countries (Table 13.8). In Mexico the net barter terms of trade experienced moderate improvement between 1828 and 1881 (at 1.4% per year) and probably added 3 percent to GDP by 1860.⁹⁹ Brazilian purchasing power per unit of exports improved by three-fourths between 1826–30 and 1876–80.¹⁰⁰ José Antonio Ocampo shows that Colombia's net barter terms of trade improved as much as Brazil's between the late 1830s and 1880.¹⁰¹ Linda and Richard Salvucci, on the basis of Gootenberg's data, were able to establish that Peru's net barter terms of trade were 47 percent higher in the early 1850s than in the 1830s.¹⁰² For Argentina, Carlos Newland shows an improvement that peaked in the late 1850s.¹⁰³ Demand for exports increased due to international trade expansion and European industrialization. The growth of inputs used by the pastoral economy and productivity increases were behind the supply expansion. Newland suggests that the domestic terms of trade, that is, those perceived by the Argentine

⁹⁶ Leff, *Underdevelopment and Development*, 83.

⁹⁷ Carlos Newland, “Exports and Terms of Trade in Argentina, 1811–1870,” *Bulletin of Latin American Research* 17, 3 (1998): 409–16.

⁹⁸ José, Díaz, Rolf Lüders, and Gert Wagner, “Economía chilena 1810–1995: Evolución cuantitativa del producto total y sectorial” (Pontificia Universidad Católica de Chile, Instituto de Economía, Documento de Trabajo no. 186, 1998).

⁹⁹ Salvucci, “The Mexican Terms of Trade.”

¹⁰⁰ Leff, *Underdevelopment and Development*, 82.

¹⁰¹ Ocampo, *Colombia y la economía mundial*, 93.

¹⁰² Linda Salvucci and Richard Salvucci, “Cuba and the Latin American Terms of Trade,” 216. Paul Gootenberg, *Between Silver and Guano. Commercial Policy and the State in Postindependence Peru* (Princeton, NJ, 1989).

¹⁰³ Newland, “Exports and Terms of Trade in Argentina,” 412.

Table 13.7. *Purchasing power of Latin American exports to Britain, 1794/6–1874/6 [1824/6 = 100]*

| | Latin American exports to | | | | Latin American income terms of trade | |
|--------|--------------------------------|------------------------|-----------------------------------|----------------------------------|---|-----------------|
| | Britain (c.i.f.) (sterling) | Current value index | Implicit price of U.K. exports | Imlah's price of U.K. exports | [V] [II/III] | [VI] [II/IV] |
| | [I] | [II] | [III] | [IV] | | |
| 1794/6 | 275 | 8.8 | 166.7 | 164.7 | 5.3 | 5.4 |
| 1804/6 | 1270 | 40.8 | 197.2 | 189.5 | 20.7 | 21.6 |
| 1814/6 | 6227 | 200.3 | 149.6 | 154.9 | 133.9 | 129.3 |
| 1824/6 | 3109 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| 1834/6 | 3380 | 108.7 | 71.6 | 77.9 | 151.8 | 139.6 |
| 1844/6 | 4905 | 157.8 | 53.6 | 59.3 | 294.3 | 266.1 |
| 1854/6 | 9698 | 311.9 | 53.5 | 54.8 | 583.1 | 569.1 |
| 1864/6 | 22933 | 737.6 | | 70.4 | | 1048.0 |
| 1874/6 | 24133 | 776.2 | | 60. | | .5 |

Sources: Ralph Davis, *The Industrial Revolution and British Overseas Trade* (Leicester, 1979), col.(I), 1794/6–1854/6, col (III); Mitchell, *British Historical Statistics*, col. (I), 1864/6–1874/6, col. (IV).

Table 13.8. *Net barter terms of trade of Latin American countries, 1811/15–1876/80 [1836/40 = 100]*

| | Cuba | Mexico | Colombia | Brazil | Argentina |
|---------|------|--------|----------|--------|-----------|
| 1811/15 | | | | | 61 |
| 1816/20 | | | | | 76 |
| 1821/25 | | | | | 115 |
| 1826/30 | 108 | 84 | | 94 | 127 |
| 1831/35 | 100 | 95 | | 107 | 125 |
| 1836/40 | 100 | 100 | 100 | 100 | 100 |
| 1841/45 | 102 | 98 | 124 | 97 | 108 |
| 1846/50 | 86 | 101 | | 109 | 104 |
| 1851/55 | 69 | 106 | | 120 | 123 |
| 1856/60 | 62 | 100 | 157 | 115 | 165 |
| 1861/65 | 53 | 79 | | 120 | 127 |
| 1866/70 | 56 | 94 | 127 | 89 | 105 |
| 1871/75 | 57 | 104 | 139 | 147 | |
| 1876/80 | 57 | 116 | 178 | 173 | |

Sources: Cuba: Linda K. Salvucci and Richard J. Salvucci, "Cuba and the Latin American Terms of Trade: Old Theories, New Evidence," *Journal of Interdisciplinary History* 31, 2 (2000): 197–222; Mexico: Richard J. Salvucci, "Origins and Progress of U.S.–Mexican Trade, 1825–1884: 'Hoc opus, hic labor est,'" *Hispanic American Historical Review* 71, 4 (Nov. 1991): 697–735; Colombia: José Antonio Ocampo, *Colombia y la economía mundial, 1830–1910* (Bogotá, 1984); Brazil: Nathaniel H. Leff, *Underdevelopment and Development in Brazil* (London, 1982); Carlos Newland, "Exports and Terms of Trade in Argentina, 1811–1870," *Bulletin of Latin American Research* 17, 3 (1998): 409–16.

population, should have improved more dramatically than the international terms of trade as independence allowed Argentina to trade directly in world markets, colonial tariffs were repealed, and the new 1820s tariffs were lower. Last, lower transport costs and the increase in the scale of trade helped reduce margins in international trade. Only Cuba provides an exception, as its net terms of trade deteriorated between 1826 and 1866 by 50 percent. When adjusted for productivity changes in the export sector (the so-called single-factorial terms of trade), no trend appears between 1826 and 1846 and then a decline by 61 percent up to 1862.¹⁰⁴

Evidence tends, therefore, to reject the old view of deteriorating terms of trade that hindered Latin American growth precisely at the time

¹⁰⁴ Linda Salvucci and Richard Salvucci, "Cuba and the Latin American Terms of Trade," 204–7.

(1820s–70s) when large international disparities in income began to emerge. On the combined evidence provided by the evolution of the relative price of exports (Table 13.8) and the purchasing power of total exports (Tables 13.6 and 13.7), the idea of immiserizing growth can be rejected for most of Spanish America and for Brazil.¹⁰⁵

On the whole, it seems warranted to say that release from the colonial trade burden yielded net gains for the economies of Latin America, as the evolution of the quantities and prices of exported goods suggests. Although trade did not have the strength to pull up the economy as a whole, it can be argued that, when not hindered by geographic and institutional barriers, trade facilitated export-led economic growth. Trade in nineteenth-century Latin America, especially after 1850, seems to have been, in most national cases, a handmaiden of growth.¹⁰⁶

The opening up to the international economy has been associated with a widening of income differences within and between countries. No evidence is available on the former for the pre-1870 period, with the exception of Argentina, for which Carlos Newland and Javier Ortiz have shown that the expansion in the pastoral sector resulting from improved terms of trade increased the reward of capital and land, the most intensively used factors, whereas the farming sector contracted and the returns of its intensive factor, labor, declined, as confirmed by the drop in nominal wages.¹⁰⁷ A redistribution of income in favor of owners of capital and land (*estancieros*) at the expense of workers took place. Williamson's findings for 1870–1914 also suggest an increase in inequality within countries in Latin America, which confirms empirically the Stolper–Samuelson theoretical predictions.¹⁰⁸ The argument follows that, because natural resources were the abundant

¹⁰⁵ That is, when an increase in production depresses the price of exports relative to imports so much that the gains in output are swamped by the loss of purchasing power for imports. For a theoretical discussion of the concept, see Jashid Bahgwti, "Immiserizing Growth: A Geometric Note," *Review of Economic Studies* 25, 3 (1957–8): 201–5.

¹⁰⁶ See Irving B. Kravis, "Trade as a Handmaiden of Growth: Similarities between the Nineteenth and Twentieth Centuries," *Economic Journal* 80 (1970): 850–72. The export-led growth approach has been rejected by Leff and Catao for Brazil and Mexico. See Leff, *Development and Underdevelopment*, and Luis Catao, "The Failure of Export-Led Growth in Brazil and Mexico c. 1870–1930" (University of London Institute of Latin American Studies Research Papers No. 31, 1992). Bulmer-Thomas downplays the role of trade in promoting Latin American growth in *Economic History of Latin America*. Rafael Dobado and Gustavo Marrero, on the other hand, argue that there was export-led growth in colonial Mexico in "Minería, crecimiento y costes de la independencia en México," *Revista de Historia Económica* 19, 3 (2001): 573–61.

¹⁰⁷ Carlos Newland and Javier Ortiz, "The Economic Consequences of Argentine Independence," *Cuadernos de Economía* 115 (2001): 275–90.

¹⁰⁸ Jeffrey G. Williamson, "Real Wages, Inequality, and Globalization in Latin America before 1940," *Revista de Historia Económica* 17 (1999): 101–42.

productive factor in Latin America, they were more intensively used in the production of exportable commodities. As a result, returns to land grew relative to returns to labor. Because the ownership of natural resources is more concentrated than that of labor, income distribution tended to be skewed toward landowners and inequality rose over the decades prior to World War I.

DID LATIN AMERICA FALL BEHIND?

Is the widespread perception of Latin America falling behind supported by the available evidence? And, more closely related to the topic of this chapter, can Latin American economic backwardness be related to the way in which independence occurred?

Evidence on aggregate economic performance across countries shows a wide variance. In the main centers of the former Spanish empire, Mexico and Peru, wartime destruction of fixed capital, capital flight, silver drain through trade deficits, and a mining depression, together with fiscal mismanagement and political turmoil, all contributed negatively to growth. Public debt, it has been suggested, crowded out investment.

A widely accepted perception is that the Mexican economic decline had already started before independence and lasted until the 1870s. According to Coatsworth's estimates, output fell by 2 percent and per capita income by 21 percent (-0.5% yearly) between 1800 and 1845 (and by -0.57% over 1800–60).¹⁰⁹ Maddison estimates are close to Coatsworth's figures for Mexico's real GDP per head.¹¹⁰ Richard and Linda Salvucci suggested, alternatively, that, in real terms, output grew by 30 percent over 1800–40 while population rose by 9 percent, implying that output per head increased by 21 percent or 0.5 percent annually.¹¹¹ This revisionist picture has been rejected by Richard Salvucci, who now claims that prolonged stagnation or decline of per capita income is a better depiction of Mexican economic performance over 1800–40.¹¹²

¹⁰⁹ Coatsworth, "The Decline of Mexican Economy," 31, 41. This view is shared by Enrique Cárdenas, "A Macroeconomic Interpretation of Nineteenth-Century Mexico," in *How Latin America Fell Behind*, 65–92.

¹¹⁰ Maddison, *Monitoring the World Economy 1820–1992* (Paris, 1995), 143.

¹¹¹ Richard and Linda Salvucci, "Las consecuencias económicas de la independencia mexicana," 41.

¹¹² Richard J. Salvucci, "Mexican National Income in the Era of Independence, 1800–1840," in *How Latin America Fell Behind*, 234–5.

The causes of the long depression of the Mexican economy are the subject of an intense historical debate.¹¹³ Among the reasons adduced for sluggish growth, the main one is the decline in silver production, which did not recover until the 1860s. The fall in silver output led to a drop in employment and expenditure and to a contraction of the money supply. Abandonment and flooding of mines and the high price of mercury, used to refine silver, lie behind the collapse of mining. Rafael Dobado and Gustavo Marrero have argued that the slow recovery of silver output, a consequence both of the economic policies followed in postindependence Mexico and of the changes in the international market for mercury, severely hindered Mexican economic growth.¹¹⁴ According to Dobado and Marrero, Spain, a major world supplier of mercury, no longer supplied the Mexican mines at prices below those prevailing internationally. Mexico had to purchase mercury in the international market, where prices kept rising during the early nineteenth century.

In Peru, as in Mexico, the republican state, laboring under chronic fiscal deficits, increased taxation on mining. Silver mining declined until the 1840s. High mercury prices and interest rates, obsolete technology, and taxes all contributed to impede recovery.¹¹⁵ In short, independence at the core of the colonial empire did not deliver the conditions for sustained economic growth.

Slave economies offer a distinct pattern, because they did not undergo a deep political and institutional transformation. Cuba remained loyal to Spain and experienced sustained progress until the 1860s.¹¹⁶ Brazil's economy was characterized by low rates of growth, free trade, and limited structural change, although remaining politically stable. According to Leff, per capita income rose at a moderate pace during the nineteenth century.¹¹⁷ Economies in the Southern Cone showed, in turn, sustained economic progress after independence. Chilean GDP per head grew at 0.9 percent over 1810–60, while population grew at 1.6 percent annually, with most of the improvement in per capita income taking place after 1830.¹¹⁸ In Argentina, all economic indicators suggest fast growth led by the Buenos

¹¹³ Cárdenas, "A Macroeconomic Interpretation of Nineteenth-Century Mexico," and Coatsworth, "The Decline of the Mexican Economy." More recently, Dobado and Marrero, "Minería, crecimiento y costes de la independencia en México."

¹¹⁴ Dobado and Marrero, "Minería, crecimiento y costes de la independencia en México," 598–607.

¹¹⁵ Quiroz, "Consecuencias económicas y financieras," 129–33, 143.

¹¹⁶ Pedro Fraile, Richard J. Salvucci, and Linda K. Salvucci, "El caso cubano: Exportaciones e independencia," in *La independencia americana: Consecuencias económicas*, 80–101.

¹¹⁷ Leff, *Underdevelopment and Development*, 1:33.

¹¹⁸ Díaz, Lüders, and Wagner, "Economía chilena 1810–1995."

Aires region. Increases in population and labor force, urbanization, and a significant rise in total factor productivity in livestock production are among the distinctive features of postindependence Rio de la Plata.¹¹⁹

How do Latin American countries compare to other countries? Did Latin America, as stressed in the literature, fall behind before 1870?

Maddison's international set of real GDP per head estimates provides the opportunity to place Latin America in a wider comparative framework.¹²⁰ A first glance at the evolution of per capita income levels throughout the nineteenth and twentieth centuries (Table 13.9) suggests that, relative to the United States, three distinctive phases appear: a first one of decline up to 1870 for the three countries for which estimates are available (Brazil, Chile, and Mexico), followed by relative stability from 1870 to 1950 for the six main Latin American countries for which information exists, and then a decline until the present, which would only begin in 1973 if Latin America as a whole is considered.¹²¹ Thus, in the binary comparison with the United States, only the pre-1870 and the post-1950 periods can be deemed responsible for today's Latin American underdevelopment.

If a country-by-country analysis is preferred for the nineteenth century, then the scant estimates available suggests that Mexico and Brazil fell behind the United States over 1820–70, but that this was not the case for Chile (Table 13.9).¹²² Between 1870 and 1913, Latin American national experiences varied widely, with Mexico and the Southern Cone economies catching up, whereas the economies of Brazil and Cuba were falling behind.¹²³

¹¹⁹ Carlos Newland, "Economic Development and Population Change: Argentina, 1810–1870," in John H. Coatsworth and Alan M. Taylor, eds., *Latin America and the World Economy since 1800* (Cambridge, MA, 1998), 207–22; Newland, "Exports and Terms of Trade"; Carlos Newland and Barry Poulson, "Purely Animal: Pastoral Production and Early Argentine Economic Growth 1825–1865," *Explorations in Economic History* 35, 3 (1998): 325–45.

¹²⁰ Alternative and more comprehensive estimates are provided for Latin America by Pablo Astorga and Valpy Fitzgerald, in Rosemary Thorp, *Progress, Poverty and Exclusion. An Economic History of Latin America in the 20th Century* (Washington, DC, 1998), Statistical Appendix. However, they do not include other parts of the world. Maddison's estimates have a wider country coverage and have been preferred here in spite of their conjectural nature for many developing countries in the past and the index number problem derived from using a fixed 1990 benchmark for space and time comparisons. Cf. Prados de la Escosura, "International Comparisons."

¹²¹ A comparison between Latin America's position relative to the United States in Maddison's estimates (Table 13.9) and Astorga and Fitzgerald (Table 13.1) show discrepancies; in the latter the decline occurred after 1980 and the relative positions were similar in 1950 and 1995. Such discrepancies derive not only from the country coverage of each estimate but from the use of different single benchmarks – 1970 in the case of Astorga and Fitzgerald and 1990 in the case of Maddison.

¹²² Estimates are based on guesses such as Angus Maddison's estimates for Brazil in *Monitoring the World Economy*, 143, or are obtained indirectly from export and fiscal data as in the case of Chile, in Díaz, Lüders, and Wagner, "Economía chilena 1810–1995."

¹²³ Fraile, Salvucci, and Salvucci, "El caso cubano," 83, 91, 101. The authors suggest that Cuban GDP per head stagnated in the late nineteenth century after experiencing growth over 1800–50.

Table 13.9. *Relative levels of GDP per head, 1820–1998 [U.S. = 100]
(1990 international Geary-Khamis dollars)*

| | 1820 | 1870 | 1913 | 1950 | 1973 | 1998 |
|--------------------------------|-------|-------|-------|-------|-------|-------|
| Argentina | | 43.4 | 72.7 | 52.2 | 47.8 | 33.7 |
| Brazil | 51.4 | 29.2 | 15.3 | 17.5 | 23.3 | 20.0 |
| Chile | 48.3 | 53.0 | 55.6 | 38.6 | 29.9 | 35.7 |
| Colombia | | | 23.3 | 22.5 | 21.0 | 19.5 |
| Cuba | | | 68.9 | 35.5 | 19.4 | 7.9 |
| Ecuador | | | 18.1 | 19.8 | 19.3 | 15.2 |
| Mexico | 60.4 | 27.6 | 32.7 | 24.7 | 29.0 | 24.3 |
| Peru | | | 19.6 | 23.7 | 23.7 | 13.4 |
| Uruguay | | 82.0 | 62.4 | 48.7 | 29.8 | 30.4 |
| Venezuela | | 23.3 | 20.8 | 78.0 | 63.7 | 32.8 |
| Latin America (6) | 53.4* | 43.1 | 43.2 | 43.3 | 37.2 | 29.5 |
| Latin America (10) | | | 38.9 | 36.1 | 30.7 | 23.3 |
| Latin America | | | | 26.7 | 27.1 | 21.2 |
| Africa | 33.3 | 18.2 | 11.0 | 8.9 | 8.2 | 5.0 |
| Northern Africa | | | 14.5 | 12.2 | 10.9 | 10.7 |
| Asia | 46.1 | 22.6 | 12.8 | 7.5 | 10.3 | 13.0 |
| Asia (excl Japan) | 45.7 | 22.2 | 12.1 | 6.6 | 7.4 | 10.7 |
| China | 47.7 | 21.7 | 10.4 | 4.6 | 5.0 | 11.4 |
| India | 42.4 | 21.8 | 12.7 | 6.5 | 5.1 | 6.4 |
| Rest of Asia | 44.9 | 24.7 | 15.0 | 9.7 | 12.4 | 13.7 |
| Eastern Europe | 50.6 | 35.6 | 28.8 | 22.2 | 29.9 | 20.0 |
| Former USSR | 54.8 | 38.6 | 28.1 | 29.6 | 36.3 | 14.2 |
| Western Europe | 98.0 | 80.7 | 65.5 | 48.0 | 69.1 | 65.6 |
| United States | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Per capita GDP level (1990 \$) | | | | | | |
| United States | 1257 | 2445 | 5301 | 9561 | 16689 | 27331 |

* Only Brazil, Chile, and Mexico are included in 1820.

Sources: Angus Maddison, *The World Economy, A Millennial View* (Paris, 2001) except for Cuba and Ecuador for 1913, derived from Astorga and Fitzgerald, "Statistical Appendix"; Chile, 1820–1990, from José Díaz, Rolf Lüders, and Gert Wagner, "Economía chilena, 1810–1995: Evolución cuantitativa del producto total y sectorial" (Pontificia Universidad Católica, Instituto de Economía, Documento de Trabajo no. 186, 1998); and Argentina prior to 1950, from Roberto Cortés Conde, *La economía argentina en el largo plazo* (Buenos Aires, 1997), which have been spliced to Maddison's levels.

The assessment of Latin American performance has been carried out, so far, using the United States as the relevant benchmark. The fact that, over the nineteenth century, most countries, including those of Western Europe, fell behind when measured by U.S. standards renders the U.S. yardstick questionable. When, instead, Latin America's performance is compared to that of other regions of the world, the picture changes dramatically.¹²⁴ First, over 1820–70, the decline relative to the United States for the three countries for which some reliable information exists (Brazil, Chile, and Mexico) is deeper than in Western Europe but similar to southern and Eastern Europe and the Russian empire and much milder than in Africa and Asia. So, even though Latin America's position worsened in relation to the United States and Western Europe it remained unaltered in comparison to Eastern Europe and improved in comparison to the rest of today's Third World. Second, during the phase of the first era of globalization, 1870–1913, Latin America was the single major world region that did not worsen its position relative to the United States, hence improving vis-à-vis the rest of the world. Third, in the early twentieth century Latin America was (along with the Soviet Union) the only world region that did not yield to the U.S. economic advance. Fourth, the half century since 1950 inverted the picture. In losing ground to the United States over the golden age (1950–73) Latin America was joined by only India and Africa, as most regions in the world experienced a process of catching up to the United States. Finally, the post-1973 era, allowing for substantial income differentials, placed Latin America alongside Eastern Europe, the USSR (and its former members), and sub-Saharan Africa, all of which worsened their position relative to the United States as the Asian countries improved.

To sum up, over the nineteenth century Latin America's performance was better than that of other regions of today's Third World and the European periphery. Conversely, the fact that Latin America's position relative to the United States remained mostly unaltered between 1950 and 1973 is at odds with the catching up experienced in large areas of the periphery (southern and Eastern Europe, Southeast Asia), where the gap with the United States in terms of income per head was significantly reduced. Latin America again underperformed relative to Asia after 1973. In other words, blaming Latin America's retardation on falling behind the United States over the

¹²⁴ Because Table 13.9 is constructed using the United States as 100 for each benchmark year, the comparison between Latin America and other world regions is made relative to the United States, but the use of Geary–Khamis dollars implies that a multilateral comparison is carried out regardless of the country used as reference.

nineteenth century is a shortsighted conclusion that tends to transpose the widely accepted view of today's Latin America as underachieving to the distant past.

CONCLUDING REMARKS

Disorder after independence increased transaction costs as political and economic institutions were redefined through a lengthy and painful process. Though qualitative evidence varies from country to country, for Latin America as a whole in the first half of the nineteenth century it is far from clear that the gains from eliminating the fiscal burden offset the tax increases needed to cover the expanding governmental expenses that accompanied independence. The collapse of the Spanish empire showed that its institutions, though inefficient, had helped by reducing transaction costs.

Release from the colonial trade burden produced, in turn, net gains for the economies of Latin America, as the favorable evolution of quantities and the relative prices of goods exported suggests. Trade did not have the strength to pull the rest of the economy, as in the export-led growth model, but whenever geographic and institutional barriers did not impede it, trade represented a handmaiden of growth.

The opening up to the international economy was associated with a deepening of income differences within and across countries. No evidence is available on within-countries income distribution for the pre-1870 period, with the exception of Argentina, where the expansion of the pastoral sector resulting from improved terms of trade increased rewards to the intensively used factors (capital and land), whereas the farming sector contracted and the returns of its intensive factor (labor) declined. A redistribution of income in favor of owners of capital and land took place. Williamson's findings for the four decades prior to World War I confirm the increase of inequality within Latin American countries.

The growth of real income per capita in Latin America was nearly 1 percent per year between independence and the eve of World War I.¹²⁵ In comparative terms, Latin America's performance was often better than in other parts of today's Third World and the European periphery. In the half

¹²⁵ Computed from Table 13.9 for the unweighted average of the three countries, Brazil, Chile, and Mexico, for which estimates of real income per head are available.

century following independence (1820–70), real product per head grew less, probably not far below 0.5 percent per year, but the region's decline relative to the United States was similar to that of southern and Eastern Europe and the Russian empire, and much milder than in the cases of Africa and Asia. Later, in the first episode of globalization (1870–1913), Latin American GDP per head grew above 1.5 percent yearly and Latin America was the only world region that did not worsen its position relative to the United States and did improve noticeably with respect to the rest of the world.¹²⁶

The inheritance of Spanish *ancien régime* institutions in Latin America as opposed to nonabsolutist (post-1688) institutions in British America does not seem to be a solid argument explaining different performances any longer, especially if the scope is widened to include the postindependence performance of the British and French ex-colonies in Africa and Asia. British North America appears as an exceptional example of success that cannot be used as a yardstick against which to measure Latin America's performance. No definitive answer has been provided here, but it seems clear that before jumping to the usually negative conclusion about Latin America's performance in the nineteenth century, a more rigorous examination is required to establish whether Latin America managed to exploit real growth potential after independence.

A series of questions that deserve further research emerge from this discussion. Had Latin America become independent later, at the time of the first wave of globalization, would economic growth have been more intense and widespread? A positive answer to this counterfactual would reinforce Christopher Platt's assertion that "domestic circumstances" shaped nineteenth-century Latin America.

Did independence cause deglobalization in the half century between 1820 and 1870? In another chapter, Luis Bértola and Jeffrey Williamson argue that the fiscal needs of the new republics, exacerbated by fighting wars, led to raising tariffs and, consequently, to isolating Latin America from world markets.¹²⁷ A more important effect of the way independence occurred was the destruction of the colonial customs and monetary union, which represented a serious blow to the economic integration of Latin America. Would an economically united Latin America have been more integrated into the world economy? How much higher, if any, would per capita GDP have been under a United States of Latin America?

¹²⁶ Computed from Table 13.9 for the unweighted average of the six Latin American countries for which estimates of real income per head are available.

¹²⁷ Jeffrey G. Williamson, "Real Wages, Inequality, and Globalization."

A systematic comparison to other postcolonial development experiences elsewhere may help in assessing Latin America's achievements and shortcomings after independence. Would such an exercise support John Coatsworth's idea that the long-run benefits of independence were far larger than its costs?

A final word deserves inclusion in the agenda for quantitative research on Latin America's economic performance over 1820–70. Trends in population, urbanization, literacy, and wages, together with trade and fiscal revenues and expenditures per head, are correlated with economic growth and could be reasonably reconstructed for Latin American countries. Gathering such data will allow us to assess economic performance across countries. Preliminary findings about literacy, urbanization, and life expectancy suggest that some advances, though unevenly distributed, took place in the half century after independence.¹²⁸

¹²⁸ Cf. Paul Bairoch, *Cities and Economic Development. From the Dawn of History to the Present* (Chicago, 1988); and Carlos Newland, "La educación elemental en Hispanoamérica: Desde la independencia hasta la centralización de los sistemas educativos nacionales," *Hispanic American Historical Review* 71, 2 (1991): 335–64.

BIBLIOGRAPHICAL ESSAYS

CHAPTER 1 (PATRICK KARL O'BRIEN)

1. Impulses, Processes, and Outcomes

My chapter has been designed to introduce readers to reconfigured metanarratives concerned with connections between European expansion overseas and the long-run economic development of Western European economies between 1415 and 1825. I first consider traditional histories because the chapter did not provide students with critical survey of literatures that deal with three major and familiar themes in international economic and imperial history, namely, the economic origins of impulses promoting intercontinental commerce and colonization; the processes and inputs included in the success of European expansion; and the impact that connections with Europeans had upon the populations and development of economies located on the continents of Africa, Asia, and the Americas. This field of European history is dominated by a vast bibliography of books and articles that addresses three meta-themes or questions of, for example, (a) why Europeans became so actively engaged in commerce and colonization overseas; (b) how Europeans managed to dominate that protracted and violent geopolitical and economic endeavor; and (c) what the outcomes were for the indigenous societies ruled and/or connected to Europe through trade, capital flows, labor migration, and the diffusion of technology.

Nevertheless, these questions certainly overlap with the concerns of my chapter and the historical scholarship that they inspired has provided an indispensable base of evidence and debate for the construction of “reconfigured” metanarratives in global economic history. Reconfiguration has come, however, as a reaction to the impasse reached by traditions of inquiry that continue to deal with European expansion overseas by way of geographically confined, chronologically foreshortened, undertheorized historical research in the continents’ national and local archives. That tradition has been outlined in Part 2 of my essay – a section that also elaborated upon another impasse, namely, the impossibility of meeting

the requirements established by modern economic theory and econometrics for anything approximating to plausible cost–benefit analyses. For this first part of my bibliographical essay there should be no need to do more than refer students and readers to a short list of recent texts that survey this well-established but bounded field and provide references and guides to libraries of secondary sources and to primary sources dealing with origins, processes, and outcomes for the rest of the world.

I.1. MEDIEVAL ORIGINS AND IMPULSES TO EXPANSION OVERSEAS

Origins that can be traced back to histories of exploration, expansion, and commerce in the Middle Ages in the maritime kingdoms of Western Europe are surveyed in Felipe Armesto-Fernandez, *Before Columbus. Exploration and Colonization from the Mediterranean to the Atlantic, 1229–1492* (London, 1987); Robert Bartlett, *The Making of Europe. Conquest, Colonization and Cultural Change 950–1350* (London, 1993); Jean Favier, *Gold and Spices. The Rise of Commerce in the Middle Ages* (New York, 1998); Janet L.-Abu Lughod, *Before European Hegemony. The World System A.D. 1250–1350* (Oxford, 1989); John R. S. Phillips, *The Medieval Expansion of Europe* (Oxford, 1998); and Geoffrey V. Scamell, *The World Encompassed c. 800–1650* (London, 1981). More theoretical and conceptual studies include Michel Mollat, *Europe and the Sea* (Oxford, 1993) and James Muldoon, *The Concept of Empire 800–1800* (Basingstoke, 1999).

I.2. PROCESSES

Processes refer to “how” Europeans established (with difficulty and at some cost) the institutions, the infrastructures for transportation, and the naval and military force required for commerce and colonization overseas – while operating within a global geopolitical order (mercantilism) characterized by intense and often violent rivalry with each other and by resistance from the indigenous populations and vested economic interests of Africans, Asians, and native Americans.

This history covering some four centuries of “mercantilism” has been written as histories of rival European empires. Readers interested in the particularities, rise and decline, and successes and failures of the Portuguese, Spanish, Dutch, French, and British empires and national commerce with other continents should consult bibliographies included in the following texts, books, and collections of seminal articles that attempt to provide a comprehensive account of the process for Western Europe as a whole.

The most recent and useful is Etemad Bouda, *La Possession du Monde. Poids et mesures de la colonisation* (Lausanne, 2000). See also David B. Abernathy, *The Dynamics of Global Dominance. European Overseas Empires 1415–1980* (New Haven, CT, 2000); Jeremy Black, *Europe and the World 1650–1830* (London, 2002); Fernand Braudel, *Civilization and Capitalism 15th–18th Century*, vol. 3, *The Perspective of the World* (London, 1984); Sushil Chaudhury and Michel Morineau, eds., *Merchants, Companies and Trade. Europe and Asia in the Early Modern Era* (Cambridge, 1999); Phillip Curtin, *Cross Cultural Trade in World History* (Cambridge, 1984); George

Raudzens, *Empires. Europe and Globalization, 1492–1788* (Stroud, 1990); David R. Ringrose, *Expansion and Global Interaction 1200–1700* (London, 2000); Geoffrey V. Scamell, *The First Imperial Age, 1400–1715* (London, 1989); Alan K. Smith, *Creating a World Economy, Colonialism and World Trade 1400–1825* (Boulder, 1991); James D. Tracy, ed., *The Rise of Merchant Empires* (Cambridge, 1990); and James D. Tracy, ed., *The Political Economy of Merchant Empires: State Power and World Trade, 1350–1750* (Cambridge, 1991).

Furthermore, students of the process of European expansion overseas are fortunate to be able to consult a Variorum Press Reference series, edited by A. J. R. Russell Wood: *An Expanding World. The European Impact on World History 1450–1800*, 31 volumes (Aldershot, 1995–2000). Each volume includes a collection of seminal articles selected by a specialist scholar that deals with this vast subject by theme, including studies of exploration, navigation, science, technology, shipbuilding, shipping, particular trades (in spices, textiles, bullion, slaves), mercantile organization, migration and settlement, warfare, colonial governance, and religion.

More conceptual theoretical treatments (derived from historiographical reflection, economics, political science, sociology, and cultural anthropology) can be read in books and articles by David Armitage, ed., *Theories of Empire 1450–1800* (Aldershot, 1998); Amy Turner Bushnell, ed., *Establishing Exceptionalism. Historiography and the Colonial Americas* (Aldershot, 1995); Peter Cain and Mark Harrison, eds., *Imperialism: Critical Concepts in Historical Studies*, 3 vols. (London, 2001); Anthony Disney, *Historiography of Europeans in Africa and Asia 1450–1800* (Aldershot, 1995); Lars Magnusson, *Mercantilism: The Shaping of an Economic Language* (London, 1994); and Anthony Pagden, ed., *Facing Each Other. The World's Perceptions of Europe and Europe's Perception of the World* (Aldershot, 2000).

1.3. IMPACT AND OUTCOMES FOR THE ECONOMIES AND SOCIETIES OF AFRICA, ASIA, AND THE AMERICAS

Again, histories of encounters with Europeans, traders, colonizers, and settlers have been constructed country by country, region by region. Studies that attempt to be a basis for the assessment of “outcomes” flowing from European expansion for the indigenous populations, commerce, and economies of other continents include Paul Bairoch, *Victoires et déboires. Histoire économique et sociale du monde du XVI siècle à nos jours* (Paris, 1997); Jeremy Black, *War and the World. Military Power and the Fate of Continents, 1450–2000* (New Haven, CT, 2000); Kirti N. Chaudhuri, *Asia Before Europe. Economy and Civilization of the Indian Ocean from the Rise of Islam to 1750* (Cambridge, 1990); Philip D. Crosby, *The World and the West: The European Challenge and the Overseas Response in the Age of Empire* (Cambridge, 2000); Alfred W. Crosby, *Ecological Imperialism. The Biological Expansion of Europe, 900–1900* (Cambridge, 1986); José Casas Pardo, ed., *Economic Effects of the European Expansion 1492–1824* (Stuttgart, 1992); Michael N. Pearson, *Before Colonialism: Theories on Asian–European Relations* (Delhi, 1989); Om Prakash, *Asia and the Pre-modern World* (Leiden, 1995); George Raudzens, ed., *Technology, Disease and European Conquests* (Amsterdam, 2000); Anthony Reid, *South East Asia in the Age of Commerce, 1450–1680*, 2 vols. (New Haven, CT, 1993); Bernard Waites, *Europe and the Third*

World from Colonization to Decolonization c. 1500–1998 (Basingstoke, 1999); and Patrick O'Brien, "Colonies in a Globalizing Economy 1815–1948," in Barry Gills and William Thompson, eds., *Globalization and Global History* (London, 2005). The bibliography and footnotes of this essay deal with long-run outcomes for colonized and noncolonized economies of the Third World since 1815.

2. Recent Discourses and Reconfigured Metanarratives in Global Economic History

In recent years, the economics of European expansion overseas has experienced a revival as part of a reconfigured discourse in global economic history concerned with the chronology and explanations for divergence in productivities and standards of living between East and West. Most, if not all, the authors cited in this core section of the bibliographical essay would (with reservations) agree that the gains to European economies from accelerated expansion overseas, which began in 1415, are heuristically contextualized and comprehended as a key component of the discourse about economic divergence on a global scale.

Three consensual assumptions (simplistic taxonomical divisions) can be imposed upon published contributions to the current debate between scholars (historians, economists, historical sociologists, geographers, and anthropologists), who will agree that their research and analysis will fall somewhere on a spectrum of three separable views of the significance of European expansion overseas (a) for the long-run economic development of Western Europe; (b) for the rest of the world economy located in Africa, Asia, and Southern America; and (c) for the growth and integration of a global economy as a whole.

My references to this ongoing discourse are listed below alphabetically under three elastic but, it is to be hoped, heuristic headings and labels and will include relevant theoretical as well as historical literature.

2.1. WEBERIAN SCHOLARSHIP

Although this general view can be traced back to Montesquieu, I propose to label it as Weberian and include the contributions, arguments, and theories of scholars who perceive that the origins and sources of the long-term economic growth of Western Europe, European expansion overseas, and the progression toward the growth and integration of a global economy can be found in the evolving political, legal, and social institutions and cultures within which economic activities were embedded within Western Europe. In this sense, Weberian views virtually include classical Marxism concerned with distinctive European modes of production and property rights. Major works in the tradition of Weberian scholarship include Derek H. Aldcroft and Anthony Sutcliffe, eds., *Europe in the International Economy* (Cheltenham, 1999); Schlomo Avineri, *Karl Marx on Colonialism and Modernization* (New York, 1969); Jeremy Black, *Europe and the World 1650–1830* (London, 2002); Reinhard Bendix, *Max Weber. An Intellectual Portrait* (New York, 1962); Daniel J. Boorstin, *The Discoverers* (New York, 1983); François Crouzet, *A History of the European Economy 1000–2000* (Charlottesville, 2001); Marc Ferro, *Histoire des*

colonizations: *Des conquêtes aux indépendances* (Paris, 1994); François Crouzet and Armand Clesse, eds., *Leading the World Economically* (Amsterdam, 2003); Wolfram Fischer et al., eds., *The Emergence of a World Economy*, 2 vols. (Stuttgart, 1986); Liah Greenfield, *The Spirit of Capitalism* (Cambridge, MA, 2001); Jack A. Goldstone, "Efflorescences and Economic Growth in World History: Rethinking the Rise of the West and the Industrial Revolution," *Journal of World History* 13 (2002): 323–90; Johan Goudsblom et al., eds., *The Course of Human History. Economic Growth, Social Process, and Civilization* (London, 1996); John Hatcher and Mark Bailey, *Modelling the Middle Ages. The History and Theory of England's Economic Development* (Oxford, 2001); Barry Hindess and Paul Hirst, *Pre-Capitalist Modes of Production* (London, 1975); Eric Jones, *The European Miracle*, 2nd ed. (Cambridge, 1988); Eric Jones, *Growth Recurring. Economic Change in World History*, 2nd ed. (Ann Arbor, MI, 2000); Charles Kindleberger, *World Economic Primacy 1500–1990* (Oxford, 1996); Richard Lachmann, *Capitalists in Spite of Themselves. Elite Conflict and Economic Transitions in Early Modern Europe* (Oxford, 2000); John Landers, *The Field and the Forge. Population, Production and Power in the Pre-industrial West* (Oxford, 2003); David Landes, *The Wealth and Poverty of Nations* (London, 1998); Deepak Lal, *Unintended Consequences. The Impact of Factor Endowments, Culture and Politics on Long Run Economic Performance* (London, 1998); David Levine, *At the Dawn of Modernity. Biology, Culture and Material Life in Europe after the Year 1000* (Berkeley, CA, 2001); Alan Macfarlane, *The Riddle of the Modern World. Of Liberty, Wealth and Equality* (London, 2000); William McNeill, "The Rise of the West after Twenty-Five Years," *Journal of World History* 1 (1990): 1–21; Angus Maddison, *The World Economy. A Millennium Perspective* (Paris, 2001); Patrick K. O'Brien, ed., *The Industrial Revolution in Europe* (Oxford, 1994); Nathan Rosenberg and L. E. Birdsell, *How the West Grew Rich. The Economic Transformation of the Industrial World* (London, 1986); Richard Swedberg, *Max Weber and the Idea of Economic Sociology* (Princeton, NJ, 1998); and Max Weber, *General Economic History* (London, 1923).

2.2. THE DECONSTRUCTION OF WEBER AND THE ELEVATION OF SMITHIAN APPROACHES TO GLOBAL ECONOMIC HISTORY

Weberian approaches to global economic history have been "deconstructed" by scholars of Asian economic history who have undermined crude and anachronistic binary contrasts drawn between Occident and Orient and who offer historical evidence and alternative hypotheses that suggest that the origins, sources, and persistence of divergence between east and west are to be found in the political economy of commercial and colonial connections, leading to unequal gains from trade between Europe on the one hand and Africa, the East, and the Americas on the other. A subgroup of scholars, who subscribe to world systems theory (exemplified by the writings of Andre Gunder Frank), insist that connections within a global economy had promoted economic growth in Europe for centuries (possibly millennia) before the accelerated expansion of Europe overseas that followed from Iberian voyages of discovery at the end of the fifteenth century.

For purely taxonomic purposes of bibliographical order, I propose to disregard their internal differences over chronology and represent all writings that accord

to varying degrees of emphasis to overseas trade, migrations of people, capital flows, and the diffusion of knowledge across oceans and continents as predisposed to represent the emergence, extension, and integration of markets as central for economic development and for divergence across continents and to label them as "Smithian" in orientation. Furthermore, their sense that connections mattered more for economic change than any path-dependent evolution, institutions, and cultures has been strengthened by recent historical research on the early modern economies and societies of China, India, Southeast Asia, and the Ottoman Empire that has severely qualified binary "Weberian" suggestions that Western Europe alone evolved the states, institutions, legal systems, social organizations, and cultures necessary for economic development.

Major work in the deconstruction of Weber and the elevation of Smithian approaches to global economic history include Janet L. Abu-Lughod, *Before European Hegemony* (Oxford, 1989); Michael Adas, *Machines as the Measure of Men, Science Technology and Ideologies of Western Domination* (Ithaca, NY, 1989); Jerry H. Bentley, *Old World Encounters* (New York, 1993); Robin Blackburn, *The Making of New World Slavery* (London, 1997); James Blaut, *The Colonizers Model of the World* (New York, 1993); Fernand Braudel, *Civilization and Capitalism. 15th–18th Century*, 3 vols. (London, 1984); Tim Brook and Geoffrey Blue, eds., *China and Modern Capitalism* (Cambridge, 1999); Christopher Chase Dunn and Thomas Hall, *Rise and Demise. Comparing World Systems* (Boulder, CO, 1998); Kirti Chaudhuri, *Asia before Europe* (Cambridge, 1990); Warren I. Cohen, *East Asia at the Center: Four Thousand Years of Engagement with the World* (New York, 2000); Philip Curtin, *Cross Cultural Trade in World History* (Cambridge, 1984); Dennis O. Flynn and Giraldez Arturo, eds., *Metals and Monies in an Emerging Global Economy* (Aldershot, 1997); Dennis O. Flynn, Arturo Giraldez, and Richard Von Glahn, eds., *Global Connections and Monetary History 1470–1800* (Aldershot, 1997); Andre Gunder Frank and Barry Gills, eds., *The World System. Five Hundred Years or Five Thousand* (London, 1993); Andre Gunder Frank, *ReOrient. Global Economy in the Asian Age* (London, 1998); Jack Goody, *The East in the West* (Cambridge, 1996); Marshall Hodgson, *Rethinking World History. Essays on Europe, Islam and World History* (Cambridge, 1993); Joseph E. Inikori, *Africans and the Industrial Revolution in England. A Study in International Trade and Economic Development* (Cambridge, 2002); John R. McNeill and William H. McNeill, *The Human Web. A Bird's Eye View of World History* (New York, 2003); Robert B. Marks, *The Origins of the Modern World: A Global and Ecological Narrative* (Lanham, CA, 2002); Kenneth Pomeranz, *The Great Divergence. China, Europe and the Making of the Modern World Economy* (Princeton, NJ, 2000); Kenneth Pomeranz and Steven Topik, *The World That Trade Created. Society, Culture and the World Economy 1400 to the Present* (New York, 1999); Stephen K. Sanderson, ed., *Civilizations and World Systems* (Walnut Creek, CA, 1995); William R. Thompson, *The Emergence of Global Political Economy* (London, 2000); Richard Von Glahn, *Fountains of Fortune, Money and Monetary Policy in China, 1000–1700* (Berkeley, CA, 1996); Immanuel Wallerstein, *The Modern World System*, 3 vols. (New York, 1974, 1980, and 1988); and Roy Bin Wong, *China Transformed: Historical Change and the Limits of European Experience* (Ithaca, NY, 1997).

2.3. MARC BLOCH'S RECOMMENDATION TO SEARCH FOR CONTRASTS THAT MATTERED

Finally, I propose to list books and articles that remain agnostic toward any strongly held views of a Weberian or Smithian kind. They suggest that the evidence for a world of surprising resemblances is not conclusive and their authors are disposed to follow Marc Bloch's recommendations and look for "contrasts" between the Orient and Occident outside the spheres of commerce and colonization in two potentially important spheres (geography and technology). For example: Robert Allen, "Involution, Revolution or What? Agricultural Productivity, Income and Chinese Economic Development," *Economic History Review* (forthcoming, 2005); Robert Allen et al., eds., *New Evidence on Standards of Living in Europe and Asia* (Oxford, 2005); Paul Bairoch, *Economics and World History: Myths and Paradoxes* (Chicago, 1993); Paul Bairoch, *Victoires et déboires. Histoire économique et sociale du monde du XVI siècle à nos jours*, 2 vols. (Paris, 1998); Christopher Bayly, *The Birth of the Modern World 1780–1914* (Oxford, 2004); Gang Deng, *Development versus Stagnation. Technological Continuity and Agricultural Progress in Pre-modern China* (London, 1993); Bouda Etemad, *La possession du monde. Poids et mesures de la colonisation* (Lausanne, 2000); Philip Huang et al., in a special edition of *Journal of Asian Studies* 61 (2002) devoted to debating contrasts between China and Western Europe; Simon Kuznets, *Modern Economic Growth* (New Haven, CT, 1966); Patrick Manning, *Navigating World History. Historians Create a Global Past* (New York, 2003); Joel Mokyr, *Technological Creativity and Economic Progress* (Oxford, 1990); Patrick K. O'Brien, "Colonies in a Globalizing Economy 1815–1948," in Barry Gills and William Thompson, eds., *Globalization and Global History* (London, 2006, forthcoming); Patrick K. O'Brien and Leandro Prados de la Escosura, eds., *The Costs and Benefits of European Imperialism from the Conquest of Ceuta (1415) to the Treaty of Lusaka (1974)* (special issue of *Revista de Historia Económica*, Madrid, 1998); Kevin O'Rourke and Jeffrey G. Williamson, *Globalization and History – The Evolution of a Nineteenth Century Atlantic Economy* (Cambridge, MA, 1999); Leandro Prados de la Escosura, "International Comparisons of Real Product 1820–1990, An Alternative Data Set," *Explorations in Economic History* 327 (2000): 1–41; Walt Rostow, *Theorists of Economic Growth from David Hume to the Present* (Oxford, 1990); Sylvia Sogner, ed., *Making Sense of World History* (Oslo, 2001); W. Sewell, "Marc Bloch and the Logic of Comparative History," *History and Theory* 6 (1967): 208–18; Benedikt Stuchtey and Eckhardt Fuchs, eds., *Writing World History 1800–2000* (Oxford, 2003); Peer Vries, *Via Peking back to Manchester: Britain, the Industrial Revolution and China* (Leiden, 2003); and Irving M. Zeitlin, *Ideology and the Development of Sociological Theory* (Englewood Cliffs, NJ, 1999).

CHAPTER 2 (PATRICK MANNING)

The expansion of African studies over the past fifty years provides one of the great success stories in scholarly life. From a scattering of individual studies during the continent's colonial era there developed a well-organized, critical discourse in the

social sciences and humanities, analyzing life in Africa and its connection with other world regions. For Latin Americanists who seek information on African background and connections to Latin America, this means that a wealth of information on Africa has now become available. It also means that recent studies have generally superseded earlier work: the impressions of textbooks and older monographs, while not necessarily erroneous, are usually outdated, lacking in detail, and lacking in connections to the cosmopolitan literature that has now developed. Scholarship on Africa and the African diaspora continues to expand, and scholars based on the African continent, in particular, have been expressing increasing interest in the historical connections of Africa and the Americas.

Despite the overall advance in the literature on African history, two types of interpretive problems interfere with the ease of linking the economic history of Africa with that of Latin America in the period up to 1850. First, the field of economic history, which has not gained the strength of other subfields in African history, has mostly concentrated on twentieth-century topics beyond the scope of this chapter. A wave of studies in the 1970s and 1980s raised important issues on precolonial (that is, before 1900) African economic history, but study and debate lagged thereafter. Some solid work has been completed on the demography and economic history of the slave trade, but not much has been done to link these issues to other concerns in economic history. Part of the problem is that economic data are not easily accessible for precolonial Africa. Furthermore, most writers in African economic history have minimal skills in economics and, thus, have focused on descriptions of trade and politics rather than on economic analysis. Beyond African studies, meanwhile, the leading interpreters of the global economy in every era have tended to assume – dubiously, I think – that African linkage to transoceanic economic patterns was unimportant.

A second interpretive problem has been compounded with the passage of time. The political connections of the twentieth century have often been projected backward, so that English- and French-speaking areas of the Americas connect to English- and French-speaking areas of Africa. Demonstrably, however, many Africans who were settled in French territories came from what is now English-speaking Nigeria, and many Africans settled in English territories of the Americas came from what is now French-speaking Bénin and Congo. With somewhat more reason, Lusophone America is connected to Lusophone Africa. For Spanish-speaking America this approach leaves virtually no place to connect to Africa. In fact, available documents provide substantial information on the African regional origins of slaves settled in Mexico, Cuba, Colombia, and other regions of formerly Spanish America.

General Works on Africa and Its Economic History

Three works convey clearly the extent of knowledge and the degree of biases about Africa and its connections to the Americas at the opening of the twentieth century: W. E. B. Du Bois, *The Negro* (Amherst, NY, 2002; orig. pub. 1915); Harry Hamilton Johnston, *A History of the Colonization of Africa by Alien Races* (Cambridge, 1900); and Johnston, *The Negro in the New World* (London, 1910).

For standard works on African history, see J. D. Fage and Roland Oliver, eds., *The Cambridge History of Africa*, 8 vols. (Cambridge, 1975–1985), and UNESCO, *General History of Africa* (Paris, 1981–). Authoritative textbooks on the history of the continent and its principal regions are John Iliffe, *Africa in History* (Cambridge, 1995); Christopher Ehret, *The Civilizations of Africa: A History to 1800* (Charlottesville, VA, 2002); David Birmingham and Phyllis M. Martin, eds., *History of Central Africa*, 2 vols. (London, 1983); Jamal Abun-Nasr, *A History of the Maghrib in the Islamic Period* (Cambridge, 1987); and J. F. Ade Ajayi and Michael Crowder, eds., *History of West Africa*, 3rd ed. (New York, 1985). A new edition of the last text, edited by Emmanuel Akyeampong, is in preparation. The principal journals for the history of Africa are the *Journal of African History*, the *International Journal of African Historical Studies*, *History in Africa*, and *Cahiers d'Etudes Africaines*.

The three authoritative general works in African economic history are A. G. Hopkins, *An Economic History of West Africa* (New York, 1973); Ralph A. Austen, *African Economic History* (London, 1987); and Paul Tiyambe Zeleza, *A Modern Economic History of Africa* (Dakar, 1993). In addition, there are several economic histories of smaller African regions in precolonial times: A. J. H. Latham, *Old Calabar, 1600–1891: The Impact of the International Economy upon a Traditional Society* (Oxford, 1973); Philip D. Curtin, *Economic Change in Precolonial Africa: Senegambia in the Era of the Slave Trade*, 1 vol. and supplement (Madison, WI, 1975); Patrick Manning, *Slavery, Colonialism, and Economic Growth in Dahomey, 1640–1960* (Cambridge, 1982); and Stephen Baier, *An Economic History of Central Niger* (Oxford, 1980). For an influential socioeconomic interpretation, see Walter Rodney, *How Europe Underdeveloped Africa* (London, 1972). In Rodney's approach, the notion of "underdevelopment," though inspired by the work of André Gunder Frank and other dependency school theorists, applies to the African colonial era of the later nineteenth and twentieth centuries rather than to the sixteenth century as it did for Latin America in Frank's original interpretation.

The journal *African Economic History*, founded in 1976, has principally published studies on the twentieth and late nineteenth centuries, but a few of its articles are relevant to the precolonial Atlantic and connections to Latin America. See, for example, Emilio F. Moran, "The Evolution of Cape Verde's Agriculture," issue 11 (1982): 63–96; Raymond Gervais, "Pre-colonial Currencies: A Note on the Maria Theresa Thaler," issue 11 (1982): 14–152; Charles Becker, "Notes sur les conditions écologiques en Sénégambie aux 17e et 18e siècles," issue 14 (1985): 167–216; J. S. Hogendorn and H. A. Gemery, "Continuity in West African Monetary History? An Outline of Monetary Development," issue 17 (1988): 127–46; John Thornton, "Precolonial African Industry and the Atlantic trade, 1500–1800" with several responses, issue 19 (1990–1): 1–54; José C. Curto, "A Quantitative Reassessment of the Legal Portuguese Slave Trade from Luanda, Angola, 1710–1830," issue 29 (1992): 1–26; and several articles in issue 7 (1992), "Contributions to a History of Agriculture and Fishing in Central Africa," edited by Bogumil Jewsiewicki.

Slavery and the slave trade are central to the economic links of Africa and the Americas. For major summaries, see Paul E. Lovejoy, *Transformations in Slavery: A History of Slavery in Africa* (Cambridge, 1983); Patrick Manning, *Slavery and African Life: Occidental, Oriental, and African Slave Trades* (Cambridge, 1990); and Claude Meillassoux, ed., *L'Esclavage en Afrique précoloniale* (Paris, 1975). Joseph

C. Miller's comprehensive bibliography, *Slavery and Slaving in World History: A Bibliography, 1900–1991* (Millwood, NY, 1993), gives ample attention to the African literature. A more concise bibliography emphasizing recent works in the Atlantic slave trade is presented in the introduction to Patrick Manning, ed., *Slave Trades, 1500–1800: Globalization of Forced Labour* (Aldershot, UK, 1996).

Samir Amin has proposed a long-term interpretation of African economic change in global context in *Accumulation on a World Scale: A Critique of the Theory of Underdevelopment*, trans. Brian Pearce, 2 vols. (New York, 1974), and *Unequal Development: An Essay on the Social Formations of Peripheral Capitalism*, trans. Brian Pearce (New York, 1976). Immanuel Wallerstein's *The Modern World-System* (New York, 1974–89) is well known; for the African background to Wallerstein's approach, see Bogumil Jewsiewicki, "The African Prism of Immanuel Wallerstein," *Radical History Review* 38 (1987): 50–68.

The Regions of West and Central Africa

There are several comprehensive African geographies, but the strongest remains R. Mansell Prothero, ed., *A Geography of Africa* (New York, 1969). The combination of this volume with G. S. P. Freeman-Grenville, *The New Atlas of African History* (New York, 1991), provides a useful overview of African regions, their ecology, population, and ethnicity. The languages of Africa are described in Bernd Heine and Derek Nurse, eds., *African Languages: An Introduction* (Cambridge, 2000). An aging but still useful overview of colonial-era ethnography is G. P. Murdock, *Africa: Its Peoples and Their Culture History* (New York, 1959). And for a convincing demonstration of the historical depth of African societies, focusing on the stateless peoples of the equatorial forest, see Jan Vansina, *Paths in the Rainforest: Toward a History of Political Tradition in Equatorial Africa* (Madison, WI, 1990).

Initial Connections of Africa and the Americas, 1450–1650

For the early days of the Atlantic slave trade, emphasizing its conduct from European ports, see Huguette and Pierre Chaunu, *Seville et l'Atlantique, 1504–1650*, 8 vols. (Paris, 1955–9); Philip D. Curtin, *The Atlantic Slave Trade: A Census* (Madison, WI, 1969); Manuel Lobo Cabrera, *La Esclavitud en las Canarias orientales en el siglo XVI: negros, moros y moriscos* (Gran Canaria, 1982); A. C. de C. M. Saunders, *A Social History of Black Slaves and Freedmen in Portugal, 1441–1555* (Cambridge, 1982); and José Luís Cortes López, *La esclavitud negra en la España peninsular del siglo XVI* (Salamanca, 1989).

The early conduct of slave trade in West Africa and its economic impact are documented in many of their particulars. See Boubacar Barry, *Le royaume du Waalo: le Sénégal avant la conquête* (Paris, 1985); Barry, *Senegambia and the Atlantic Slave Trade*, trans. Ayi Kwei Armah (Cambridge, 1998); A. F. C. Ryder, *Benin and the Europeans, 1485–1897* (New York, 1969); John William Blake, ed. and trans., *Europeans in West Africa, 1450–1560*, 2 vols. (London, 1942); and Walter Rodney, *A History of the Upper Guinea Coast, 1545–1800* (Oxford, 1970). Taken together,

these works emphasize that European merchants initially did more to join and facilitate African networks of trade than to seize economic or political control, but that European purchases of slaves grew steadily and African societies changed in response to the slave trade.

On slavery in the West African savanna and the conduct of slave trade across the Sahara, see J. F. P. Hopkins and Nehemia Levtzion, eds., *Corpus of Early Arabic Sources for West African History* (Cambridge, 1981); Jean-Pierre Olivier de Sardan, *Les Sociétés Songhay-Zarma, Niger-Mali: Chefs, guerriers, esclaves, paysans* (Paris, 1984); and John Hunwick and Eve Trout Powell, eds., *The African Diaspora in the Mediterranean Lands of Islam* (Princeton, NJ, 2002).

For the early impact of Atlantic slave trade in Central Africa, see Jan Vansina, *Kingdoms of the Savanna* (Madison, WI, 1966); Georges Balandier, *Daily Life in the Kingdom of Kongo: From the Sixteenth to the Eighteenth Century*, trans. Helen Weaver (London, 1968); Eugenia Herbert, *Red Gold of Africa: Copper in Precolonial History and Culture* (Madison, WI, 1984); and John Thornton, *Warfare in Atlantic Africa, 1500–1800* (London, 1999).

For an excellent recent overview of the South Atlantic, focusing on the linkages of Brazil and Angola, see Luiz Felipe de Alencastro, *O Trato dos Viventes: Formação do Brasil no Atlântico Sul* (São Paulo, 2000). For more general reviews of the Atlantic world in the era of the slave trade, see Herbert S. Klein, *African Slavery in Latin America and the Caribbean* (New York, 1986); A. J. R. Russell-Wood, *A World on the Move: The Portuguese in Africa, Asia, and Latin America, 1415–1808* (New York, 1993); and John K. Thornton, *Africa and Africans in the Making of the Atlantic World, 1400–1680* (Cambridge, 1992). For contrasts to Thornton's claims on the pervasiveness of slavery and the absence of landed property in Africa, see Manning, *Slavery and African Life* (cited previously). Other major studies of the early settlement of Africans in the Americas include Frederick Bowser, *The African Slave in Colonial Peru, 1524–1650* (Stanford, CA, 1974); Colin A. Palmer, *Slaves of the White God: Blacks in Mexico, 1570–1650* (Cambridge, MA, 1976); and Raymond K. Kent, "Palmares: An African State in Brazil," *Journal of African History* 6 (1965): 161–75.

The Slave-Trade Era, 1650–1820

For the most comprehensive statements of the economic and demographic framework of the Atlantic slave trade in its peak era, see Patrick Manning, "The Enslavement of Africans: A Demographic Model," *Canadian Journal of African Studies* 15 (1981): 499–526; "The Slave Trade: The Formal Demography of a Global System," *Social Science History* 14 (1990): 255–79; and *Slavery and African Life* (cited previously). For the most detailed compilation of evidence on the Atlantic slave trade, see David Eltis, Stephen D. Behrendt, David Richardson, Herbert S. Klein, eds., *The Trans-Atlantic Slave Trade: A Database on CD-ROM* (Cambridge, 1999). This comprehensive CD-ROM gives evidence (with varying degrees of completeness) on the great majority of voyages by English, French, and Dutch slave merchants. It is far less complete for the sixteenth and seventeenth centuries, for

the slave trade to Brazil, and for the North American slave trade. For slave trade to Spanish America, this collection does not attempt to trace movements of Africans once they reached the Americas, such as from Jamaica to Porto Bello to Lima, or from Rio to La Plata to Potosí.

The data in the Eltis et al. CD-ROM were collected through the researches of the editors and of many other scholars. Included are David Eltis, *Economic Growth and the Ending of the Transatlantic Slave Trade* (New York, 1987); Johannes Postma, *The Dutch in the Atlantic Slave Trade, 1600–1815* (Cambridge, 1990); Colin Palmer, *Human Cargoes: The British Slave Trade to Spanish America, 1700–1739* (Urbana, IL, 1981); Kenneth Gordon Davies, *The Royal African Company* (London, 1957); Pierre Verger, *Flux et reflux de la traite des nègres entre le Golfe du Bénin et Bahia de Todos os Santos, du XVIIe au XIXe siècles* (Paris, 1968); and Jean Mettas, *Répertoire des expéditions négrières françaises au XVIIIe siècle*, 2 vols. (Paris, 1978–84).

For more general essays on the impact of the slave trade on Africa and the Americas, see Henry A. Gemery and Jan S. Hogendorn, "The Atlantic Slave Trade: A Tentative Economic Model," *Journal of African History* 15 (1974): 233–46; Paul E. Lovejoy, *Transformations in Slavery: A History of Slavery in Africa* (Cambridge, 1983); Joseph E. Inikori and Stanley L. Engerman, eds., *The Atlantic Slave Trade: Effects on Economies, Societies, and Peoples in Africa, the Americas, and Europe* (Durham, NC, 1992); and Inikori, ed., *Forced Migration: The Impact of the Export Slave Trade on African Societies* (New York, 1982). Robert W. Harms has produced a remarkably comprehensive volume on the voyage of a single slaver from Nantes to Ouidah, in *The Diligent: A Voyage through the World of the Slave Trade* (New York, 2002).

Numerous monographs trace West African regions in the era of slave trade, especially in the eighteenth century. See Robin Law, *The Slave Coast of West Africa 1550–1750: The Impact of the Atlantic Slave Trade on an African Society* (Oxford, 1991); *The Oyo Empire, c. 1600–c. 1836: A West African Imperialism in the Era of the Atlantic Slave Trade* (Oxford, 1977); Manning, *Slavery, Colonialism, and Economic Growth*; Ray A. Kea, *Settlements, Trade, and Polities in the Seventeenth-Century Gold Coast* (Baltimore, 1982); Curtin, *Senegambia* (cited previously); James F. Searing, *West African Slavery and Atlantic Commerce: The Senegal River Valley, 1700–1850* (Cambridge, 1993); Richard L. Roberts, *Warriors, Merchants, and Slaves: The State and the Economy in the Middle Niger Valley, 1700–1914* (Stanford, CA, 1987); T. C. McCaskie, *State and Society in Precolonial Asante* (Cambridge, 1995); David Northrup, *Trade without Rulers: Pre-Colonial Economic Development in South-Eastern Nigeria* (Oxford, 1978); Latham, *Old Calabar* (cited previously); Jan Hogendorn and Marion Johnson, *The Shell Money of the Slave Trade* (Cambridge, 1986).

Studies of Central Africa during the eighteenth- and nineteenth-century peak of slave trade include Robert W. Harms, *River of Wealth, River of Sorrow: The Central Zaire Basin in the Era of the Slave and Ivory Trade, 1500–1891* (New Haven, CT, 1981); Phyllis M. Martin, *The External Trade of the Loango Coast, 1576–1870: The Effects of Changing Commercial Relations on the Vili Kingdom of Loango* (Oxford, 1972); Ann Hilton, *The Kingdom of Kongo* (Oxford, 1992); John K. Thornton, *The Kingdom of Kongo: Civil War and Transition, 1641–1718* (Madison, WI, 1983); Joseph C. Miller, *Way of Death: Merchant Capitalism and the Angolan Slave Trade*,

1730–1830 (Madison, WI, 1988); and David Birmingham, *Trade and Conflict in Angola: The Mbundu and Their Neighbours under the Influence of the Portuguese, 1483–1790* (Oxford, 1966).

The initial results of the above studies of African and Atlantic slave trade brought about some new studies of slavery and slave trade in the Americas. These included Enriqueta Vila Vilar, *Hispanoamérica y el comercio de esclavos* (Seville, 1977); Herbert S. Klein, *The Middle Passage: Comparative Studies in the Atlantic Slave Trade* (Princeton, NJ, 1978); B. W. Higman, *Slave Population and Economy in Jamaica, 1807–1834* (Cambridge, 1976); and Higman, *Slave Populations of the British Caribbean 1807–1834* (Baltimore, 1984). On the economic impact of slavery in the Americas, the debate launched by Eric Williams had its echoes in each succeeding decade: see Eric E. Williams, *Capitalism and Slavery* (Chapel Hill, NC, 1944), and Barbara L. Solow and Stanley L. Engerman, eds., *British Capitalism and Caribbean Slavery: The Legacy of Eric Williams* (Cambridge, 1987). The social impact of slavery is addressed in works such as Katia M. de Queiros Mattoso, *To Be a Slave in Brazil, 1550–1888*, trans. Arthur Goldhammer (New Brunswick, 1986); Stuart B. Schwartz, *Sugar Plantations in the Formation of Brazilian Society: Bahia, 1550–1835* (Cambridge, 1985); Sidney W. Mintz, *Sweetness and Power: The Place of Sugar in Modern History* (New York, 1985); Sidney Mintz and Richard Price, *The Birth of Afro-American Culture: An Anthropological Perspective* (Boston, 1992); and Philip D. Curtin, ed. *Africa Remembered: Narratives by West Africans from the Era of the Slave Trade* (Madison, WI, 1967). C.R. Boxer's well-known surveys of imperial history continue to provide both detail and general background: *The Portuguese Seaborne Empire, 1415–1825* (New York, 1969), and *The Dutch Seaborne Empire, 1600–1800* (New York, 1965).

An Industrializing World, from 1820

On abolition of slave trade and emancipation of slaves, see Robin Blackburn. *The Overthrow of Colonial Slavery 1776–1848* (London, 1988) provides extensive detail on the Americas, but neglects the concurrent and subsequent struggles elsewhere in the world. The continuation of large-scale slavery in Africa well into the twentieth century is documented in Suzanne Miers and Richard Roberts, eds., *The End of Slavery in Africa* (Madison, WI, 1988). For a concise summary of abolition and emancipation worldwide, see Manning, *Slavery and African Life* (cited previously).

West Africa in the nineteenth century underwent successive transformations as the external slave trade declined, slave populations within the region expanded in production of manufactures and crops for export and domestic use, and an era of diplomatic and military confrontation led to the establishment of European colonial rule. Major studies of these transformations include Claude Meillassoux, *The Anthropology of Slavery: The Womb of Iron and Gold*, trans. Alide Dasnois (Chicago, 1991); Sandra E. Greene, *Gender, Ethnicity, and Social Change on the Upper Slave Coast: A History of the Anlo-Ewe* (Portsmouth, NH, 1996); Suzanne Miers and Igor Kopytoff, eds., *Slavery in Africa: Historical and Anthropological Perspectives* (Madison, WI, 1977); Robin Law, ed., *From Slave Trade to "Legitimate" Commerce:*

The Commercial Transition in Nineteenth-Century West Africa (Cambridge, 1995); K. O. Dike, *Trade and Politics in the Niger Delta, 1830–1885: An Introduction to the Economic and Political History of Nigeria* (Oxford, 1956); Paul E. Lovejoy, *Caravans of Kola: The Hausa Kola Trade, 1700–1900* (Zaria, Nigeria, 1980); Baier, *Central Niger* (cited previously); and Mahdi Adamu, *The Hausa Factor in West African History* (Zaria, 1978).

For Central Africa, the continuation of large-scale slave exports up to 1850 meant that the industrial-era transformations were both compressed and restricted. This period has not been explored in the same depth for Central Africa as for West Africa, but significant information on this period can be drawn from Richard Gray and David Birmingham, eds., *Pre-Colonial African Trade: Essays on Trade in Central and Eastern Africa before 1900* (London, 1970); and Vansina, *Kingdoms of the Savanna* (cited previously).

For an analysis of British efforts to suppress the Atlantic slave trade, including its impact in specific African and American regions, see Eltis, *Economic Growth and the Ending of the Transatlantic Slave Trade* (cited previously). Monica Schuler completed a pioneering study of the nineteenth-century connections between Africa and the Americas, *'Alas, Alas, Kongo': A Social History of Indentured African Immigration into Jamaica, 1841–1865* (Baltimore, 1980), and it was followed by João José Reis's study of the 1835 conspiracy in Bahia, *Slave Rebellion in Brazil: The Muslim Uprising of 1835 in Bahia*, trans. Arthur Brakel (Baltimore, 1993). More recent studies of transatlantic connections in this era include Robin Law and Paul E. Lovejoy, eds. *The Biography of Mahommah Gardo Baquaqua: His Passage from Slavery to Freedom in Africa and America* (Princeton, NJ, 2001); and Kristin Mann and Edna G. Bay, eds., *Rethinking the African Diaspora: The Making of a Black Atlantic World in the Bight of Benin and Brazil* (London, 2001).

African Growth, Transformation, and Stagnation

At continental and subcontinental levels, there is much to be gained from estimating and comparing the population and economic activity for Africa and Latin America from the sixteenth century forward. As this initial sketch suggests, the economic and demographic cycles of growth and decline of the two continental areas were sometimes parallel and sometimes contrary. Recent work on East Asia and South Asia has shown the possibilities for accumulating local estimates that can clarify broader patterns: see Kenneth Pomeranz, *The Great Divergence: China, Europe, and the Making of the Modern World* (Princeton, NJ, 2000); and Prasannan Parthasarathi, *The Transition to a Colonial Economy: Weavers, Merchants and Kings in South India, 1720–1800* (Cambridge, 2001). Only the beginnings of such analysis have been conducted for Africa, though relevant data are available for Senegambia, Gold Coast, the Bight of Benin, and Angola. Details have been developed on Senegambian imports and exports (in Curtin, *Senegambia*); on values of cowrie imports (in Hogendorn and Johnson, *Shell Money*); and on fluctuations in cowrie prices (in Law, *Slave Coast*). In one case (Manning, *Dahomey*), estimates of foreign trade have been used to project regional GDP for southern Dahomey, and to compare these with estimates drawn up by John Coatsworth for Mexico and Brazil.

Population estimates have been developed for African regions in Manning, *Slavery and African Life*. More work of this sort should make it possible to fill in details, and thereby to supplement the highly simplified estimates of Angus Maddison, *The World Economy: A Millennial Perspective* (Paris, 2001).

CHAPTER 3 (REBECCA STOREY AND RANDOLPH J. WIDMER)

Many bibliographic references are possible for a subject as broad as the pre-Columbian economy. The ones cited here combine those employed in the chapter and those of general import. These references are not an exhaustive list of works on the subject, but are intended to provide a starting point for a reader.

General and Background References

There are many general books about the archaeology and peoples. For good general introductions, see Karen Bruhns, *South American Prehistory* (Cambridge, 1994); R. E. W. Adams, *Ancient Mesoamerica* (Norman, OK, 1991); and Richard Blanton et al., *Ancient Mesoamerica: A Comparison of Change in Three Regions* (Cambridge, 1993). More recent summary articles can be found in *The Cambridge History of the Native Peoples of the Americas*, vol. II: *Mesoamerica*, part 1, and vol. III: *South America*, part 1 (Cambridge, 1996–2000). Each of these articles also has a bibliographic essay with copious references for many topics about the pre-Columbian world.

Of course, ethnohistorical sources are important for many aspects of the economies of the Aztecs of Central Mexico and of the Inca of Peru. These sources include conquerors' accounts, native codices, and other chronicles and documents. For the Inca, see Pedro de Cieza de León, *La Crónica del Perú* (1553; repr., Lima, 1967), translated by Harriet de Onis as *The Incas of Pedro Cieza de León* (Norman, OK, 1959); Juan de Betanzos, *Suma y Narración de los Yngas* (1551; repr., Madrid, 1987), translated by Roland Hamilton and Dana Buchanan as *Narrative of the Incas* (Austin, TX, 1996); and Garcilaso de la Vega, *Comentarios Reales de los Incas* (1604; repr., Madrid, 1963), translated by Harold V. Livermore as *Royal Commentaries of the Incas and General History of Peru* (Austin, TX, 1987). For Mesoamerica, see Bernal Díaz del Castillo, *Historia Verdadera de la Conquista* (1568; repr., Mexico City, 1944) translated by Albert Idell as *The Bernal Díaz Chronicles* (New York, 1956); Bernardino de Sahagún, *Historia General de las Cosas de Nueva España* (by 1569; repr., Mexico City, 1956), translated by A. Anderson and C. Dibble as *Florentine Codex: General History of the Things of New Spain* (Salt Lake City, 1950–82); and Diego de Landa, *Relación de las Cosas de Yucatán* (1688; repr., Madrid, 1985), translated by A. Tozzer as *Landa's Relación de las Cosas de Yucatán: A Translation* (Cambridge, MA, 1941).

The question of how to read and use ethnohistorical sources is a contentious one. Russell J. Barber and Frances F. Berdan, *The Emperor's Mirror: Understanding Cultures through Primary Sources* (Tucson, AZ, 1998) is a useful introduction to the

methods and concepts of ethnohistorical scholarship. See, also, Frank Salomon, "Testimonies: The Making and Reading of Native South American Historical Sources," and Sabine MacCormack, "Ethnography in South America: The First Two Hundred Years," both in *The Cambridge History of Native Peoples of the Americas*, vol. III: *South America*, pt. 1 (cited previously), 19–187.

Agriculture

Plant domestication and its dating are areas of active research and debate due to new techniques and excavations that are revealing potentially new places of domestication and older examples of domesticates. Two recent books provide good summaries of current knowledge of New World domesticates: Dolores R. Piperno and Deborah M. Pearsall, *The Origins of Agriculture in the Lowland Neotropics* (San Diego, CA, 1998), and Bruce D. Smith, *The Emergence of Agriculture* (New York, 1998). Other recent publications include Bruce F. Benz, "Archaeological Evidence of Teosinte Domestication from Guilá Naquitz, Oaxaca," *Proceedings of the National Academy of Science* 98 (2001): 2104–6; Kenneth M. Olsen and Barbara A. Schall, "Evidence on the Origin of Cassava: Phylogeography of *Manihot esculenta*," *Proceedings of the National Academy of Science* 96 (1999): 5586–91; Dolores R. Piperno and Kent V. Flannery, "The Earliest Archaeological Maize (*Zea mays* L.) from Highland Mexico: New Accelerator Mass Spectrometry Dates and Their Implications," *Proceedings of the National Academy of Science* 98 (2001): 2101–3; Kevin O. Pope et al., "Origin and Environmental Setting of Ancient Agriculture in the Lowlands of Mesoamerica," *Science* 292 (2001): 1370–73; and Bruce D. Smith, "Documenting Plant Domestication: The Consilience of Biological and Archaeological Approaches," *Proceedings of the National Academy of Science*, 98 (2001): 1324–6. On the debate over the origins of maize, see Richard MacNeish and Mary Eubanks, "Comparative Analysis of the Rio Balsas and Tehuacan Models for the Origin of Maize," *Latin American Antiquity* 11 (2000): 3–20; and "Comments," *Latin American Antiquity* 12 (2001): 84–104.

Because of the environmental variability of Latin America, the agricultural systems used also varied considerably. The trajectory of societal development caused systems to change as they became larger and more intensive and served growing numbers of people. For information on the diversity and importance of the plants domesticated and cultivated by the pre-Columbian peoples, see Nelson Foster and Linda S. Cordell, eds., *Chilies to Chocolate: Food the Americas Gave the World* (Tucson, AZ, 1992), and Board on Science and Technology for International Development, *Lost Crops of the Incas: Little-Known Plants of the Andes with Promise for Worldwide Cultivation* (Washington, DC, 1989). A general source covering the different agricultural systems mentioned in the chapter and their effects upon landscapes is David L. Lentz, *Imperfect Balance: Landscape Transformations in the Precolumbian Americas* (New York, 2000). For more information on the history and distribution of the major crops mentioned here, see Jonathan D. Sauer, *Historical Geography of Crop Plants – A Select Roster* (Boca Raton, FL, 1993).

For Mesoamerica, other good references are William T. Sanders, "The Agricultural History of the Basin of Mexico," in E. R. Wolf, ed., *The Valley of Mexico:*

Studies in Pre-Hispanic Ecology and Society (Albuquerque, NM, 1976); Scott L. Fedick, *The Managed Mosaic: Ancient Maya Agriculture and Resource Use* (Salt Lake City, 1996); Thomas W. Killion, ed., *Gardens of Prehistory: The Archaeology of Settlement Agriculture in Greater Mesoamerica* (Tuscaloosa, AL, 1992); and W. E. Doolittle, *Canal Irrigation in Prehistoric Mexico: The Sequence of Technological Change* (Austin, TX, 1990). Matecapán's use of *camellones* and their dating is discussed in Thomas W. Killion, ed., *Gardens of Prehistory* (cited previously). For a discussion of this system of Maya agriculture, see B. L. Turner II and P. D. Harrison, eds., *Pulltrouser Swamp: Ancient Maya Habitat, Agriculture, and Settlement in Northern Belize* (Austin, TX, 1983). The *conuco* system in the lowland Caribbean is described in William C. Sturtevant, "Taino Agriculture," in Johannes Wilbert, ed., *The Evolution of Horticultural Systems in Native America: Causes and Consequences* (Caracas, 1961), 69–82.

For South America, see Izumi Shimada, "Evolution of Andean Diversity (500 b.c.e.–c.e. 600)," in *The Cambridge History of Native Peoples*, vol. III, pt. 1 (cited previously), 350–517. The recent Bolivian Amazon findings are only beginning to be published, but Clark L. Erickson has "Los caminos prehispánicos de la Amazonía boliviana," in Leonor Herrera and Marianne Cardal de Schrimpf, eds., *Caminos precolombinos: Las vías, Los ingenieros y Los viajeros* (Bogotá, 2000), 15–42, and "Lomas de ocupación en los Llanos de Moxos," in Alicia Duran Coirolo and Roberto Bracco Bokssar, eds., *Arqueología de Tierras Bajas* (Montevideo, 2000), 207–26. For the distinctive agricultural system of Lake Titicaca, Clark Erickson also has "The Lake Titicaca Basin: A Precolumbian Built Landscape" in *Imperfect Balance* (cited previously), 311–56.

Economic Specialization

The evidence for very early sedentism in South America is presented in Ruth S. Solis, Jonathan Haas, and Winifred Creamer, "Dating Caral, a Preceramic Site in the Supe Valley on the Central Coast of Peru," *Science* 297 (2001): 723–6. For information on sedentism, and early villages in general, consult the general works cited previously.

Craft specialization has been studied mostly as part of the research on specific sites, but a general overview can be found in C. L. Costin, "Craft Specialization: Issues in Defining, Documenting, and Explaining the Organization of Production," in Michael B. Schiffer, ed., *Archaeological Method and Theory*, vol. 3 (Tucson, AZ, 1991), 1–56. The example of San José Mogote is discussed in Kent V. Flannery, ed., *The Early Mesoamerican Village* (New York, 1976). The Copan example is discussed in Randolph J. Widmer, "Especialización Económica en Copán," *Yaxkin* 15 (1997): 141–60. The Teotihuacan obsidian industry has been studied by Michael W. Spence; see, for example, "Obsidian Production and the State in Teotihuacan," *American Antiquity* 46 (1981): 769–88. For a counterview, see John E. Clark, "From Mountains to Molehills: A Critical Review of Teotihuacan's Obsidian Industry," in Barry L. Isaac, ed., *Economic Aspects of Prehispanic Highland Mexico* (Greenwich, CT, 1986), 23–74. The S3W21 compound is discussed in Randolph J. Widmer,

"Lapidary Craft Specialization at Teotihuacan," *Ancient Mesoamerica* 2 (1991): 131–47. The Teotihuacan figurine study is in Warren T. D. Barbour, "The Figurines and Figurine Chronology of Ancient Teotihuacán" (Ph.D. dissertation, University of Rochester, 1976). For a general overview of Aztec specialization, see Elizabeth M. Brumfiel, "Elite and Utilitarian Crafts in the Aztec State," in Elizabeth Brumfiel and Timothy K. Earle, eds., *Specialization, Exchange, and Complex Societies* (Cambridge, 1987), 102–18.

For a discussion of the history of crafts and technology in the Andean region, see Izumi Shimada, "Evolution of Andean Diversity (500 b.c.e.–c.e. 600)," (cited previously). For the Inca, see María Rostworowski and Craig Morris, "The Four-fold Domain: Inka Power and Its Social Foundations," in *The Cambridge History of Native Peoples*, vol. III, pt. 1 (cited previously), 769–863. For the importance of weaving and cloth, see John V. Murra, "Cloth and Its Functions in the Inca State," *American Anthropologist* 64 (1962): 710–28. For archaeological evidence and a discussion of the Aqlla Wasi, see Craig Morris and Donald E. Thompson, *Huánuco Pampa: An Inca City and Its Hinterland* (London, 1985).

Trade

Good general overviews of the archaeological study of trade can be found in the various articles in Kenneth G. Hirth, ed., *Trade and Exchange in Early Mesoamerica* (Albuquerque, NM, 1984) and Jonathon E. Ericson and Timothy K. Earle, eds., *Contexts for Prehistoric Exchange* (New York, 1982). The importance and characteristics of elite exchange are covered in Kenneth G. Hirth, "Interregional Exchange as Elite Behavior: An Evolutionary Perspective," in Diane Chase and Arlen Chase, eds., *Mesoamerican Elites: An Archaeological Assessment* (Norman, OK, 1992), 18–29; Timothy Earle, *How Chiefs Come to Power: The Political Economy in Prehistory* (Stanford, CA, 1997); and Mary W. Helms, *Craft and the Kingly Ideal: Art, Trade, and Power* (Austin, TX, 1993). The Earle book is also a very recent discussion of chiefdoms and their characteristics, which should be of interest to those not familiar with this type of sociopolitical organization.

For the individual examples discussed, the Olmec and Valley of Oaxaca examples are discussed in Kent V. Flannery, "The Olmec and the Valley of Oaxaca: A Model for Inter-regional Interaction," in Elizabeth Benson, ed., *Dumbarton Oaks Conference on the Olmec* (Washington, DC, 1968), 79–110; Jane W. Pires-Ferreira, "Shell and Iron-Ore Mirror Exchange in Formative Mesoamerica, with Comments on Other Commodities," *The Early Mesoamerican Village* (cited previously), 311–26; and Kenneth L. Brown, "Hallucinogenic Mushrooms, Jade, Obsidian, and the Guatemalan Highlands: What Did the Olmecs Really Want?" *Trade and Exchange in Early Mesoamerica* (cited previously), 215–34. For South America, early exchange patterns are discussed in Shimada, "Evolution of Andean Diversity" (cited previously). And for information on Chavín de Huantar in particular, consult R. L. Burger, *Chavín and the Origins of Andean Civilization* (New York, 1992). For the Moquegua Valley, the interpretation of mortuary artifacts as evidence of interelite exchange is found in Paul S. Goldstein, "Exotic Goods and Everyday

Chiefs: Long-Distance Exchange and Indigenous Sociopolitical Development in the South Central Andes," *Latin American Antiquity* 11 (2000): 335–62. A lot of information about chiefdoms from ethnohistorical sources, including the Buriticá example as well as an extensive bibliographic essay, are in Juan and Judith Villamarín, "Chiefdoms: The Prevalence and Persistence of 'Señoríos Naturales' 1400 to European Conquest," *Cambridge History of Native Peoples*, vol. III, pt. 1 (cited previously), 577–667. For a discussion of the importance of the *Spondylus* trade, see Allison C. Paulsen, "The Thorny Oyster and the Voice of God: *Spondylus* and *Strombus* in Andean Prehistory," *American Antiquity* 39 (1974): 597–607.

For the Andes, both the Inca and the antecedent societies, the previously cited Shimada and Rostworowski and Morris articles, plus the general works cited at the beginning of the essay, are good starting points. John V. Murra has been highly influential on our understanding of pre-Hispanic economies. See Murra's *Economic Organization of the Inka State* (Greenwich, CT, 1980). Murra's work on the "zonal complementarity" is the focus of critique and reformulation in Charles Stanish, *Ancient Andean Political Economy* (Austin, TX, 1992), and "Household Archaeology: Testing Models of Zonal Complementarity in the South Central Andes," *American Anthropologist* 91 (1989): 7–24. For a slightly different view of Inca and Andean economic systems, see María Rostworowski, *Etnía y sociedad: Costa peruana prehispánica* (Lima, 1977), and *Historia del Tabuantsinsuyu* (Lima, 1988). More articles discussing these issues are also found in Shozo Masuda, Isumi Shimada, and Craig Morris, eds., *Andean Ecology and Civilization* (Tokyo, 1985).

Trade between environmental zones for the Central Mexican Symbiotic region and its influence on the history of those societies are covered in various publications by William T. Sanders, but the most elaborate and developed treatments are in William T. Sanders and Barbara J. Price, *Mesoamerica: The Evolution of a Civilization* (New York, 1968), and William T. Sanders, Jeffrey R. Parsons, and Robert S. Santley, *The Basin of Mexico: Ecological Processes in the Evolution of a Civilization* (New York, 1979). For the Maya Lowlands, see Daniel R. Potter and Eleanor M. King, "A Heterarchical Approach to Lowland Maya Socioeconomies," in R. M. Ehrenreich, C. L. Crumley, and J. E. Levy, eds., *Hierarchy and the Analysis of Complex Societies* (Arlington, VA, 1995), 17–32, which deals with the general environmental heterogeneity. For the example of chert tools, see Thomas R. Hester and Harry S. Shafer, "The Ancient Craft Community at Colha, Belize, and Its External Relationships," in G. M. Schwartz and S. E. Falconer, eds., *Archaeological Views from the Countryside: Village Communities in Early Complex Societies* (Washington, DC, 1994). For the Maya example, see Payson Sheets, "Provisioning the Cerén Household: The Vertical Economy, Village Economy, and Household Economy in the Southeastern Maya Periphery," *Ancient Mesoamerica* 11 (2000): 217–30.

Aztec *pochteca* and the institutionalized trade of the Triple Alliance Empire have an original source in Sahagún, *Florentine Codex*, Book 9 (cited previously). Anne Chapman's theory is presented in "Port of Trade Enclaves in Aztec and Maya Civilizations," in Karl Polanyi, Conrad Arensberg, and Harry Pearson, eds., *Trade and Market in the Early Empires* (Chicago, 1971). More discussion of various aspects of the Aztec economy can be found in Francis Berdan, *The Aztecs of Central Mexico: An Imperial Society* (New York, 1982), and Ross Hassig, *Trade,*

Tribute, and Transportation: The Sixteenth-Century Political Economy of the Valley of Mexico (Norman, OK, 1985). Also recommended is Frederic Hicks, "Prehispanic Background of Colonial Political and Economic Organization in Central Mexico," in Ronald Spores, ed., *Supplement to the Handbook of Middle American Indians*, vol. 4 (Austin, TX, 1986), 35–54.

Labor and Tribute

The various formulations over the nature of labor and state control of economic output can be followed in Murra, *Economic Organization* (cited previously), and "The *Mit'a* Obligations of Ethnic Groups to the Inka State," in G. Collier, R. Rosaldo, and J. Wirth, eds., *The Inca and Aztec States 1400–1600: Anthropology and History* (New York, 1982), 239–62. Terence D'Altroy, *Provincial Power in the Inka Empire* (Washington, DC, 1992), should also be consulted. For a recent treatment of the subject, see Peter Gose, "The State as Chosen Woman: Brideservice and the Feeding of Tributaries in the Inka Empire," *American Anthropologist* 102 (2000): 84–97. Frances Hayashida, "Style, Technology, and State Production: Inka Pottery Manufacture in the Leche Valley," *Latin American Antiquity* 10 (1999): 337–52, discusses archaeological evidence for state administered versus local ceramic production. There is a slightly different view for a different part of the empire in Terence D'Altroy and R. L. Bishop, "The Provincial Organization of Inka Ceramic Production," *American Antiquity* 55 (1990): 120–37. On the question of state wealth and labor for the Inka, see Terence D'Altroy and Timothy Earle, "Staple Finance, Wealth Finance, and Storage in the Inka Political Economy," *Current Anthropology* 26 (1985): 187–206. The Cochabamba storage and *mitmaq* project is discussed by Nathan Wachtel in "The Mitimas of the Cochabamba Valley: The Colonization Policy of Huayna Capac," *The Inca and Aztec States* (cited previously), 173–98.

Tribute was an integral part of the Triple Alliance, and general discussions can be found in Berdan, *The Aztecs*, and Hassig, *Trade, Tribute* (both cited previously). The specific case studies referred to in the chapter can be found in Elizabeth M. Brumfield, "Tribute and Commerce in Imperial Cities: The Case of Xaltocan, Mexico," in Henri Claissen and Pieter van de Velde, eds., *Early State Economics* (New Brunswick, NJ, 1991), 177–98; Frederic Hicks, "Gift and Tribute: Relations of Dependency in Aztec Mexico," *Early State Economics*, 199–214; Frances F. Berdan, "Economic Alternatives under Imperial Rule: The Eastern Aztec Empire," in Mary G. Hodge and Michael E. Smith, eds., *Economies and Polities in the Aztec Realm* (Albany, NY, 1994), 291–312; and Michael E. Smith, "Economies and Polities in Aztec-Period Morelos: Ethnohistoric Overview," *Economies and Polities in the Aztec Realm*, 313–48.

Markets and Currencies

For general coverage of the Aztec, discussion of various aspects of the economic system can be found in Hodge and Smith, *Economies and Polities in the Aztec Realm* (cited previously), and Frances F. Berdan, Richard E. Blanton, Elizabeth Boone,

Mary Hodge, Michael E. Smith, and Emily Umberger, *Aztec Imperial Strategies* (Washington, DC, 1996). These collections of articles present the most current views of the Aztecs as quite a dynamic but not greatly centralized economic system. For markets, a good discussion is in Hassig, *Trade, Tribute* (cited previously), and Richard E. Blanton, "The Basin of Mexico Market System and the Growth of Empire," in *Aztec Imperial Strategies* (cited previously), 47–84. The description of the market is given in the *Bernal Diaz Chronicles* (cited previously). The currencies can be found in ethnohistorical sources cited above, but also see Francisco Javier Clavijero, *Historia Antigua de México* (Mexico City, 1974).

The Inca system is generally considered by researchers to have been largely free of markets and nonmonetary. The previously cited works by Murra and by Rostworowski and Morris hold to this position. But for more specific views on this, see Timothy Earle, "Commodity Exchange and Markets in the Inca State: Recent Archaeological Evidence," in Stuart Plattner, ed., *Markets and Exchange* (Lanham, MD, 1985), and Darrell E. La Lone, "The Inca as a Nonmarket Economy: Supply on Command versus Supply and Demand," *Contexts for Prehistoric Exchange* (cited previously), 291–316. The nature and amount of wealth in the Inca empire is discussed in Craig Morris, "The Wealth of a Native American State: Value, Investment and Mobilization in the Inka Economy," in J. S. Henderson and P. J. Netherly, eds., *Configurations of Power: Holistic Anthropology in Theory and Practice* (Ithaca, NY, 1993), 36–50, and in D'Altroy and Earle, "Staple Finance" (cited previously). The *khipu* is the subject of Marcia and Robert Ascher, *Code of the Quipu: A Study in Media, Mathematics and Culture* (Ann Arbor, MI, 1981).

CHAPTER 4 (ELINOR G. K. MELVILLE)

Historians' understanding of the impact of the Spaniards on American environments has been strongly influenced by studies of the introduction of Eurasian epidemic disease organisms, the development of new disease environments, and the resulting demographic collapse of the indigenous populations. The studies carried out by Woodrow Borah and Sherburne Cook in the 1940s and 1950s and published in the Ibero-American series (Berkeley, CA), for example, changed how we view the processes by which the Europeans invaded and settled in the Americas. The formation of new disease environments in the Americas has continued to be a fertile topic of discussion. See, for example, Suzanne Alchon, *A Pest in the Land: New World Epidemics in Global Perspective* (Albuquerque, NM, 2003). Studies of colonial landscapes by historical geographers, such as Carl Ortwin Sauer, *The Early Spanish Main* (Berkeley, CA, 1966), and students of his, such as Robert Cooper West, *Latin American Historical-Geographic Essay, 1941–1998* (Baton Rouge, LA, 1998), provided another foundational strand of Latin American environmental history. Their work was continued in the 1980s in extraordinarily detailed studies of colonial landscapes, such as David Watts, *The West Indies Patterns of Development, Culture, and Environmental Change since 1492* (New York, 1987). The two strands were combined by the next generation of historical geographers, such as

Linda Newson, *The Cost of Conquest: Indian Decline in Honduras Under Spanish Rule* (Boulder, CO, 1986), and George W. Lovell, *Conquest and Survival in Colonial Guatemala: A Historical Geography of the Cuchumatán, 1500–1810* (Montreal, 1992). A good introduction to historical and cultural geography of this period is Karl Butzer, ed., “The Americas before and after 1492: Current Geographical Research,” *Annals of the Association of American Geographers* 82, 3 (Sept. 1992).

More recently, the focus has shifted to the consequences of the introduction of Eurasian animals and plants for the physical processes in the environments of the Americas, and the implications of the biological processes for social change. Alfred Crosby, *Biological Imperialism: The Biological Expansion of Europe*, 2nd ed. (New York, 2004), although acknowledging the overwhelming importance of the demographic collapse of the indigenous populations, suggested that the success of the Europeans depended ultimately on the temperate climates of the lands they settled. Temperate climates were necessary for the expansion of the temperate zone species that, Crosby argued, formed the basis of their economies and their (neo-European) landscapes. The challenge for environmental historians of tropical and subtropical regions is that they often do not study temperate regions and they often do work on regions where indigenous peoples have remained demographically in the majority – despite episodes of demographic collapse as shocking as those in the neo-Europe. And over the past decade a growing number of studies carried out by scientists, archaeologists, geographers, and historians have begun to sort out the relationships between humans and the American environments. Most focus on the nineteenth and twentieth centuries, but there are a growing number of students of the colonial era. For an excellent introduction to the diversity of approaches, topics, and regions in North and South America, see the articles collected in Bernardo García Martínez and Alba González Jácome, eds., *Estudios sobre historia y ambiente en América*, vol. 1, *Argentina, Bolivia, México, Paraguay* (Mexico City, 1999), and Bernardo García Martínez and María del Rosario Prieto, eds., vol. 2, *Norteamérica, Sudamérica y el Pacífico* (Mexico City, 2002). For regional studies, see Elinor G. K. Melville, *A Plague of Sheep: Environmental Consequences of the Conquest of Mexico* (Cambridge, 1994); Arij Ouweneel, *Shadows over Anahuac: An Ecological Interpretation of Crisis and Development in Central Mexico, 1730–1800* (Albuquerque, NM, 1996); Cynthia Radding Murrieta, *Wandering Peoples: Colonialism, Ethnic Spaces, and Ecological Frontiers in North-Western Mexico, 1700–1850* (Durham, NC, 1997); Sonya Lipsett-Rivera, *To Defend our Water with the Blood of Our Veins: The Struggle For Resources in Colonial Puebla* (Albuquerque, NM, 1999). And for a fascinating account of the consequences of work in the Huancavelica mercury mines, see Kendall Brown, “Workers’ Health and Colonial Mercury Mining at Huancavelica, Peru” *The Americas* 57, 4 (2001): 467–96.

Examination of the impact of the Portuguese on American environments has followed a somewhat different trajectory. Students of Brazil were also influenced by the studies of the cause and effects of the demographic collapse of indigenous populations for their explanation of the rise of African slavery, as in Stuart Schwartz, “Indian Labor and New World Plantations: European Demands and Indian Republics in Northeastern Brazil,” *American Historical Review* 83, 1 (February 1978): 43–79. But the lack of indigenous peasants, together with a

pervasive understanding of regions such as the Amazon Basin as “pristine” and the indigenous populations as “primitive,” has meant that the influence of indigenous populations on environmental change has been ignored until recently, and the colonial landscapes have been viewed as almost entirely the result of Portuguese effort. Even the huge population of Africans imported into Brazil have not been treated as agents of change in either the Brazilian landscapes or environments, but solely as labor. The publication of Warren Dean’s study of the South Atlantic forest, *With Broadaxe and Firebrand: The Destruction of the Brazilian Atlantic Coastal Forest* (Berkeley, CA, 1995), however, changed how we approach the Portuguese in the American environments. Dean’s study, as well as extensive recent archaeological and ethnological research in the Amazon, demonstrate how physical and social processes have mutually influenced each other over immensely long periods of time in the region, and that agriculture was much more widespread in the precontact era than previously thought. See the articles in William Balée, ed., *Advances in Historical Ecology* (New York, 1995), and David Cleary, “Towards an Environmental History of the Amazon: From Prehistory to the Nineteenth Century,” *Latin American Research Review* 36, 2 (2001): 65–92. The Portuguese are still the main focus of the growing number of environmental histories, but they are more often seen as having to adapt to local conditions.

The idea proposed in this chapter, that knowledge of both local environments and invading species was critical for the growth and maintenance of colonial economies, and that specialized knowledge was something to be protected where possible, draw heavily on two broad and very well-researched sets of studies: agrarian history and ethnohistory. These two approaches are closely interconnected: agrarian history in Latin America has changed quite radically in response to developments in ethnohistory. Perhaps the clearest example of the implications of treating the indigenous communities as agents of social change in the formation of colonial societies is Charles Gibson, *The Aztecs under Spanish Rule: A History of the Indians of the Valley of Mexico, 1519–1810* (Stanford, CA, 1964). Gibson also catapulted the study of the premier Spanish American colonial unit of production, the hacienda, to the forefront of historical research in the 1970s and 1980s. His suggestion that there was a symbiotic relationship between haciendas and villages is generally accepted. For a detailed examination of the themes and approaches to the study of the colonial hacienda, see Eric Van Young, “Mexican Rural History since Chevalier: The Historiography of the Colonial Hacienda,” *Latin American Research Review* 18, 3 (1983): 5–61.

Hacienda studies have faded in popularity over the past two decades. By contrast, ethnohistorians and, most especially, cultural and social historians have produced an extraordinary number of indigenous community studies. For example, see Nancy Farris, *Maya Society under Colonial Rule: The Collective Enterprise of Survival* (Princeton, NJ, 1984); Robert S. Haskett, *Indigenous Rulers: An Ethnohistory of Town Government in Colonial Cuernavaca* (Albuquerque, NM, 1991); and Steve J. Stern, *Peru’s Indian Peoples and the Challenge of the Spanish Conquest: Huamanga to 1640* (Madison, WI, 1993). The importance of indigenous community studies for the present chapter lies in the evidence they provide of the ability of indigenous peoples to adapt alien species to their subsistence strategies, the persistence

of indigenous modes of land use alongside the Spanish estates, and, above all, their intelligent participation in the colonial economies. Such studies are also important for the evidence they provide of extraordinary diversity in the colonial political economies.

William B. Taylor, *Landlord and Peasant in Colonial Oaxaca* (Stanford, CA, 1972), demonstrated the ability of indigenous communities to retain control of their land and to prevent the formation of great estates. Taylor also highlighted the importance of smaller, less well-known colonial units of production, the *labores*, which preceded the appearance of the hacienda and continued to exist after the emergence of the great estates. For the expertise required in producing mules, see Juan Carlos Garavaglia, "Agrarian Technology and Changing Ecosystems," in Louisa Schell Hoberman and Susan Migden Socolow, eds., *The Countryside in Colonial Latin America* (Albuquerque, NM, 1996), 75–96. For the expertise required to produce large quantities of woolen textiles, see Richard Salvucci, *Textiles and Capitalism in Colonial Mexico: An Economic History of the Obrajes, 1539–1840* (Princeton, NJ, 1987). Robert W. Patch, "Imperial Politics and Local Economy in Colonial Central America, 1670–1770," *Past & Present* (May 1994): 77–107, demonstrates that Spaniards depended on indigenous expertise in the production of cotton textiles.

The remarkable shift over the past thirty years in the orientation of economic history of Latin America, from periphery to economic autonomy, was initiated by Peter Bakewell, *Silver Mining and Society in Colonial Mexico: Zacatecas 1546–1700* (Cambridge, 1971), who called for the study of the Spanish colonial economies on their own terms, and by Carlos Sempat Assadourian, "El sistema de la economía colonial: Mercado interno, regiones y espacio económico," *Estudios Históricos* 10 (1982), where he argued for the importance of American internal markets and interregional trade for American producers. More recently William Schell Jr., "Silver Symbiosis: Reorienting Mexican Economic History," *Hispanic American Historical Review* 81, 1 (2001): 89–130, has turned our attention to the importance of Pacific trade to Mexican silver producers – not as smugglers, but as powerful producers of international specie.

For an excellent discussion of the historiography of the internal markets of colonial Mexico, see Manuel Miño Grijalva, "Estructura Económica y Crecimiento: La historiografía económica colonial Mexicana," *Historia Mexicana* 42, 2 (1992): 221–60. Brazilian scholars are also turning their attention to the development of internal markets within Brazil. See David McCleary "Smuggling and the 'Internal Economy' of Nineteenth Century Brazil: The Case of Goias," *Hispanic American Historical Review* 53, 3 (1997): 333–51. For a treatment of the South Atlantic as an internal market, see José C. Curto, "Luso-Brazilian Alcohol and the Legal Slave Trade at Benguela and Its Hinterland (1617–1830)," in H. Bonin and M. Cahen, eds., *Négoce Blanc en Afrique Noir: l'Évolution du commerce... longue distance en Afrique Noir du 18e au 20e siècles* (Paris, 2001). Mules and mule trains as critical elements of articulation of internal markets are examined in Herbert S. Klein, "The Supply of Mules to Central Brazil: The Sorocaba Market, 1825–1880," *Agricultural History* 64, 4 (1990): 1–25. For the use of mules in the Andean region, see José Deustua, "Routes, Roads, and Silver Trade in Cerro de Pasco, 1820–1860,"

Hispanic American Historical Review 74, 1 (1994): 1–31, and Miriam Salas de Coloma, “Arriaje y producción mercantil en el centro-sur-este del Perú,” *Historia y Cultura* 16: 51–66.

CHAPTER 5 (LINDA A. NEWSON)

The Population of Latin America: A History (Berkeley, CA, 1974), by Nicolás Sánchez-Albornoz, remains the only book to provide a broad overview of demographic trends in the colonial and independence periods. An updated and succinct account of demographic change in colonial Spanish America by the same author is found in “The Population of Colonial Spanish America,” in Leslie Bethell, ed., *The Cambridge History of Latin America*, vol. 2 (Cambridge, 1984), 3–35, and demographic change in colonial Brazil is considered in the same volume by Maria L. Marcílio, “The Population of Colonial Brazil,” 37–63, and by Dauril Alden, “Late Colonial Brazil, 1750–1808,” 602–12. Some comments on demographic change in the early nineteenth century can be found in Nicolás Sánchez-Albornoz, “The Population of Latin America, 1850–1930,” in Leslie Bethell, ed., *The Cambridge History of Latin America*, vol. 4 (Cambridge, 1986), 121–52. General accounts of the population of Brazil include Iraci de Nero da Costa, *Brasil: Historia Económica e Demográfica* (São Paulo, 1986), and Thomas W. Merrick and Douglas H. Graham, *Population and Economic Development in Brazil: 1800 to the Present* (Baltimore, 1979).

There is an abundant literature on aboriginal population estimates and on demographic change in the early colonial period. A key paper in the debate over the size of native populations in 1492 is Henry F. Dobyns, “Estimating Aboriginal American Population: An Appraisal of Techniques with a New Hemispheric Estimate,” *Current Anthropology* 7 (1966): 395–416. This article reviews the scholarly literature up to the 1960s and proposes new estimates for the population in 1492. William M. Denevan, ed., *Native Population of the Americas in 1492*, 2nd ed. (Madison, WI, 1992), reviews the research undertaken on different regions in the subsequent twenty-five years and includes a chapter by Woodrow Borah that discusses the methodological problems associated with estimating aboriginal populations. David Henige, *Numbers from Nowhere: The American Indian Contact Population Debate* (Norman, OK, 1998) provides some insight into the nature of the controversy over aboriginal populations estimates. The role of Old World diseases in native population decline is considered by Alfred W. Crosby, “Virgin Soil Epidemics as a Factor in the Aboriginal Depopulation in America,” *William and Mary Quarterly* 3, 33 (1976): 289–99, and a detailed account of their introduction in the early colonial period is found in N. David Cook, *Born to Die: Disease and New World Conquests, 1492–1650* (Cambridge, 1998).

Archaeological studies often make reference to the characteristics of populations associated with particular sites investigated, but few have focused primarily on pre-Columbian demography. Richard H. Steckel and Jerome C. Rose, eds., *The Backbone of History: Health and Nutrition in the Western Hemisphere* (Cambridge,

2002), which is based on a database of 12,500 skeletal remains from the Americas, provides new insight on demography, health, and nutrition from prehistory to the present. Meanwhile, studies that focus on population dynamics at the time of the Spanish invasion include the following: for the Inca, Cecilia A. Rabell and Carlos S. Assadourian, "Self-Regulating Mechanisms of the Population in a Pre-Columbian Society: The Case of the Inca Empire," in *International Population Conference* (Mexico, 1977) vol. 3 (Liège, 1977), 25–42, and for the Mexica (Aztecs), Robert McCaa, "Marriageways in Mexico and Spain, 1500–1900," *Continuity and Change* 9 (1994): 11–43. The case of the Tupinambá is discussed by Warren Dean, "Indigenous Populations of the São Paulo–Rio de Janeiro Coast: Trade, Aldeamento, Slavery and Extinction," *Revista de Historia* 117 (1984): 3–26.

Early Spanish immigration to America has been studied intensively by Peter Boyd-Bowman, whose research on the destination and origins of some 56,000 emigrants from Spain in the sixteenth century has been published in *Patterns of Spanish Emigration to the New World, 1493–1580* (Buffalo, NY, 1973), and in a number of articles, notably "Patterns of Spanish Immigration to the Indies until 1600," *Hispanic American Historical Review* 56 (1976): 580–603. For the process of Spanish immigration to the New World, see Ida Altman, *Emigrants and Society: Extremadura and Spanish America in the Sixteenth Century* (Berkeley, CA, 1989), and the chapters by Ida Altman, "A New World in the Old: Local Society and Spanish Emigration to the Indies," and Auke Pieter Jacobs, "Legal and Illegal Immigration from Seville, 1550–1650," in Ida Altman and James Horn, eds., "*To Make America*": *European Emigration in the Early Modern Period* (Berkeley, CA, 1991), 30–58 and 59–84.

Portuguese immigration is considered by Dauril Alden, "The Population of Brazil in the Late Eighteenth Century: A Preliminary Study," *Hispanic American Historical Review* 43 (1963): 173–205, and Maria Luiza Marcílio, "Evolução da população brasileira através dos censos até 1872," *Anais de História* 6 (1974): 115–37. For a discussion of immigration in the broader context of the Portuguese empire, see Vitorino Magalhães Godinho, "Portuguese Emigration from the Fifteenth to the Twentieth Century: Constants and Changes," in Pieter C. Emmer and Magnus Mörner, eds., *European Expansion and Migration: Essays on the Intercontinental Migration from Africa, Asia and Europe* (New York, 1992), 13–48.

There is an extensive literature on the African slave trade that is reviewed by Herbert S. Klein in *The Atlantic Slave Trade* (Cambridge, 1999), 213–24, and in Chapter 2 of this volume. For the numbers of African slaves entering Latin America the classic work is Philip D. Curtin, *The Atlantic Slave Trade: A Census* (Madison, WI, 1969), which can be used in association with the database produced on CD-ROM by David Eltis, Stephen D. Behrendt, David Richardson, and Herbert S. Klein, *The Trans-Atlantic Slave Trade: A Database* (Cambridge, 1999). There has been little research on African demography in Spanish America, a notable exception being David L. Chandler, *Health and Slavery in Colonial Colombia* (New York, 1981). However, there are a number of studies that provide overviews of slavery in Latin America, including Frederick F. Bowser, "Africans in Spanish American Colonial Society," in *The Cambridge History of Latin America*, vol. 2 (cited previously), 3–35; Herbert S. Klein, *African Slavery in Latin America and the Caribbean*

(New York, 1986); Rolando Mellafe, *Negro Slavery in Latin America* (Berkeley, CA, 1975); and Leslie B. Rout, *The African Experience in Spanish America, 1502 to the Present Day* (Cambridge, 1976). For specific regions, see Gonzalo Aguirre Beltran, *La población negra de México: Estudio etnohistórico*, 2nd ed. (Mexico City, 1972); Colin A. Palmer, *Slaves of the White God: Blacks in Mexico, 1570–1650* (Cambridge, 1976); and Frederick F. Bowser, *The African Slave in Colonial Peru, 1524–1650* (Stanford, CA, 1974). Though somewhat overtaken by much recent research, Stuart B. Schwartz's substantial monograph, *Sugar Plantations in the Formation of Brazilian Society: Bahia, 1550–1835* (Cambridge, 1985), remains an important contribution to understanding the nature of production and conditions of slavery on sugar plantations in Brazil, and includes useful discussions of slave populations and the establishment of maroon communities. For a recent study of the unique slave demography of Minas Gerais that builds on the pioneering work of the Brazilian scholars Francisco Vidal Luna and Iraci Nero da Costa, see Laird W. Bergad, *Slavery and the Demographic History of Minas Gerais, Brazil, 1720–1888* (Cambridge, 1999).

A useful introduction to racial mixing is Magnus Mörner's *Race Mixture in the History of Latin America* (Boston, 1967), though the study tends to portray socioracial divisions as being marked and static. More recent research suggests that colonial society was more dynamic, with racial divisions being blurred and "passing" common. See, for example, R. Douglas Cope, *Limits of Racial Domination: Plebeian Society in Colonial Mexico City, 1620–1720* (Madison, WI, 1994); Christopher H. Lutz, *Santiago de Guatemala, 1541–1773: City, Caste and the Colonial Experience* (Norman, OK, 1994); and Ann Twinam, *Public Lives, Private Secrets: Gender, Honor, Sexuality and Illegitimacy in Colonial Spanish America* (Stanford, CA, 1999).

Due to the early decimation of the native population, the few demographic studies that exist for the Caribbean focus on the conquest period. The most detailed research focuses on estimates of the aboriginal population in Hispaniola. See Sherburne F. Cook and Woodrow Borah, "The Aboriginal Population of Hispaniola," in *Essays in Population History*, vol. 1 (Berkeley, CA, 1971), 376–410; David Henige, "On the Contact Population of Hispaniola: History as Higher Mathematics," *Hispanic American Historical Review* 58 (1978): 217–37; and N. David Cook, *Born to Die* (cited previously), 15–59. The suggestion that influenza was the first epidemic to strike the Americas is found in Francisco Guerra, "The Earliest American Epidemic: The Influenza of 1493," *Social Science History* 12 (1988): 305–25. Carl O. Sauer, *The Early Spanish Main* (Berkeley, CA, 1966), remains the best account of the broader economic and social changes experienced by Caribbean societies prior to 1520. For a brief overview of native societies during the sixteenth century, which extends to the Lesser Antilles and the littoral of the *Tierra Firme*, see Neil L. Whitehead, "The Crises and Transformations of Invaded Societies: The Caribbean (1492–1580)," in Frank Salomon and Stuart B. Schwartz, eds., *The Cambridge History of Native Peoples*, vol. 3, part 1, *South America* (Cambridge, 1999), 864–903.

There is a sizeable literature on early contacts between Europeans and the natives of coastal Brazil, but there are few detailed studies of the demographic changes during this period. For a brief overview of the population of Brazil in 1500, see John

Hemming, *Red Gold: The Conquest of the Brazilian Indians* (London, 1978), 487–501, though the precise figures estimated for individual groups need to be used with care because they are taken from a wide range of sources and time periods. William M. Denevan includes the Brazilian coast in his essay, “Aboriginal Population of Amazonia,” in *The Native Population of the Americas* (cited previously), 205–34. The incidence and impact of epidemics in Brazil is discussed by Warren Dean and by N. David Cook, *Born to Die* (cited previously), 113–16, 148–54, 190–92. For the general context of demographic change in the early colonial period see the excellent essay by John Monteiro, “Invaded Societies: Sixteenth-Century Coastal Brazil”, in *The Cambridge History of Native Peoples*, vol. 3, part 1, *South America* (cited previously), 973–1023.

Moving to the Spanish American mainland, for Mexico *El poblamiento de México: Una visión histórico-demográfica*, 2 vols. (Mexico City, 1993), constitutes an excellent collection of essays on the historical development of the Mexican population based on recent research. Another succinct overview is Robert McCaa, “The Peopling of Mexico from Origins to Revolution,” in Michael R. Haines and Richard H. Steckel, eds., *A Population History of North America* (Cambridge, 2000), 241–304. Sherburne F. Cook and Woodrow Borah, *Essays in Population History*, 3 vols. (cited previously), contains essays on different aspects of Mexican demographic history. Detailed studies of Mexican parish records have been undertaken by a number of scholars including Thomas Calvo, Claude Morin, Elsa Malvido, Cecilia Rabell, Lutz Brinckmann, Robert McCaa, David Brading, and Celia Wu. Cecilia Rabell provides a useful analysis of their studies in *La población novohispana a la luz de los registros parroquiales* (Mexico City, 1990). Christopher H. Lutz and W. George Lovell, *Demography and Empire: A Guide to the Population History of Central America, 1500–1821* (Boulder, CO, 1995), includes an introductory essay on the population history of Central America. Linda A. Newson has two monographs that focus specifically on demographic change in the colonial period: *Indian Survival in Colonial Nicaragua* (Norman, OK, 1987), and *The Cost of Conquest: Indian Decline in Honduras Under Spanish Rule* (Boulder, CO, 1986). For Colombia, Juan and Judith Villamarín, *Indian Labor in Mainland Colonial Spanish America* (Newark, NJ, 1975), contains useful demographic statistics on Colombia and the mainland in general, whereas Germán Colmenares provides a overview of Colombian studies of regional demographic change in *Historia económica y social de Colombia, 1537–1719* (Bogotá, 1973), 47–75. Substantial monographs on the demographic history of Andean regions include Suzanne A. Alchon, *Native Society and Disease in Colonial Ecuador* (Cambridge, 1991); Linda A. Newson, *Life and Death in Early Colonial Ecuador* (Norman, OK, 1995); and N. David Cook, *Demographic Collapse: Indian Peru, 1520–1620* (Cambridge, 1980).

For a brief review of the nature and causes of variations in the decline and recovery of native populations, see Linda A. Newson, “The Demographic Collapse of Native Peoples of the Americas, 1492–1650,” *Proceedings of the British Academy* 81 (1993): 247–88. The continuing importance of epidemics in the colonial period is considered in Henry F. Dobyns, “An Outline of Andean Epidemic History to 1720,” *Bulletin of the History of Medicine* 37 (1963): 493–515; N. David Cook and

W. G. Lovell, eds., "Secret Judgments of God": *Old World Disease in Colonial Spanish America* (Norman, OK, 1991); and Elsa Malvido, *Ensayos sobre la historia de las epidemias en México*, vol. 1 (Mexico City, 1982). The role of military superiority in the conquest is examined in John F. Guilmartin, "The Cutting Edge: An Analysis of the Spanish Invasion and Overthrow of the Inca Empire," in Kenneth Andrien and Rolena Adorno, eds., *Transatlantic Encounters: Europeans and Andeans in the Sixteenth Century* (Berkeley, CA, 1991), 40–69.

The links between labor and demography are examined in Nicolás Sánchez-Albornoz, ed., *Población y mano de obra en América Latina* (Madrid, 1985). A number of studies of silver mining also examine its impact on demographic trends, including Peter J. Bakewell, *Miners of the Red Mountain: Indian Labor in Potosí, 1545–1650* (Albuquerque, NM, 1984); Jeffrey Cole, *The Potosí Mita, 1573–1700* (Stanford, CA, 1985); and Enrique Tandeter, "Población y economía en los Andes (siglo XVIII)," *Revista Andina* 13, 1 (1995): 7–42. Murdo J. MacLeod examines the influence of other types of economic activities in "Ethnic Relations and Indian Society in the Province of Guatemala ca.1620-ca.1800," in Murdo J. MacLeod and Robert Wasserstrom, eds., *Spaniards and Indians in Southern Mesoamerica: Essays on the History of Ethnic Relations* (Lincoln, NE, 1983), 189–214. A useful collection of essays on migration is David J. Robinson, ed., *Migration in Colonial Spanish America* (Cambridge, 1990). For more substantial monographs on migration, and particularly the status and demographic characteristics of *forasteros* in the Andes, see Ann M. Wightman, *Indigenous Migration and Social Change: The Forasteros of Cuzco, 1520–1720* (Durham, NC, 1990), and Karen V. Powers, *Andean Journeys: Migration, Ethnogenesis, and the State in Colonial Quito* (Albuquerque, NM, 1995).

Even though it does not focus on demography, H. E. Bolton's classic paper, "The Mission as a Frontier Institution in the Spanish American Colonies," *American Historical Review* 23 (1917): 42–61, remains essential to understanding the objectives of the missions. For understanding changing views on the impact of the missions, see David Sweet, "The Ibero-American Frontier Mission in Native American History," in Erick Langer and Robert H. Jackson, eds., *The New Latin American Mission History* (Lincoln, NE, 1995), 1–48. Sherburne Cook's pioneering studies of health and nutrition in Californian missions that drew attention to the negative impact of missions have been republished together as *The Conflict between the Californian Indian and White Civilisation* (Berkeley, CA, 1976).

There has been a significant increase in mission studies in recent years, particularly in northern Mexico, with several focusing on their demographic impact. Robert H. Jackson compares the experience of missions in Alta and Baja California and Sonora in *Indian Population Decline: The Missions of Northwestern New Spain, 1687–1840* (Albuquerque, NM, 1994), whereas Daniel T. Reff focuses specifically on the impact of disease in *Disease, Depopulation and Culture Change in Northwestern New Spain, 1518–1764* (Salt Lake City, 1991). For the Amazonian missions, see David Sweet's unpublished M. A. thesis, "Population of the Upper Amazon Valley: Seventeenth and Eighteenth Centuries" (University of Wisconsin, 1987). David Block, *Mission Culture on the Upper Amazon: Native Traditions, Jesuits Enterprises and Secular Policy in Moxos, 1600–1880* (Lincoln, NE, 1994), contains useful demographic

material. Ernesto Maeder has conducted a number of studies of the demography of the Guarani missions, a summary which is contained in "Las misiones de Guaraníes: Historia demográfica y conflictos con la sociedad colonial, 1641–1801," in Sérgio O. Nadalin, Maria L. Marcílio, and Altiva P. Balhana, eds., *História e população: Estudos sobre a América Latina* (São Paulo, 1990), 41–50.

Virtually no studies exist of the demographic impact of low-intensity wars in peripheral regions, but several describe the character of warfare and the cultural changes that it precipitated. For southern Chile and Argentina, see Kristine L. Jones, "Warfare, Reorganization, and Readaptation at the Margins of Spanish Rule: The Southern Margin (1573–1882)," in *The Cambridge History of Native Peoples*, vol. 3, part 2 (cited previously), 138–87, and Eugene H. Korth, *Spanish Policy in Colonial Chile* (Stanford, CA, 1968). For the Chichimeca, see Philip W. Powell, *Soldiers, Indians and Silver: The Northward Advance of New Spain, 1550–1600* (Berkeley, CA, 1952); Silvio A. Zavala, *Esclavos indios en Nueva España* (Mexico City, 1967); and David Frye, "The Native Peoples of Northeastern Mexico," in Richard E. Adams and Murdo J. MacLeod, eds., *The Cambridge History of Native Peoples*, vol. 2, *Mesomamerica*, part 2 (Cambridge, 2000), 89–135. For the demographic changes resulting from the fluid interactions between soldiers, missions and native peoples in peripheral regions, see Cynthia Radding, *Wandering Peoples: Colonialism, Ethnic Spaces, and Ecological Frontiers in Northwestern Mexico, 1700–1850* (Durham, NC, 1997).

CHAPTER 6 (JOHN M. MONTEIRO)

The strategic importance of labor systems in Latin American historiography has deep roots, whether as part of broader works in economic or demographic history, or as studies of labor institutions in their own right. Due to space limitations, this essay focuses primarily on the recent literature, with a deliberate bias toward works published in English. General studies specifically addressing the themes of labor systems and work in Latin America to 1850 include Juan and Judith Villamarín, *Indian Labor in Mainland Colonial Spanish America* (Newark, DE, 1975), which provides a schematic but comprehensive overview, updated and somewhat expanded in their essay in *Para una historia de América*, Marcello Carmagnani et al., eds., vol. III, (Mexico City, 1999), 13–72. Another older work with useful insights and an impressive command of the topic is Mario Góngora, "Trends in Colonial History and Changes in the Founding Ideas: The Case of the Native Labour System," in his *Studies in the Colonial History of Spanish America*, trans. R. Southern (Cambridge, 1975), 127–58. Although focused on Mexico and Central America, papers resulting from a landmark conference held in Pátzcuaro in 1977, published as *El trabajo y los trabajadores en la historia de México*, Elsa Cecilia Frost et al., eds. (Mexico City and Tucson, AZ, 1979), established a significant agenda for the field. Enrique Florescano et al., *La clase obrera en la historia de México: De la colonia al imperio* (Mexico City, 1980), also exerted a major impact on the shape and direction of subsequent colonial and early postcolonial labor studies in Mexico

and beyond. Two previous Cambridge Histories afford important insights on different aspects of colonial labor systems. Leslie Bethell, ed., *The Cambridge History of Latin America*, vols. 1 and 2 (Cambridge, 1982), includes useful overviews, while Stuart Schwartz and Frank Salomon, eds., *The Cambridge History of the Native Peoples of the Americas, Vol. II: South America*, parts 1 and 2 (Cambridge, 1999), presents ethnohistorical studies with new perspectives on labor relations. David McCreevy, *The Sweat of Their Brow: A History of Work in Latin America* (London, 2000), offers a general introduction based on a broad sampling of the current bibliography in English. Several of the issues discussed in this chapter were laid out in the critical debate touched off by Steve Stern in "Feudalism, Capitalism, and the Modern World System in the Perspective of Latin America and the Caribbean," *American Historical Review* 93, 4 (1988): 829–72, with Immanuel Wallerstein's reply (873–85) and Stern's rebuttal (886–97).

The intricate relationship between demographic change and the structuring of labor systems has been a key topic in colonial studies. Two recent surveys frame several of the issues in a useful manner: Noble David Cook, *Born to Die: Disease and New World Conquest, 1492–1650* (Cambridge, 1998), and Suzanne Austin Alchon, *A Pest in the Land: New World Epidemics in a Global Perspective* (Albuquerque, NM, 2003). Although much of the literature underscores the primary importance of disease in population decline, Nicolás Sánchez Albornoz, ed., *Población y mano de obra en América Latina* (Madrid, 1985), and Linda Newson, "Indian Population Patterns in Colonial Spanish America," *Latin American Research Review* 20, 3 (1985): 41–74, show how specific labor systems also conditioned differential demographic patterns. A more recent focus on the role of migration and itinerant labor in the colonial period has reshaped the discussion: Brooke Larson and Olivia Harris, eds., *Ethnicity, Markets, and Migration in the Andes* (Durham, NC, 1995), draws together a generation of innovative scholarship, incorporating ethnohistorical sources and insights that shed new light on the formation of colonial labor markets. See, also, Michael Swann, *Migrants in the Mexican North: Mobility, Economy, and Society in a Colonial World* (Boulder, CO, 1989); Ann Wightman, *Indigenous Migration and Social Change: The Forasteros of Cuzco, 1520–1720* (Durham, NC, 1990); Karen Vieira Powers, *Andean Journeys: Migration, Ethnogenesis, and the State in Colonial Quito* (Albuquerque, NM, 1995); and Cynthia Radding, *Wandering Peoples: Colonialism, Ethnic Spaces, and Ecological Frontiers in Northwestern Mexico, 1700–1850* (Durham, NC, 1997).

On postconquest Indian labor, Charles Gibson's *The Aztecs under Spanish Rule* (Stanford, CA, 1964) remains a mandatory reference, setting the measure for many other regional monographs. Rebecca Horn, *Postconquest Coyoacan: Nahua-Spanish Relations in Central Mexico 1519–1650* (Stanford, CA, 1997), constitutes an excellent study of encomienda, repartimiento, and contract labor in that district, based largely on documents in Nahuatl. Focusing on the Yucatan, Nancy Farriss, *Maya Society under Colonial Rule* (Princeton, NJ, 1984), brilliantly weaves ethnography, history, and the political economy of colonialism, providing a rich context for understanding the development of labor systems. This approach also stands out in Andean studies: Steve Stern, *Peru's Indian Peoples and the Challenge of Spanish Conquest* (Madison, WI, 1982; rev. ed. 1993), offers an engaging analysis of labor

systems in Huamanga during the first century of colonial rule, whereas Karen Spalding's *Huarochirí: An Andean Society under Inca and Spanish Rule* (Stanford, CA, 1984) represents a major contribution on the long-term process of change in the Andes. On Alto Perú (Bolivia), Brooke Larson's *Cochabamba, 1550–1900: Capitalism and Agrarian Transformation in Bolivia* (expanded ed., Durham, NC, 1998) and Thomas Abercrombie's *Pathways to Memory and Power: Ethnography and History among an Andean People* (Madison, WI, 1998) both emphasize the role of indigenous strategies in shaping colonial and postcolonial history in the region, with important insights on labor relations. Two of the most recent contributions to this line of inquiry focus on the colonial periphery, with significant information on slavery, encomienda, repartimiento, mission labor, and free labor in these frontier regions: Barbara Ganson, *The Guaraní under Spanish Rule in the Río de la Plata* (Stanford, CA, 2003), and Susan M. Deeds, *Defiance and Deference in Mexico's Colonial North: Indians under Spanish Rule in Nueva Vizcaya* (Austin, TX, 2003).

Studies of Indian slavery, encomienda, and repartimiento have a long and distinguished tradition in Latin American scholarship, including Lesley Byrd Simpson's pioneer work in institutional history as well as the monumental scholarship of Mexican historian Silvio Zavala, especially his *La encomienda india*, 3rd ed. (Mexico City, 1993; orig. pub. 1935) and *El servicio personal de los indios en la Nueva España*, 7 vols. (Mexico City, 1984–95). A more recent general survey of encomienda studies can be found in Julián Ruiz Rivera and Horst Pietschmann, eds., *Encomiendas, indios y españoles* (Münster, 1996), with a detailed bibliographical essay by Luis Navarro García. Timothy Yeager, "Encomienda or Slavery? The Spanish Crown's Choice of Labor Organization in Sixteenth-Century America," *Journal of Economic History* 55, 4 (1994): 842–59, examines the encomienda from a neoinstitutional perspective, whereas Mario Pastore, "Taxation, Coercion, Trade, and Development in a Frontier Economy: Early and Mid-Colonial Paraguay," *Journal of Latin American Studies* 29, 2 (1997): 329–54, although adopting a similar theoretical framework, arrives at strikingly different conclusions. On the Caribbean, Esteban Mira Caballos, *El indio antillano: Repartimiento, encomienda y esclavitud, 1492–1542* (Seville, 1997), provides a wealth of new information from the Archivo de Indias. Mira Caballos's study is one of the latest in a long series of carefully documented encomienda monographs produced at the Escuela de Estudios Americanos. Julia Hirschberg, "An Alternative to Encomienda: Puebla's Indios de Servicio, 1531–45," *Journal of Latin American Studies* 11, 2 (1979): 241–64, affords an insight into early public labor drafts. Sander Spanoghe, "Los salarios dentro del sistema del repartimiento forzoso en el Valle de México, 1549–1632," *Anuario de Estudios Americanos* 54, 1 (1997): 43–64, examines the structure, variation, and value of wages associated with labor drafts in different economic sectors. For Guatemala, both Indian slavery and encomienda labor receive detailed treatment in William Sherman, *Forced Native Labor in Sixteenth-Century Central America* (Lincoln, NE, 1978) and Wendy Kramer, *Encomienda Politics in Early Colonial Guatemala* (Boulder, CO, 1994). Nélida Bonaccorsi, *El trabajo obligatorio indígena en Chiapas, siglo XVI (Los Altos y Soconusco)* (Mexico City, 1990), offers a brief but original study of Indian slavery, encomienda, and repartimiento in a secondary colonial area. On

the Andes, in addition to the works mentioned above, Rafael Varón Gabal, *Francisco Pizarro and His Brothers*, trans. Javier Flores E. (Norman, OK, 1997), provides an in-depth analysis of the importance of encomienda labor in the consolidation of a mercantile economy in early postconquest Peru. On Brazil, although there is no comparable study of indigenous societies under Portuguese rule, three works are especially useful in their specific focus on labor forms: Colin MacLachlan, "The Indian Labor Structure in the Portuguese Amazon, 1700–1800," in Dauril Alden, ed., *Colonial Roots of Modern Brazil* (Berkeley, CA, 1973), 199–230; Stuart B. Schwartz, "Indian Labor and New World Plantations: European Demands and Indian Responses in Northeastern Brazil," *American Historical Review* 83, 3 (1978): 43–79; and John M. Monteiro, *Negros da Terra: Índios e Bandeirantes nas Origens de São Paulo* (São Paulo, 1994).

On African and creole slavery in the Americas, Joseph C. Miller's *Slavery and Slaving in World History: A Bibliography*, 2 vols. (Armonk, NY, 1999) is an indispensable tool, updated constantly with annual supplements in the journal *Slavery and Abolition*. Seymour Drescher and Stanley Engerman have edited an excellent encyclopedia, *A Historical Guide to World Slavery* (New York, 1998), which includes solid articles by Francisco Scarano on the Spanish Caribbean, Stuart Schwartz on Brazil, Douglas Libby on slavery in mining, and Laird Bergad on the historiography of Latin American slavery. Herbert Klein provides a broad overview in *African Slavery in Latin America and the Caribbean* (Oxford, 1986), with editions in Spanish and Portuguese. On the relation between New World demand and the supply of slaves, Russel Menard and Stuart B. Schwartz, "Why African Slavery?" in Wolfgang Binder, ed., *Slavery in the Americas* (Würzburg, 1993), 89–114, discusses changes in the labor forces of Brazil, Mexico, and South Carolina with a focus on labor markets. Luiz Felipe de Alencastro, *O Trato dos Viventes: Formação do Brasil no Atlântico Sul* (São Paulo, 2000), recasts the issues of supply and demand within the framework of a South Atlantic system; also see his essay (among others) in Barbara Solow, ed., *Slavery and the Rise of the Atlantic System* (Cambridge, 1991), 151–76. Laird Bergad, Fe Iglesias García, and María del Carmen Barcia, *The Cuban Slave Market, 1790–1880* (Cambridge, 1995), is a pioneer effort analyzing slave prices and market conditions. For Brazil, Maria José de Souza Andrade, *A Mão-de-Obra Escrava em Salvador, 1811–1860* (Salvador, 1988), provides a detailed, informative study of slave occupations and prices, based mainly on probate inventories, whereas Laird Bergad, *Slavery and the Demographic and Economic History of Minas Gerais* (Cambridge, 1999), includes a detailed study of price trends and profitability based on the available data. The intimate relation between sugar and slave labor constitutes a central theme in Latin American economic history: Stuart B. Schwartz, *Sugar Plantations in the Formation of Brazilian Society, 1550–1835* (Cambridge, 1985), presents an exhaustive economic, social, and cultural history of slavery in Brazil, whereas Manuel Moreno Fraguinals, *The Sugarmill*, trans. C. Belfrage (New York, 1976), remains a classic reference on technical and economic aspects of sugar plantation slavery in Cuba. Patrick Carroll, *Blacks in Colonial Veracruz*, 2nd ed. (Austin, TX, 2001), focuses on the relationship between markets and changes in the labor system in colonial Mexico. On gold mining and

African slavery, William Sharp, *Slavery on the Spanish Frontier* (Norman, OK, 1976), includes a solid discussion of profitability in the Chocó region of Colombia; Kris Lane, "The Transition from Encomienda to Slavery in Seventeenth-Century Barbacoas, Colombia," *Slavery and Abolition* 21, 1 (2000): 73–95, examines the development of slavery in relation to earlier labor systems in a mining zone; A. J. R. Russell-Wood, *Slavery and Freedom in Colonial Brazil* (Oxford, 2002), explores the peculiarities of slave and manumitted labor in Minas Gerais; and Kathleen Higgins, "Licitous Liberty" in a Brazilian Gold-Mining Region (University Park, PA, 1999), offers a significant focus on gender in studying labor patterns. Douglas Libby, *Transformação e Trabalho em uma Economia Escravista* (São Paulo, 1988), carries the discussion into the nineteenth century, with important perspectives on industrial slavery, slaves for hire, and profitability. Philip Morgan, "Task and Gang Systems," in Stephen Innes, ed., *Work and Labor in Early America* (Chapel Hill, NC, 1988), and Rafael de Bivar Marquese, *Feitores do Corpo, Missionários da Mente: Senhores, Letrados e o Controle dos Escravos nas Américas, 1660–1860* (São Paulo, 2004), offers solid analyses of management strategies and costs in a comparative framework. The organization of slave labor and the tension between the slaveholders' and the slaves' economies is treated in Ira Berlin and Philip Morgan, eds., *The Slave Economy: Independent Production by Slaves in the Americas* (London, 1991), especially in the broad, comparative introduction by the editors and Dale Tomich's study of provision grounds; along the same lines, see also Ira Berlin and Philip Morgan, eds., *Cultivation and Culture* (Charlottesville, VA, 1993). On slavery beyond the plantation, Stuart B. Schwartz, *Slaves, Peasants, and Rebels: Reconsidering Brazilian Slavery* (Urbana, IL, 1992), Bert J. Barickman, *A Bahian Counterpoint: Sugar, Tobacco, Cassava, and Slavery in the Recôncavo, 1780–1860* (Stanford, CA, 1998), and Guillermo Palacios, *Cultivadores libres, Estado y crisis de la esclavitud en Brasil en la época de la Revolución Industrial* (Mexico City, 1998), provide innovative perspectives on the overlapping existence of slave and peasant productive sectors in and around sugar zones. Roberto Borges Martins and Amílcar Martins Filho, "Slavery in a Non-export Economy: Nineteenth-Century Minas Gerais Revisited," *Hispanic American Historical Review* 63, 4 (1983): 537–68, reflected a shift in focus to internal markets, with important implications for the study of slaveholding patterns. A recent contribution that draws together a generation of scholarship on these issues is Herbert S. Klein and Francisco Vidal Luna, *Slavery and the Economy of São Paulo, 1750–1850* (Stanford, CA, 2003). Finally, urban slavery has drawn a great deal of attention in recent years: Carmen Bernand, *Negros esclavos y libres en las ciudades hispanoamericanas* (Madrid, 2001), offers a general overview, focusing especially on late-colonial Buenos Aires and Lima; Mary Karasch, *Slave Life and Culture in Rio de Janeiro, 1808–1850* (Princeton, NJ, 1987), presents a richly detailed portrait of all aspects of urban slavery; Leila Mezan Algranti, *O Feitor Ausente* (Petrópolis, 1988) discusses slaves for hire in the same city between 1808 and 1821, whereas Luiz Carlos Soares, "Urban Slavery in Nineteenth-Century Rio de Janeiro" (Ph.D. dissertation, University of London, 1988), arrives at different conclusions on the role of wages; Frederick Bowser, *The African Slave in Colonial Peru, 1524–1650* (Stanford, CA, 1974), includes a fine discussion of urban slave artisans; Christine Hünefeldt, *Paying the Price of Freedom: Family and Labor*

among Lima's Slaves, 1800–1854 (Berkeley, CA, 1994) and Maria Odila Leita da Silva Dias, *Power and Everyday Life: The Lives of Working Women in Nineteenth-Century Brazil*, translated by Ann Frost (New Brunswick, NJ, 1995), are both excellent studies of two very different urban settings for a later period; and João José Reis, "The Revolution of the *Ganhadores*: Urban Labour, Ethnicity and the African Strike of 1857 in Bahia, Brazil," *Journal of Latin American Studies* 29 (1997): 455–93, examines formal and informal labor organization among slaves and free Africans. The complex and sometimes ambiguous relation between urban slavery and free wage labor receives solid analyses in Luiz Felipe de Alencastro, "Proletários e Escravos," *Novos Estudos CEBRAP* 21 (1988): 30–56, on Rio de Janeiro's urban labor market, and Lyman L. Johnson, "The Composition of Slave and Free Labor in Artisanal Production: Buenos Aires, 1770–1815," *International Review of Social History* 40 (1995): 27–51.

The intricate relationship between forced and free labor in Spanish American silver mines has commanded a significant amount of attention among economic and social historians. Peter Bakewell, ed., *Mines of Silver and Gold in the Americas* (London, 1997), reprints a significant collection of studies covering a broad range of areas and themes. Frédérique Langue and Carmen Salazar-Soler, eds., *Diccionario de términos mineros para la América Española (siglos XVI–XIX)* (Paris, 1993), provides a wealth of information on terminology, occupational diversity, and labor regimes throughout the Americas. Robert Haskett, "'Our Suffering with the Taxco Tribute': Involuntary Mine Labor and Indigenous Society in Central New Spain," *Hispanic American Historical Review* 71, 3 (1991): 447–75, is an excellent study of early labor forms in Mexican mines. Jorge Chapa, "Wage Labor in the Periphery: Silver Mining in Colonial Mexico," *Review* 4 (1981): 509–34, discusses the predominance of free wage labor from the end of the sixteenth century. For the eighteenth century, David Brading, *Miners and Merchants in Bourbon Mexico, 1763–1810* (Cambridge, 1971), remains a standard reference, whereas Richard L. Garner, with Spiro Stefanou, *Economic Growth and Change in Bourbon Mexico* (Gainesville, FL, 1993), includes a useful discussion of labor in late colonial silver mining. Doris Ladd, *The Making of a Strike: Mexican Silver Workers' Struggles in Real del Monte, 1766–1775* (Lincoln, NE, 1988), provides a detailed account of the labor structure as a backdrop for the 1766 workers' movement; for an alternative view focusing on the defense of traditional privileges, see Noblet Barry Danks, "The Labor Revolt of 1766 in the Mining Community of Real del Monte," *The Americas* 44, 2 (1987): 143–65. Frédérique Langue, "Trabajadores y formas de trabajo en las minas zacatecanas del siglo XVIII," *Historia Mexicana* 40, 3 (1991): 463–506, is an important contribution on late-colonial responses to rising labor costs; see also Langue's larger study, *Mines, terres et société à Zacatecas (Mexique) de la fin du XVIIIe siècle à l'indépendance* (Paris, 1992), which is also available in Spanish. On changes in mining labor during the nineteenth and twentieth centuries, see the essays in William Culver and Thomas Greaves, eds., *Mines and Mining in the Americas* (Manchester, 1985); of particular interest is Cuauhtemoc Velasco Avila's study of labor relations in Mexican mines after Independence. On Potosí and the mita, in addition to works cited above, the earlier period is covered in detail by Peter J. Bakewell, *Miners of the Red Mountain: Indian Labor in Potosí*,

1545–1650 (Albuquerque, NM, 1984), and Jeffrey Cole, *The Potosí Mita, 1500–1700: Compulsory Indian Labor in the Andes* (Stanford, CA, 1985); Ignacio González Casasnovas, *Las dudas de la corona: La política de repartimientos para la minería de Potosí (1680–1732)* (Madrid, 2000), provides a solid study of mid-colonial reforms; the eighteenth century receives a detailed and innovative treatment by Enrique Tandeter, *Coercion and Market: Silver Mining in Colonial Potosí* (Albuquerque, NM, 1993); and Antonio Mitre, *Los patriarcas de la plata: Estructura socioeconómica de la minería boliviana en el siglo XIX* (Lima, 1981), carries the discussion into the nineteenth century. Two studies point to important aspects of mita labor conditions that have not been exhaustively studied: Kendall Brown, “Workers’ Health and Colonial Mercury Mining at Huancavelica, Peru,” *The Americas* 57, 4 (2001): 467–96, and Bianca Premo, “From the Pockets of Women: The Gendering of the Mita, Migration and Tribute in Colonial Chucuito, Peru,” *The Americas* 57, 1 (July 2000): 63–94. Other mining areas less dependent on mita drafts, most notably Oruro, have attracted increasing attention: see, especially, Ann Zulawski, *They Eat from Their Labor: Work and Social Change in Colonial Bolivia* (Pittsburgh, PA, 1995), and Concepción Gavira Márquez, “Labour Discipline and Resistance: The Oruro Mining District in the Late Colonial Period,” *Bulletin of Latin American Research* 22, 1 (2003): 1–26. Erick Langer, “The Barriers to Proletarianization: Bolivian Mine Labour, 1826–1918,” *International Review of Social History* 41 (1996): 27–51, offers a suggestive study of postcolonial developments and the persistence of pre-Independence traditions.

On rural labor systems in Spanish America, Arnold Bauer, “Rural Workers in Spanish America: Problems of Peonage and Oppression,” *Hispanic American Historical Review* 59, 1 (1979): 34–63, outlines a series of problems and challenges that have been addressed in different ways in the subsequent literature. Ward Barrett, *The Sugar Haciendas of the Marqueses del Valle* (Minneapolis, MN, 1970), includes a pioneer discussion of labor costs and administration on commercial estates, and Lolita Gutiérrez Brockington, *The Leverage of Labor: Managing the Cortés Haciendas in Tehuantepec, 1588–1688* (Durham, NC, 1989), examines hybrid forms through a minute study of hacienda account books. The twin issues of debt and worker mobility are addressed in much of the current literature on colonial and postcolonial rural properties: see, especially, Hermann Konrad, *A Jesuit Hacienda in Colonial Mexico: Santa Lucía, 1576–1767* (Stanford, CA, 1980); Eric Van Young, *Hacienda and Market in Eighteenth-Century Mexico: The Rural Economy of the Guadalajara Region, 1675–1820* (Berkeley, CA, 1981); David A. Brading, *Haciendas and Ranchos in the Mexican Bajío: León, 1700–1860* (Cambridge, 1978); and Herbert J. Nickel, *Relaciones de trabajo en las haciendas de Puebla y Tlaxcala (1740–1914)* (Mexico City, 1987). On rural labor and the rise of the hacienda in the Andes, in addition to Brooke Larson (cited previously), see Robert Keith, *Conquest and Agrarian Change: The Emergence of the Hacienda System on the Peruvian Coast* (Cambridge, MA, 1978); Nicholas Cushner, *Lords of the Land: Sugar, Wine, and Jesuit Estates of Coastal Peru, 1600–1767* (New York, 1980); Luís Miguel Glave and María Isabel Remy, *Estructura agraria y vida rural en una región andina: Ollantaytambo entre los siglos XVI y XIX* (Cuzco, 1983); Herbert S. Klein, *Haciendas and Ayllus: Rural Society in the Bolivian Andes in the Eighteenth and Nineteenth Centuries* (Stanford, CA, 1993); and Nils Jacobsen, *Mirages of Transition: The Peruvian*

Altiplano, 1780–1930 (Berkeley, CA, 1993). The late colonial and early postcolonial La Plata region has provided the setting for a “historiographical renaissance” in rural history, although economic historians have not always agreed on patterns of migrant and seasonal labor, debt peonage, African slavery, and proletarianization. In addition to the discussion in Juan Carlos Garavaglia and Jorge Gelman, “Rural History of the Río de la Plata, 1600–1850: Results of a Historiographical Renaissance,” *Latin American Research Review* 30, 3 (1995): 75–105, see Garavaglia’s *Pastores y labradores de Buenos Aires: una historia agraria de la campaña bonaerense, 1700–1830* (Buenos Aires, 1999), and Gelman’s *Campesinos y estancieros: Una región del Río de la Plata a fines de la época colonial* (Buenos Aires, 1998). Some of the issues come out in the debate touched off by Ricardo Salvatore and Jonathan C. Brown, “Trade and Proletarianization in Late-Colonial Banda Oriental: Evidence from the Estancia de las Vacas, 1791–1805,” *Hispanic American Historical Review* 67, 3 (1987): 431–59, whereas Salvatore’s recent book, *Wandering Paysanos: State Order and Subaltern Experience in Buenos Aires during the Rosas Era* (Durham, NC, 2003), presents a solid analysis of the rural labor market during the first half of the nineteenth century.

On urban labor, in addition to the works on slavery mentioned above, Edda Samudio Azpúrua, *El trabajo y los trabajadores en Mérida colonial* (San Cristóbal, 1984), presents a solid discussion of urban labor contracts in the early seventeenth century. R. Douglas Cope, *The Limits of Racial Domination* (Madison, WI, 1994), studies the urban workforce of midcolonial Mexico City, while Sonia Pérez Toledo, *Los hijos del trabajo: Los artesanos de la ciudad de México, 1780–1853* (Mexico City, 1996), provides a detailed study of craft workers and guilds for a later period. Silvia Arrom, *The Women of Mexico City, 1790–1857* (Stanford, CA, 1985), includes a richly detailed chapter on urban employment. Although not treated explicitly in this chapter, several studies of textile *obreros* have contributed important new perspectives on protoindustrial labor forms. Manuel Miño Grijalva, *La protoindustria colonial hispanoamericana* (Mexico City, 1993), provides an excellent summary of labor systems employed in *obreros* throughout Spanish America. Regional and local studies include, notably, John C. Super, “Querétaro Obreros: Industry and Society in Provincial Mexico, 1600–1810,” *Hispanic American Historical Review* 56, 2 (1976): 197–216; Richard Salvucci, *Textiles and Capitalism in Mexico: An Economic History of the Obreros, 1539–1840* (Stanford, CA, 1987); Robson Tyrer, *Historia demográfica y económica de la Audiencia de Quito: población indígena e industria textil, 1600–1800* (Quito, 1988); and Neus Escandell-Tur, *Producción y comercio de tejidos coloniales* (Cuzco, 1997), which offers a detailed study of recruitment and the division of labor in the Cuzco textile industry during the colonial period. On Brazil, see Douglas Libby, “Protoindustrialisation in a Slave Society: The Case of Minas Gerais,” *Journal of Latin American Studies* 23, 1 (1991): 1–35.

CHAPTER 7 (JOHN H. COATSWORTH)

This is the first of three chapters in the two volumes of *The Cambridge Economic History of Latin America* devoted chiefly to issues of political economy and

economic organization. Leandro Prados de la Escosura (Chapter 13) focuses primarily on the impact of independence, whereas Alan Dye (Chapter 18) looks broadly at the nineteenth and twentieth centuries. The chapters in Volume I on labor systems by John Monteiro (Chapter 6) and trade by Graciela Márquez (Chapter 11) also devote attention to relevant institutions and policies. This review of the historical literature will thus briefly touch on the relevant theoretical literature and then focus on historical work that is especially helpful for understanding the structure and evolution of the colonial state; the power of contending classes, castes, and interest groups; the relationship between social and political contention and institutional constraints on economic activity; and the particularities of Iberian economic institutions and policies.

Modern work on the relationship between institutions and economic performance can be traced back to the great classical and neoclassical theorists of the late eighteenth and nineteenth centuries: Smith, Mill, Ricardo, Marx, Marshall, and others. For recent trends in theory and scholarship, the work of Douglass North is most often cited as progenitor and inspiration. See his *Institutions, Institutional Change, and Economic Performance* (Cambridge, 1990). For a suggestive application to Latin America, see Douglass North, William Summerhill, and Barry H. Weingast, "Order, Disorder, and Economic Change: Latin America versus North America," in Bruce Bueno de Mesquita and Hilton L. Roots, eds., *Governing for Prosperity* (New Haven, CT, 2000).

Two recent comparative essays have generated considerable discussion and research about the role of institutions in promoting or retarding economic growth; their influence on this chapter is happily acknowledged. The first is an essay by Stanley Engermann and Kenneth Sokoloff, "Factor Endowments, Institutions, and Differential Growth Paths among New World Economies," in Stephen Haber, ed., *How America Fell Behind* (Stanford, CA, 1997). The response to this essay inspired the authors to produce a number of subsequent works attempting to link colonial economic inequality to deficient institutions that inhibited long-term economic growth in Latin America. Though their argument is almost certainly wrong (it mistakes colonial inequality in legal status with inequality in wealth, ignores the colonial state as a key source of institutional impediments to growth, and fails to notice the crucial institutional rupture that occurred in the late nineteenth century), it has inspired new empirical research and theoretical revision that will continue to influence work in this field for many years. The second of the two seminal essays was written by Damon Acemoglu, Simon Johnson, and James A. Robinson, "The Colonial Origins of Comparative Development: An Empirical Investigation," *American Economic Review* 91,5 (Dec. 2001): 1369–1401. This work, too, has given rise to new research and theorizing about the linkages between colonial rule, "bad" institutions, and delayed growth. This chapter is broadly consistent with the Acemoglu–Johnson–Robinson approach, elaborated in "Institutions as the Fundamental Cause of Long-Run Growth" (Working Paper 10481, National Bureau of Economic Research, 2004), though it differs on some empirical and interpretive issues.

A number of interpretive or historiographical essays by historians anticipated the theoretical approaches of recent work by economists and political scientists.

See, for example, J. I. Israel, "Mexico and the 'General Crisis' of the Seventeenth Century," *Past and Present* 63 (May 1974): 33–57; John H. Coatsworth, "The Limits of Colonial Absolutism: Mexico in the Eighteenth Century," in Karen Spalding, ed., *Essays in the Political, Economic and Social History of Colonial Latin America* (Newark, NJ, 1982), 25–51; and Steve Stern's historiographical essay on the applicability of the "world systems" model to the New World: "Paradigms of Conquest: History, Historiography, and Politics," *Journal of Latin American Studies* 24, Quintcentenary Supplement (1992): 1–34.

Narrative accounts of the conquest, settlement, and defense of colonial regimes in the New World by Spain and Portugal provide ample information on the institutional dimensions of the process. For the Spanish empire, especially up to 1700, nothing has surpassed Clarence Haring, *The Spanish Empire in America* (New York, 1947); for the Bourbon era, however, see John Lynch, *Bourbon Spain, 1700–1808* (London, 1989), and the recent volumes by Stanley J. and Barbara Stein, *Silver, Trade, and War: Spain and America in the Making of Early Modern Europe* (Baltimore, 2000), and *Apogee of Empire: Spain and New Spain in the Age of Charles III, 1759–1789* (Baltimore, 2003). On the Portuguese empire, see Charles R. Boxer's classic 1969 work on *The Portuguese Seaborne Empire, 1415–1825* (Manchester, 1991) and *The Golden Age of Brazil, 1695–1750: Growing Pains of a Colonial Society* (Berkeley, CA, 1962). For the eighteenth-century era of reforms, see Kenneth Maxwell's recently reissued *Conflicts and Conspiracies: Brazil and Portugal 1750–1808* (New York, 2004) and his equally masterful work, *Pombal, Paradox of the Enlightenment* (Cambridge, 1995).

On the consolidation of colonial rule in the principal mainland colonies, see the useful synthetic essays published in the first two volumes of the *Cambridge History of Latin America* edited by Leslie Bethell and republished in two convenient paperback volumes, *Colonial Brazil* and *Colonial Spanish America* (Cambridge, 1987). On New Spain (Mexico) and Peru, see in particular the classic works by Charles Gibson, *The Aztecs under Spanish Rule* (Stanford, CA, 1964), and Steve Stern, *Peru's Indian Peoples and the Challenge of Conquest: Huamanga to 1640* (Madison, WI, 1982). On Brazil, the canonical work is Stuart B. Schwartz, *Sugar Plantations in the Formation of Brazilian Society: Bahia, 1550–1835* (Cambridge, 1985).

The complex topic of land tenure is discussed in the works just cited as well as the large output of monographic studies of individual estates produced mainly in the 1970s and 1980s. Many of these works focused on Mexico, and among the most useful are Ward Barrett, *The Sugar Hacienda of the Marqueses del Valle* (Minneapolis, MN, 1970), and Herman W. Konrad, *A Jesuit Hacienda in Colonial Mexico: Santa Lucía, 1576–1767* (Stanford, CA, 1980). As the trend of *hacienda* studies waned, studies of agricultural regions contributed additional insights. See, for example, William B. Taylor, *Landlord and Peasant in Colonial Oaxaca* (Stanford, CA, 1972); Andrés Lira González, *Comunidades indígenas frente a la Ciudad de México: Tenoctitlan y Tlatelolco, sus pueblos y barrios, 1812–1919* (Zamora, 1983); and Eric Van Young, *Hacienda and Market in Eighteenth-Century Mexico: The Rural Economy of the Guadalajara Region, 1675–1820* (Berkeley, CA, 1981). For Peru, see Nils Jacobsen, *Mirages of Transition: The Peruvian Altiplano, 1780–1930* (Berkeley, CA, 1993). This extensive literature is full of information on property disputes and litigation, as is

the pathbreaking work of Robert H. Holden on the surveys and sales of public lands in Mexico during the Porfiriato, *Mexico and the Survey of Public Lands: The Management of Modernization, 1876–1911* (DeKalb, IL, 1994).

On labor systems in the colonial era, including indigenous and African slavery as well as indigenous forced labor of various kinds, see the chapter in this volume by John Monteiro and the sources cited therein. For an interesting discussion of *encomienda* and slavery as institutional “options” for Spain, see the exchange between Timothy J. Yeager and Mario Pastore in the *Journal of Economic History*: Yeager, “Encomienda or Slavery? The Spanish Crown’s Choice of Labor Organization in Sixteenth-Century Spanish America,” *Journal of Economic History* 55, 4 (Dec. 1995): 842–59; Pastore’s criticism and Yeager’s response appeared in 58, 2 (June 1998): 511–24.

Latin American legal history has a long tradition, but focused until the past two decades mainly on the history of doctrines and legislation. A growing number of important studies analyze legal and judicial developments either in the context of social, political, and economic struggles, or through the study of actual cases. For an excellent comparison between the British and Spanish colonial legal systems that focuses on how doctrines and decisions were communicated, see Richard J. Ross, “Legal Communications and Imperial Governance in Colonial British and Spanish America,” in Christopher Tomlins and Michael Grossberg, eds., *Cambridge History of Law in America* (forthcoming). An excellent reference work was published by the Library of Congress, *Legal Codes of the Latin American Republics* (Washington, DC, 1942). Also, see Matthew C. Mirow, *Latin American Law: A History of Private Law and Institutions in Spanish America* (Austin, TX, 2004); Robert Charles Means, *Underdevelopment and the Development of Law: Corporations and Corporation Law in Nineteenth-Century Colombia* (Chapel Hill, NC, 1980); Woodrow Wilson Borah, *Justice by Insurance: The General Indian Court of Colonial Mexico and the Legal Aides of the Half-Real* (Berkeley, CA, 1983); Andrés Lira González, *El amparo colonial y el juicio de amparo mexicano: antecedentes novohispanos del juicio de amparo* (Mexico City, 1972).

The literature on the resistance of subordinate populations is extensive. In addition to the books by Gibson, Stern, and Schwartz already cited, see the overview and attempt at quantification in John H. Coatsworth, “Patterns of Rural Rebellion in Latin America: Mexico in Comparative Perspective,” in Friedrich Katz, ed., *Riot, Rebellion, and Revolution: Rural Social Conflict in Mexico* (Princeton, NJ, 1988). The case study literature on protest and rebellion in the colonial era and the nineteenth century is voluminous. See, for example, Emilia Viotti da Costa, *Crowns of Glory, Tears of Blood: The Demerara Slave Rebellion of 1823* (London, 1994); João José Reis, *Slave Rebellion in Brazil: The Muslim Uprising of 1835 in Bahia*, trans. by Arthur Brake (Baltimore, 1993). For comparison with the British slave islands, see Michael Craton, *Testing the Chains: Resistance to Slavery in the British West Indies* (Ithaca, NY, 1982). For the colonial Andes, see Scarlett O’Phelan, *Rebellions and Revolts in Eighteenth Century Peru and Upper Peru* (Cologne, 1985). For the postindependence era in Bolivia and Peru, where the new states bought social peace by respecting indigenous political autonomy and landholding, see Tristán Platt, *Estado boliviano y ayllu andino: tierra y tributo en el norte de Potosí* (Lima, 1982).

The impact of independence is discussed at length in the chapter by Leandro Prados de la Escosura in Volume I. Two recent studies focusing on postindependence political and international conflict in Latin America have added appreciably to knowledge of this important topic. Miguel Angel Centeno links nineteenth-century violence and instability to the evolution of states with limited capacities (in contrast to the European experience, where warfare tended to push states to assume additional functions and exert greater control) in *Blood and Debt: War and the Nation-State in Latin America* (University Park, PA, 2002). David Mares looks mainly at interstate conflict in *Violent Peace: Militarized Inter-state Bargaining in Latin America* (New York, 2001). Though Centeno (and many others) treat Central America as distinct from the rest of Latin America, James Mahoney's insightful comparative study of Central American politics in the nineteenth century suggests that a broader application of his approach would be fruitful; see *The Legacies of Liberalism: Path Dependence and Political Regimes in Central America* (Baltimore, 2001).

CHAPTER 8 (CARLOS SEMPAT ASSADOURIAN)

Pre-Conquest

Part of our knowledge about the evolution of pre-conquest agricultural practices comes from archeological excavations of the major pre-Columbian urban centers. These studies focus on agricultural practices as they relate to population density. Key works on Mesoamerica are Richard S. MacNeish, *The Prehistory of the Tehuacan Valley* (Austin, TX, 1967); William T. Sanders, Jeffrey R. Parsons, and Robert S. Santley, *The Basin of Mexico. Ecological Processes in the Evolution of a Civilization* (New York, 1979); William T. Sanders and Barbara J. Price, *Mesoamérica. The Evolution of a Civilization* (New York, 1968); and Kent V. Flannery and Joyce Marcus, *Zapotec Civilization. How Urban Society Evolved in Mexico's Oaxaca Valley* (London, 1996). For the Andes, see R. S. MacNeish, Thomas C. Patterson, and David L. Browman, *The Central Peruvian Prehistoric Interaction Sphere* (Boston, 1975); Michael E. Moseley, *The Maritime Foundations of Andean Civilization* (Berkeley, CA, 1975); John S. Athens, *El proceso evolutivo en las sociedades complejas y la ocupación del Período Tardío-Cara en los Andes septentrionales del Ecuador* (Otavalo, 1980); and Olaf Holm, *Cultura Milagro-Quevedo* (Guayaquil, 1983). Further research on agricultural production can be found in the works of Frédéric Engel – for example, see *Geografía humana prehistórica y agricultura precolumbina de la quebrada de Chilca* (Lima, 1966) – and Lautaro Núñez – in particular, *La agricultura prehistórica en los Andes Meridionales* (Santiago de Chile, 1974). More recently, Mantaro de Christine Ann Hastorf, *Agriculture and the Onset of Political Inequality Before the Inka* (New York, 1993), is an outstanding work on the cultivation of maize in the Mantaro Valley.

Pre-Columbian hydraulic techniques have always provoked interest in the field of archaeology. Here we will cite a very small number of publications that deal

with the main hydraulic systems and their application in diverse areas. On the technique of flooded fields, see the pioneering work of Pedro Armillas, "Notas sobre sistemas de cultivo en Mesoamérica. Cultivos de riego y humedad en la Cuenca del río de las Balsas," *Anales del Instituto Nacional de Antropología e Historia* 3 (1949): 85–113; Chantal Caillavet, "Toponimia histórica, arqueológica y formas prehispánicas de agricultura en la región de Otavalo-Ecuador," *Bulletin de l'IFEA* 12 (1983): 1–21; and Silvia Palomeque, "Los esteros de Santiago," *Data. Revista del Instituto de Estudios Andinos y Amazónicos* 2 (1992): 9–57. The first European chroniclers often took notice of the sunken fields located in the desert strip along the Peruvian coast; modern studies include Jeffrey P. Parsons, "The Archaeological Significance of Mahamaes Cultivation on the Coast of Peru," *American Antiquity* 33 (1968): 80–85; John H. Rowe, "The Sunken Gardens of the Peruvian Coast," *American Antiquity* 34 (1969): 320–25; Parsons and Norbert P. Psutty, "Sunken Fields and Prehispanic Subsistence on the Peruvian Coast," *American Antiquity* 40 (1975): 259–82; and Ana María Soldi, "Chacras excavadas en el desierto," *Seminario de Historia Rural Andina* (1979): 1–40. On the widespread use of raised fields and ridged fields throughout the continent there have been a growing number of important studies since the 1960s. Pioneering works on the subject include William M. Denevan, "The Aboriginal Cultural Geography of the Llanos de Mojos of Bolivia," *Iberoamericana* 48 (1966); James J. Parson and G. Bowen, "Ancient Ridged Field of the San Jorge River Floodplain, Colombia," *The Geographical Review* 56 (1966): 317–78; James J. Parson, "Campos de cultivo prehistóricos con camellones paralelos en la cuenca del río Guayas, Ecuador," *Cuadernos de historia y arquitectura* 40 (1973); Alberta Zucchi and W. M. Denevan, *Campos elevados e historia cultural prehispánica en los llanos occidentales de Venezuela* (Caracas, 1979); and Clemencia Plazas, Ana M. Falchetti, Juanita Sáenz Samper and Sonia Archila, *La sociedad hidráulica Zenu* (Bogotá, 1993). The adoption of this system in Vera Cruz and the Mayan lowlands, as well as in the Andean highlands, has received special attention in the literature, because it raises complex issues. For the Mayan lowlands the key works are Peter D. Harrison and B. L. Turner II, eds., *Pre-Hispanic Maya Agriculture* (Albuquerque, NM, 1978), and Alfred H. Siemens, *Tierra configurada* (Mexico City, 1989). There are several monographs that deal with small sites of ridged fields in the Andean highlands (John S. Athens, Timothy Earle, Gregory Knapp), but the most important and suggestive case was located in the southern highlands, where the Tiwanaku culture flourished. In addition to the early study by Clifford T. Smith, William M. Denevan, and Patrick Hamilton, "Ancient Ridged Fields in the Region of Lake Titicaca," *The Geographical Journal* 134 (1968): 353–67, it is also worth mentioning Clark L. Erickson, "The Social Organization of Prehispanic Raised Field Agriculture in the Lake Titicaca Basin," *Research in Economic Anthropology* 7 (1993): 369–426, and Alan L. Kolata, ed., *Arqueología de Luqurmata*, vol. 2, *La tecnología y organización de la producción agrícola en el estado de Tiwanaku* (La Paz, 1989). Of course, the advanced technology and extraordinary productivity of the *chinampas* of the Valley of Mexico have been the subject of an enormous number of publications. Outstanding works characterized by their original findings and long-run perspectives are Edward Calnek, "Settlement Pattern and Chinampa Agriculture at Tenochtitlan," *American Antiquity* 37 (1972): 104–15;

Jeffrey R. Parsons, "The Role of Chinampa in the Food Supply of Aztec Tenochtitlan," *Cultural Change and Continuity. Essays in Honor of James B. Griffin* (New York, 1976), 233–62; Parsons, Elizabeth M. Brumfiel, Mary H. Parsons, Virginia Popper, and Mary Taft, *La agricultura chinampera del período prehispánico tardío en el lago Chalco-Xochimilco. México* (Mexico City, 1982); and Teresa Rojas Rabiela, ed., *Presente, pasado y futuro de las chinampas* (Mexico City, 1995).

There is a long tradition of scholarship on the hydraulic engineering techniques used in Peruvian canal irrigation. In the 1940s and 1950s the works of Alberto Regal, Gordon R. Willey, and Hans Horkheimer stood out, culminating with the influential book by Paul Kosok, *Life, Land and Water in Ancient Peru* (New York, 1965). Afterward, scholarship on the subject improved substantially with the works of James Kus, "Irrigation and Urbanization in Pre-Hispanic Peru: The Moche Valley," *Yearbook of the Association of Pacific Coast Geographers* 36 (1974); Charles R. Ortloff, "La ingeniería hidráulica chimú," in Heather Lechtman and Ana María Soldi, eds., *La tecnología en el mundo andino* (Mexico City, 1981), 91–134; and Ortloff, R. A. Feldman, and M. E. Moseley, "Hydraulic Engineering and Historical Aspects of the Pre-Columbian Intravalley Canal Systems of the Moche Valley, Peru," *Journal of Field Archaeology* 12 (1985): 77–98. In the 1960s Ángel Palerm and Eric R. Wolf, building upon the theoretical proposals of Wittfogel, promoted the study of these irrigation systems in Mexico. The most accomplished work is Ángel Palerm, *Obras hidráulicas prehispánicas en el sistema lacustre del valle de México* (Mexico City, 1973). The most recent study on the long evolution of pre-Columbian hydraulic engineering is William E. Doolittle, *Canal Irrigation in Prehistoric Mexico. The Sequence of Technological Change* (Austin, TX, 1990).

On agricultural terracing – very important in the period immediately before the conquest in the more densely populated and centrally ruled regions – R. A. Donkin's book deserves special mention: *Agricultural Terracing in the Aboriginal New World* (Tucson, AZ, 1979). Also, see the pioneering monograph by Ángel Maldonado and Luis Gamarra Dulanto, "Significado arqueológico, agrológico y geográfico de los andenes abandonados de Santa Inés de Chosica en el valle del Rimac," originally published in 1945 and reprinted in Rogger Ravines, ed., *Tecnología andina* (Lima, 1978), 157–71, as well as the essay by Waldemar Espinoza Soriano, "Agua y riego en tres ayllus de Huarochirí (Perú), siglos XV y XVI," *Revista del Museo Nacional* 37 (1971): 147–66, which effectively uses colonial documents.

Access to specialized knowledge on hydraulic works and agricultural systems is facilitated by several good edited volumes; in particular, see K. V. Flannery, ed., *Maya Subsistence. Studies in Memory of Dennis E. Puleston* (New York, 1982); J. P. Darch, ed., *Drained Field Agriculture in Central and South America* (Oxford, 1983); T. Rojas Rabiela and W. T. Sanders, eds., *Historia de la agricultura. Época prehispánica-siglo XVI* (Mexico City, 1985); V. L. Scarborough and B. L. Isaac, eds., *Economic Aspects of Water Management in the Prehispanic New World* (New York, 1993); and N. F. Miller and K. L. Gleason, eds., *The Archaeology of Garden and Field* (Philadelphia, 1994). For the Andean region, besides the remarkable edited volumes on different technologies by R. Ravines, H. Lechtman, and A. M. Soldi cited

previously, see also W. M. Denevan, K. Mathewson, and G. Knapp, eds., *Prehispanic Agricultural Fields in the Andean Region* (Oxford, 1987), and S. Masuda, I. Shimada, and C. Morris, eds., *Andean Ecology and Civilization* (Tokyo, 1985), which includes a rare study on the use of fertilizers before and after the conquest: Catherine J. Julien, "Guano and Resource Control in Sixteenth-Century Arequipa." Finally, among the great number of books on the subject, three monographs deserve special attention: Teresa Rojas Rabiela, *Las siembras de ayer. La agricultura indígena del siglo XVI* (Mexico City, 1988), carefully examines and interprets early colonial sources; Gregory Knapp, *Ecología cultural prehispánica del Ecuador* (Quito, 1988), sheds light on diverse aspects of ancient agriculture based on archeological field work; and William M. Denevan, *Cultivated Landscapes of Native Amazonia and the Andes: Triumph over the Soil* (Oxford, 2001), stands out for its synthesis of all the existing research on the agriculture in the Americas before the conquest, a field in which Denevan himself contributed some of the most significant research.

Studies that catalog and date cultivated plants are key to the historical understanding of the development of native agriculture and its ability to sustain a given population. Still worth consulting are the works of Eugenio Yacovleff and Fortunato Herrera, "El mundo vegetal de los antiguos peruanos," *Revista del Museo Nacional* 3,3 (1934): 241–322 and 4,1 (1935): 29–102; Herrera, "Etnobotánica. Plantas endémicas domesticadas por los antiguos peruanos" and "Etnobotánica. Plantas tropicales cultivadas por los antiguos peruanos," *Revista del Museo Nacional* 2,1 (1942): 25–30 and 2 (1942): 179–95; and Ricardo E. Latcham, *La agricultura precolombina en Chile y los países vecinos* (Santiago de Chile, 1936). Carl O. Sauer, "Cultivated Plants of South and Central America," *Handbook of South American Indians*, vol. 6 (Washington, DC, 1950), 487–544, gave new life to the analysis of botanical species in important ways. More recently we have for the Andean area the accounts of Margaret A. Towle, *The Ethnobotany of Pre-Columbian Peru* (New York, 1961) and Hans Horkheimer, *Alimentación y obtención de alimentos en el Perú Prehispánico* (Lima, 1973); for Colombia, Victor Manuel Patiño, *Plantas cultivadas y animales domésticos en América equinoccial*, vol. 4, *Plantas introducidas* (Cali, 1969); and for Mexico, Bárbara Torres W., "Las plantas útiles en el México antiguo según las fuentes del siglo XVI," in *Historia de la agricultura. Época prehispánica-siglo XVI* (cited above). For the domestication of corn, see Paul C. Mangelsdorf, *Corn. Its Origins, Evolution and Improvement* (Cambridge, MA, 1974), which should be compared with the arguments of Richard S. MacNeish, "Preliminary Archaeological Investigations in the Sierra de Tamaulipas, Mexico," *Transactions of the American Philosophical Society* 48 (1958): 1–218, and Kent V. Flannery, "Los orígenes de la agricultura en México: Las teorías y la evidencia," in *Historia de la agricultura* (cited previously). Arturo Warman summarizes the debate in *Historia de un bastardo. Maíz y capitalismo* (Mexico City, 1988). For the history of the potato, see J. G. Hawkes, *The Potato: Evolution, Biodiversity and Genetic Resources* (London, 1990), and for hot peppers, see Janet Long-Solís, *Capsicum y cultura. La historia del chilli* (Mexico City, 1986). On the diffusion of these and other plants, see Doris Stone, ed., *Pre-Columbian Plant Migration* (Cambridge, MA, 1984). In recent times important advances have been made in the dating of cultivated plants; for instance, see Bruce D. Smith, "The Initial

Domestication of *Cucurbita pepo* in the Americas 10,000 Years Ago," *Science* 276 (1997): 932–4.

Without ignoring the contributions of other authors, including María Rostworowski de Diez Canseco, the most influential research on the complex relationship between access to land, agricultural production, and sociopolitical organization in the Andean and Mexican regions has been by John Murra and Pedro Carrasco. Murra's 1955 doctoral dissertation, "The Economic Organization of the Inka State," published more than twenty years later, turned out to be one of the most influential American ethnohistorical works ever written. Some of his post-doctoral essays, including "El control vertical de un máximo de pisos ecológicos en la economía de las sociedades andinas," are collected in *Formaciones económicas y políticas del mundo andino* (Lima, 1975). Pedro Carrasco has published extensively; in particular, see "Los linajes nobles del México antiguo" and "La economía del México prehispánico," included in Pedro Carrasco and Johanna Broda, ed., *Estratificación social en la Mesoamérica prehispánica* (Mexico City, 1976), and *Economía política e ideología en el México prehispánico* (Mexico City, 1978), which also include relevant articles by other scholars. Carrasco's most recent book, *Estructura político-territorial del Imperio tenochca* (Mexico City, 1996), is the most important work on "imperial" control in Mesoamerica in the period immediately before the conquest.

Finally, some topics shed light on the understanding of the material and symbolic bases of agricultural production. For the Andes, where valuable sources on these issues have been discovered, the works of Luis E. Valcárcel, John H. Rowe, John Murra, R. Tom Zuidema, Pierre Duviols, and John Earls have turned agricultural calendars and rituals into a blooming area of research for both the pre-Columbian and colonial periods. Another breakthrough was the identification of different uses of tools or techniques based on the agricultural terminology registered in the dictionaries of different indigenous languages that began to be written shortly after the conquest. The research on Nahuatl by Brigitte B. de Lameiras and Armando Pereyras and on Quechua by Sabine Dedenbach-Salazar Sáenz stands out. A catalog of historical data by Virginia García Acosta, Juan M. Pérez Zevallos, and América Molina del Villar, *Desastres agrícolas en México. Épocas prehispánica y colonial* (Mexico City, 2003) reflects the interest in integrating climate into the analysis of the long duration of agricultural production.

Post-Conquest

For decades Woodrow Borah's book, *New Spain's Century of Depression* (Berkeley, CA, 1951), was the most influential work shaping our understanding of economic history during the sixteenth and seventeenth centuries. This chapter's analysis of the formation of the colonial agricultural system is based on a different understanding of economic history during the period in question, based on research that we began in the 1960s and that is partially presented in Sempat, *El sistema de la economía colonial. Mercado interno, regiones y espacio económico* (Lima, 1982), *Transiciones hacia el sistema colonial andino* (Lima, 1994), and "La producción de la mercancía dinero en la formación del mercado interno colonial," in Enrique Florescano, ed.,

Ensayos sobre el desarrollo económico de México y América Latina. 1500–1975 (Mexico City, 1979).

On the right to lands that the Crown reserved for itself and the institutional framework for property rights that it established throughout the sixteenth century, the basic reference work is still José María Ots Capdequi, *El régimen de la tierra en la América española durante el período colonial* (Ciudad Trujillo, 1946), although it should be noted that the work suffers from some mistakes and a lack of profundity with regard to certain topics. To compensate for some of these deficiencies one should consult, for Mexico, the works of Margarita Menegus Bornemann as well as the collection of documents in Francisco de Solano, *Cedulario de tierras. Compilación de legislación agraria colonial, 1497–1820* (Mexico City, 1991). On the Crown's policy of granting lands (*mercedes de tierra*) to Spanish settlers, and a quantitative assessment of its importance in the progressive extension of European commercial agriculture in Mexico, it is still worth reading Lesley Byrd Simpson, *Exploitation of Land in Central Mexico in the Sixteenth Century* (Berkeley, CA, 1952); there is no other work like it for any other part of the continent. Mexico is also the best researched case of the colonial policy of "congregation" of Indian villages; still worth consulting are the works of George Kubler, "Population Movements in Mexico (1520–1600)," and Howard F. Cline, "Civil Congregations of the Indians of New Spain (1598–1608)," both in the *Hispanic American Historical Review*, 20, 2 (1942): 606–43 and 29, 3 (1949): 349–69, as well as the more recent works of Peter Gerhard, "Congregaciones de indios en la Nueva España antes de 1570," *Historia Mexicana* 103 (1977): 347–95, and the collection of documents by Ernesto de la Torre Villar, *Las congregaciones de los pueblos de indios* (Mexico City, 1995). For Peru, despite some modern scholarship, the best approach is still to read the edicts by Viceroy Toledo, such as those compiled in Carlos A. Romero in "Libro de la visita general del virrey Francisco de Toledo," *Revista Histórica* 7 (1924): 115–216, and Guillermo Lohmann Villena and María Justina Saravia Viejo, *Francisco de Toledo. Disposiciones gubernativas para el virreinato del Perú. 1569–1574* (Seville, 1986). For the Yucatán we can rely on several studies, but among the best are Nancy M. Farris, "Nucleation versus Dispersal: The Dynamics of Population Movement in Colonial Yucatán," *Hispanic American Historical Review* 58, 2 (1978): 187–216 and *Maya Society under Colonial Rule: The Collective Enterprise of Survival* (Princeton, NJ, 1984), and Sergio Quezada, *Pueblos y caciques yucatecos, 1550–1580* (Mexico City, 1993).

Certainly, the case of Mexico has the most extensive and highest quality scholarship on the configuration and functioning of the two territorialities – the Indian peasant and the European agrarian. Exemplary works that analyze both modes of agriculture are Charles Gibson, *The Aztecs under Spanish Rule: A History of the Indians of the Valley of Mexico, 1519–1810* (Stanford, CA, 1964); Hanns J. Prem, *Milpa und Hacienda. Indianischer und Spanischer Landbesitz im Becken des Alto Atoyac, Puebla, México, 1520–1650* (Wiesbaden, 1978); Wolfgang Trautmann, *Las transformaciones en el paisaje cultural de Tlaxcala durante la época colonial* (Wiesbaden, 1981); Carlos S. Paredes Martínez, *La región de Atlixco, Huaquechula y Tochimilco. La sociedad y la agricultura en el siglo XVI* (Mexico City, 1991); and Hildeberto Martínez, *Codiciaban la tierra. El despojo agrario en los señoríos de Tecamachalco y Quecholac. Puebla,*

1520–1650 (Mexico City, 1994). For the Indian peasant territoriality, outstanding essays are collected in H. R. Harvey and Hans J. Prem, eds., *Explorations in Ethnohistory. Indians of Central Mexico in the Sixteenth Century* (Albuquerque, NM, 1984); also relevant are Hildegerto Martínez, *Tepeaca en el siglo XVI. Tenencia de la tierra y organización de un señorío* (Mexico City, 1984), Jesús Ruvalcaba Mercado, *Agricultura india en Cempoala, Tepeapulco y Tulancingo. Siglo XVI* (Mexico City, 1985), Bernardo García Martínez, *Los pueblos de la Sierra. El poder y el espacio entre los indios del norte de Puebla hasta 1700* (Mexico City, 1987), James Lockhart, *The Nahuas after the Conquest: A Social and Cultural History of the Indians of Central Mexico. Sixteenth through Eighteenth Centuries* (Stanford, CA, 1992), and Barbara J. Williams and H. R. Harvey, *The Códice de Santa María Asunción. Facsimile and Commentary: Households and Lands in Sixteenth-Century Tepetlaoztoc* (Salt Lake City, 1997). With regard to the European agrarian system, an excellent bibliographical review is Eric Van Young: “Mexican Rural History Since Chevalier: The Historiography of the Colonial Hacienda,” *Latin American Research Review* 18 (1983): 5–61.

Research of this nature is more scarce for the Andes even though in the sixteenth and seventeenth centuries this region was economically more important within the colonial system than Mexico. See Udo Oberem, “El acceso a recursos naturales de diferentes ecologías en la Sierra ecuatoriana (Siglo XVI),” in Oberem and Segundo Moreno Yáñez, *Contribución a la etnohistoria ecuatoriana* (Otavalo, 1981), 45–71; Luis Miguel Glave and María Isabel Remy, *Estructura agraria y vida rural en una región andina* (Cusco, 1983); the detailed study on rural history by Nadine Sebill, *Ayllus y haciendas. Dos estudios de caso sobre la agricultura colonial en los Andes* (La Paz, 1989); and the sophisticated regional analysis of Jacques Poloni-Simard, *La mosaique indienne. Mobilité, stratification sociale et métissage dans le corregimiento de Cuenca (Équateur) du XVI^e siècle au XVIII^e siècle* (Paris, 2000). Good research on a region as marginal as Chile in the sixteenth and seventeenth centuries deserves special mention. See the works by Mario Góngora and Jean Borde, *Evolución de la propiedad rural en el valle del Huasco* (Santiago de Chile, 1956) and Góngora, *Origen de los inquilinos de Chile Central* and *Encomenderos y estancieros. Estudios de la constitución social aristocrática de Chile después de la Conquista. 1580–1660* (Santiago de Chile, 1960 and 1970). Marcello Carmagnani, *Les mécanismes de la vie économique dans une société coloniale. Le Chili 1680–1830* (Paris, 1973), and Armando de Ramón and José Manuel Larraín, *Orígenes de la vida económica chilena. 1659–1808* (Santiago de Chile, 1982), have built upon this work but with a greater focus on economics.

The study of cattle farming and certain crops is spotty and shows important lacunae. On the expansion of ranching, in Mexico research has focused primarily on bovines. The now controversial model presented by Francois Chevalier in *La formation des grandes domaines au Mexique: Terre et société aux XVI^e–XVII^e siècles* (Paris, 1952) is most accurate precisely in its analysis of the prodigious multiplication of livestock. Likewise, the institutional study by William H. Dusenberry, *The Mexican Mesta: The Administration of Ranching in Colonial Mexico* (Urbana, IL, 1963) remains unequalled, and Eleanor G. K. Melville, *A Plague of Sheep: Environmental Consequences of the Conquest of Mexico* (Cambridge, 1994), presents an

original analysis. For the Andes, the works of Jorge A. Flores Ochoa, David L. Browman, and Tristan Platt have contributed notably to the study of indigenous ranching, but knowledge of European ranching remains poor. My research, carried out in the 1960s, on the breeding of mules in Córdoba del Tucumán during the seventeenth century is worth mentioning for its innovative use of notarial records, which made it possible to quantify the level of commercialization and construct a price series.

There are only a few monographs of importance on indigenous cultivation of cotton during the sixteenth and seventeenth centuries, and even fewer studies on the production, expansion, technology, and commercialization of crops such as coca, cacao, wheat, and barley. On the other hand, in addition to the study of *yerba mate* by Juan C. Garavaglia, *Mercado interno y economía colonial* (Mexico City, 1983), there are numerous studies on the cultivation of sugar cane in areas oriented toward the domestic market (that is, not including studies on the Antilles and Brazil, where production was oriented toward the European market). Noteworthy works include, for Mexico, Ward Barret, *The Sugar Hacienda of the Marquesado del Valle* (Minneapolis, MN, 1970), and Beatriz Scharrer Tamm, *Azúcar y trabajo. Tecnología de los siglos XVII y XVIII en el actual Estado de Morelos* (Mexico City, 1997), and for the Andes, N. P. Cushner, *Lords of the Land: Sugar, Wine, and Jesuit Estates of Coastal Peru, 1600–1767* (Albany, NY, 1980), and Susan E. Ramírez Horton, *The Sugar Estates of the Lambayaque Valley, 1670–1800* (Madison, WI, 1974) and *Provincial Patriarchs: Land Tenure and the Economics of Power in Colonial Peru* (Albuquerque, NM, 1985).

Finally, scholarship on prices and production of commercial crops is still lacking. They are extremely important lacunae in our understanding of the slow development and crystallization of the colonial agrarian system during the sixteenth and seventeenth centuries. Woodrow Borah actually pointed to sources suitable for measuring agricultural production in “The Collection of Tithes in the Bishopric of Oaxaca during the Sixteenth Century” and “Tithe Collection in the Bishopric of Oaxaca: 1601–1867,” *Hispanic American Historical Review* 21 (1941): 386–409 and 29 (1949): 498–517. Nonetheless, for the two centuries that have been the focus of this chapter, the only historical studies that used these kinds of records are Arístides Medina Rubio, *La Iglesia y la producción agrícola en Puebla. 1540–1795* (Mexico City, 1983) and the unpublished series produced by Pablo Macera’s Workshop on Andean History. Although the available sources for the *diezmo* provide an incentive to focus on the eighteenth century (ecclesiastical archives contain better and more continuous data on production levels and prices), more research on the sixteenth and early seventeenth century is needed.

CHAPTER 9 (ENRIQUE TANDETER)

A good starting point for the bibliography of Latin American mining is Eugenio Maffei and Ramón Rua Figueira, *Apuntes para una biblioteca española de libros, folletos y artículos, impresos y manuscritos, relativos al conocimiento y explotación*

de las riquezas minerales y á las ciencias auxiliares . . . , 2 vols. (León, 1970; orig. publ. 1871–2). More recent supplements are Justo García Morales, *Apuntes para una bibliografía minera española e iberoamericana (1870–1969)* (León, 1970), and Juan Manuel López de Azcona, Ignacio González Casasnovas, and Esther Ruiz de Castañeda, eds., *Minería iberoamericana: Repertorio bibliográfico y biográfico*, 4 vols. (Madrid, 1992). Also, see “Bibliografía minera colonial,” *Suplemento de Anuario de Estudios Americanos. Sección Historiografía y Bibliografía* 45, 1 (1988): 137–62.

For printed collections of documents relating to mining, see Guillermo Ovando Sanz, “British Interests in Potosí, 1825–1828. Unpublished Documents from the Archivo de Potosí,” *Hispanic American Historical Review* 45 (1965): 64–87; Humberto F. Burzio, “Manifiesto” de la plata extraída del Cerro de Potosí (1556–1800) (Buenos Aires, 1971); John Fisher, ed., *Matrícula de los mineros del Perú 1790* (Lima, 1975); Rosario Jiménez and Honorio Pinto, eds., *Minería en Bolivia, 1826–1848: Documentos* (Lima, 1979); and Silvio Zavala, *El servicio personal de los indios en el Perú*, 3 vols. (Mexico, 1979).

There are several contemporary publications of sources fundamental to the history of colonial mining. For example, see Pedro Vicente Cañete y Domínguez, *Guía histórica, geográfica . . . del Gobierno e Intendencia de la Provincia de Potosí* (1789) (Potosí, 1952); *Ordenanzas de minería otorgadas por el Rey Carlos III de España: seguidas de la legislación minera vigente hasta 1874 / Comentarios a las ordenanzas de minería por Don Francisco Javier de Gamboa* (México, 1961); Álvaro Alonso Barba, *Arte de los Metales* (Potosí, 1967); Juan del Pino Manrique, “Descripción de la Villa de Potosí y de los partidos sujetos a su intendencia,” in *Colección Pedro de Angelis* 7 (Buenos Aires, 1971): 7–51; Eduardo Martiré, *El Código Carolino de Ordenanzas Reales de las Minas de Potosí y demás Provincias del Río de la Plata (1794)* de Pedro Vicente Cañete, 2 vols. (Buenos Aires, 1973–4); Fausto de Elhuyar, *Indagaciones sobre la amonedación en Nueva España* (México, 1979); and García de Llanos, *Diccionario y maneras de hablar que se usan en las minas y sus labores en los ingenios y beneficios de los metales* (1609) (La Paz, 1983).

For good syntheses of colonial mining, see D. A. Brading and Harry E. Cross, “Colonial Silver Mining: Mexico and Peru,” *Hispanic American Historical Review* 52, 4 (Nov. 1972): 545–79; Harry E. Cross, “South American Bullion Production and Export 1550–1750,” in J. F. Richards, ed., *Precious Metals in the Later Medieval and Early Modern Worlds* (Durham, NC, 1983), 397–423; Peter Bakewell, “Mining in Colonial Spanish America,” in Leslie Bethell, ed., *The Cambridge History of Latin America*, vol. 2 (Cambridge, 1984), 105–51; and Richard L. Garner, “Long-Term Silver Mining Trends in Spanish America: A Comparative Analysis of Peru and Mexico,” *American Historical Review* 93, 4 (1988): 898–935, which ought to be complemented through consultation of Garner’s permanently updated Internet page: <http://www.laceh.com/>.

Suggestive interpretations about mining’s role in the shaping of colonial society can be found in Carlos Sempat Assadourian, “La producción de la mercancía dinero en la formación del mercado interno colonial. El caso del espacio peruano, siglo XVI,” in Enrique Florescano, ed., *Ensayos sobre el desarrollo económico en México y América Latina (1500–1975)* (Mexico, 1979), 223–92, and in *El sistema de la economía colonial. Mercado interno, regiones y espacio económico* (Lima, 1982).

Also, see James Lockhart, "Trunk Lines and Feeder Lines: The Spanish Reaction to American Resources," in Kenneth J. Andrien and Rolena Adorno, eds., *Transatlantic Encounters. Europeans and Andeans in the Sixteenth Century* (Berkeley, CA, 1991), 90–120. The issue figures outstandingly in the polemic exchange between Steve Stern and Immanuel Wallerstein; see Stern, "Feudalism, Capitalism, and the World-System in the Perspective of Latin America and the Caribbean," and Wallerstein, "Comments on Stern's Critical Tests," *The American Historical Review* 93, 4 (Oct. 1988): 829–97. The relationship between mining, agriculture, and foreign trade has been the object of a polemic with methodological consequences; see John H. Coatsworth, "The Mexican Mining Industry in the Eighteenth Century," in Nils Jacobsen and Hans-Jürgen Puhle, eds., *The Economies of Mexico and Peru during the Late Colonial Period, 1760–1810* (Berlin, 1986), 26–45, and D. A. Brading, "Facts and Figments in Bourbon Mexico," *Bulletin of Latin American Research* 4, 1 (1985): 61–4. The theme has also been discussed in Richard L. Garner with Spiro E. Stefanou, *Economic Growth and Change in Bourbon Mexico* (Gainesville, FL, 1993).

The relationship between foreign trade, royal finances, and cash flows has been the subject of multiple treatments. See K. W. Doherty and D. O. Flynn, "A Microeconomic Quantity Theory of Money and the Price Revolution," in Eddy H. G. Van Cauwenbergh, ed., *Precious Metals, Coinage and the Changes of Monetary Structures in Latin America, Europe, and Asia* (Leuven, 1989), 185–208; Charles P. Kindleberger, *Spenders and Hoarders: The World Distribution of Spanish American Silver, 1550–1750* (Singapore, 1989); Michel Morineau, *Incroyables gazettes et fabuleux métaux. Les retours des trésors américains d'après les gazettes hollandaises (XVIIe–XVIIIe siècles)* (Cambridge, 1985); B. H. Slicher van Bath, *Real Hacienda y economía en Hispanoamérica, 1541–1820* (Amsterdam, 1989); Ward Barrett, "World Bullion Flows, 1450–1800," in James D. Tracy, ed., *The Rise of Merchant Empires. Long-Distance Trade in the Early Modern World, 1350–1750* (Cambridge, 1990), 224–54; Richard von Glahn, *Fountain of Fortune: Money and Monetary Policy in China, 1000–1700* (Berkeley, CA, 1996); Herbert S. Klein, *The American Finances of the Spanish Empire* (Albuquerque, NM, 1998); William Schell Jr., "Silver Symbiosis: ReOrienting Mexican Economic History," *Hispanic American Historical Review* 81, 1 (Feb. 2001): 89–133; Dennis O. Flynn and Arturo Giráldez, "Cycles of Silver: Global Economic Unity through the Mid-18th Century," *Journal of World History* (Sept. 2002); Dennis O. Flynn, Arturo Giráldez, and Richard von Glahn, eds., *Global Connections and Monetary History, 1470–1800* (Aldershot, 2003).

Monographic studies centered on one site during the colonial or republican period are very common in the field of mining history. For colonial New Spain, see Peter Bakewell, *Silver Mining and Society in Colonial Mexico: Zacatecas, 1546–1700* (Cambridge, 1971); D. A. Brading, *Miners and Merchants in Bourbon Mexico 1763–1810* (Cambridge, 1971); Phillip L. Hadley, *Minería y sociedad en el centro minero de Santa Eulalia, Chihuahua (1709–1750)* (Mexico, 1979); Robert C. West, *The Mining Community in Northern New Spain: The Parral Mining District* (New York, 1980); María Encarnación Rodríguez Vicente, *San José de Gracia y San Antonio de Arrona. Economía y sociedad en dos haciendas mineras de Sinaloa en el siglo XVIII* (Madrid, 1988); Gilda Cubillo Moreno, *Los dominios de la plata: el precio del auge,*

el peso del poder; empresarios y trabajadores en las minas de Pachuca y Zimapán, 1552–1620 (Mexico, 1991); and Frédérique Langue, *Mines, terres et société à Zacatecas (Mexique) de la fin du XVIIe siècle à l'indépendance* (Paris, 1992).

For the Andes, see J. R. Fisher, *Silver Mines and Silver Miners in Colonial Peru, 1776–1824* (Liverpool, 1977); Rose Marie Buechler, *The Mining Society of Potosí, 1776–1810* (Syracuse, NY, 1981); Enrique Tandeter, *Coercion and Market. Silver Mining in Colonial Potosí, 1692–1826* (Albuquerque, NM, 1993); Carlos Contreras, *Los mineros y el rey. Los andes del norte: Hualgayoc 1770–1825* (Lima, 1995); and Oscar Cornblit, *Power and Violence in the Colonial City. Oruro from the Mining Renaissance to the Rebellion of Tupac Amaru (1740–1782)* (Cambridge, 1995).

For nineteenth-century Mexico, see William Randall, *Real del Monte: Una empresa minera británica en México* (Mexico, 1972); Cuauhtémoc Velasco Ávila et al., *Estado y minería en México (1767–1910)* (Mexico, 1988); Anne Staples, *Bonanzas y borrascas mineras: el Estado de México, 1821–1876* (Mexico, 1994); and María Eugenia Romero Sotelo, *Minería y guerra. La economía de Nueva España, 1810–1821* (Mexico, 1997). For the Andes, see William Lee Lofstrom, *Dámaso de Uriburu, a Mining Entrepreneur in Early Nineteenth-Century Bolivia* (Buffalo, NY, 1973); Antonio Mitre, *Los patriarcas de la plata. Estructura socio-económica de la minería boliviana en el siglo XIX* (Lima, 1981); Carlos Contreras, *Mineros y campesinos en los Andes. Mercado laboral y economía campesina en la sierra Central, siglo XIX* (Lima, 1987); Ricardo Godoy, *Mining and Agriculture in Highland Bolivia. Ecology, History, and Commerce among the Jukumanis* (Tucson, AZ, 1990); and José R. Deustua, *The Bewitchment of Silver. The Social Economy of Mining in Nineteenth-Century Peru* (Athens, GA, 2000).

Mining technology has been the subject of special treatment in the last few years. For example, see Modesto Bargalló, *La minería y la metalurgia en la América española durante la época colonial* (Mexico City, 1955); Alan Probert, "Bartolomé de Medina: the Patio Process and the Sixteenth Century Silver Crisis," in Peter Bakewell, ed., *Mines of Silver and Gold in the Americas* (London, 1997), 96–130; Bakewell, "Technological Change in Potosí: The Silver Boom of the 1570s," *Jahrbuch für Geschichte von Staat, Wirtschaft und Gesellschaft Lateinamerikas* 14 (1977): 57–77; Bakewell, "Los determinantes de la producción minera en Charcas y en Nueva España durante el siglo XVII," *HISLA* 7 (1986): 3–11; Manuel Castillo Martos, ed., *Minería y metalurgia: intercambio tecnológico y cultural entre América y Europa durante el período colonial español* (Seville, 1994); Julio Sánchez Gómez and Guillermo Mira Delli-Zotti, "American Mining and European Mining, 1750–1820: A Comparative Perspective," and Ramón Sánchez Flores, "Technology of Mining in Colonial Mexico: Installations, Tools, Artifacts and Machines Used in the Patio Process, Sixteenth to Eighteenth Centuries," both in Alan K. Craig and Robert C. West, eds., *In Quest of Mineral Wealth: Aboriginal and Colonial Mining and Metallurgy in Spanish America* (Baton Rouge, LA, 1995), 205–12 and 137–53; and Julio Sánchez Gómez, Guillermo Mira Delli-Zotti, and Rafael Dobado, *La savia del imperio. Tres estudios de economía colonial* (Salamanca, 1997).

The theme of mining labor has been the object of a multitude of studies. For Mexico, see Luis Chávez Orozco, *Conflictos de trabajo con los mineros de Real del Monte, Año 1766* (Mexico, 1960); Cuauhtémoc Velasco Ávila, "Los trabajadores

mineros en la Nueva España, 1750–1810,” in Enrique Florescano et al., eds., *La clase obrera en la historia de México. De la colonia al imperio* (Mexico, 1980), 239–301; Doris M. Ladd, *The Making of a Strike: Mexican Silver Workers’ Struggles in Real del Monte: 1766–1775* (Lincoln, NE, 1988); Robert Stephen Haskett, “‘Our Suffering with the Taxco Tribute’: Involuntary Mine Labor and Indigenous Society in Central New Spain,” *Hispanic American Historical Review* 71, 3 (1991): 447–75. Works on the Andes have sprung up particularly around the issue of forced labor. For example, see Abecia Baldivieso, *Mitayos de Potosí. En una economía sumergida* (Barcelona, 1988); Carlos Sempat Assadourian, “Acerca del cambio en la naturaleza del dominio sobre las Indias: la mita’ minera del virrey Toledo, documentos de 1568–1571,” *Anuario de Estudios Americanos* 46 (1989): 3–70; Peter Bakewell, *Miners of the Red Mountain. Indian Labor in Potosí, 1545–1650* (Albuquerque, NM, 1984); Rose Marie Buechler, “El Intendente Sanz y la ‘mita nueva’ de Potosí, *Historia y Cultura* 3 (1978): 59–95; Roberto Choque Canqui, “El papel de los capitanes de indios de la provincia Pacajes ‘en el entero de la mita’ de Potosí,” *Revista Andina* 1, 1 (Sept. 1983): 117–25; Jeffrey A. Cole, *The Potosí Mita 1573–1700. Compulsory Indian Labor in the Andes* (Stanford, CA, 1985); Alberto Crespo Rodas, “El reclutamiento y los viajes en la ‘mita’ del Cerro de Potosí,” in *La Minería Hispana e Iberoamericana*, vol. 1 (León, 1970), 467–82; Alberto Crespo Rodas, “La ‘mita’ de Potosí” *Revista Histórica* 22 (1955–6): 169–82; Concepción Gavira Márquez, “Reclutamiento y remuneración de la mano de obra minera en Oruro, 1750–1810,” *Anuario de Estudios Americanos* 57 (2000): 1–28; Ignacio González Casasnovas, *Las dudas de la corona. La política de repartimientos para la minería de Potosí (1680–1732)* (Madrid, 2000); José María Mariluz Urquijo, “La situación del mitayo en las Glosas de Benito de la Mata Linares al Código Carolino,” *Jahrbuch für Geschichte von Staat, Wirtschaft und Gesellschaft Lateinamerikas* 14 (1977): 161–98; Eduardo Martiré, “Tolerancias, prevenciones y regulación participadora de los indios ‘capchas’ de Potosí en la explotación del Cerro,” in *Estudios sobre política indigenista española en América*, vol. 3 (Valladolid, 1977), 291–303; Néstor Meza Villalobos, *Felipe V y el problema ético-político de la provisión de mano de obra a la minería del Perú y Nuevo Reino de Granada* (Valladolid, 1976); Nicolás Sánchez-Albornoz, “Trabajo y minería en Charcas,” *Anuario 2001 del Archivo y Biblioteca Nacionales de Bolivia* (2001): 111–23; Bianca Premo, “From the Pockets of Women: The Gendering of the Mita. Migration and Tribute in Colonial Chucuito, Peru,” *The Americas* 57, 1 (2000): 63–94; Gustavo Rodríguez Ostri, “Capchas, Trapicheros y ladrones de mineral en Bolivia (1824–1900),” *Siglo XIX. Revista de Historia* 4, 8 (1989): 125–40; Thierry Saignes, “Las etnias de Charcas frente al sistema colonial (siglo XVII). Ausentismo y fugas en el debate sobre la mano de obra indígena, 1595–1665,” *Jahrbuch für Geschichte von Staat, Wirtschaft und Gesellschaft Lateinamerikas* 21 (1984): 27–75; Thierry Saignes, “Notes on the Regional Contribution to the Mita in Potosí in the Early Seventeenth Century,” *Bulletin of Latin American Research* 4, 1 (1985): 65–76; and Ann Zulawski, *They Eat from Their Labor: Work and Social Change in Colonial Bolivia* (Pittsburgh, PA, 1995).

Some works have focused in particular on the subject of mining entrepreneurs. For example, see Richard L. Garner, “Silver Production and Entrepreneurial Structure in 18th-Century Mexico,” *Jahrbuch für Geschichte von Staat, Wirtschaft*

und *Gesellschaft Lateinamerikas* 17 (1980): 157–85; Peter Bakewell, *Silver and Entrepreneurship in Seventeenth-Century Potosí. The Life and Times of Antonio López de Quiroga* (Albuquerque, NM, 1988); and Louisa Schell Hoberman, *Mexico's Merchant Elite, 1590–1660: Silver, State, and Society* (Durham, NC, 1991).

The bubble of British investments in Latin America in general and mining in particular during 1824–5 generated an abundant literature; see Henry English, *A General Guide to the Companies Formed for Working Foreign Mines* (London, 1825), and *A Complete View of the Joint Stock Companies Formed during the Years 1824 and 1825* (London, 1827); and J. Fred Rippy, “Latin America and the British Investment ‘Boom’ of the 1820s,” *Journal of Modern History* 19, 2 (June 1947): 122–9.

CHAPTER 10 (AURORA GÓMEZ-GALVARRIATO)

Most of the literature on manufacturing in Latin America during the colonial period and early nineteenth century deals with specific manufacturing sectors in particular regions. For works of a general nature, see Richard L. Garner “Manufacturing and International Trade,” in *Economic Growth and Change in Bourbon Mexico* (Gainesville, FL, 1993), 141–73; Brígida von Mentz, “Manufacturas en tierras de conquista: empresas industriales mineras, azucareras y textiles y sus trabajadores (siglos XVI–XVIII),” in *Trabajo, sujeción y libertad en el centro de la Nueva España* (Mexico City, 1999), 173–279; and Manuel Miño Grijalva, *La protoindustria colonial hispanoamericana* (Mexico City, 1993).

“The State of Manufactures and Trade in the New Spain,” in Alexander von Humboldt, *Political Essay on the Kingdom of New Spain*, 4 vols. (New York, 1966; first American edition 1811), is an invaluable source on the state of manufacturing activity in New Spain at the end of the eighteenth century. Humboldt, *The Island of Cuba: A Political Essay* (Princeton, NJ, 2001; first American edition 1859), and Humboldt, *Viaje a las Regiones Equinocciales del Nuevo Continente* (Caracas, 1985; orig. publ. in French between 1799 and 1804), are also very informative.

Sugar

John H. Galloway, *The Sugar Cane Industry: An Historical Geography from its Origins to 1914* (Cambridge, 1989), gives a comparative view of the development of the sugar industry in different parts of the world and a concise but well-informed treatment of technological development in the industry through time. Two standard histories of sugar are Noel Deerr, *The History of Sugar*, 2 vols. (London, 1949), and Edmund von Lippmann, *Historia do Açúcar*, 2 vols. (Rio de Janeiro, 1942; orig. pub. in German as *Geschichte des Zuckers*, 1890). A classical book on the development of the sugar industry and its intricate relationship with the development of capitalism in the West is Eric Williams, *Capitalism and Slavery* (Chapel Hill, NC, 1994, orig. publ. 1944). Philip Curtin, *The Rise and Fall of the Plantation Complex:*

Essays in Atlantic History (Cambridge, 1990), links sugar with the development of colonialism and European expansion. Sidney W. Mintz, *Sweetness and Power. The Place of Sugar in Modern History* (New York, 1985), deals with the consumption of sugar.

Suzigan Wilson, *Indústria brasileira. Origem e desenvolvimento* (São Paulo, 1986), and José Honório Rodrigues's series of articles written in *Brasil Açucareiro* between 1942 and 1945 are a good guide to the literature and the history of sugar in Brazil. A masterpiece on the history of sugar is Stuart Schwartz, *Sugar Plantations in the Formation of Brazilian Society. Bahia, 1550–1835* (Cambridge, 1985). Although dealing specifically with Bahia, Schwartz provides a general overview of sugar production in Brazil. Moreover, his close description of how sugar plantations operated makes it a must read for anyone interested in sugar production regardless of his or her regional interest. Other important books on sugar production in the Brazilian northeast are Manuel Diegues Júnior, *População e açúcar no nordeste do Brasil* (Rio de Janeiro, 1954), and Vera L. A. Ferlini, *Terra, trabalho e poder o mundo dos engenhos no nordeste colonial* (São Paulo, 1988). The literature on sugar production in other Brazilian regions is voluminous but deals with a later period that goes beyond the scope of this chapter.

David Watts, *The West Indies: Development Culture and Environmental Change since 1492* (Cambridge, 1990), is an excellent general history of the region that provides a clear picture of the comparative evolution of the different islands and their relationship to their European metropolis. Two extraordinary books on sugar production in the English West Indies are Richard S. Dunn, *Sugar and Slaves. The Rise of the Planter Class in the English West Indies, 1624–1713* (Chapel Hill, NC, 1972), and Richard Sheridan, *The Sugar Trade of the British West Indies from 1660 to 1775* (London, 1952). On sugar production in the French West Indies, see Gabriel Debien, *Plantations et esclaves à Saint Domingue* (Dakar, 1962), and Christian Schnakenbourg, *Histoire de l'industrie sucrière en Guadeloupe au XIX^e et XX^e siècles: La crise du système esclavagiste, 1835–1847* (Paris, 1980).

The historiography of the development of Cuba's sugar industry includes two extraordinary books: Manuel Moreno Fraguinals, *El ingenio: El complejo económico social cubano del azúcar*, 3 vols. (Havana, 1978), and Alan Dye, *Cuban Sugar in the Age of Mass Production. Technology and the Economics of the Sugar Central: 1899–1929* (Stanford, CA, 1998). Other relevant books on Cuba's sugar industry are Anton L. Allahar, *Class, Politics and Sugar in Colonial Cuba* (Lewiston, NY, 1990), and Eduardo L. Moyano Bazzani, *La nueva frontera del azúcar: El ferrocarril y la economía Cubana del siglo XIX* (Madrid, 1991).

Although sugar production in New Spain was never as important as in Brazil or the West Indies, its historiography is extraordinarily well-developed. A classical book on the subject is Fernando B. Sandoval, *La industria del azúcar en Nueva España* (Mexico City, 1951). Horacio Crespo's *Historia del azúcar en México* (Mexico City, 1988) gives an overview of sugar production from colonial to modern times. For one of the best descriptions of sugar production during the colonial period, see Ward Barret, *La hacienda azucarera de los Marqueses del Valle* (Mexico City, 1977). Gisela Landázuri Benítez and Verónica Vázquez Mantecón, *Azúcar y estado (1750–1880)* (Mexico City, 1988), provides well-organized quantitative data. Gisela

von Wobeser, *La hacienda azucarera en la época colonial* (Mexico City, 1988), gives interesting insights on the peculiarities of sugar *haciendas* in New Spain. Two recent books that have made a major contribution to our understanding of the subject are Ernest Sánchez Santiró, *Azúcar y poder. Estructura socioeconómica de las alcaldías mayores de Cuernavaca y Cuautla de Amilpas, 1730–1821* (Mexico City, 2001), and Beatriz Scharrer, *Azúcar y trabajo. Tecnología de los siglos XVII y XVIII en el actual estado de Morelos* (Mexico City, 1997). For a comparative view of sugar production in New Spain and Bahia, see Ward Barrett and Stuart Schwartz, “Comparación entre dos economías azucareras coloniales: Morelos, México y Bahía, Brasil,” in Enrique Florescano, ed., *Haciendas, latifundios, y plantaciones en América Latina* (Mexico City, 1975), 532–72. José Jesús Hernández Palomo, *El aguardiente de caña en México* (Seville, 1974), studies the production of rum, a sugar manufacturing by-product that has a history of its own.

The literature on sugar production in Spanish South America is rather scant. For Peru, see Nicholas Cushner, *Lords of the Land: Sugar, Wine, and Jesuit Estates in Coastal Peru, 1600–1767* (Albany, NY, 1980), and Pablo Mancera and Horacio Pinto, *Estudios históricos del Perú* (Lima, 1973). For Argentina, see Eduardo Rosenzvaig, *De la manufactura a la revolución industrial: el azúcar en el norte Argentino, fases y virajes tecnológicos* (Tucumán, 1992). For Paraguay, see Eugenio Friedmann, *Historia del azúcar en el Paraguay* (Asunción, 1966).

Textiles

During the colonial period and the early nineteenth century, textile production in Latin America was mostly carried out in the viceroyalties of New Spain and Peru. Accordingly, the literature deals almost exclusively with textile production in these two regions. However, although Peru (especially the Audiencia of Quito) was a more important center of textile production, most of the historiography is focused on New Spain.

Moreover, while a considerable share of textile production took place outside the *obreros*, most of the historiography focuses on them. This is partly due to the existence of abundant archival sources that allows their study, as well as the fascination historians have for *obreros* as a failed path to industrialization. See, for example, Luis Chávez Orozco in “El obrero, embrión de la fábrica,” in *Documentos para la historia económica de México* (Mexico City, 1936).

Most of the literature deals separately with textile manufacturing in New Spain and in the Viceroyalty of Peru. Fortunately for the reader who wants a broader perspective, Manuel Miño Grijalva has published several pieces that analyze both regions comparatively. See, for example, *La protoindustria colonial hispanoamericana* (cited previously); *La manufactura colonial* (Mexico City, 1993); “La política textil en México y Perú en la época colonial. Nuevas consideraciones,” *Historia Mexicana* 38, 1 (1988): 283–323; and “¿Proto-industria colonial?” *Historia Mexicana* 38, 3 (1989): 793–819. Bernardo Lavallé et al., “Los problemas de la protoindustria textil,” in *La América Española* (Madrid, 2002), 37–54, and Hahs Pohl, “Algunas consideraciones sobre el desarrollo de la industria hispanoamericana,

especialmente la textil en el siglo XVII," *Anuario de Estudios Americanos* 28 (1971), are also worth reading.

Historiography on *obreros* had a first spurt in the 1940s and 1950s through the reprinting of invaluable historical documents. They allow a first look at primary sources pertaining to *obreros* that is worth taking. For *obreros* in New Spain see Chávez Orozco, *Documentos para la historia económica de México* (Mexico City, 1938), Edmundo O'Gorman "El trabajo industrial en la Nueva España a mediados del siglo XVII: Visita a los obreros de paños en la jurisdicción de Coyoacán, 1660," *Boletín del Archivo General de la Nación* 11 (1949): 33–116; Miguel Othon Mendizabal, *Obras completas*, 6 vols. (Mexico City, 1946–7); Silvio Zavala and María Castelo, *Fuentes para la historia del trabajo en Nueva España*, 8 vols. (Mexico City, 1980, orig. print. 1939–46); and Silvio Zavala, *Ordenanzas del trabajo de los siglos XVI and XVII* (Mexico City, 1946). Documents of a similar nature for the viceroyalty of Peru can be found in Alberto Landázuri Soto, *El régimen laboral indígena en la Real Audiencia de Quito* (Madrid, 1959); Iñigo Ortiz de Zúñiga, *Visita de la provincia de León de Huánuco* (Huánuco, 1967); and Xavier Ortiz de la Tabla, *Las ordenanzas de obreros de Matías de Peralta para la Audiencia de Quito, 1621: Régimen laboral de los centros textiles coloniales ecuatorianos* (Seville, 1976). The introductions to these volumes, together with the authors' commentaries on the documents, provide an early analysis that deserves study.

During the 1960s several classical works on *obreros* were published. Richard Greenleaf, "The Obraje in the Late Mexican Colony," *The Americas* 23, 3 (1967): 227–50, placed the institution in the context of the colonial political economy. Greenleaf, "Viceroyal Power and the Obreros of the Cortés Estate, 1595–1708," *Hispanic American Historical Review* 48, 3 (1968), 365–79, studies changes in the conditions of labor and the government–business relationship in the *obreros* of the Cortés estate. Manuel Carrera Estampa, "El obraje novohispano," *Memorias de la Academia Mexicana de la Historia* 20 (1961): 148–171, is a general study based on published materials. Jan Bazant, "Evolución de la industria textil poblana (1544–1845)," *Historia Mexicana* 13, 1 (1964), 473–515, gives a concise overview of textile manufacturing in Puebla – not only *obreros* – throughout three centuries, linking it to the development of the city.

Fernando Silva Santiesteban, *Los obreros en el virreinato del Perú* (Lima, 1964), provides an overall picture of the functioning and geography of *obreros* in the Viceroy of Peru. Two other pieces important for the study of *obreros* in this region are Maximiliano Moscoso, "Apuntes para la historia de la industria textil en el Cuzco colonial," *Revista Universitaria del Cusco* 122–5 (1965): 67–94, and Alejandro Málaga Medina, "Los obreros en la colonia (centros manufactureros textiles)," *Revista de la Facultad de Letras, Arequipa* (1965–6).

More recently, our knowledge on *obreros* has increased through further exploration of archival sources which have provided historians with access to contracts, account books, production records, bills of exchange, documents introduced as evidence in civil cases, and bureaucratic correspondence in the records of the Royal Excise (*alcabalas*). Based on these sources, recent works shed light on the daily operation of *obreros*, their owners, the type of workers they employed, the evolution

of *obrages* through time in different regions, and their linkages to the rest of the economy.

Carmen Viqueira and José Ignacio Urquiola, *Los obrajes en la Nueva España: 1530–1630* (Mexico City, 1990), is the best study of the origin and development of *obrages* in New Spain during the first century of the colonial regime. Through the analysis of hundreds of labor contracts and notarial documents, Viqueira and Urquiola give an accurate picture of the types of labor *obrages* employed and of their business organization. Richard Salvucci, *Textiles and Capitalism in Mexico: An Economic History of the Obrajes, 1539–1840* (Princeton, NJ, 1987), is a must read. Particularly well developed for the period after 1650, the book analyzes quantitative data to explain the evolution of *obraje* production and its relation to the overall colonial economy and provides an important contribution to the debate on whether *obrages* should be considered a case of protoindustrialization. Robson Brines Tyner, *Historia demográfica y económica de la Audiencia de Quito* (Quito, 1988), is the best source on the *obraje* economy of the audiencia of Quito. It analyzes the evolution of *obrages* in this area, their linkages with the state, and the impact they had on the native population.

The regional aspects of *obraje* production in New Spain are further developed in David M. Szewezky, "New Elements in the Society of Tlaxcala: 1579–1618;" L. Lewis, "In Mexico City: Some Aspects of the Economic Activity and Social Process in Texcoco, 1570–1620," in Ida Altman and James Lockart, eds., *Provinces of Early Mexico: Variants of Spanish American Regional Evolution* (Los Angeles, 1976); John Super, *La vida en Querétaro durante la colonia, 1531–1810* (Mexico City, 1983); Super, "Querétaro Obrajes: Industry and Society in Provincial Mexico, 1600–1810," *Hispanic America Historical Review* 56 (1976): 197–216; and John Tutino, "Guerra, comercio colonial y textiles Mexicanos: El Bajío, 1585–1810," *Historias* 11 (Oct.–Dec. 1985): 35–45. For labor conditions in *obrages*, see Samuel Kagan, "Penal Servitude in New Spain: The Colonial Textile Industry" (Ph.D. dissertation, City University of New York, 1977); Alberto Carabarín, *El trabajo y los trabajadores del obraje de la ciudad de Puebla: 1700–1800* (Puebla, 1981); Jorge González Angulo and Roberto Sandoval Zarauz, "Los trabajadores industriales de Nueva España, 1750–1810," in Enrique Florescano, ed., *La clase obrera en la historia de México. De la colonia al imperio*, vol. 1 (Mexico City, 1980), 173–238; José Ignacio Urquiola, "La mano de obra en los obrajes de la Nueva España. El Bajío y Querétaro," in Claudio E. Fabergat, ed., *Sistema de trabajo en la América indígena* (Quito, 1994), 121–60; and Manuel Miño Grijalva, "Espacio económico e industria textil: los trabajadores de Nueva España, 1780–1810," *Historia Mexicana* 32, 3 (1983): 524–53.

For a further study of *obrages* in the audiencia of Quito, see Nicolas Cushner, *Farm and Factory. The Jesuit and Development of Agrarian Capitalism in Colonial Quito, 1600–1767* (Albany, NY, 1982); Christiana Bochart de Moreno, *La Audiencia de Quito. Aspectos económicos y sociales siglos XVI–XVIII* (Quito, 1998), 19–20; Bochart, "La Producción Textil Agropecuaria," in Segundo Moreno Yáñez, ed., *Pichincha. Monografía histórica de la región nuclear ecuatoriana* (Quito, 1981); Andrés Guerrero, "Los obrajes en la Real Audiencia de Quito en el siglo XVII y su relación con el estado colonial" *Revista Ciencias Sociales* 1, 2 (1977):

65–92; Xavier Ortiz de la Tabla, “El obraje colonial ecuatoriano. Aproximación a su estudio,” *Revista de Indias* 37, 149/150 (July–Dec. 1977): 471–541; Ortiz de la Tabla, “Obrajes y obrajeros del Quito colonial,” *Anuario de Estudios Americanos* 39 (1982): 341–65; Rocío Rueda Novoa, *El Obraje de San Joseph de Peguchi* (Quito, 1988); Alexandra Kennedy Troya and Carmen Fauria Roma, “Obrajes en la Audiencia de Quito. Un caso de estudio: Tilipulo,” *Boletín Americanista* 29 (1987): 143–202; and Guadalupe Soasti, “Obrajeros y comerciantes en Riobambas. XVII,” *Procesos* 1, 2 (1991): 5–22.

For studies of *obrajes* in the Viceroyalty of Peru outside the Audiencia of Quito, see Magnus Mörner, *Perfil de la sociedad rural del Cuzco a fines de la colonia* (Lima, 1978); Miriam Salas, “Los obrajes Huamanguinos y sus interconexiones con otros sectores económicos en el centro-sur peruano a fines del siglo XVIII,” in Nils Jacobsen and Hans-Jürgen Puhle, eds., *The Economies of Mexico and Peru during the Late Colonial Period: 1760–1810* (Berlin, 1986), 203–32; Salas, *De los obrajes de Canaria y Chincheros a las comunidades indígenas de Vicashuamán: Siglo XVI* (Lima, 1979); Salas, “Crisis en desfase en el centro sur-este del virreinato peruano: minería y manufactura textil,” in Heraclio Bonilla, eds., *Las crisis económicas en la historia del Perú* (Lima, 1986); Salas, “Evolución de la propiedad obrajera en la Huamanga colonial,” *Anuario de Estudios Americanos* 39 (1982): 367–95; and Neus Escandell Tur, *Producción y comercio de tejidos coloniales: Los obrajes y chorrillos de Cuzco (1570–1820)* (Cuzco, 1997).

The transition in textile manufacturing from *obrajes* to the putting out system and the *indianilla* factories during the colonial era is developed in Manuel Miño Grjalva, *Obrajes y tejedores de Nueva España, 1700–1810* (Mexico City, 1998); Guy Thomson, *Puebla de los Angeles: Industry and Society in a Mexican City* (Boulder, CO, 1989); Guy Thomson, “The Cotton Textile Industry in Puebla during the Eighteenth and Early Nineteenth Centuries,” in Jacobsen and Puhle, *The Economies of Mexico and Peru* (cited previously), 169–238; and Jan Bazant, “Evolución de la industria textil poblana (1544–1845)” (cited previously). Brooke Larson, “The Cotton Textile Industry of Cochabamba, 1770–1810: The Opportunities and Limits of Growth,” in Jacobsen and Puhle, *The Economies of Mexico and Peru* (cited previously), 151–9, studies a similar, although less successful, process in Peru. For the study of colonial textiles of silk and flax, see Woodrow Borah, *Silk Raising in Colonial México* (Berkeley, CA, 1943), and Ramón Serrera Contreras, *Cultivo y manufactura de lino y cáñamo en Nueva España (1777–1800)* (Seville, 1974).

The formation and importance of guilds in New Spain is developed in Manuel Carrera Stampa, *Los gremios mexicanos. La organización gremial en la Nueva España: 1521–1861* (Mexico City, 1954); Bazant, “La evolución de la industria textil poblana,” (cited previously); Miño, *Obrajes y tejedores de Nueva España* (cited previously); Carlos Illades “Composición de la fuerza de trabajo y las unidades productivas en la Ciudad de México, 1788–1873,” in Regina Hernández Franyuti, ed., *La ciudad de México en la primera mitad del siglo XIX* (Mexico City, 1994) 2: 250–78; Illades, “De los gremios a las sociedades de socorros mutuos. El artesanal Mexicano, 1814–1853,” *Historia Social* 8 (1990): 73–87; Sonia Pérez Toledo, *Los hijos del trabajo. Los artesanos de la Ciudad de México (1759–1853)* (Mexico City, 1996); and John

E. Kicza, *Empresarios coloniales: Familias y negocios en la ciudad de México durante los Borbones* (Mexico City, 1986). For an overview of guilds and *cofradias* in the audiencia of Quito, see Marcelo Naranjo Villavicencio, *El artesano como actor social* (Mexico City, 1990).

The evolution of the textile industry during the early nineteenth century and the appearance of the first mechanized factories are analyzed in Bazant, "La evolución de la industria textil poblana" (cited previously); Bazant, "Estudio sobre la productividad en la industria algodonera mexicana en 1843–1845," in *Colección para la Historia del Comercio Exterior*, vol. 7 (Mexico, 1964); Robert Potash, *Mexican Government and Industrial Development in the Early Republic: The Banco de Avío* (Amherst, MA, 1983); Thomson, *Puebla de los Angeles: Industry and Society in a Mexican City* (cited previously); Thomson, "Traditional and Modern Manufacturing in Mexico, 1821–1850," in Richard Liehr, ed., *América Latina en la época de Simón Bolívar* (Berlin, 1989), 55–86; Thomson, "Continuity and Change in Mexican Manufacturing, 1800–1870," in Jean Batou, ed., *Between Development and Underdevelopment: The Precocious Attempts at Industrialization of the Periphery, 1800–1870* (Geneva, 1991), 225–302; Thomson, "Protectionism and Industrialization in Mexico, 1821–1854: The Case of Puebla," in Abel Christopher and Colin M. Lewis, eds., *Latin America: Economic Imperialism and the State* (London, 1985); Carlos Illades, "La Empresa Industrial de Esteban de Antúñano," *Secuencia* 15 (1989): 28–46; and Aurora Gómez-Galvarriato, "Industrial Development under Institutional Frailty: The Development of the Mexican Textile Industry in the Nineteenth Century," *Revista de Historia Económica* 17: Special Volume (1999): 191–223.

For the study of early textile production in other regions of Latin America, see Luis Ospina Vázquez, *Industria y protección en Colombia: 1810–1930* (Medellín, 1955); Carlos Londoño Yepes, *Origen y desarrollo de la industria textil en Colombia y Antioquía* (Medellín, 1983); Ann P. Rowe, *A Century of Change in Guatemalan Textiles* (New York, 1978); and Stanley J. Stein, *The Brazilian Cotton Manufacture* (Cambridge, MA, 1957).

CHAPTER II (GRACIELA MÁRQUEZ)

Expansion of European Economies

For studies of the overseas expansion of European economies and the economic conditions of early modern Europe, see Jan de Vries, *The Economy of the Europe in an Age of Crisis, 1600–1750* (New York, 1976); Fernand Braudel, *Civilization and Capitalism, 15th–18th Century*, vol. 2, *The Wheels of Commerce* (New York, 1984); Ralph Davis, *The Rise of the Atlantic Economies* (Ithaca, NY, 1973); James D. Tracy, ed., *The Rise of Merchant Empires: Long-Distance Trade in the Early Modern World, 1350–1750* (New York, 1991); and G. V. Scammell, *The First Imperial Age: European Overseas Expansion, 1400–1715* (London, 1989). For recent works dealing with the interactions between commercial powers and the role of trade in the formation of a global economy, see John H. Coatsworth, "Cycles of Globalization,

Economic Growth and Human Welfare in Latin America," in Otto Solbrig, ed., *Globalization and the Rural Environment* (Cambridge, MA, 2001); Ronald Finlay and Kevin O'Rourke, "Commodity Market Integration, 1500–2000," in Michael Bordo, Alan M. Taylor, and Jeffrey Williamson, eds., *Globalization in Historical Perspective* (Chicago, 2003); Kevin O'Rourke and Jeffrey G. Williamson, "After Columbus: Explaining the Global Trade Boom, 1500–1800," *Journal of Economic History* 62, 2 (2002): 417–56; and Daron Acemoglu, Simon Johnson, and James Robinson, "The Rise of Europe: Atlantic Trade, Institutional Change and Economic Growth" (Working Paper W9378, National Bureau of Economic Research, 2002). Patrick K. O'Brien, "European Economic Development: The Contribution of the Periphery," *Economic History Review* 35, 1 (1982): 1–18, and his essay in this volume are examples of interpretations that insist on the minor role played by trade in the economic growth of modern Europe.

The expansion of Europe in the modern era is often associated with mercantilist trade policies. The classical study of mercantilism is Eli F. Heckscher, *Mercantilism* (London, 1934). Other works include the collection of essays edited by D. C. Coleman, *Revisions in Mercantilism* (London, 1964); Robert Ekelund and Robert D. Tollison, *Mercantilism as a Rent-Seeking Society. Economic Regulation in Historical Perspective* (College Station, TX, 1981); and Lars Magnusson, *Mercantilism: The Shaping of an Economic Language* (New York, 1994). An analysis based on foreign trade theory is presented in Leonard Gomes, *Foreign Trade and the National Economy* (London, 1987). The classical work on Spanish economic thought during the mercantilist era is Marjorie Grice-Hutchinson, *Early Economic Thought in Spain* (Boston, 1978). For a survey of English mercantilism, see Douglas A. Irwin, *Against the Tide. An Intellectual History of Free Trade* (Princeton, NJ, 1996). For an examination of mercantilist policies in the United States, see John McCusker, "British Mercantilist Policies and the American Colonies," in *The Cambridge Economic History of the United States*, vol. 1 (Cambridge, 1996), 337–62.

Iberian Economies and Their Overseas Empires

The literature on the social and economic history of the Iberian economies in the modern period is abundant. The best examples for Spain are John H. Elliot, *Imperial Spain: 1496–1716* (London, 1990); John Lynch, *Spain Under the Habsburgs* (New York, 1984); Henry Kamen, *Spain 1469–1714. A Society of Conflict* (New York, 1991); Carla Rahn Phillips, "Time and Duration: A Model for the Economy of Early Modern Spain," *American Historical Review* 92, 3 (1987): 531–62; Fernand Braudel, *The Mediterranean and the Mediterranean World in the Age of Phillip II* (New York, 1966); and Antonio Domínguez Ortiz, *Sociedad y estado en el siglo XVII español* (Madrid, 1976). For Portugal, see Bailey W. Diffie and George D. Winius, *Foundations of the Portuguese Empire, 1415–1580* (Minneapolis, 1977); A. H. de Oliveira Marques *History of Portugal* (New York, 1972); and J. Verissimo Serrao, *Historia de Portugal*, 15 vols. (Lisbon, 1977).

For a general approach to the economy of Spain and its Atlantic trade relations, see J. H. Parry, *The Spanish Seaborne Empire* (London, 1966), and Clarence H. Haring, *The Spanish Empire in America* (New York, 1947). The early part of the

eighteenth century is analyzed by Pablo Emilio Pérez-Mallaina Bueno, *Política naval española en el Atlántico, 1700–1715* (Seville, 1982). Also, see Stanley J. Stein and Barbara H. Stein, *Silver, Trade, and War. Spain and America in the Making of Early Modern Europe* (Baltimore, 2000). The classical work on the Portuguese empire is Charles R. Boxer, *The Portuguese Seaborne Empire, 1415–1825* (London, 1969). Also, see A. J. R. Russell-Wood, *The Portuguese Empire, 1415–1808. A World on the Move* (London, 1998).

Colonial Trade and Trading Systems

The best overall introduction to the literature on the early trade and trading systems in Latin America is Murdo J. MacLeod's bibliographical essay, "Spain and America: The Atlantic Trade, 1492–1720," in Leslie Bethell, ed., *The Cambridge History of Latin America*, vol. 1 (Cambridge, 1984). For Brazil, see the excellent survey by Francis Dutra, *A Guide to the History of Brazil, 1500–1822. A Guide to the Literature in English* (Santa Barbara, CA, 1980), and the bibliographical essays by Frédéric Mauro and Andrée Mansuy-Diniz Silva in *The Cambridge History of Latin America*, vol. 1 (cited previously). Other works with broad views of the contemporary literature on trade include Carlos Marichal "La historiografía económica reciente sobre el México borbónico: Los estudios del comercio y las finanzas virreinales, 1760–1820," *Boletín del Instituto de Historia Argentina y Americana "Dr. Emilio Ravignani"* 3, 2 (1990): 161–80; Pedro Pérez Herrero, "El comercio de la Nueva España. Análisis temático de las interpretaciones bibliográficas más relevantes en el siglo XX," *Revista quinto centenario* 3 (1982): 137–76; Susan M. Socolow, "Recent Historiography of the Río de la Plata: Colonial and Early National Periods," *Hispanic American Historical Review* 64, 1 (1984): 105–20; Christopher Ward, "Historical Writing on Colonial Panama," *Hispanic American Historical Review* 69, 4 (1989): 691–713; and Luis Alonso Álvarez and Patricio Hidalgo Nuchera, "Los nietos de Legazpi revisan el pasado. Continuidad y cambio en los estudios históricos filipinistas en España, 1950–1998," *Illes i Imperis* 3 (2000): 23–59.

There is a vast literature on the economic links between the mother countries and their colonies in the New World. For general studies by period on the Spanish and Portuguese possessions in Latin America, see the essays by J. H. Elliot, David A. Brading, Frédéric Mauro, Andrée Mansuy-Diniz Silva, Stuart B. Schwartz, A. J. Russell-Wood, and Dauril Alden in *The Cambridge History of Latin America*, vols. 1–2 (cited previously); and, more recently, contributions by Frédéric Mauro, Guillermo Céspedes del Castillo, Francisco Iglesias, Alfredo Castillero Calvo, Virgilio Noya Pinto, Eugenio Francisco dos Santos, Joseph Fontana Lázaro, and José María Delgado Ribas, in the *Historia general de América Latina*, vols. 3–4 (Madrid, 2000). John Robert Fisher, *Relaciones económicas entre España y América hasta la independencia* (Madrid, 1992) offers an overview for the entire colonial period in Spanish America. On Portugal, Frédéric Mauro, *Le Portugal, le Brésil et l'Atlantique au XVII siècle, 1570–1670: Etude économique* (Paris, 1983), surveys the economic ties of Portugal with its overseas possessions with emphasis on Brazil.

General economic histories by region provide a useful introduction to institutions and social aspects that shaped the connections between internal and external

sectors. Francisco R. Calderón, *Historia económica de la Nueva España en tiempos de los Austrias* (Mexico City, 1988), is a descriptive account of the early colonial economy in New Spain. Indispensable references for eighteenth-century New Spain are David A. Brading, *Miners and Merchants in Bourbon México, 1763–1810* (Cambridge, 1971), and Richard L. Garner, *Economic Growth and Change in Bourbon Mexico* (Gainesville, FL, 1993). The classic studies for Central America and Panama are Murdo J. Macleod, *Spanish Central America: A Socioeconomic History, 1520–1720* (Berkeley, CA, 1973), Alfredo Castillero Calvo, *Economía terciaria y sociedad de Panamá: Siglos XVI y XVII* (Panama City, 1980). The economic organization of the Andean region is treated by Carlos Sempat Assadourian, *El sistema de la economía colonial. Mercado interno y espacio económico* (Mexico City, 1983). For trade relations between Upper Peru and the Río de la Plata region and their transformation in the eighteenth century, see Carlos Sempat Assadourian et al., *Minería y espacio económico en los Andes: Siglos XVI–XX* (Lima, 1980), and Enrique Tandeter et al., *The Market of Potosí at the End of the Eighteenth Century* (London, 1987). Also for the Bourbon period, the economy of coastal Ecuador is treated in Michael T. Hammerly, *Historia social y económica de la Antigua provincia de Guayaquil, 1763–1842* (Guayaquil, 1973). The economic history of Argentina from the Bourbon reforms to the national period is best studied by Jonathan Brown, *A Socioeconomic History of Argentina, 1776–1860* (New York, 1979). For a valuable account of the region of Corrientes, see Ernesto J. A. Meader, *Historia económica de Corrientes, 1776–1810* (Buenos Aires, 1981). The best study of the Cuban economy for the late colonial period is Manuel Moreno Fraginals, *The Sugar Mill. The Socioeconomic Complex of Sugar in Cuba, 1760–1860* (New York, 1976). Anthony McFarlane focuses on New Granada's economy in *Colombia before Independence: Economy, Society and Politics under Bourbon Rule* (Cambridge, 1993). On Brazil, the pioneering study by Roberto C. Simonsen, *História econômica do Brasil, 1500–1820* (São Paulo, 1969), is essential for understanding the dynamics of the colonial economy in Brazil. Also, see Kenneth R. Maxwell, *Conflicts and Conspiracies: Brazil and Portugal 1750–1808* (Cambridge, 1973).

Scholarship on the economic and administrative foundations of the transoceanic trading systems has benefited enormously from the abundance of documentation which allows a close examination of almost all aspects of colonial trade. For a seventeenth-century account of the *Carrera*, see Joseph de Veita Linaje, *Norte de la contratación de las Indias Occidentales* (Buenos Aires, 1945; orig. pub. 1672). For a pioneering work on the commercial relationship between Spain and Spanish America, see Clarence H. Haring, *Trade and Navigation between Spain and the Indies in the Time of the Hapsburgs* (Cambridge, MA, 1960). The description of routes, fiscal and financial instruments, and technology behind the Atlantic trade is analyzed in Antonio García-Baquero, *La carrera de Indias: Suma de la contratación y océano de negocios* (Seville, 1992); Alfredo Castillero Calvo "La Carrera, el monopolio, y las ferias del trópico," *Historia general de América Latina*, vol. 3 (Madrid, 2000); Fernando Serrano Mangas, *Función y evolución del galeón en la carrera de Indias* (Madrid, 1992); and Miguel Antonio Bernal, *La financiación de la Carrera de Indias (1492–1824). Dinero y crédito en el comercio colonial español con América* (Seville, 1992). New Spain's fleets in the seventeenth century are studied by Mervyn Francis

Lang, *Las flotas de la Nueva España (1630–1710): Despacho, azogue, comercio* (Seville, 1998). The influence of the *consulado* at Seville on policies of colonial trade has recently been studied by Enriqueta Vila Vilar “El poder del Consulado sevillano y los hombres del comercio en el siglo XVII: Una aproximación,” in Enriqueta Vila Vilar and Allan J. Kuethe, eds., *Relaciones de poder y comercio colonial: Nuevas perspectivas* (Seville, 1999). An old but still informative study on the organization of trade with the Philippines is William Lytle Schurz, *The Manila Galleon* (New York, 1939). Details on schedules and cargos are reported in Pierre Chaunu, *Las Filipinas y el Pacífico de los ibéricos, siglos XVI- XVII- XVIII* (Mexico City, 1976). The best account for the overseas council in Portugal is Charles R. Boxer, *Salvador de Sá and the Struggle for Brazil and Angola, 1602–1686* (London, 1952).

For studies of the Portobello trade fairs, see George Dilg, *The Collapse of the Portobello Fairs: A Study in Spanish Commercial Reform, 1720–1740* (Ph.D. dissertations, Indiana University, 1975); Enriqueta Vila Vilar, “Las ferias de Portobelo: Apariencia y realidad del comercio con Indias,” *Anuario de Estudios Americanos* 39 (1982): 275–340; and Christopher Ward, “The Defense of Portobelo: A Chronology of Construction 1585–1700,” *Ibero-Amerikanishes Archive* 16, 2 (1990): 341–86. For the trade fairs in New Spain, see Manuel Carrera Stampa, “Las ferias novohispanas,” *Historia mexicana* 2, 3 (1953): 319–42; José Joaquín Real Díaz and Manuel Carrera Stampa, *Las ferias comerciales de la Nueva España* (Mexico City); and José Joaquín Real Díaz, *Las ferias de Jalapa* (Seville, 1959).

For an overview of the trans-Atlantic trade in Spanish America, see Murdo J. MacLeod, “Spain in America: The Atlantic Trade, 1492–1720,” in *The Cambridge History of Latin America*, vol. 1 (cited previously), 599–604. Trade patterns throughout the colonial period are cogently summarized by Pedro Pérez Herrero, *Comercio y mercados en América Latina colonial* (Madrid, 1992). This can be supplemented by the more exhaustive and detailed works by Pierre and Huguette Chaunu, *Séville et l’Atlantique, 1504–1650*, 8 vols. (Paris, 1955–9), and Lutgardo García Fuentes, *El comercio español con América, 1650–1700* (Seville, 1980). Nevertheless, the dearth of works dealing with trade before the eighteenth century contrasts sharply with the number of studies that deal with the eighteenth century. General accounts for Spanish America are Geoffrey J. Walker, *Spanish Politics and Imperial Trade, 1700–1789* (London, 1979); Antonio García-Baquero González, *Cádiz y el Atlántico: 1717–1778. El comercio colonial español bajo el monopolio gaditano* (Cádiz, 1988); John R. Fisher, *Commercial Relations between Spain and Spanish America in the Era of Free Trade 1778–1796* (Manchester, 1985); and Fisher, “El comercio y el ocaso imperial: El comercio español con Hispanoamérica, 1797–1820,” in *Relaciones de poder y comercio colonial* (cited above), which demonstrates that the trade liberalization policies of the late eighteenth century fostered the revival of trade between the metropolis and its colonies until 1796 when international conflict reduced the possibilities of further expansion. To these general works should be added essays showing general trends on trade and related topics such as local *consulados* and merchants. For New Spain, see Carmen Yuste López and Matilde Souto Mantecón, eds., *El comercio exterior de México 1713–1850* (Mexico City, 2000), and Matilde Souto, *La política y el comercio del Consulado de Veracruz en el ocaso del sistema imperial* (Mexico City, 2001). For the Rio de la Plata, see Juan Carlos Garavaglia, “El Río de la Plata y sus

relaciones atlánticas. Una balanza comercial (1779–84),” in Juan Carlos Garavaglia, ed., *Economía, sociedad y regiones* (Buenos Aires, 1987); Sergio Villalobos, *Comercio y contrabando en el Río de la Plata y Chile 1700–1811* (Buenos Aires, 1965); and Carlos Segreti, *Temas de historia colonial: Comercio e injerencia extranjera* (Buenos Aires, 1987). The merchant class and its role in the transatlantic trade is admirably told by Susan Socolow, *The Merchants of Buenos Aires, 1778–1810* (Cambridge, 1981). For Brazil, H. E. S. Fisher, *The Portugal Trade: A Study of Anglo-Portuguese Commerce, 1700–1770* (London, 1971), remains a work of fundamental importance. Trade during the gold cycle is best examined by Virgilio Noya Pinto, *O ouro brasileiro e o comércio anglo-português (Uma contribuição aos estudos da economia atlântica no século XVIII)* (São Paulo, 1979). For the late eighteenth century, see Fernando A. Novais, *Portugal e Brasil na crise do antigo sistema colonial (1777–1808)* (São Paulo, 1979), and José Jobson A. Arruda, *O Brasil no comércio colonial* (São Paulo, 1980).

General works on colonial foreign trade often focus on New Spain, Peru, the Río de la Plata region, and Brazil. Other useful studies on peripheral regions are more heterogeneous in depth and scope. For Central America, see Murdo J. Macleod, *Spanish Central America* (cited previously); Christopher Ward, *Imperial Panama: Commerce and Conflict in Isthmian America, 1550–1800* (Albuquerque, NM, 1993); Víctor H. Acuña Ortega, “Capital comercial y comercio exterior en Centroamérica durante el siglo XVII,” *Mesoamérica* 3, 4 (1982): 302–31; Ralph Lee Woodward, “The Economy of Central America at the Close of the Colonial Period,” in Duncan Kinkead, ed., *Estudios del reino de Guatemala* (Seville, 1985); Juan Carlos Solórzano Fonseca, *El comercio exterior de Costa Rica en la época colonial* (San Jose, 1977); and Robert S. Smith, “Indigo production and Trade in Colonial Guatemala,” *Hispanic American Historical Review* 39, 2 (1982): 181–211. For Venezuela the best accounts are Anthony McFarlane, “El comercio exterior del virreinato de la Nueva Granada,” *Anuario colombiano de historia social y de la cultura* 6–7 (1971–2): 69–116, and Eduardo Arcila Farias, *Comercio entre México y Venezuela en los siglos XVII y XVIII* (Mexico City, 1975). For Cuba, see Fernando Ortíz, *Contrapunteo cubano del tabaco y el azúcar* (Havana, 1940); Allan J. Kuethe, *Cuba, 1753–1815. Crown, Military and Society* (Knoxville, TN, 1986); and Kuethe “La desregulación comercial y la reforma imperial en la época de Carlos III: los casos de Nueva España y Cuba,” *Historia Mexicana* 41, 2 (1991): 265–321. Shipbuilding industries, which developed in various regions, are studied by Shawn W. Miller, “Merchant Shipbuilding in Late-Colonial Brazil: The Evidence for a Substantial Private Industry,” *Colonial Latin American History Review* 9, 1 (2000): 103–35; Lawrence Anthony Clayton, *Los astilleros de Guayaquil colonial* (Ecuador, Guayaquil, 1978); Davis R. Radell and James J. Parsons, “Realejo: A Forgotten Colonial Port and Shipbuilding Center in Nicaragua,” *Hispanic American Historical Review* 51, 2 (1971): 295–312.

In the last twenty years, scholars working on the eighteenth century have stressed the connection of trade patterns with the overall economic performance of the colonies. Pedro Pérez Herrero, *Comercio y mercados en América Latina colonial* (Madrid, 1992), and “El crecimiento económico novohispano durante el siglo XVIII: Una revisión,” *Revista de historia económica* 7, 1 (1989): 69–110, show

how the interactions between the internal economy and trade conditioned long-run regional growth patterns. For New Spain, John Coatsworth "The Mexican Mining Industry in the 18th Century," in Nils Jacobsen and Hans Jürgen Puhle, eds., *The Economies of Mexico and Peru During the Late Colonial Period, 1760–1810* (Berlin, 1986), and Richard L. Garner, *Economic Growth and Change* (cited previously), find that the export boom in the eighteenth century had a negligible effect on the productivity of the colonial economy. Jorge M. Pedreira, "From Growth to Collapse: Portugal and the Breakdown of the Old Colonial System (1760–1830)," and José Jobson de Andrade Arruda, "Decadence or Crisis in the Luso-Brazilian Empire: A New Model for Colonization in the Eighteenth Century," *Hispanic American Historical Review* 80, 4 (2000): 839–64 and 865–78, are two recent stimulating essays on the connections between trade and economic performance in eighteenth-century Brazil.

Regional trade was initially explored by Woodrow Borah, *Early Colonial Trade and Navigation between Mexico and Peru* (Berkeley, CA, 1954). A classic study of intracolonial trade is Eduardo Arcila Farias, *Comercio entre México y Venezuela en los siglos XVII y XVIII* (Mexico City, 1975). The best case studies of bilateral trade between New Spain and the Philippines are Carmen Yuste, *El comercio de la Nueva España con Filipinas, 1590–1785* (Mexico City, 1984), and "El eje comercial transpacífico en el siglo XVIII: La disolución imperial de una alternativa colonial," in Carmen Yuste López and Matilde Souto Mantecón, eds., *El comercio exterior de México 1713–1850* (Mexico City, 2000). Also, see Pedro Pérez Herrero, "El galeón de Manila: Relaciones comerciales entre el Extremo Oriente y América (estado de la cuestión)," *Cuadernos de historia del Instituto Cervantes de Manila* 1 (1998): 23–40.

Piracy, smuggling, and foreign intervention were constant menaces to the Portuguese and Spanish empires in the New World. Research on this topic covers most geographic areas and time periods. A general introduction for New Spain is Banco Nacional de Comercio Exterior, *El contrabando y el comercio exterior en la Nueva España* (Mexico City, 1967), which contains a selection of sources documenting smuggling in the late colonial period. This may be supplemented by Héctor R. Feliciano Ramos, *El contrabando inglés en el Caribe y el Golfo de México, 1748–1778* (Seville, 1990). Relevant works for smuggling of the Pacific coast of South America include Sergio Villalobos, *Comercio y contrabando en el Río de la Plata y Chile 1700–1811* (Buenos Aires, 1965); Peter T. Bradley, *The Lure of Peru: Maritime Intrusion into the South Sea, 1598–1701* (London, 1989); Carlos Malamud, *Cádiz y Saint Malo en el comercio colonial peruano, 1698–1725* (Cádiz, 1986); and Kris E. Lane, "Buccaneers and Coastal Defense in Late-Seventeenth-Century Quito: The Case of Barbacoas," *Colonial Latin American History Review* 6, 2 (1997): 143–73. The same theme, with a focus on the Rio de la Plata region, is explored with great richness in Zacarías Moutoukias, "Power, Corruption and Commerce: The Making of the Local Administrative Structure in XVII Century Buenos Aires," *Hispanic American Historical Review* 68, 4 (1988): 771–801, and *Contrabando y control colonial en el siglo XVIII: Buenos Aires y el espacio peruano* (Buenos Aires, 1988). The Portuguese presence in Peruvian markets is treated by Harry Cross,

"Commerce and Orthodoxy. A Spanish Response to Portuguese Commercial Penetration in the Viceroyalty of Peru, 1580–1640," *The Americas* 35, 2 (1978): 151–67, and Alice P. Canabrava, *O comercio Português no Rio da Prata (1580–1640)* (São Paulo, 1984).

Statistical records have been compiled and used for various purposes throughout the years. The existence of rich sources and research methods should encourage more studies of the quantitative aspects of colonial trade. Pierre and Huguette Chaunu, *Séville et l'Atlantique* (cited previously), compiled fleet tonnage and size data to estimate the volume of trade in the early years of the *Carrera*. Lutgardo García Fuentes, *El comercio español con América* (cited previously), compiled trade series of both silver and merchandise imported by Spain. Trade series of the period 1717–78 were compiled by Antonio García-Baquero González, *Cádiz y el Atlántico* (cited previously). For the late colonial period a classical work is Javier Cuenca Esteban, "Statistics of Spain's Colonial Trade, 1792–1820: Consular Duties, Cargo Inventories and Balances of Trade," *Hispanic American Historical Review* 61, 3 (1981): 381–428. Statistics on bilateral trade between New Spain and Spain can be found in Alexander Humboldt, *Political Essay on the Kingdom of New Spain* (New York, 1966; orig. pub. 1811) and Miguel Lerdo de Tejada, *Comercio Exterior de México* (México, 1853). Other studies on New Spain's trade for the late colonial period are Hira de Gortari and Guillermo Palacios, "El comercio novohispano a través de Veracruz (1802–1810)," *Historia mexicana* 17, 3 (1968): 427–54; Javier Ortiz de la Tabla Ducasse, *Comercio exterior de Veracruz, 1778–1821: Crisis de dependencia* (Seville, 1978); and Matilde Souto Mantecón, *Mar abierto: La política y el comercio del Consulado de Veracruz en el ocaso del sistema imperial* (Mexico City, 2001). Statistics on Brazilian gold and sugar exports can be found in Frédéric Mauro, *Le Portugal, le Brésil et l'Atlantique au XVII siècle, 1570–1670: Étude économique* (cited previously), and Barret Ward and Stuart Schwartz, "Comparación entre dos economías azucareras coloniales: Morelos, México y Bahía, Brasil," in Enrique Florescano, ed., *Haciendas, latifundios y plantaciones en América Latina* (Mexico City, 1975). A reconstruction of the silver remittances to Amsterdam allowed Michel Morineau, *Incroyables gazettes et fabuleux metaux* (Cambridge, 1985), to challenge long-held conclusions on the dynamics of the price revolution in sixteenth and seventeenth century Europe sustained by Earl Hamilton, *American Treasure and the Price Revolution in Spain, 1501–1650* (New York, 1965).

CHAPTER 12 (CARLOS MARICHAL)

This bibliographical essay is divided into two parts. The first section surveys major interpretations on the fiscal, monetary, and financial history of Spanish and Portuguese America in the eighteenth century, whereas the second section summarizes the relevant bibliography on the period after independence up to 1889. Obviously, it is impossible in the space allotted to refer to the full range of works on all the countries of Latin America.

Money, Taxes, and Finance in the Colonial Era

There are several classic works on the colonial monetary history of Spanish and Portuguese America based on the reconstruction of the exports of silver and gold coin to Europe between the sixteenth and nineteenth centuries. The first series were published by Earl Hamilton in his pioneering work, *American Treasure and the Price Revolution in Spain, 1501–1650* (Cambridge, MA, 1934), but his estimates have been corrected subsequently by the more comprehensive study of Michel Morineau, *Incroyables gazettes et fabuleux métaux: Les retours des trésors américains d'après les gazettes hollandaises xvie–xviiiie siècles* (París, 1985). For global estimates, see John Tepaske, “New World Silver, Castille and the Far East (1590–1750),” in John F. Richards, ed., *Precious Metals in the Late Medieval and Early Modern Worlds* (Durham, NC, 1983), 425–46, and the short monograph by Artur Attman, *American Bullion in the European World Trade, 1600–1800* (Goteborg, 1986). On the eighteenth-century silver trade, see Pedro Pérez Herrero, *Plata y libranzas: La circulación mercantil en el México borbónico* (Mexico City, 1989), and Stanley Stein and Barbara Stein, *Silver, Trade and War: Spain and America in the Making of Early Modern Europe* (Baltimore, 2000).

The standard reference work on the monetary systems of Spanish America is Humberto F. Burzio, *Diccionario de la moneda hispanoamericana*, 3 vols. (Santiago de Chile, 1958). The most detailed historical case study is that of Guillermo Céspedes del Castillo, *Las cecas indias, 1536–1825* (Madrid, 1996), which can be complemented with Víctor M. Soria, *La Casa de la Moneda de México bajo la administración borbónica, 1733–1821* (Mexico City, 1994). For a critical analysis of standard interpretations, see Ruggiero Romano, *Moneda, seudomonedas y circulación monetaria en las economías de México* (Mexico City, 1997), who argues that a large percentage of transactions in the colonial economy were carried on outside of the formal monetary system.

Spanish American colonial tax history has advanced by leaps and bounds in the last twenty years, in good measure due to the massive reconstruction of fiscal statistics of the viceroyalties of Peru, Mexico, and Buenos Aires between 1540 and 1820 carried out by Herbert Klein and John Tepaske, *Royal Treasuries of the Spanish Empire in America, 1580–1825*, 3 vols. (Durham, NC, 1982), and *Ingresos y egresos de la Real Hacienda de Nueva España*, 2 vols. (Mexico City, 1986–8). For important comparative interpretations, see Herbert Klein, *The American Finances of the Spanish Empire: Royal Income and Expenditure in Colonial Mexico, Peru and Bolivia, 1680–1809* (Albuquerque, NM, 1998), and Ernesto Sánchez Santiró, Luis Jáuregui, and Antonio Ibarra, eds., *Finanzas y política en el mundo iberoamericano: Del antiguo régimen a las naciones independientes, 1750–1850* (Mexico City, 2001). For a bibliographical overview, see Herbert Klein, “Recent Trends in the Study of Spanish American Colonial Public Finance,” *Latin American Research Review* 23 (1988): 35–62. On the fiscal and financial system of colonial Mexico, important recent studies are Luis Jáuregui, *La Real Hacienda de Nueva España: Su administración en la época de los intendentes, 1786–1821* (Mexico City, 1999); Carlos Marichal, *La Bancarrota del Virreinato: Nueva España y las finanzas del imperio español, 1780–1810*

(Mexico City, 1999); and Juan Carlos Garavaglia and Juan Carlos Gross, *Las alcabalas novohispanas, 1776–1821* (Mexico City, 1987). On Brazil there is surprisingly little published work on colonial tax history, although there is some information in Frédéric Mauro, *Le Portugal, le Brésil et l'Atlantique au XVIIe siècle (1570–1670)* (Paris, 1983); D. Alden, *Royal Government in Colonial Brazil* (Berkeley, CA, 1968); and Kenneth Maxwell, *Conflicts and Conspiracies: Brazil and Portugal, 1750–1808* (Cambridge, MA, 1973).

The study of colonial credit markets is a field of research that has recently begun to grow, especially in Mexico. See the excellent collection of essays in Pilar Martínez and Guillermínna del Valle, eds., *El crédito colonial* (Mexico City, 1998). On Church credit, see Gisel von Wobeser, *Dominación colonial: La consolidación de vales reales, 1804–1812* (Mexico City, 2003). On credit for mining, see Eduardo Flores Clair, *El Banco de Avío Minero novohispano: Crédito, finanzas y deudores* (Mexico City, 2001). On colonial credit in Peru, see Alfonso Quiroz, “Reassessing the Role of Credit in Late Colonial Peru: *Censos, Escrituras and Imposiciones*,” *Hispanic American Historical Review* 74, 2 (May 1994): 193–230. On private credit markets in the colonial era in Brazil an excellent case study can be found in Stuart Schwartz, *Sugar Plantations in the Formation of Brazilian Society: Bahia, 1550–1835* (Cambridge, 1985). Also, see Antonio Carlos Juca de Sampaio, “O mercado carioca de crédito (1650–1750),” in *Estudos Históricos: Economia e Sociedade* (2002), 29–50.

Money, Banks, Taxes, and Finance after 1820

On the tax history of postindependence Latin America there are relatively few studies except on the larger countries. An important recent compilation that offers in-depth studies of the fiscal and monetary trajectories of Argentina, Brazil, Colombia, and Mexico in the early nineteenth century is Michael Bordo and Roberto Cortés Conde, eds., *Transferring Wealth and Power from the Old to the New World: Monetary and Fiscal Institutions in the 17th through the 19th Centuries* (Cambridge, 2001). The classic study on fiscal policy in Argentina for the period 1820–50 is Miron Burgin, *The Economic Aspects of Argentine Federalism: 1820–1852* (Cambridge, MA, 1946), which has been largely superseded by Tulio Halperín, *Guerra y finanzas en los orígenes del estado argentino (1791–1850)* (Buenos Aires, 1983). An important recent contribution is Alejandra Irigoin, “Finance, Politics and Economics in Buenos Aires, 1820–1860” (Ph.D. dissertation, London School of Economics, 2000). On regional finance, see José Carlos Chairamonte, *Mercaderes del Litoral: Economía y sociedad en la provincia de Corrientes en la primera mitad del siglo XIX* (Buenos Aires, 1991). A more recent essay is that of Juan Carlos Gravaglia, “La apoteosis de Leviatán: El estado en Buenos Aires durante la primera mitad del siglo XIX,” *Latin American Research Review* 38, 1 (2003): 135–68. For the second half of the nineteenth century the fundamental study on tax, monetary, and banking history is Roberto Cortés Conde, *Dinero, deuda y crisis: Evolución fiscal y monetaria en la Argentina* (Buenos Aires, 1989).

The fiscal history of Brazil largely waits to be written. The classic study by Liberato de Castro Carreira, *Historia financeira e monetária do Império do Brasil* (Rio de Janeiro, 1889; repr. 1980), provides a good overview. The most comprehensive study of public economic policy in the nineteenth and early twentieth centuries is Steven Topik, *The Political Economy of the Brazilian State, 1889–1930* (Austin, TX, 1987). For a good synthesis, see Marcelo de Paiva Abreu and Luiz A. Correa do Lago, “Property Rights and the Fiscal and Financial Systems in Brazil,” in *Transferring Wealth and Power* (cited previously), 284–326.

On early republican Peru and its finance, see Paul Gootenberg, *Between Silver and Guano: Commercial Policy and the State in Postindependent Peru* (Princeton, NJ, 1989), and by the same author the excellent essay, “Paying for Caudillos: The Politics of Emergency Finance in Peru, 1820–1845” in Vincent Peloso and Barbara A. Tenenbaum, eds., *Liberals, Politics and Power: State Formation in Nineteenth Century Latin America* (Athens, GA, 1996), 134–65. Also important are Alfonso Quiroz, *La deuda defraudada: Consolidación de 1850* (Lima, 1987), and Javier Tantalean, *Política económica financiera y la formación del estado en el siglo XIX* (Lima, 1983). An excellent survey of Ecuadorian public finance in the nineteenth century is Linda Rodríguez, *The Public Search for Public Policy: Regional Politics and Government Finances in Ecuador, 1830–1940* (Berkeley, CA, 1958). The fiscal history of the early republic in Mexico remained virtually untouched until the publication of Barbara Tenenbaum, *The Politics of Penury: Debts and Taxes in Mexico, 1821–1856* (Albuquerque, NM, 1986). Subsequently, there have appeared a number of regional studies. An overview is provided in José Antonio Serrano and Luis Jáuregui, eds., *Hacienda y política: Las finanzas públicas y los grupos de poder en la primera república federal mexicana* (Mexico City, 1998). An important if uneven interpretation of Mexican public finance in the second half of the nineteenth century is Marcello Carmagnani, *Estado y mercado: La economía pública del liberalismo mexicano, 1850–1911* (Mexico City, 1994). An in-depth case study of the tax system of one state government, which covers the entire century, is Carlos Marichal, Manuel Miño, and Paolo Riguzzi, eds., *El primer siglo de la hacienda pública del Estado de México, 1824–1923*, 4 vols. (Mexico City, 1994).

The banking and monetary history of nineteenth-century Latin America has advanced at a fast pace over the last twenty years and a testimony to this fact is the multiplication of monographs and essays in the field. In the case of Brazil a few of the most significant contributions include the diverse publications of María Barbara Levy on the banking history of Brazil and the formation of the Rio de Janeiro stock exchange. For example, see “A Gestão Monetária na Formação do Estado Nacional,” *Revista Brasileira do Mercado de Capitais* 17 (1980): 138–52, and *Historia da Bolsa de Valores do Rio de Janeiro* (Rio de Janeiro, 1979). Also, see the already classic studies of Carlos Peláez and Wilson Suzigan on Brazilian monetary policies in the nineteenth and twentieth centuries, *Historia monetaria do Brasil: Análise da política, comportamento e instituições monetárias* (Rio de Janeiro, 1976), and the monograph by Flávio Saes on the origins of banking in São Paulo in the late nineteenth century, *Crédito e bancos no desenvolvimento do econômico paulista, 1850–1930* (São Paulo, 1986). On the development of Peruvian banking and finance,

see the outstanding study by Alfonso Quiroz, *Domestic and Foreign Finance in Peru, 1850–1950: Financing Visions of Development* (Pittsburgh, PA, 1993). On Bolivia, two useful monographs on monetary policy, credit, and the emergence of banking in the nineteenth century are by Antonio Mitre, *Los patriarcas de la plata. Estructura socioeconómica de la mienría boliviana en el siglo XIX* (Lima, 1981), and *El monedero de los Andes. Región económica y moneda boliviana en el siglo XIX* (La Paz, 1986).

Argentina has an older tradition in banking history, harking back to the 1870s. Essential reference works are, for example, Octavio Garrigós, *El Banco de la Provincia de Buenos Aires 1834–1874* (Buenos Aires, 1874), and Sixto J. Quesada, *Historia de los bancos modernos*, 2 vols. (Buenos Aires, 1901). Contemporary economic historians have just begun to tap into the abundant financial bibliography produced in Argentina between 1870 and 1930, when that country had the most advanced banking system in Latin America. Recent works include Roberto Cortés Conde, *La economía argentina en el largo plazo (Siglos XIX y XX)* (Buenos Aires, 1997), which provides an important review of banking and monetary policies in Argentina between 1862 and 1890. For the latter half of the nineteenth century there are numerous essays on monetary and banking crises such as Gerardo Mitre, “La Argentina y la convertibilidad monetaria: Una experiencia histórica con el régimen del patrón oro, 1883–1885,” *El Trimestre Económico* 235 (1992): 499–541. A recent and important interpretation that analyzes and critiques much previous work is G. Della Paolera and A. M. Taylor, *Straining at the Anchor: The Argentine Currency Board and the Search for Macroeconomic Stability, 1880–1935* (Chicago, 2001).

Chile also boasts an old tradition in banking and monetary history. The classic study is that of Guillermo Subercassaux, *El sistema monetario y la organización bancaria de Chile* (Santiago de Chile, 1920). More recently, comprehensive research on monetary and banking trends has been conducted by Agustín Llona Rodríguez: see his “Chilean Monetary History, 1860–1925. An Overview,” *Revista de Historia Económica* 15, 1 (1997): 125–60; and his doctoral thesis “Chilean Monetary Policy, 1860–1925” (Ph.D. dissertation, Boston University, 1990). For an in-depth study of credit in the nineteenth-century Chilean mining industry, see Pierre Vaysierre, *Un siècle de capitalisme minière au Chili, 1830–1930* (Paris, 1980). On Colombia two excellent monographs that analyze credit in the prebanking era are Richard Hyland, “The Secularization of Credit in the Canca Valley, Colombia 1851–1880” (Ph.D. dissertation, University of California, Berkeley, 1979), and Frank Safford, “Commerce and Enterprise in Central Colombia, 1821–1870” (Ph.D. dissertation, Colombia University, 1965). The basic source on monetary and banking policy from 1870 onward in Colombia is Adolfo Meisel et al., *El Banco de la República: Antecedentes, evolución y estructura* (Bogotá, 1990).

In the case of Mexico, a number of monographs and collections of essays have opened the field of monetary and banking history in recent years. A good collection of essays on the monetary history of the early republic is José Antonio Batiz y José Enrique Covarrubias, eds., *La moneda en México, 1750–1920* (Mexico City, 1998). An important study on credit in the nineteenth century before the emergence of banks is Francisco Cervantes, “De la impiedad y la usura: Los capitales eclesiásticos y el crédito en Puebla, 1825–1863” (Ph.D. dissertation, El Colegio de México, 1992). A collection of studies on banking in the nineteenth century is Leonor Ludlow

and Carlos Marichal, eds., *La banca en México, 1820–1920* (Mexico City, 1988). For analysis of early banking and regional economic development the best study is Mario Cerutti, *Burguesía, capitales e industria en el norte de México: Monterrey y su ámbito regional, 1850–1910* (Mexico City, 1992). On the birth of regional banking, see Mario Cerutti and Carlos Marichal, eds., *La banca regional en México, 1870–1940* (Mexico City, 2003). A recent well-researched work on the origins and early history of the largest bank in Mexico is Noel Maurer, *The Power and the Money: Credible Commitments and the Financial System in Mexico, 1876–1932* (Stanford, CA, 2003).

The banking history of Central America is in its infancy, but two monographs on Costa Rica suggest some of the considerable possibilities for future research: Rufino Pacheco, *Ciento cinco años de vida bancaria en Costa Rica* (San José de Costa Rica, 1958), and Bernardo Villalobos Vega, *Bancos emisores y bancos hipotecarios en Costa Rica, 1850–1910* (San José de Costa Rica, 1981).

On the role of foreign banks in nineteenth-century Latin America there is considerable literature. The first major study on British banks was by David Joslin, *A Century of Banking in Latin America to Commemorate the Centenary of the Bank of London and South America* (London, 1963). An in-depth study of British banks in Argentina is Charles Jones, “British Financial Institutions in Argentina, 1860–1914” (Ph.D. dissertation, Harvard University, 1973). A comparative study is Charles Jones “Commercial Banks and Mortgage Companies,” in D. C. M. Platt, ed., *Business Imperialism, 1840–1930: An Inquiry Based on British Experience in Latin America* (Oxford, 1977). For Mexico, information on an early British bank can be found in *Historia del Banco de Londres y México, 1864–1964* (Mexico City, 1964). A useful study on the financial activities of Baring Brothers in the early nineteenth century is D. C. M. Platt, “Finanzas británicas en México, 1821–1867,” *Historia Mexicana* 126 (1982): 226–61. Information on the activities of the Rothschilds in Brazil and Chile in the same period can be gleaned from Niall Ferguson, *The House of Rothschild: Money’s Prophets, 1798–1848* (London, 1994). The work of Platt and Ferguson illustrate the richness of the historical archives of British banks for the detailed reconstruction of the international financial history of the countries of Latin America, a task that awaits future historians. On French banks in Latin America there is only one in-depth case study, by Andrés Regalsky, *Mercados, inversiones y élites: Las inversiones francesas en la Argentina, 1880–1914* (Buenos Aires, 2002). Future research on French loans and investments in Latin America can prove rewarding by taking advantage of the abundant materials in the great bank archives at Paris, including those of the banks of Paribas, Société Générale, and Crédit Lyonnais.

Comparative studies on the banking history of Latin America in the period are far and few between. A sample of various case studies can be found in the compilation by Pedro Tedde and Carlos Marichal, eds., *Formación de la banca central en España y América Latina*, 2 vols. (Madrid, 1994).

The number of studies on the history of public debts and in particular foreign debt in Latin America is considerable. A classic study on the history of the Argentine foreign debt in the nineteenth century is Harold E. Peters, *The Foreign Debt of the Argentine Republic* (Baltimore, 1934). The most important recent study on the

Argentine public debt in the nineteenth century is Roberto Cortés Conde, *Dinero, deuda y crisis: Evolución fiscal y monetaria en la Argentina 1862–1890* (Buenos Aires, 1989). A classic compilation on the history of the foreign debt of Brazil is Valentim F. Bouças, *Historia da dívida externa estadual e municipal* (Rio de Janeiro, 1942). The most important recent research on the subject has been carried out by Marcelo Paiva de Abreu, "On the Memory of Bankers: Brazilian Foreign Debt, 1824–1913," *Political Economy* 1 (1988): 45–81. A recent important study on the history of the Bolivian foreign debt is Hans Huber Abendroth et al., *La deuda externa de Bolivia: 125 años de renegociaciones* (La Paz, 2001). On the history of the Mexican foreign debt the traditional studies are Thomas Lill, *The National Debt of Mexico: History and Present Status* (New York, 1919), and Jan Bazant, *Historia de la deuda externa de México* (Mexico, 1968). A more recent compilation with informative essays is Leonor Ludlow and Carlos Marichal, *La deuda pública en México (siglo XIX)* (Mexico City, 1998). On the Peruvian foreign debt in the nineteenth century see Carlos Palacios Moreyra, *La deuda anglo/peruana, 1822–1890* (Lima, 1983), which should be complemented by the classic study by Heraclio Bonilla, *Guan y burguesía en el Perú* (Lima, 1974). An econometric exercise is Julio Revilla, "Endeudamiento y riesgo: Un modelo del premio por riesgo de deuda externa peruana en el siglo XIX," *Revista de Historia Económica* 11, 1 (1993): 11–48.

For comparative studies of Latin American debt in the nineteenth century see Frank G. Dawson, *The First Latin American Debt Crisis: The City of London and the 1822–1825 Loan Bubble* (New Haven, CT, 1990); L. E. Davis and R. E. Gallman, *Evolving Financial Markets and International Capital Flows: Britain, the Americas and Australia, 1865–1914* (Cambridge, MA, 2001); Barry Eichengreen and Peter H. Lindert, eds., *The International Debt Crisis in Historical Perspective* (Cambridge, MA, 1989); Carlos Marichal, *A Century of Debt Crises in Latin America: From Independence to the Great Depression, 1920–1930* (Princeton, NJ, 1989); and Reinhard Liehr, *La deuda pública en América Latina en perspectiva histórica* (Frankfurt, 1995). An important source on data of British investment in Latin America is Irving Stone, "The Composition and Distribution of British Investment in Latin America, 1865 to 1913" (Ph.D. dissertation, Columbia University, 1962). Also, see Stone, *The Global Export of Capital from Great Britain, 1865–1914: A Statistical Survey* (New York, 1999).

Finally, for readers interested in primary sources on Latin American financial and economic history, an indispensable source is the journal *América en la Historia Económica: Boletín de Fuentes* (edited by the Instituto Mora in Mexico City), which published twenty compact volumes between 1995 and 2003 with important research essays on most Latin American countries.

CHAPTER 13 (LEANDRO PRADOS DE LA ESCOSURA)

A general assessment of historical backwardness in Latin America can be found in Victor Bulmer-Thomas, *The Economic History of Latin America since Independence*,

2nd ed. (Cambridge, 2003); Stephen Haber, ed., *How Latin America Fell Behind. Essays on the Economic Histories of Brazil and Mexico, 1800–1914* (Stanford, CA, 1997); John H. Coatsworth, “Economic and Institutional Trajectories in Nineteenth-Century Latin America,” in John H. Coatsworth and Alan M. Taylor, eds., *Latin America and the World Economy since 1800* (Cambridge, MA, 1998), 23–54; and Coatsworth, “Notes on the Comparative Economic History of Latin America and the United States,” in Walther L. Bernecker and Hans Werner Tobler, eds., *Development and Underdevelopment in America: Contrasts in Economic Growth in North America and Latin America in Historical Perspective* (New York, 1993). Angus Maddison, *The World Economy. A Millennial Perspective* (Paris, 2001), provides quantitative evidence (data on population, GDP, and GDP per capita) to place postindependence Latin America in the international context.

For additional evaluations of the economic effects of independence on Latin America as a whole, see Stanley J. Stein and Barbara H. Stein, *The Colonial Heritage of Latin America. Essays on Economic Dependence in Perspective* (New York, 1970); Bill Albert, *South America and the World Economy from Independence to 1930* (London, 1983); and Leslie Bethell, ed., *The Cambridge History of Latin America*, Vol. 3 (Cambridge, 1985), especially the chapters by Tulio Halperín Donghi, “Economy and Society,” and Frank Safford, “Politics, Ideology and Society.” Leandro Prados de la Escosura and Samuel Amaral, eds., *La independencia americana: Consecuencias económicas* (Madrid, 1993), provide economic assessments of independence for both the former Spanish and Portuguese colonies as well as the mother countries; the introductory essay by Coatsworth, “La independencia latinoamericana: Hipótesis sobre los costes y beneficios,” attempts an overall evaluation of the short- and long-run economic consequences of independence.

The comparative approach to Latin American independence and national development, in which the independent United States is taken as the yardstick, has produced interesting interpretations and hypotheses but not much empirical research. Stanley and Barbara Steins’s *Colonial Heritage of Latin America* (cited previously) constituted a pioneering contribution to the Dependency School literature, which was in turn challenged by D. C. M. Platt, “Dependency in Nineteenth-Century Latin America: An Historian Objects,” *Latin American Research Review* 15 (1980): 113–30. New Institutional History practitioners have developed a renewed interest on this topic. See, for example, Douglass C. North, “Institutions and Economic Growth: An Historical Introduction,” *World Development*, 17, 9 (1989): 1319–32, and *Institutions, Institutional Change and Economic Performance* (Cambridge, 1990). More recently, North has produced with William R. Summerhill and Barry R. Weingast an ambitious piece, “Order, Disorder, and Economic Change: Latin America versus North America,” in Bruce Bueno de Mesquita and Hilton L. Root, eds., *Governing for Prosperity* (New Haven, CT, 2000), 17–58. John H. Coatsworth and Gabriel Tortella, “Institutions and Long-Run Economic Performance in Mexico and Spain, 1800–2000” (Working Papers on Latin America, no. 02103.1, David Rockefeller Center for Latin American Studies Harvard University, 2002), also deserves to be mentioned.

The institutional interpretation has been challenged by Stanley L. Engerman and Kenneth L. Sokoloff in a series of papers in which they emphasize the importance of

factor endowments. See "Factor Endowments, Institutions, and Differential Paths of Growth among New World Economies," in *How Latin America Fell Behind* (cited previously); "Institutions, Factor Endowments, and Paths of Development in the New World," *Journal of Economic Perspectives* 14, 3 (2000): 217–32; and, in cooperation with Stephen H. Haber, "Inequality, Institutions, and Differential Paths of Growth among New World Economies," in Claude Menard, ed., *Institutions, Contracts, and Organizations* (Cheltenham, 2000). Daron Acemoglu, Simon Johnson, and James A. Robinson, in turn, present historical evidence that challenges the appropriateness of the North America–Latin America comparison of colonial experiences by pointing to the interconnections between institutional and geographical factors that allow for the diversity of colonial and postcolonial experiences in the Americas. See "The Colonial Origins of Comparative Development: An Empirical Investigation," *American Economic Review* 91, 5 (2001): 1369–1401; and "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution," *Quarterly Journal of Economics* 117, 4 (2002): 1231–94. Jonathan C. Brown also makes this distinction in his review of Jeremy Adelman, *Republic of Capital. Buenos Aires and the Legal Transformation of the Atlantic World* (Stanford, CA, 1999), in *Hispanic American Historical Review* 81, 3–4 (2001): 765–71.

Institutional and geographical approaches predict significantly different outcomes for colonial and postindependence British North America and Latin America. Assessments of postcolonial performance in Africa and Asia provide support for this alternative view, as can be gathered, for example, from Benno N. Ndulu and Stephen A. O'Connell, "Governance and Growth in Sub-Saharan Africa," *Journal of Economic Perspectives* 13, 3 (1999): 41–66; Paul Collier and Jan Willem Gunning, "Explaining African Economic Performance," *Journal of Economic Literature* 37, 1 (1999): 65–75; and Collier and Gunning, "Why Has Africa Grown Slowly?" *Journal of Economic Perspectives* 13, 3 (1999): 3–22.

The role of the imperial fiscal and trade burden during the colonial era and after independence has received special attention in analysis of Latin America's postindependence experience. Differences in the level of commitment to colonial mercantilism varied among regions and conditioned their distinctive paths to independence. On the assessment of the fiscal and trade burden imposed on Mexico by the empire, John H. Coatsworth, "Obstacles to Economic Growth in Nineteenth-Century Mexico," *American Historical Review* 83, 1 (1978): 80–100, offers an assessment of the fiscal and trade burden imposed by the empire on Mexico. Herbert Klein, "La economía de la Nueva España, 1680–1809: Un análisis a partir de las cajas reales," *Historia Mexicana* 34, 136 (1985): 561–609, and Carlos Marichal, *La bancarrota del virreinato. Nueva España y las finanzas del Imperio español, 1780–1810* (Mexico City, 1999), provide empirical evidence upon which detailed estimates of the fiscal burden can be constructed. Other valuable works are Marichal, "Beneficios y costes fiscales del colonialismo: Las remesas americanas a España, 1760–1814," *Revista de Historia Económica* 15, 3 (1997): 475–505, and Marichal and Marcello Carmagnani, "From Colonial Fiscal Regime to Liberal Financial Order, 1750–1912," in Michael D. Bordo and Roberto Cortés Conde,

eds., *Transferring Wealth and Power from the Old to the New World. Monetary and Fiscal Institutions in the 17th through the 19th Centuries* (Cambridge, 2001), 284–326.

Detailed macroeconomic assessments of the impact of independence on the new independent republics are not available, but a growing literature has emerged in recent years. See, for example, Richard J. and Linda K. Salvucci, “Las consecuencias económicas de la independencia mexicana,” Héctor Lindo-Fuentes, “Consecuencias económicas de la independencia en Centroamérica,” Alfonso W. Quiroz, “Consecuencias económicas y financieras del proceso de la independencia en el Perú, 1800–1850,” Mario H. Pastore, “Crisis de la Hacienda pública, regresión institucional y contracción económica: Consecuencias de la independencia en Paraguay, 1810–1840,” and Samuel Amaral, “Del mercantilismo a la libertad: Las consecuencias económicas de la independencia argentina,” all in *La independencia americana: Consecuencias económicas* (cited previously); Jaime Jaramillo Uribe, Adolfo Meisel, and Miguel Urrutia, “Continuities and Discontinuities in the Fiscal and Monetary Institutions of New Granada, 1783–1850,” Marcelo de Paiva Abreu and Luiz A. Corrêa do Lago, “Property Rights and Fiscal Systems in Brazil. Colonial Heritage and the Imperial Period,” and Roberto Cortés Conde and George T. McCandless, “Argentina: From Colony to Nation. Fiscal and Monetary Experiences from the Eighteenth and Nineteenth Centuries,” all in *Transferring Wealth and Power from the Old to the New World* (cited previously); John H. Coatsworth, “The Decline of the Mexican Economy, 1800–60,” in Reinhard Liehr, ed., *América Latina en la época de Simón Bolívar. La formación de las economías nacionales y los intereses económicos europeos 1800–1850* (Berlin, 1989), 27–53; and Richard J. Salvucci, “Mexican National Income in the Era of Independence, 1800–1840,” and Enrique Cárdenas, “A Macroeconomic Interpretation of Nineteenth-Century Mexico,” both in *How Latin America Fell Behind* (cited above). Jeremy Adelman, *Republic of Capital. Buenos Aires and the Legal Transformation of the Atlantic World* (Stanford, CA, 1999), explores the institutional change after independence.

The end of the colonial trade burden and the subsequent integration of Latin America into the emerging world economy during the early phase of globalization has become the focus of recent research. The wide variety of regional experiences is captured by a growing literature that provides evidence to test alternative trade theories. Overall views of Latin America’s integration into the global economy are provided by Jeffrey G. Williamson, “Real Wages Inequality and Globalization in Latin America before 1940,” *Revista de Historia Económica* 17 (1999): 101–42, and in the chapter by Luis Bértola and Williamson in this volume. The composition of Latin American trade is studied in Paul Bairoch and Bouda Etemad, *Structure par produits des exportations du Tiers-Monde 1830–1937* (Geneva, 1985). Capital flows in Latin America have, in turn, been estimated by Irving Stone in *The Global Export of Capital from Great Britain, 1865–1914. A Statistical Survey* (London, 1999), which expands upon his previous research, “British Direct and Portfolio Investment in Latin America before 1914,” *Journal of Economic History* 37, 3 (1977): 690–722.

A growing body of literature, which has appeared in the last two decades, tests and revises the conclusions of the Dependency School, represented in the works of Raúl Prebisch, *The Economic Development of Latin America and Its Principal Problems*

(New York, 1950), Hans W. Singer, "The Distribution of Gains between Investing and Borrowing Countries," *American Economic Review. Papers and Proceedings* 11, 2 (1950): 473–85, and Stanley and Barbara Stein's *The Colonial Heritage of Latin America* (cited previously). National experiences varied widely across postindependence Latin America depending on each country's links to colonial mercantilism. See Pedro Fraile, Richard J. Salvucci, and Linda K. Salvucci, "El caso cubano: Exportaciones e independencia"; Marco Palacios, "Las consecuencias económicas de la independencia en Colombia: Sobre los orígenes del subdesarrollo"; and Stephen H. Haber and Herbert S. Klein, "Consecuencias económicas de la independencia brasileña," all of them in *La independencia americana: Consecuencias económicas* (cited previously). Also, see Rafael Dobado and Gustavo Marrero, "Minería, crecimiento y costes de la independencia en México," *Revista de Historia Económica* 19, 3 (2001): 573–611; Paul Gootenberg, *Between Silver and Guano. Commercial Policy and the State in Postindependence Peru* (Princeton, NJ, 1989); Nathaniel H. Leff, "Economic Development in Brazil, 1822–1913," in *How Latin America Fell Behind* (cited previously), 34–64; Carlos Newland, "Economic Development and Population Change: Argentina, 1810–1870," in *Latin America and the World Economy Since 1800* (cited previously), 207–22; Newland and Javier Ortiz, "The Economic Consequences of Argentine Independence," *Cuadernos de Economía* 115 (2001): 275–90; and Newland and Barry Poulson, "Purely Animal: Pastoral Production and Early Argentine Economic Growth 1825–1865," *Explorations in Economic History* 35, 3 (1998): 325–45.

Finally, special mention should be made of the new evidence on the evolution of the terms of trade across Latin American countries, as controversy on this issue constituted a central element in the post-World War II dependentist literature. In addition to the inferences that can be derived from British trade, see Ralph Davis, *The Industrial Revolution and British Overseas Trade* (Leicester, 1979). National monographs now available tend to reject the pessimistic results of the old dependency school. For example, see Linda K. and Richard J. Salvucci, "Cuba and the Latin American Terms of Trade: Old Theories, New Evidence," *Journal of Interdisciplinary History* 31, 2 (2000): 197–222; Richard J. Salvucci, "Origins and Progress of U.S.–Mexican Trade, 1825–1884: 'Hoc opus, hic labor est,'" *Hispanic American Historical Review* 71, 4 (Nov. 1991): 697–735; José Antonio Ocampo, *Colombia y la economía mundial 1830–1910* (Bogotá, 1984); Nathaniel H. Leff, *Underdevelopment and Development in Brazil*, 2 vols. (London, 1982); and Carlos Newland, "Exports and Terms of Trade in Argentina, 1811–1870," *Bulletin of Latin American Research* 17, 3 (1998): 409–16.