

AGENCY FOR INTERNATIONAL DEVELOPMENT WASHINGTON, D. C. 20523 BIBLIOGRAPHIC INPUT SHEET		FOR AID USE ONLY
1. SUBJECT CLASSIFICATION	A. PRIMARY SOCIAL SCIENCE	
	B. SECONDARY LAND TENURE	
2. TITLE AND SUBTITLE THE SUGAR ESTATES OF THE LAMBAYEQUE VALLEY, 1670-1800: A CONTRIBUTION TO PERUVIAN AGRARIAN HISTORY		
3. AUTHOR(S) SUSAN R. HORTON		
4. DOCUMENT DATE MAY 1974	5. NUMBER OF PAGES 71 PAGES	6. ARC NUMBER ARC PE-338.17361-4823
7. REFERENCE ORGANIZATION NAME AND ADDRESS UNIVERSITY OF WISCONSIN LAND TENURE CENTER MADISON, WISCONSIN 53706		
8. SUPPLEMENTARY NOTES (<i>Sponsoring Organization, Publishers, Availability</i>)		
9. ABSTRACT <p>This socio-economic analysis of six sugar estates in Peru's Lambayeque Valley from 1670 to 1800, derived from historical and archival sources, points to the important role these haciendas played in the colonial economy and refutes the stereotype of the hacienda as a self-sufficient, isolated, and unchanging institution.</p> <p>The analysis traces the prosperous era of the sugar estates from 1670 to 1720 and then relates these circumstances--economic (changes in the market), ecological (devastating floods), and social--which brought about the stagnation and the decline of the estates from 1720 to 1800.</p>		
10. CONTROL NUMBER PN-AAA - 919		11. PRICE OF DOCUMENT
12. DESCRIPTORS SOCIO-ECONOMIC ANALYSIS, ARCHIVES, HACIENDAS, MARKETS, ECOLOGY		13. PROJECT NUMBER 931-11-120-111
		14. CONTRACT NUMBER ATD/CSD-2263
		15. TYPE OF DOCUMENT RESEARCH PAPER

This paper is essentially an abbreviated version of the author's Master's thesis of the same title (Department of History, University of Wisconsin, 1973).

May 1974

R.P. No. 58
U.S. ISSN 0084-0807

THE SUGAR ESTATES OF THE LAMBAYEQUE
VALLEY, 1670-1800:
A CONTRIBUTION TO PERUVIAN AGRARIAN HISTORY

by

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All views, interpretations, recommendations, and conclusions are those of the author and not necessarily those of supporting or cooperating agencies.

Horton, Susan Ramirez

The Sugar estates of the Lambayeque Valley,
1670-1800: a contribution to Peruvian agrarian
history. Madison, Land Tenure Center, University
of Wisconsin, 1974.

vi, 63 p. maps, tables. 28 cm. (R.P. no. 58).

"Abbreviated version of the author's Master's
thesis of the same title"

Bibliography: p

1. Sugar trade--Lambayeque, Peru--History
2. Sugar growing--Lambayeque, Peru--History.

1 title (series: Wisconsin. University. Land
Tenure Center. Research papers. no. 58)

HD9114.P52 L264

TABLE OF CONTENTS

	Page
List of Maps, Tables, Diagrams, and Graphs	iii
Glossary	iv
I. INTRODUCTION	1
Organization and Scope of the Essay	3
A Brief Geographical and Historical Sketch	4
II. THE SUGAR ESTATES IN THE LAMBAYEQUE VALLEY, 1670-1720	10
Physical Layout	10
Size	11
Land and Water Use	13
The Technology of Cultivation, Processing, and Internal Transportation	14
Labor and Management	16
Landownership	19
Financing	21
Marketing Networks	25
III. STAGNATION, DECADENCE, AND DECLINE, 1720-1800	23
The Economics of Stagnation and Decline	28
Plummeting Sugar Prices	28
Increasing Production Costs	32
Natural Disasters	33
Economic and Social Consequences of the Crises	33
Accumulation of Debts, Bankruptcy, and Sales	34
Ownership and Financing	36
La Punta and Tuman	43

	Page
IV. CONCLUSIONS	46
Summary	46
Areas for Further Research	47
APPENDIX I: Chronology of Landownership, 1670-1800	49
APPENDIX II: A Note on Sources and Methodology	57
BIBLIOGRAPHY	62

LIST OF MAPS, TABLES, DIAGRAMS, AND GRAPHS

Maps	Page
I Mountain, Desert and Irrigable Areas of Coastal Peru	5
II Cities of Peru	6
III The Montupe-Leche-Lambayeque-Zaña-Jequetepeque Complex	8
IV Transportation Routes Between Panama and Callao	27
Tables	
I Size of the Sugar Estates in the Valle Viejo, ca. 1720	11
II Demographic Parameters of the Slave Populations of Four Sugar Estates in the Lambayeque Valley, 1669-1720	17
III Selected Biographical Information for Owners of the Sugar Estates, 1670-1720	22
IV Prices of High-Quality Sugar, 1693-1830	29
V Amount Paid for the Right to Collect the Diezmos in the Partido de Chiclayo and Anexos, Various Dates, Seventeenth and Eighteenth Centuries	36
VI Selected Biographical Information for Owners of the Sugar Estates, 1720-1800	38
VII Price of Soap, 1668-1795	43
VIII Mortgages as a Percent of the Total Value of the Sugar Estates, Various Dates, Late Seventeenth and Eighteenth Centuries	45
Diagram	
I Organigram of an Estate's Work Force	20
Graph	
I Primary Occupation of Hacendados, 1670-1720 and 1720-1800	37

GLOSSARY

ACEQUIA	irrigation ditch
ADOBE	sun-baked mud brick
ALCALDE MAYOR	judge who had ordinary jurisdiction in a town
AUDIENCIA	superior court of justice with administrative functions
AZUCARERO	confectioner
BACHILLER	one who has graduated from secondary school
BOYERO	oxherd
CABILDO	town council
CÁPELLANIA	chantry, a private ecclesiastical benefice with the obligation to perform stipulated spiritual duties, usually masses for the soul of the deceased benefactor (See also Appendix II.)
CASA HACIENDA	plantation house
CHACRA	a small piece of cultivatable land, plot
COMPOSICIÓN DE TIERRA	legalization of land title
CONCURSO DE ACREEDORES	bankruptcy proceedings (See also Appendix II.)
CONTRATISTA	contractor, recruiter of free Indian labor
CORREGIDOR	an official with administrative and judicial authority over a district, subordinate to the viceroy and audiencia
CREOLE	person born in the colonies of Spanish parents
DEFENSOR DE MENORES	a lawyer charged with defending minors in court cases
DEFENSOR DE OBRAS PIAS	person who names the judge in a concurso de acreedores, with the object of defending the rights of those absent
DEPOSITARIO GENERAL	public treasurer or trustee

DIEZMO	tithe
ENCOMIENDA	grant of an Indian town or towns, carrying the right to assess tribute in return for the responsibility for the Indians' physical and spiritual welfare
ESTANCIA	extensively run cattle ranch
FIEL EXECUTOR	regidor charged with verifying weights
HACENDADO	owner of a hacienda, a large estate
HUACA	a pre-conquest temple, shaped like a truncated pyramid
JUSTICIA MAYOR	chief justice
LICENCIADO	title given to a lawyer
MAYORAL	slave overseer
MAYORDOMO	foreman
MESTIZO	offspring of a union between an Indian and a white
MITA	forced recruitment of Indians for labor on a rotation basis
MITAYOS	draft laborers
MULATO	the offspring of a black and a white
NOTARIO	synonymous with <u>escribano</u> ; notary, scribe, or clerk
OBRA PIA	a charitable fund or establishment
OLLERO	pottery maker
PESO	unit of Spanish currency, usually worth between four and five shillings
PRESBITERO	ordained priest
PURGADOR	purger of purifier
QUINOA	South American pigweed
REAL	1/8th of a peso
REAL CÉDULA	royal order issued through the Council of the Indies
RECUA	mule train
REGADOR	irrigator

SIERRA	Andean mountain highlands
SÍNDICO	a person who is responsible for the administration of an estate in bankruptcy proceedings; an elected representative of a corporate group charged with the protection of its interests
TRAPICHE	sugar cane grinding mill
VILLA	municipal corporation, one level below the city
VISITA	tour of inspection
YERBA MATE	the leaves of a tree which when finally chopped and boiled in water make a concoction which is drunk instead of tea
ZONA DE MATA	a strip of fertile land on the coast of northeastern Brazil that was once covered with forests

I. INTRODUCTION

The hacienda or great estate as an economic and social institution in Spanish America has stimulated a great deal of historical research and writing over the years. Frank Tannenbaum, C. H. Haring, and Jacques Lambert stereotype the classical estate as a large, self-sufficient, labor intensive, often unprofitable institution which remains the property of one family generation after generation. They note the conspicuous absence of the owner and the paternalistic and semi-feudal ties between resident administrator and the workers. The model perpetuated and spread by such writings is, in short, one of an isolated, unchanging institution encompassing a closed system of social relations.¹

This monolithic view of the hacienda colors, however, analysis of the estate in more specific studies dealing with a particular period of time or done on a country-by-country basis. The degree to which the ideal type has dominated historical writing about the hacienda in Spanish America, for instance, is reflected in the paucity of the literature dealing with the connection between commercial activity and the estate before 1800. Indeed, the stereotype suggests a subsistence, marginal existence totally divorced from the money economy.

Only common sense and a few scattered references attest to the importance of the hacienda's economic function during the colonial era. The burgeoning towns and cities, fed by the Spanish predilection for urban living, provided a ready market for food and the raw materials needed for clothing and shelter. Although Indian communities supplied the centers with some goods through tribute and the sale of surplus production, haciendas also contributed significantly to their sustenance. François Chevalier recognizes the economic function of the hacienda to the extent that he ties the origins of the estate in northern Mexico to the fortunes of the mining sector. Likewise, Robert G. Keith posits the land as an alternative source of support when encomienda* grants proved insufficient to guarantee a living to all the Spanish settlers. Neither author, however, presents a detailed description of the haciendas or an economic analysis of production. They sacrifice detail to broader historical coverage, leaving their treatment of the subject too gross for meaningful economic relationships to be defined. The handful of studies (e.g., by Pablo Macera Dall'Orso, Germán Colmenares, David A. Brading, and William B. Taylor) that do discuss the subject in any detail limit themselves to statements of fact without any attempt to define

1. Frank Tannenbaum, Ten Keys to Latin America (New York, 1963); C. H. Haring, The Spanish Empire in America (New York, 1947); and Jacques Lambert, Latin America: Social Structure and Political Institutions (Berkeley, 1967).

*See the Glossary for translations of unfamiliar Spanish terms used in the text.

historical trends.² In the rest of the historical literature on the colonial hacienda, the economics of production has been largely avoided.

The present essay is a first step in exploring the economic role of the agricultural sector in colonial times. Six sugar estates in the Lambayeque Valley on the north coast of Peru are characterized and analyzed during the period from 1670 to 1800. The haciendas had long since passed out of their developing phase and were, by then, mature, commercially oriented institutions. Far from being static, the haciendas' economic and social organization was altered markedly by the vicissitudes of the market. The haciendas were neither isolated nor self-sufficient, but rather closely integrated with suppliers and markets as far afield as Lima, the capital of the Viceroyalty, and, until the middle of the eighteenth century, Panama and Buenos Aires. Owners, instead of having a detached and disinterested attitude, were intensely preoccupied with making a profit. Indeed, fluctuations of the economy had major social repercussions, affecting in time the very composition of the hacendado class.

I do not believe that the sugar haciendas represent a special group of commercially oriented estates. Readers may argue that sugar production, by its very nature, implies a large market and that the coastal location of these estates gave them a unique advantage in transportation. My archival research shows that these assertions are not necessarily true. Highland estates, equated most often with the classical ideal, produced food and clothing that were the objects of lively exchange between the highlands and the coast. Others produced sugar, albeit not of the highest quality, for a local market. All produced a surplus, however small, that was sold outside the estate's limits.³

Closer, in-depth examination of these estates and others will reveal, I believe, much more commercial intercourse than is now commonly thought to have existed. The relatively small size of the markets and the difficulties of transportation given the technology of the times, of course,

2. François Chevalier, Land and Society in Colonial Mexico (Berkeley, 1963); Robert G. Keith, "Encomienda, Hacienda and Corregimiento in Spanish America: A Structural Analysis," Hispanic American Historical Review 51 (August 1971): 431-46, and "El origen del sistema de hacienda," in Robert G. Keith, et al., La hacienda, la comunidad y el campesino en el Perú (Lima, 1970), pp. 13-60; Pablo Macera Dall'Orso, Instrucciones para el manejo de las haciendas Jesuitas del Perú (siglo XVII-XVIII) (Lima, 1966); Isabel González Sánchez, Haciendas y ranchos de Tlaxcala en 1712 (México, 1969); Germán Colmenares, Haciendas de los Jesuitas en el Nuevo Reino de Granada, Siglo XVIII (Bogotá, 1969); David A. Brading, Miners and Merchants in Bourbon Mexico, 1763-1810 (Cambridge, 1971); and William B. Taylor, Landlord and Peasant in Colonial Oaxaca (Stanford, 1972).

3. It is possible that the sample of estates for which records exist are the ones producing for a market, i.e., that the extant documents are biased toward commercially oriented estates.

effectively limited the types of goods and the volume marketed; but the differences between truly isolated, self-sufficient units and commercially oriented ones were probably a matter of degree rather than an absolute. Recognition of the fact that a majority, rather than a minority, of haciendas actively shared in and were affected by the economic life of the colony should encourage a re-examination of the classical model. It is in this direction that the present work is oriented.

Organization and Scope of the Essay

This essay will discuss the sugar estates, locally called haciendas y trapiches, during two phases of their history. The first section of the paper describes in detail the organization and operation of the estates during their most prosperous years, roughly between 1670 and 1720. This characterization established a benchmark for later comparisons. The second section follows the estates' development during the rest of the eighteenth century. Economic crises during this latter phase prove to be major contributors to the estates' stagnation and decline.

The year 1720 has been chosen to divide the prosperous and decadent phases of the estates' development. This periodization seems the most appropriate, because prior to that date the estates were expanding in both area and production capacity. After 1720 expansion ended, and the estates began to accumulate debts. The transition, of course, was not abrupt. The fall in the price of sugar, one of the principal causes of the estates' stagnation, began before 1700. The decrease in revenues slowed growth, but did not seriously alter the organization of production until after the disastrous floods of 1670 and 1728.

Because the topic is so broad, the estate is described in terms of its organization of production or the ways in which inputs are combined in the production process. For the purposes of this analysis, the inputs are divided into three categories: (i) land and natural resources; (ii) labor--administrative, skilled, unskilled, slave, and free; and (iii) capital--both physical and financial. Given local conditions, the relative efficiency of an estate's production process is a function of external factors, such as the level of technology (availability and improvement of machinery and agricultural techniques), market conditions, and government policy.

This essay attempts to show that a combination of local and external factors determined the form of the sugar estate and its profitability in the late 1600s. Over the period, 1670 to 1800, few technological innovations were introduced. Changing market conditions at the turn of the eighteenth century, however, precipitated the onset of the sugar industry's stagnation; and the Crown's free-trade policy hastened its subsequent decline. The most important social consequence of the general economic conditions--particularly the dwindling profit margins--was the shift in the composition of the landowning class.

A Brief Geographical and Historical Sketch

Peru can be divided into three geographical regions: the montaña, the sierra, and the coast. (See Map I.) The montaña, i.e., the region covered by tropical jungles east of the Andes, accounts for over half the total land area of the country, but remains largely unoccupied and underexploited. The sierra or Andean highland region may be characterized as rural, poverty-stricken, and the most densely populated of the three. The coast, in contrast, is the most dynamic region.

Peru's principal cities and most highly developed agricultural units are located today in river valleys on this desert plain between the Pacific Ocean and the Andean mountains. The cities of note are (from north to south) Piura, Chiclayo, Trujillo, Chimbote, Lima, and Arequipa. (See Map II.) They serve as cultural, administrative, and supply centers for the surrounding coastal zones and their highland hinterlands. Typically, large modern estates dominate the rural areas of many of these coastal valleys. These plantations produce sugar, cotton, and wine for both internal and export markets.

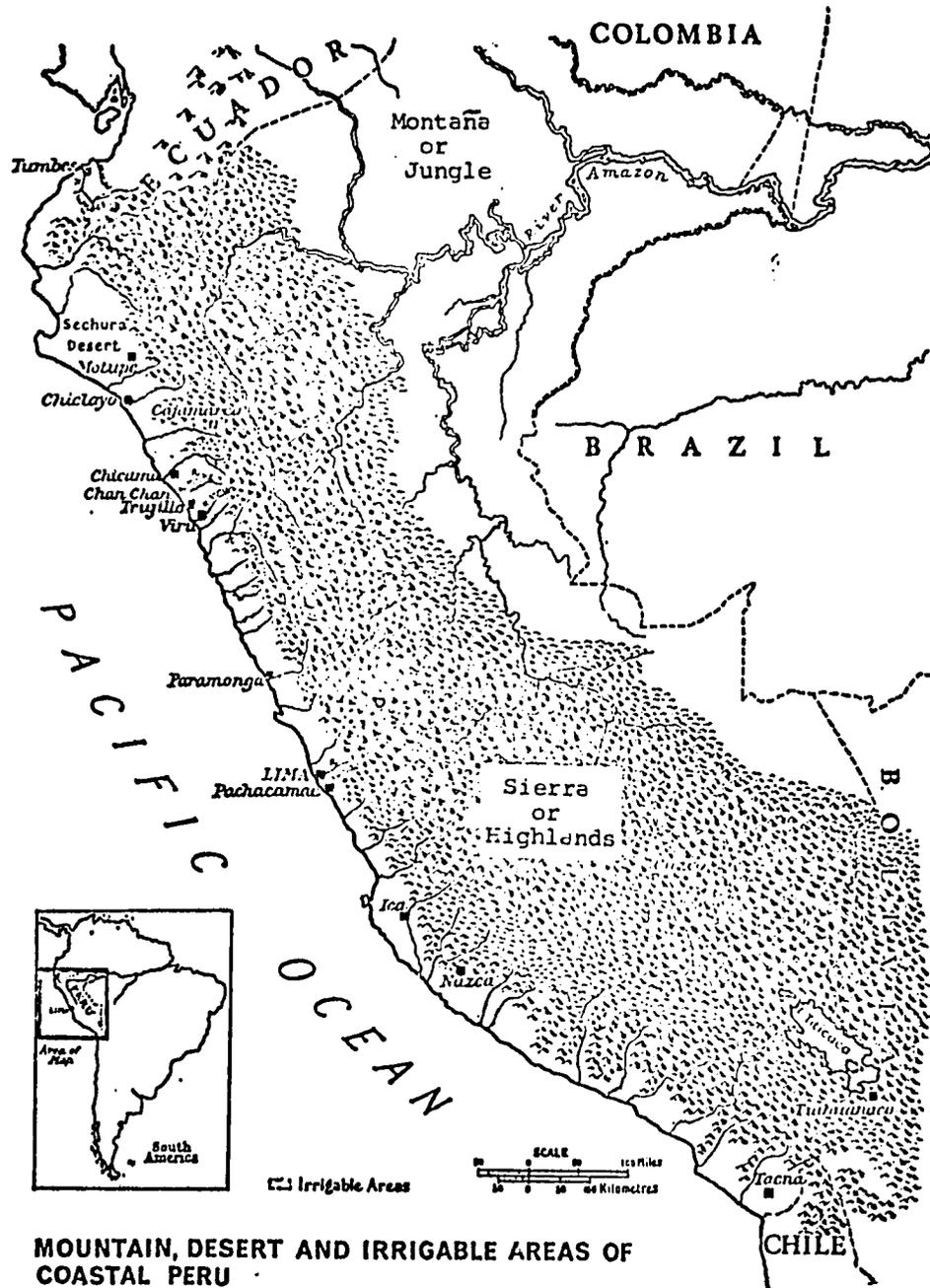
Both settlement and the economic exploitation of this region depend on the fifty-two rivers which cascade down from the western Andean slopes. In each coastal valley sophisticated irrigation networks distribute the river water to both urban and rural users. The amount of water and the reliability of its flow set effective limits on settlement and the area of cultivatable land and strongly influence cropping patterns.

The Lambayeque Valley, about 500 miles north of Lima, is the largest and most important river oasis (measured in terms of its agricultural production) on the entire coast. Four large agro-industrial complexes, now cooperatively held, control thousands of acres of land in the upper valley and employ thousands of workers. All four produce sugar for internal consumption and export. The importance of these agricultural activities to the local and regional economies partly explains why Chiclayo, the Valley's major city, is a bustling administrative and commercial center and the primary node for officially projected growth in the northern half of the country.

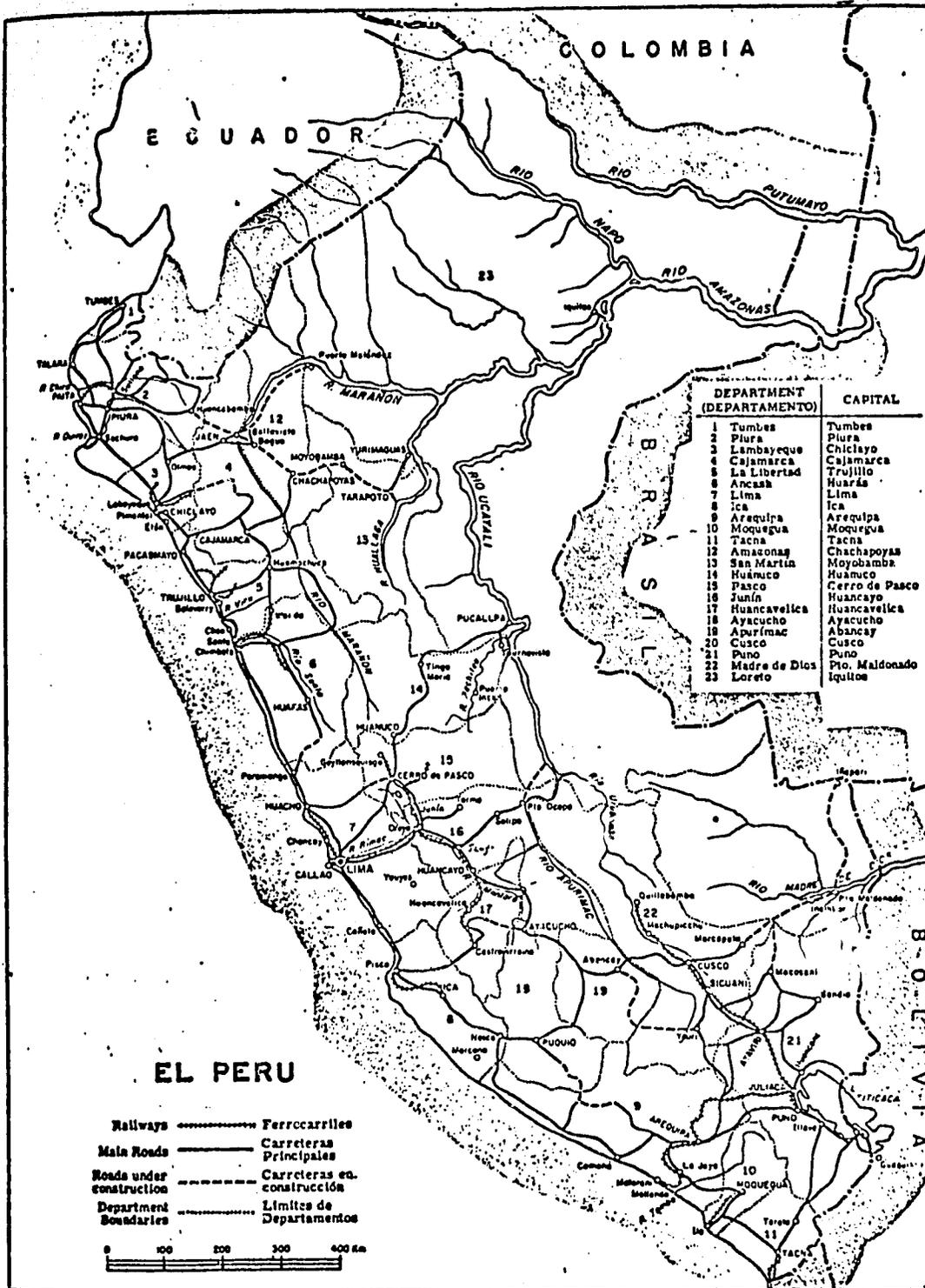
Francisco Pizarro, the conqueror of Peru, and his group of followers were the first Spaniards to explore the area in 1532. He found the Valley and the adjacent area densely populated and producing a wide variety of exotic fruits and vegetables. From accounts of Pizarro's trip and various other historical documents it has been determined that there were six Indian communities in the Lambayeque Valley at the time of Pizarro's first visit: Cinto, Collique, Callanca-Monsefú, Reque, Lambayeque, and Ferreñafe.^{#4}

^{#4}Ferreñafe is sometimes considered as lying outside the Lambayeque Valley. In this essay it is included, because Ferreñafe depended for its water supply on the Canal Tayme, a main irrigation channel of the Lambayeque River. Cinto and Collique later settled together to form Chiclayo. (See page 7 for footnote 4.)

MAP I



Source: Victor W. Van Hagen, The Desert Kingdoms of Peru, London, 1964, 12.



MAP II
CITIES OF PERU

The abundance of land, labor, and irrigation water in the Lambayeque Valley stimulated the settlement of the area by Spaniards. Thousands of sheep and goats were maintained by feeding on the natural vegetation--scrub forest and semi-tropical desert grasses. The animals were slaughtered for the production of soap and leather, which were later exported to Lima,* Guayaquil, and Panama.⁵

During the first half of the seventeenth century, sugar production gradually replaced soap making and tanning. Environmental conditions were particularly important for the genesis and development of the sugar industry in the Valley. The fertile soils, relatively free from salination, and the sunny, hot, and dry climate were ideal for growing cane. Water, however, was in short supply relative to the land area, especially after 1700.

The distribution of these resources varied from one part of the Valley to another. On the basis of these differences, the Valley can be divided into three major zones: (i) the upper valley, or "Valle Viejo," a triangular-shaped area bordered by hills above Chiclayo; (ii) the lower valley, or "Valle Bajo," the extension of the Valle Viejo between Chiclayo and the Pacific Ocean; and (iii) the northern section, or "Valle Nuevo," an extension of the broad coastal flood plain north of Chiclayo. (See Map III.) The major sugar estates were confined to the Valle Viejo, and the Indian communities occupied much of the Valley's other two sections.

The Valle Viejo had two distinct advantages over the other two zones which explain why all the large sugar estates were located there. First, the Valle Viejo's soils were the most fertile; and, second, because of its position, it was the first to receive water in times of scarcity. Since pre-conquest times the Lambayeque River has been utilized for irrigation, turning the Valley** into a green oasis. As the only source of

4. Charles Gibson, Spain in America (Evanston, 1966), p. 31; Victor Arenas Perez and Hector E. Carmona, Anuario Lambayeque (Chiclayo, 1947), p. 506; Raul Porras Barrenechea, Una relación inédita de la Conquista: La crónica de Diego de Trujillo (Miraflores, Peru, 1970), p. 50.

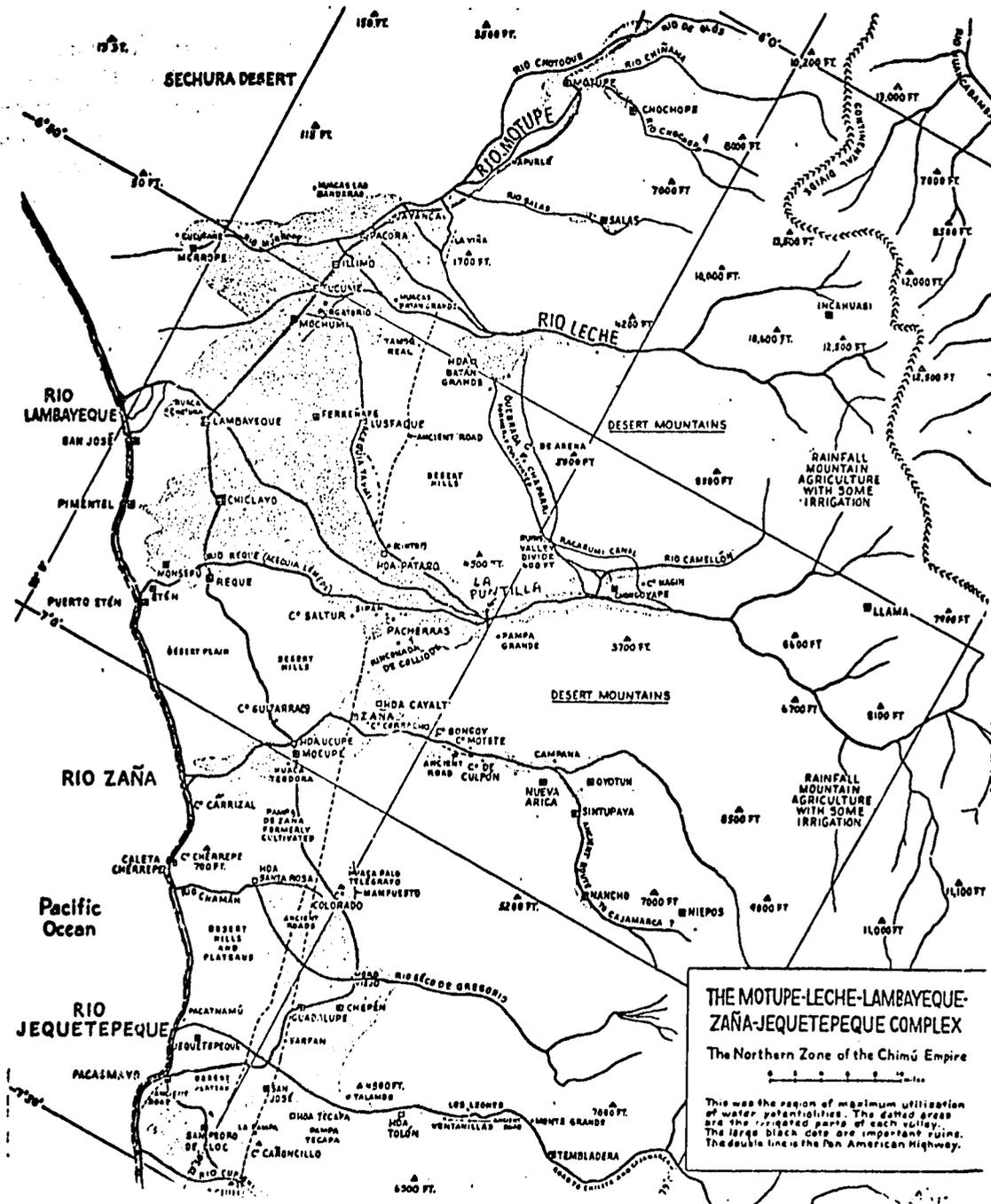
*Lima was known during colonial times as the Ciudad de Los Reyes.

**The use of the word "Valley" denotes the Lambayeque Valley as a whole. References to any one of its three zones--the Valle Viejo, the Valle Bajo, or the Valle Nuevo--will be so indicated in the text.

5. AN,*** Real Audiencia, Civil, 1608; AAT, Diezmos, 1588; BN, B871; Toribio Alfonso de Mogrovexo, "Libro de Visitas, Diario de la segunda visita pastoral...", Revista del Archivo Nacional del Perú 1, no. 2 (1920): 228-38; Rubén Vargas Ugarte, Historia General del Perú, II (Lima, 1966), pp. 110-11; AN, Tierras y Haciendas, L. 26, C. 236, 1805, p. 12v; Joseph Tosi, Zonas de vida natural en el Perú (n.p., 1960), pp. 14-20.

***See Appendix II for explanation of this source and similar sources cited in the footnotes.

MAP III



Source: Paul Kosok, Life, Land and Water in Ancient Peru, New York, 1965, 146.

water in the Valley, the river has always been necessary for agricultural activity and the maintenance of life itself. Below the point called "La Puntilla," the river divided into three main channels: the Canal Tayme, the Canal Lemep or Rio Reque, and the extension of the Lambayeque River itself. (See Map III.) These, in turn, bifurcated repeatedly, carrying water to all parts of the estates and communities in the Valley.

Because the volume of the river's flow was (and still is) a function of the rainfall in the sicra, it varied greatly during the year and from year to year. The heaviest water flow occurred during the months from January through March; and, until recently, a significant proportion of this seasonal flow was lost to the sea. These waters carried substantial quantities of suspended debris which settled out and clogged irrigation ditches (acequias). Because of this phenomenon, in April and May of each year estate owners assigned a contingent of laborers to clean and repair the canals. During the dry season (June through August), the flow slowed to a trickle. Most of the available water was used for irrigation and domestic purposes before it reached the Pacific.

The Lambayeque River usually provided enough water to irrigate the Valle Viejo even during the dry season when water shortages typically forced the lands below and to the north of Chiclayo out of production. Only the Valle Viejo, therefore, could support sugar cane, which as a perennial crop requires a reliable water supply for its entire 18 to 24 month gestation period.

By the late seventeenth century, eight major production units occupied the entire Valle Viejo. Six were sugar producing estates or haciendas y trapiches; two were extensively run cattle ranches or estancias. Attention will be fixed on the six haciendas y trapiches. The six are: San Pedro de Alcántara de Pomalca, San Francisco de Borja de Tuman, Santa Inéz de Calupe, San Juan de Miclas y Sipan, Luya, and San Juan de la Punta y Collique. These names were used in official documents during colonial times. In common parlance and in this paper, five of these estates are referred to by their shorter Indian designations: Pomalca, Tuman, Calupe, Sipan, and Luya, respectively. The last named estate is popularly known as La Punta.

In the period under study, individuals owned and operated all of these sugar estates with the single exception of Tuman, which was owned and managed by the Society of Jesus. In terms of land area and production, Tuman and La Punta were the largest estates; Sipan was the smallest. Luya was a marginal case, because its owner abandoned sugar production early in the eighteenth century.*

In the latter part of the seventeenth century, sugar became the most important and lucrative product in the Valley (and remains such today).

*Unlike his neighbors, the owner of Luya ceased production, in part, because with only one trapiche he had a smaller fixed investment than the other estates.

Since that time its cultivation and exportation have been the most important factors determining the region's agrarian structure--particularly, the growth of a wealthy landowning class, the large estate or latifundia, monoculture (see note, p. 14), and slavery. Profits from the sale of sugar in population centers along the Pacific coast of South America (primarily Santiago, Lima, Guayaquil, and Panama) financed the expansion of sugar production, the accompanying demand for African slaves and other inputs, and the local aristocratic class's luxurious and extravagant style of life.

Zaña became the symbol of the general prosperity of the surrounding agricultural zones. As the only Villa between Trujillo and Piura, it was the primary focus of urban development in the area. The owners of the sugar estates in both the Lambayeque and the Zaña Valleys made the Villa their home. By the late seventeenth century, Zaña had become one of the most important cities on the Peruvian coast.

II. THE SUGAR ESTATES IN THE LAMBAYEQUE VALLEY, 1670-1720

During the late seventeenth century, Zaña and the surrounding zones thrived. The sugar estates in the Valle Viejo produced much of the surplus wealth on which this prosperity was based.

The detailed descriptive analysis of six estates that follows is designed to acquaint the reader with the institutional underpinnings of this progress. After a concise narration of a hacienda y trapiche's physical layout, its organization of production is discussed in terms of size, land and water use, technology, labor systems, administration and ownership. Sources of capital and marketing networks are also considered. The discussion of these parameters provides the background essential for comprehending the subsequent declension of the sugar estates during the remainder of the eighteenth century.

Physical Layout

The denomination "hacienda y trapiche" implies a production unit characterized in the most basic sense by two features: a large land area, used for both cultivation and animal raising, and at least one cane-crushing mill. Hacienda y trapiche, then, conveys an accurate picture of a relatively primitive agro-industrial complex or living and processing center surrounded by cane fields, scrub forests, and natural pasture. As indicated in numerous inventories of the period, the casa hacienda, workers' living quarters, church, processing houses or sheds and warehouses constituted a sugar estate's center. The casa hacienda or owner's mansion was the dominating feature of the estate's nucleus. Besides being the residence of the family of the owner or administrator, a part of the same house served as an office from which the estate's activities were directed. Contrasting sharply with the casa hacienda were the modest foreman's house and the crudely constructed slave huts which formed a cluster at one side.

The church stood nearby. The trapiches, casa de calderas (boiling house), casa de purga (purifying house), warehouses, artisans' shops, and corrals formed the heart of the processing unit.

Size

Immense areas of land surrounded this hub. Historically hacienda boundaries have shifted; and consolidation and fragmentation have radically altered the agrarian structure of the Valley. By about 1720, however, most of the sugar estates had established geographical boundaries which they maintained until the end of the century. These units were the culmination of a seventeenth-century process of consolidation and expansion in which small holdings (estancias and chacras) and abandoned lands were acquired through sale, inheritance, and/or marriage and amalgamated into larger units. By such a process, six units, owned and controlled by a correspondingly small number of families and the church, came to occupy the bulk of all cultivatable land in the Valle Viejo.⁶

Table I indicates the size of the Valle Viejo's sugar estates about 1720.⁷

TABLE I

Size of the Sugar Estates in the Valle Viejo, ca. 1720

Hacienda y trapiche	Year	Approximate Size (in fanegadas)
Calupe	1704	433
Luya	1727	200
Pomalca	1717	325*
La Punta	1711	433
Sipan	1709	100
Tuman	--	n.a.

*The figure cited for Pomalca should be considered a minimum. Another source states Pomalca's size as 400 fanegadas in 1701. (AAT, Capellania, 1750, p. 17v.)

Sources: AN, Títulos, L. 23, Cd. 611, 1783, p. 52; ANCR, Luya, 1779, p. 32; AN, Derecho Indígena y Encomienda, L. 19, C. 483, 1793, pp. 35, 39, 41v; Ibáñez, 1920, pp. 9 and 63; ANCR, Collus, 1720, p. 17.

6. AAT, Testamentos, 1744, p. 321v.

7. Tuman was apparently even larger than Calupe and La Punta, but lack of any specific document providing areal measurement before 1772 makes its deletion appropriate pending further archival research. AAT,

These figures must be considered estimates, because the sources do not always provide consistent data, and the accuracy of measurement is questionable. Discrepancies often resulted from imprecise descriptions of the boundaries and confusion over natural landmarks. Ruins of pre-conquest temples (huacas) dot the Valley; irrigation canals crisscross it; and hills border it on both sides. These served as natural and "immutable" markers for land surveys and boundary descriptions. Apparently, the first titles to land in the Valley granted the area within a given radius from a fixed point. Boundaries were vaguely described in terms of rocks, trees, and canals or not defined at all. The visita de la tierra of 1640-42 clarified and more precisely delineated the boundaries of most land units. After the 1640 visita disputes over property limits arose when owners and long-time Valley residents, called to testify in court, could not agree on which huaca, canal, or hill was which.

For example, over the years irrigation canals filled with silt and sand and were abandoned. Natural rainfall was (and still is) always rare in the Valley. When precipitation did occur, it seldom amounted to more than an occasional sprinkle. At least once each century, however, heavy rains fell on the coast. This precipitation, occurring simultaneously with the great volume of water flowing down from the mountains, often resulted in widespread flooding.⁸

Floods wreaked havoc upon the entire irrigation system of the Valley. Besides clogging irrigation canals with silt and vegetation, floodwaters eroded their sides.* Wind-blown soil and sand added to the erosion process and further obscured unused channels. What had been a suitable and permanent marker prior to the flood of 1624 had become only a slight indentation in the land by 1700.

Furthermore, confusion over estate limits resulted from the fact that in most cases only a small amount of the total land area was directly farmed. The balance was used for grazing or remained largely unoccupied. This underutilization of land, especially on an estate's borders, put no pressure on an owner to determine precisely where his property ended and another began.

(7. continued) Testamentos, 1744; AN, Títulos, L. 23, C. 611, 1783; J. W. Ibañez, Informa: acompaña prueba instrumental y pericial fotográfica. Deduce la falsedad de las piezas que indica (Chiclayo, 1920), pp. 9, 63.

8. The Lambayeque Valley has experienced such flooding disasters in 1578, 1624, 1720, 1728, 1828, 1884, 1925, and 1971-72. José A. Portugal Vizcarra, Influencia del Proyecto Tinajones (Lima, 1966), p. 22. Field work, Lambayeque Valley, April 1970 to April 1972.

*Floodwaters also cause extensive damage to crops and buildings. Water overflows onto the land, uprooting and destroying entire fields. Adobe houses and other buildings, constructed for a dry climate, crumble and collapse.

The above considerations account for important, but relatively minor variations in estate size. Officially cited figures seldom reflect satisfactorily a hacienda y trapiche's actual extent in still another way. Most of the Lambayequen estates had rights to land on which they claimed only pasturage rights. The visitador in the composición de tierras (legalization of land titles) of 1711-13 distinguished between (i) land and (ii) pastures on this land. As a consequence of the practice of differentiating between the two, some estates acquired title to large tracts of pasture without owning the land. The land area officially cited for the sugar estates seldom included these pastures.⁹

Land and Water Use

Only a portion of the crop lands and pastures controlled by a single estate was effectively occupied at any given date. Of Calupe's 433 fanegadas, for instance, about 30 percent, or 133 fanegadas, were actually suitable for planting; and a relatively small portion of this land was planted in sugar cane.

Unfortunately, no inventories or appraisals recorded exact field measurements until the end of the eighteenth century. A rough estimate, however, of the percentage of land planted in cane can be calculated for Calupe in 1696. The estimated size of cane fields on Calupe was 100 varas square in 1776. Because production technology remained constant in the intervening 80 years, it can be assumed that the fields were the same size or smaller before that date. In 1696 sixty fields of cane were tilled on Calupe. As other sources show, each fanegada of land contained 41,472 square varas. Thus, Calupe's sixty fields of cane represented a maximum of eleven percent of Calupe's cultivatable land area. If one makes the same assumption, it appears that only five percent of Pomalca's land was in cane cultivation in 1699.¹⁰

In addition to cane, small amounts of land were used to grow crops for internal consumption. Because natural pasture on unirrigated land was poor, the sugar estates maintained from three to five irrigated fields of alfalfa for feeding mules and oxen. In a garden and orchard typically flanking the casa hacienda, numerous types of fruit trees, olive trees, and caña fístola (a type of bamboo used for building) grew. Some of Calupe's land was planted in wheat and then ground in the flour mill there. It is not clear whether the flour was consumed on the estate or destined for some outside market. The evidence on hand indicates that no other cash crops (e.g., tobacco, rice, or cotton) were planted on

9. AN, Derecho Indígena y Encomienda, L. 19, C. 483, 1793; OCIL, Reque, p. 86v; ACI, Monsefú, P110-5343, p. 57; ANCR, Tuman, 1812.

10. ANCR, Tuman, 1812; AAT, Capellania, 1766, p. 61; AN, Títulos, L. 23, C. 611, 1783.

estates at this time.* Other estate lands provided pasture for goats and sheep and firewood for sugar processing.¹¹

A shortage of irrigation water limited more intensive land use and expansion especially after the turn of the eighteenth century. The decimation of the Indian population had reduced the demand on the Valley's available water supply during the late sixteenth and seventeenth centuries. However, introduction of sugar cane cultivation and favorable market conditions toward the middle of the seventeenth century led to prosperity and subsequent estate expansion. This expansion along with the eighteenth century population growth augmented the pressure on this limited natural resource.

Theoretically, each hacienda y trapiche and community in the Valley "owned" a specific amount of water. Judges issued water titles to private landowners and communities along the principal canals in 1570, 1655, and 1700. Water rights were measured in absolute quantities. The unit of measurement was the "riego" (literally, the irrigation), variously defined as enough water to irrigate 10 fanegadas (72 acres) of land or as the amount of water that flowed through an opening of specified dimensions over a definite period of time.** The evidence suggests that these rights were not strictly respected except perhaps in the dry months. In months of heavy water flow, owners took what they wanted and what the irrigation infrastructure could carry.¹²

The Technology of Cultivation, Processing, and Internal Transportation

The production technology available at the turn of the eighteenth century was primitive and uncomplicated. To prepare a field for new sugar cane, for example, the land was plowed several times. Between plowings, laborers broke up lumps of soil by hand and raked stubble into

*During most of the period from 1670 to 1720, estate owners grew sugar cane as their sole cash crop. In this sense, "monoculture" prevailed on the estates. The owners of Calupe, La Punta, and Pomalca marketed substantial amounts of tobacco in Lima prior to 1720, but none of the thirty-five estate inventories and appraisals examined in this study mention tobacco fields. This fact indicates that the hacendados were not producing tobacco themselves. Possibly, hacendados collected tobacco from small producers (from tenants or sharecroppers on estate lands and/or members of Indian communities) for shipment south with their sugar.

11. AAT, Testamento, 1697, 1703, and 1704.

**For example, "una quarta por una tercia" (of a vara) in Trujillo and Lambayeque or "una sesma quadrada" in Lima.

12. AN, Aguas, L. 103, C. 873, 1746, p. 11v.

piles for burning. Planting involved cutting, burying the seed,* and irrigating. Laborers hilled the young plants once sprouting began. Thereafter, the fields required one or two weedings and regular irrigation. After eighteen to twenty-four months, the cane was ready for cutting.¹³

Following the first cutting, cane resprouts by itself under irrigation. In the eighteenth century cane was cut up to five times before complete replanting was necessary. As a rule, the cane's productivity (as measured by the percentage of sucrose in the extracted juice) decreased successively with each harvest. Hence, any given field was replanted only once every seven to ten years when the sugar content of the cane diminished to the point where the field was barely worth harvesting. After one or two such cycles, soil exhaustion became a problem. Infertile land was then taken out of production and allowed to lie fallow. This fact explains, in part, the need for vast extensions of unused lands on the estates and their large size; extra land was needed for rotation purposes just to maintain a given level of output.¹⁴

The milling of cane and refining of sugar was much more complicated. The processing of sugar involved three stages: (i) milling or crushing, (ii) boiling, and (iii) purifying, each of which required heavy equipment and permanent installations. Cane was crushed in an open shed housing one to three bronze trapiches or crushing mills. The extracted juice flowed through wooden troughs into the casa de calderas. There it cooked in a series of large uncovered vats or kettles over open fires, until the juice reached a mucilaginous consistency. Sieves removed impurities as they boiled to the top of the thickening liquid. When much of the water had evaporated, the vats were emptied into special conical clay molds with tiny holes in the bottom. These were placed over clay jars in the casa de purga. The jars caught the molasses as it drained out of the molds. The white sugar remaining in the molds was separated by quality, weighed, and prepared for shipment.¹⁵

*The seed is a jointed section of the cane stalk.

13. Macera, pp. 36-37.

14. Ibid. This description of field technology is adopted from Macera's discussion of the topic. He based his statements on documents from coastal sugar plantations, albeit in other valleys. The bulk of the documents he cites are dated during the second half of the eighteenth century. This author in presenting this general description assumes that (i) agricultural practices remained unchanged between the late seventeenth and the late eighteenth centuries, and (ii) Jesuit practices were basically the same as those on other estates. Until specific information on this topic is found for the estates in the Lambayeque Valley, this description should be considered probably accurate, but tentative.

15. AAT, Testamentos, 1697.

A large number of animals was essential for estate activities. Hacendados relied on oxen for plowing the fields, powering the trapiches, and hauling cane laden carts from the fields. Mule trains transported sugar from the estates to the Oaleta of Cherrepe for sea shipment north or from the estates south to Trujillo or Lima.

Labor and Management

Primitive technology made sugar-cane cultivation and sugar manufacturing a relatively labor-intensive activity. The manuscripts reviewed indicate that slave labor, occasionally supplemented with Indian labor and hired free workers, constituted the bulk of the estates' laboring force. Work on the estates in the Valle Viejo was not seasonal, because the irrigation system and climate permitted year-round cultivation and milling. While one group of laborers plowed a field, another seeded, weeded, harvested, loaded the cane into carts, or drove the carts to the trapiche. At the trapiche, the cane was processed by other workers. Additional individuals cut firewood, tended livestock, cultivated the owner's garden and orchard, and produced garrapo or aguardiente, a sugar-cane brandy made by fermenting the molasses.

Negro slaves were the principal source of labor on the estates between 1670 and 1720. The size of the slave labor force varied from estate to estate and over time. Though most estate owners had the necessary capital and intention to buy, the size of their slave labor forces was limited by the unavailability of blacks in the markets of Lima and Panama.¹⁶

Table II summarizes the demographic information on the slave population in the Valley and shows that the sex ratio of the slave populations was skewed, with males outnumbering females in every case. The demographic parameters of average age and sex ratio suggest that hacendados depended on importation rather than natural reproduction to maintain or increase their slave populations.

Slaves represented a significant proportion of the total capital invested by the owners in their estates. An exact percentage cannot be calculated at this stage of investigation, because the value of individual slaves is difficult to determine. Hacendados bought slaves in groups and recorded the total price for each transaction. Even if a representative price could be set, lack of any detailed and complete appraisals of comparable data prevents calculation of the value of slaves relative to the value of other factors of production (e.g., capital equipment, lands, etc.) or the value of the hacienda y trapiche as a whole. A rough indication of the slaves' relative worth, however, is provided by several sources dating from the late seventeenth century. Testimony found in manuscripts concerning Calupe at the close of the 1690s, for instance, indicates that the amount of capital represented by the estate's

16. AAT, Testamentos, 1697, 1703, 1704, and 1766; ANCR, Sipan, 1720.

TABLE II

Demographic Parameters of the Slave Populations
of Four Sugar Estates in the Lambayeque Valley,
1669-1720

Sugar Estates (listed chronologically)	Number		Ratio of Males to Females	Average Age	Total Number
	Male	Female			
Luya (1669)	5	0	--	39	5
Luya (1693)	12	0	--	22	12
La Punta (1697)	24	9	nearly 3:1	n.a.	33
Calupe (1697)	46	3	over 15:1	n.a.	49
Calupe (1704)	44	7	over 6:1	n.a.	51
Calupe (1719)	46	7	over 6:1	45 adults 6 elders 2 children	53
Sipan (1720)	12	2	6:1	53	14

Sources: AAT, Capellania, 1845 for Luya, 1669; AAT, Testamentos, 1744, p. 19 for Luya, 1693; AAT, Testamentos, 1697 for Calupe and La Punta; AAT, Testamentos, 1704; AAT, Testamentos, 1766 for Calupe, 1719; ANCR, Sipan, 1720.

slaves rendered the costs of other factors of production insignificant. The number of slaves, in fact, proved a good index of a sugar estate's total value. An estate's worth could be roughly calculated by multiplying the number of slaves by 1,000 pesos.

Slaves were employed for both unskilled and skilled jobs in the field and around the trapiche. The entire sugar-production process required a tremendous expenditure of human physical force. Slaves with only minimal training could plant, weed, and cut cane. Likewise, gathering firewood, driving oxcarts, and tending livestock required no special skills. Slaves with special training served in the fields as regadores, boyeros, and mayorales, and around the trapiche as azucareros, purgadores, olleros, and carpenters.

In return for their labor, the slave population received shelter, food, clothing, medical care, and spiritual instruction. Slave families lived in huts situated in a cluster or row near the casa hacienda, the mill, and the workshops. Each week the administrator distributed to the slaves a ration of meat, corn, beans, and occasionally rice, squash, salt, and chili pepper. Suitable clothing was also provided.

Medical care was an important item in the budget for maintaining the slave population. Pomalca sent its ailing slaves to Zaña or Chiclayo

for treatment, while Tuman and La Punta maintained their own infirmaries. Here sick slaves were cared for with home remedies administered by a nurse, mayordomo (foreman), or by the owner himself. First aid for burns, for instance, involved the application of oil and eggs. To help them regain their strength, the sick received a special diet of bread and chicken. Only when a serious accident occurred did a slave receive a doctor's attention and prescribed medicine.

One of the major problems and causes for complaint among estate owners, especially after 1700, was the inadequate supply of slave labor. To supplement slave labor in the face of a ubiquitous shortage, owners depended on nearby Indian communities. Indians worked on the estates as mitayos or hired peons.¹⁷ The mita or draft-labor system of recruitment provided some estates with small numbers of Indians for field work until the early 1700s.¹⁸ By law Indian draft labor could herd cattle and cultivate fields; an early seventeenth-century code prohibited mitayos from working near trapiches or in the casa de calderas where conditions were regarded as dangerous and unhealthy.¹⁸

In addition to slaves and mitayos, the haciendas y trapiches relied upon hired labor from coastal Indian communities as far away as Catacaos (near Piura).¹⁹ Large gangs of Indians worked as unskilled laborers for two reales a day, plus food and drink (garrapo or aguardiente) on occasional projects, such as the opening of new irrigation channels.

Estates (with the possible exception of Tuman) depended on Indian labor for emergency work also. When flood waters damaged acequias, their repair usually required the services of Indians to supplement an estate's slave work force.¹⁹

Besides untrained Indian labor, the estates were in constant need of skilled labor for specialized tasks. Most haciendas had resident

17. AAT, 1744, p. 112; AAT, Testamentos, 1779 and 1884, pages 98 and 110, respectively.

*The mita labor system was effectively abolished about 1720.

18. Ward Barrett, The Sugar Hacienda of the Marqueses del Valle (Minneapolis, 1970), p. 92; J. H. Parry, The Spanish Seabourne Empire (New York, 1966), p. 188; AN, Real Audiencia, L. 44, 1619. Barrett cites a Real Cédula dated November 10, 1599, for Mexico. Parry cites a 1609 code prohibiting mitayos to work in sugar mills.

**Indians from the sierra did not work on the coast at this time, in part because they were attacked by a disease called chuccho, "una dolencia mortal que tenía principio en fiebres malignos, y finalizaba en funesta resolución." The symptoms lead me to believe that chuccho is malaria, a malady that still afflicts highland Indians on the coast.

19. BN, B1737, 1669.

slave carpenters and potters; but the demand for founders, bricklayer, smiths, and tailors was not constant enough to warrant the maintenance of a slave specialist. When a particular task required, hacendados contracted skilled artisans from Zaña, Chiclayo, or Lambayeque. These artisans cannot be identified strictly by ethnic group: some were Indians, others mulattos or mestizos. These men resided on the estate until they finished the specific task for which they were contracted. Hacendados paid these skilled workers piece rates rather than fixed daily wages or salaries.

Hired skilled workers and mayorales were directly responsible to a mayordomo (variously defined as steward, foreman, or sub-administrator) who relayed orders, executed the owner-administrator's directives, and inspected work to ensure that workers performed specific tasks well. Typically, mestizos, Spaniards, and creoles served as mayordomos.²⁰

The general administration of an estate was usually performed by the owner himself or, in his absence, by a hired manager. Apparently, hired managers were employed infrequently and only temporarily, e.g., in the event of the owner's incapacitation, prolonged absence, or death. Tuman, of course, is the exception. Lay brothers of the Jesuit order (hermanos) administered the hacienda y trapiche and were replaced periodically.

The degree to which the owner was involved in the on-the-spot management of his estate varied, although all maintained constant and close control over activities on their rural property. Most hacendados were residents of Zaña and traveled often to their estates. No estate was more than half a day's ride from the Villa. When not physically present on their estates, owners were close enough to make decisions, order work done, buy supplies, and sell the products. Letters containing orders and advice passed frequently between owner and mayordomo(s). Again, Tuman is an exception; its manager resided permanently in the casa hacienda.

Landownership

By the seventeenth-century process of consolidation and expansion mentioned above, a small number of men (five or fewer*) and the Jesuits controlled most of the arable land of the Valle Viejo. All the individual owners were highly respected members of the local elite. Their social position and political clout were assured by the possession of vast tracts of land, the wealth and prestige that such real estate

20. AN, Tierras y Haciendas, L. 18, C. 164, 1791, p. 134v; AN, Títulos, L. 23, C. 611, 1783.

*In at least one instance between 1670 and 1720, one man owned more than a single estate, thus reducing the number of owners to less than six.

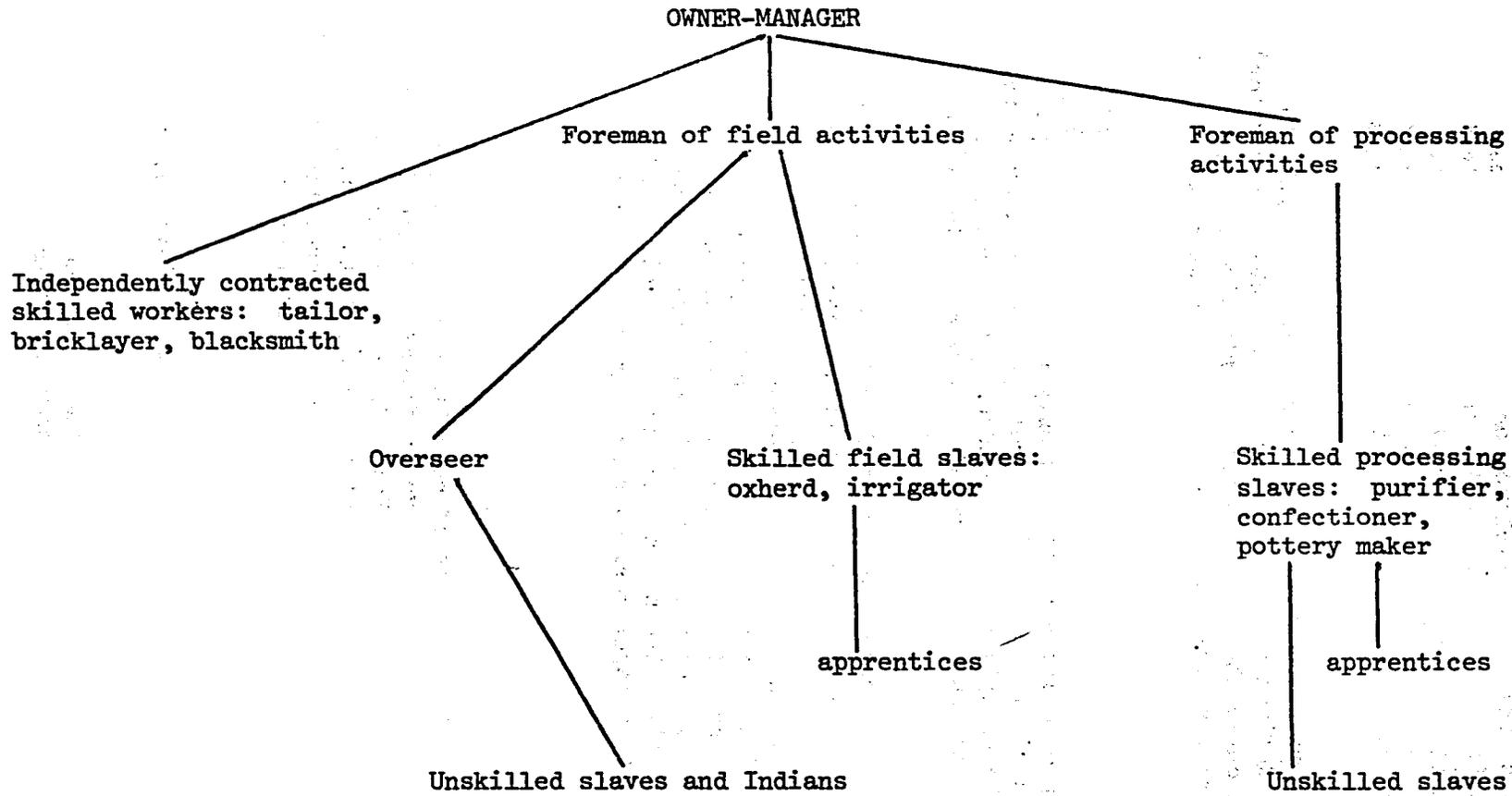


DIAGRAM I: ORGANIGRAM OF AN ESTATE'S WORK FORCE

implied, and their occupations within local society. Most of the hacendados were influential local bureaucrats or priests.²¹ Table III summarizes the biographical data for twelve of the fifteen estate owners for whom such information is available between 1670 and 1720.

The owners in the Valle Viejo did not represent families who enjoyed uninterrupted possession of the land for centuries (as in the case of some landed families in certain areas of the zona de mata in Brazil). No family owned an estate for more than three generations or a maximum of 60 years (La Punta). The Jesuits, of course, must be regarded as a separate case. Tuman had been donated to the Compañía de Jesús in the early seventeenth century. The Jesuit order, as a corporate body, guaranteed Tuman stability of ownership and operation until 1767. (See Appendix I.)

Individual hacendados acquired their lands through both purchase and inheritance. In general, peninsular Spaniards bought the haciendas y trapiches and left them to their sons. Thus, Capitán Martín Núñez de Alzo left his four purchased estates to his four sons. Don Juan Bonifacio de Seña likewise left Pomalca to his male heir. Acquisition of sugar estates through marriage was unimportant at this time. (See Appendix I.)

Financing

The high price of sugar during the late 1600s guaranteed the hacendados profits and internal capital accumulation which reduced the need for external financing. Although the profitability of individual estates at the turn of the century is impossible to calculate, prosperity is evident from the amount of money owners invested to expand the area of cultivated land and processing facilities. Hacendados financed much of the expansion by direct investment of profits. The founding of capellanías and obras pías by the hacendados and others (e.g., clerics, merchants, etc.) made additional capital available for backing projects.

Direct expenditure of surplus profits in the enlargement of the physical means of production cannot be documented with the information on hand, but surviving church records show that capellanías and obras pías were important mechanisms for investing money in the estates, while providing a fixed, guaranteed income for relatives. In the escrituras de fundación (founding contracts) of capellanías, for example, the founder usually stipulated on which piece of real estate the capital should be invested and, in some cases, for what purposes it should be used (e.g., for the purchase of slaves, etc.). He also named patrones, or administrators, of the funds, and the beneficiaries who were to receive the interest from the capital for performing specific duties--characteristically, saying masses for the founder's soul. Theoretically, the capital made available by these foundations was invested in an estate. The investment increased production, which in turn provided a surplus from which the five percent annual interest could be paid to

21. AAT, Testamentos, 1789, p. 168.

TABLE III
Selected Biographical Information for Owners of the Sugar Estates,
1670-1720

Owner	Estate	Dates of Ownership	Place of Birth	Occupation	Locally Married	Place of Residence
Capitán Martín Núñez de Alzo	Pomalca	prior to 1672 until 1692	Spain	Bureaucrat*	yes	Zaña
	Calupe	prior to 1692				
Don Martín Núñez de Alzo	Pomalca	1692-1695	Peru	n.a.	Never Married	Zaña
Thomás Núñez de Alzo	Pomalca	1695-1699	Peru	n.a.	Never Married	Zaña
Joseph Núñez de Alzo	Pomalca	1695-1702	Peru	Priest	Never Married	Zaña
Gobernador Don Juan Bonifacio de Seña	Pomalca	1699-1709	Spain	Bureaucrat	yes	Zaña
Don Francisco de Seña Pichardo	Pomalca	1709-1739	Peru	Bureaucrat	Never Married	Zaña
Bachiller Francisco de Palma y Vera	Calupe	1693-1695	Zaña	Priest	---	Zaña
Capitán Nicolás de Urrutia Gallardo	Calupe	1704-1715	n.a.	Bureaucrat	n.a.	Zaña

Don Bartholomé Pérez Zavala	Calupe	1715-1719	n.a.	Bureaucrat	yes	Zaña
Capitán Baltazar de Robles Xirénez	Luya	1698-1712	Spain	Bureaucrat	yes	no
Don Miguel de Robles y Garay	Luya	1712-1745	Peru	Bureaucrat	no	n.a.
Gerónimo Rodríguez	La Punta	prior to 1681 until 1697	Peru	n.a.	yes	Zaña
Don Juan Rodríguez	La Punta	1697-1711	Peru	n.a.	n.a.	Zaña
Don Felix Rodríguez	La Punta	1697-1711	Peru	Priest	---	Zaña
Don Bartolomé Robles y Garay	La Punta	1714-1724	Peru	Priest	---	no

*Bureaucrat as used in Tables III, VI and in the text includes government officials serving in a strictly local capacity (e.g., as a regidor, alcalde mayor, etc.) or holding a position representing the central authorities in Lima or Spain (e.g., the corregidor).

the beneficiary. An obra pia operated in much the same way. The founder left a sum of money to be invested in real property. The yearly interest defrayed the cost of some charitable act: a procession, a religious festival, a dowry for orphan girls, etc.

The amount of money involved and the frequency of foundations during this period attests to the general prosperity of the sugar industry. Don Francisco Palma y Vera left a legacy (obra pia) of over 7,000 pesos to be invested in his estate, Calupe. Accumulated interest provided dowries for "deserving girls" from Zaña. Other estate owners left equally large amounts to celebrate the feast day of a particular saint.²²

It should be noted that the hacendados themselves were not the only founders of the capellanias and obras pias invested in haciendas y trapiches. The impression given by the documents reviewed, however, is that hacendados or members of their families created most of such foundations in terms of absolute numbers and the largest in terms of value.*

The receipt of short-term credit from the church seems insignificant before 1720. There is danger in asserting this unequivocally, because lists of debts recognized by estates usually specify the beneficiary, but not always the type of debt, its founder, or date of imposition. It is, therefore, sometimes difficult to tell whether a debt or mortgage was contracted directly by the owner from a religious institution or whether its origin was a private imposition which had accrued to the church.** In unspecified cases, the only way to distinguish between mortgages on the one hand and capellanias and obras pias on the other is to verify a debt's origin. This usually can be done if other documents such as bills of sale, deeds, and the records of foundations are available, because these often contain lists of a property's outstanding debts. By following this procedure, I determined that La Punta did not

22. AAT, Testamentos, 1697 and 1752; AAT, Capellania, 1756.

*Part of the problem of quantifying the proportion of investment by estate owners versus other investors is the identification of some of the first founders and making certain that one considers every capellania and obra pia ever recognized by the owners of a property. Given the fact that the research done on this aspect of the estates' organization of production was careful and exhaustive and that no documents present contradictory information, this author is reasonably sure that most of the foundations on the major estates have been identified. A future, systematic, and thorough review of notarial registers will check the completeness of the material gathered on these foundations. A study of local parochial records of baptisms, marriages, and deaths could reveal the identity of early founders.

**It was the duty of the patron (administrator) to name the beneficiaries after those stipulated by the founder had died or renounced their obligations. Typically, founders named a son as first patron and stipulated future patrons in case the first named died. If all named patrons died with no heirs, the church assumed the right to name beneficiaries and became the trustee of the principal.

depend on short-term church loans between 1670 and 1720. Likewise, of 16,350 pesos recognized by Calupe in 1703, 84 percent (13,700 pesos) were identified as capellanias. Only two with principals of 2,000 and 650 pesos, respectively, might have been short-term church loans; the interest was being paid to the Monasterio de Monjas de Santa Clara de Real in Trujillo and to the Cofradia de Nuestra Señora del Rosario in Zaña, respectively. #23

Marketing Networks

Although the hacienda y trapiche as a production unit was little dependent on external capital, it relied on outside suppliers for many of its inputs and sold its products in the local, regional, and viceregal markets. The estates relied on the surrounding communities for skilled and unskilled labor and for foodstuffs such as corn, beans, and chickpeas. There was some small-scale local commerce in olive oil, produced on Sipan and in the community of Lambayeque, to supply the owner-administrator's table. Yerba mate for tea and medicinal herbs were also grown locally. Hacendados bought lime, an important item for an estate's production process, on the neighboring estancia of Saltur. Wax candles for mass originated in Piura. The sierra provided the estates with draft animals, quinoa (pigweed), barley, lard, cloth, and rope. Molasses and poor-quality sugar were the only products which the estates sold in the local and regional markets in any significant quantities.²⁴

Hacendados regularly exported a substantial quantity of their high-quality sugar and preserves (for example, cajetas de tamarindos) to Guayaquil and Panama. Ship captains stopping at Cherrepe on their way north were commissioned by the estate owners to carry these products to the Portobello fair, for example, where the goods were exchanged for needed supplies, such as slaves, iron, and such imported luxury items as Bretaña, a fine linen cloth.²⁵

Tobacco and the rest of the preserves and sugar were marketed in Lima. Because of the wind and water currents (especially, the northbound

*This problem of identifying sources of capital underscores the need to use various sources to verify and clarify information. Further investigation in church and notary archives will probably yield the needed information to identify other hacienda debts and, therefore, more precisely determine the importance of the Church as a lending institution at this time.

23. AAT, Capellania, 1773, pp. 15, 25, 28v; AAT, Testamentos, 1703.

24. AN, Temporalidades, 1767, p. 106; AN, Derecho Indígena y Encomienda, L. 15, C. 349, 1773; AAT, Testamentos, 1742.

25. ACM, 1640: Carlos Romero Paz, Ensayo de estadística de la industria arrocera en el Perú (Lima, 1905), p. 5. AAT, Testamentos, 1743, p. 63; AAT, Capellania, 1773, pp. 1-4.

Humboldt current) along the Pacific coast, ships traveling south from Panama could not follow the Peruvian shoreline to Callao. Below Paita they had to make a large detour into the Pacific, sail beyond Callao and approach this port from the south. (See Map IV.) Consequently, goods from Panama were unloaded at Payta and transported to Lima by mule teams (recuas). Lambayecan products were also entrusted to harrmeros (mule drivers) for transport by recua to Lima. Thus, the strong Humboldt current made northbound sea transport from Lima practical; while most cargo went south by mule train.²⁶

Upon arrival in Lima, the harriero delivered his cargo to the estate's encomendero or agent who paid the taxes on the goods and sold them. A proportion of the estates' production supplied the markets of Santiago and Buenos Aires. With the proceeds from the sales of estate products, the agents settled a hacendado's debts and provided him with necessary supplies.²⁷

In short, the picture of the six haciendas y trapiches of the Valle Viejo pieced together from various types of colonial manuscripts shows them during a period of relative prosperity and aggressive expansion in area and processing capacity. By the end of the period under consideration, each estate represented a small settlement surrounded by a vast private domain. Monoculture, at least for the cash market, prevailed. Only a fraction of the land controlled by an estate was cultivated; the remainder was used for grazing and collecting firewood. The amount of land cultivated depended on the estate's year-round water supply, available technology, and labor. Negro slaves provided the bulk of the human force required in running the estates, although both skilled and unskilled Indian, mulatto, and mestizo workers were hired as needed.

Six owners--five private individuals and the Jesuits---controlled most of the arable land in the Valle Viejo. The private owners of these estates were rich and thoroughly integrated into the local elite. Their position and influence assured them control over the disposition of natural resources (land and water) and the labor supply. Bureaucratic and priestly duties did not prevent owners from personally supervising the active administration of the estates. High sugar prices minimized the need for outside financing and assured their independence.

The estates were vital units in the local, regional, and viceregal economies. Both goods and services flowed to the estates from surrounding Indian communities, the sierra, Lima, and Panama. In return, the estates exported high-quality sugar and preserves to points all along the Pacific coast of South America as well as to Panama and Buenos Aires.

26. Jorge Juan and Antonio de Ulloa, A Voyage to South America (New York, 1964), pp. 226, 228.

27. AAT, Testamentos, 1697; AAT, Capellania, 1773.

MAP IV: TRANSPORTATION ROUTES BETWEEN PANAMA AND CALLAO



KEY:

- Sea route south between Panama and Callao
- .-. Sea route south between Panama and Paita
- Land route south between Paita and Callao
- .-.-. Sea route north between Callao and Panama

III. STAGNATION, DECADENCE, AND DECLINE, 1720-1800

The prosperity of the pre-1720 period evaporated in the following years. Among the factors responsible for the depression of the Lambayecan industry were a drop in the price of sugar and an increase in the price of some inputs. This cost-price squeeze, along with natural disasters, the maintenance of the owners' accustomed standard of living, and the payment of interest on fixed debt, contributed to the estates' stagnation, decapitalization, and bankruptcy with all their social ramifications.

Under the cumulative impact of these factors, owners ceased investing in and expanding their operations. Particularly during the 1720s, lack of capital prevented deceased slaves from being replaced, even when a supply was available. Worn-out tools were not repaired or replaced for the same reason. One by one, the estates passed from the hands of the bureaucratic elite and priests into the hands of merchants who had recently settled in the Valley. These owners had alternative sources of income with which to purchase the estates and were not averse to seeking external sources of finance, especially from the church.

It should be noted at this point that not all the factors affected the estates at the same time and to the same degree. Tuman and La Punta, the two largest estates, seem to have remained solvent and to have grown throughout most of the eighteenth century. Pomalca, Calupe, and Sipan stagnated in that the volume of their operations remained at roughly the same levels (as measured by number of fields planted, number of trapiches, and number of slaves). Luya abandoned sugar production altogether.

The Economics of Stagnation and Decline

Plummeting Sugar Prices

The first and most fundamental cause of decadence and decline in the sugar industry was a pronounced drop in prices* which began before 1700. Table IV shows that in eleven years prices plunged to half their 1693 level. Several sources indicate that the 1693 price was already below that paid a few years before, although exact figures were not mentioned. In the 1740s prices reached a nadir of 14 reales per arroba (35 percent of the 1693 level) and remained relatively stable at that level until the 1770s.**

*The prices of sugar are recorded as found in documents of various dates. Prices are not expressed in terms of reales of constant value.

**The prices may have reached this low before the 1740s, but lack of price figures between 1721 and 1742 prevents me from being more specific.

TABLE IV

Prices of High-Quality Sugar, 1693-1830

Year	Price per arroba (in reales)	Year	Price per arroba (in reales)
1693	40	1756	14
1695	32	1767	14
1697	24	1770	14
1704	18-20	1776	16
1721	16	1793	18
1742	14	1830	32
1746	18		

Sources: AAT, Capillas, 1830; AAT, Causas, 1756; AAT, Testamentos, 1704; AAT, Testamentos, 1697; AAT, Testamentos, 1746; AAT, Testamentos, 1742; AAT, Testamentos, 1776; AN, Temporalidades-Capellanias, L. 132, Año 1770-1776, p. 100; Lecuanda, p. 265.

The reason for the drop in prices and their continued low levels is suggested by a comment in a manuscript concerning the administration of Don Francisco de Palma y Vera's will in 1704. The administrator of the will complained that

el precio q[ue] oy tiene el asúcar q[ue] no espera se aumente antes sigue vaja a menos por las muchas haziendas de trapiches q[ue] en estos valles[,] los de Lima y otras partes se estan fundando como es notario....²⁸

[there is no hope for an increase in the current price of sugar; rather, it should continue decreasing, because of the well-known fact that many sugar-producing estates are being established in these valleys, those near Lima and other areas....]

No new large-scale sugar producing operations were established in the Valle Viejo after 1700 and the small-scale trapiches set up by the Indians did not present serious competition. Therefore, local competition did not increase significantly; but competition from estates in other coastal valleys, especially those closer to Lima, was substantial. Sugar's previously high price certainly attracted competitors. By the end of the eighteenth century sugar estates had been established in nearly

28. Frédéric Mauro, L'Expansion Européenne (1600-1870) (Paris, 1964), pp. 304-5.

every coastal valley between Lima and Lambayeque. Of 44 estates in the valleys close to Trujillo, 18 specialized in sugar. The Jesuits owned at least 14 large sugar estates in the valleys of Ilo, Pisco, Chíncha, Rimac, Chancay, Huaura, Santa, and Lambayeque.²⁹

Likewise, sugar production was spreading to temperate highland valleys. The owner of Pomalca supervised the construction of a trapiche sent to the northern sierra in the early 1770s. Thereafter, shipments of sugar and molasses to the region's highland buyers ceased. The Informaciones Geográficas for other districts in Peru mention sugar estates in the highland valleys of Abancay, Aymaraez, and Urubamba. Growing conditions in highland valleys were inferior to those on the coast, but high transportation costs protected the less efficient operations. Thus, since there is no reason to believe that aggregate demand for sugar was declining, it must be concluded that production was clearly outstripping any rise in demand due to population growth or increased consumption.³⁰

The loss of traditional Peruvian markets was certainly a heavy blow for the sugar industry of Lambayeque; but of equal or greater importance was the loss of markets outside the Viceroyalty. The second half of the seventeenth century saw the sugar industry take root and grow in the Antilles. By the eighteenth century, the Antillean producers were among the most efficient and prosperous in the world. As previously noted, one of the Valley's principal outlets was the Portobello fair. Antillean producers were certainly in a more advantageous position than Peruvian producers to supply Panama and other nearby markets. The suppression of the flota system by the Crown in 1740 and the subsequent disappearance of the Portobello fair permanently ended all shipments to this northern market. In the documents utilized in the present study, no reference is made to the formerly important Panameñan market after the middle of the eighteenth century.

Likewise, the Bourbon free-trade policies initiated in the late 1770s and the opening of the port of Buenos Aires further restricted the Valley's market. Hacendados believed that one reason for their continuing troubles was the import of cheaper Brazilian sugar into the Spanish empire through this port. The Valley's sugar was confined to the southern markets of Trujillo and Lima.³¹

Increasing Production Costs

While prices dropped, the cost of producing sugar increased. Lime, used to control the acidity (ph) of the sugar and in construction,

29. Macera, pp. 8-9; Macera and Márques, pp. 146-203.

30. Macera and Márques, pp. 146-203; AAT, Testamentos, 1779, p. 132.

31. Haring, pp. 314-16; Macera and Márques, pp. 148-49; Carlos Malpica, Problema de la Tierra, p. 162.

doubled in price during the century.* Corn cost eight reales per fanega in 1669 and twelve to sixteen reales in the early 1740s. By 1763, an equal measure of corn cost 20 reales, increasing to 24 reales per fanega in 1776. The price of oxen climbed by 33 percent during approximately the same period.** The cost of cloth remained unchanged between 1744 and 1776, as did the prices of salt and beans.³²

The cost of labor is harder to compute than it is for commodities, because the price of slaves--the principal source of manpower until this time--varied widely according to age, sex, skills, and health. African-born slaves cost more to replace after 1720, although the data on hand are insufficient to ascertain precisely the extent of their increased worth. If origin is disregarded, the price of unskilled, prime-aged (18 to 45 years old) male slaves clearly rose. In 1741, the average price of a slave on Pomalca with the above characteristics was 385 pesos; in 1755, the value of such a slave was 440 and in 1781, it was 495.³³

One reason for the rising cost of slave labor was its relative scarcity. The dearth of slaves, already evident late in the seventeenth century, became more acute as the eighteenth century progressed. Warfare and the suppression of the flota system disrupted the flow of slaves as well as other goods to the South American colony. In addition, the rapidly developing and prosperous Antillean sugar industry provided a more readily accessible and probably more profitable alternative to slave traders than the Peruvian market. Undoubtedly, the prices offered by Peruvians were uncompetitive and generally too low to compensate shippers for the additional distance that their human cargo had to be transported and the higher risks that death would result in total loss. Hacendados complained of their inability to acquire needed slaves even when funds were sufficient for purchase.

Thus, owners without this recourse turned increasingly to hired labor for both skilled and unskilled jobs. While Indian peons continued to be used for extraordinary and seasonal tasks, such as cleaning the acequias, hacendados became more and more dependent on them for such routine functions as tending livestock, cultivating and transporting cane, and cutting wood.

Account books provide a clue as to how Indian peons were recruited and why there is no evidence of debt peonage in hacienda y trapiche

*Lime increased from four reales to seven and eight reales per fanega between 1742 and 1776.

**An ox cost six pesos in 1742 and eight pesos in 1779.

32. AN, Derecho Indígena y Encomienda, L. 15, C. 349, 1773; BN, B1737, 1669, pp. 9v and 17v; AN, Gremial, 1743-50; AAT, Testamentos, 1717; 1742; 1743, pp. 36v, 307-8; 1763; 1779, p. 203v; AN, Temporalidades, 1767, p. 117.

33. AAT, [1742]; AAT, Testamentos, 1743, p. 100; 1779, pp. 195v-97.

records. Caciques and individual creole and mestizo contractors recruited peons. For example, Indians became indebted to a mestizo or creole recruiter, known as a contratista, who advanced the peon money or goods in return for labor services to be rendered on the sugar estates of the Valle Viejo. The hacendado provided such peones contratados with food and drink on the job, but paid their wages to the contratista. The contratista credited part of the sum to the peon's account, paid part in cash to the workers, and kept part as his commission and interest. Thus, the sugar estates did not rely upon resident "debt peons," but rather upon peons indebted to an outside agent.*³⁴

Hacendados also hired individual Indian peons with oxen and ploughs to prepare fields for planting who came only when specifically contracted for a job by the day. Usually, a few free blacks, mestizos, and/or mulattos completed the hired labor force on the estates. As a result of the intensified demand for Indian and other free workers, wages rose from two reales per day to three, plus food, during the second half of the eighteenth century.³⁵

Natural Disasters

Major floods in 1720 and 1728 compounded the estates' problems and turned stagnation into decline and ruin. Estates planned on some water damage yearly and geared their production cycle accordingly. The instructions left by a Jesuit visitador for Tuman's manager in 1743 show that the estate took precautions each year to guard against possible water damage. The instructions warned managers to stock up on flour, corn, beans, and meat before February or March, because rains cut off supplies from the sierra and surrounding valleys. Sugar should be sent to Lima before that time to prevent spoilage and loss. Any sugar remaining on the estate should be packaged or wrapped carefully to protect it from dampness. Grease, it was suggested, should be applied to mud and adobe roofs to forestall their collapse in even light sprinkles. If water penetrated buildings, ditches should be dug in the floors for drainage.³⁶

These preparations were far from sufficient to save Tuman and its neighbors from the ravages of the Rio Lambayeque in 1720 and 1728. Both years were "años de aguaceros irregulares" that ruined the entire province.³⁷

*The system persisted and increased in importance until the 1960s.

34. AAT, Testamentos, 1779, pp. 67v, 132.

35. AAT, Testamentos, 1744; AAT, Testamentos, 1742; AN, Tierras y Haciendas, L. 13, C. 124, 1802, p. 63v; AN, Gremial, 1743-50.

36. Macera, pp. 78-85.

37. Rubiños y Andrade, p. 320.

A massive cooperative effort was necessary for the repair of the Valley's irrigation system. The Indian communities of Ferreñafe and Lambayeque supplied labor; estate owners contributed foodstuffs and animal power for the reconstruction and repair of the Canal Tayme. The communities of Reque and Monsefú and La Punta and Sipan undertook similar concerted action to repair the Rio Reque.³⁸

During the period of repair and reconstruction, Seña and the other hacendados of the Valle Viejo had to feed their slaves and hired workers. Food prices skyrocketed. To cite just one example, the price of corn increased from two pesos per fanega to nine.³⁹

The effects of the flood were long felt. In the Valle Viejo, most of the cane and all of the alfalfa were uprooted. The destruction of the acequias deprived the haciendas y trapiches of water for months. Sipan, for instance, remained without water for almost a year after the 1720 disaster, making replanting impossible. After the acequia became functional, 18 months or more elapsed before the first new cane was ready to cut. Most haciendas y trapiches, therefore, lost about two years' production and income.⁴⁰

A second flood occurred in 1728. Residents of partially rebuilt Zaña abandoned it definitively to take up residence in Lambayeque and Chiclayo. Again the estate owners were unable to produce and forced to make significant outlays to repair and reconstruct their production facilities.

Economic and Social Consequences of the Crises

Even before the floods, the stagnating effects of the cost-price squeeze were beginning to be felt by the hacendados of the Valle Viejo. By reducing profit margins, the cost-price squeeze caused a halt in the expansion of the area under cultivation and of processing facilities. The construction of new irrigation canals designed to bring additional land into production stopped; owners acquired no new capital equipment (e.g., trapiches) to increase processing capacity. The rise in the cost of slaves led hacendados to depend on hired labor for both seasonal and routine work. Fewer capellanias and obras pias were founded. The absence of any record of bankruptcy proceedings or sales for debt suggests that the estates managed to survive the crisis by cutting back on unnecessary expenditures and by decapitalizing.

To maintain former standards of living and continue producing, owners borrowed heavily, and, notwithstanding these advances, fell into arrears

38. AAT, Causas, 1737; Macera and Márquez, p. 82; ANCR, Sipan, 1720, pp. 7, 32.

39. AAT, Testamentos, 1752, p. 158.

40. ANCR, Sipan, 1720, p. 32.

on their interest payments. After the disasters sugar prices continued low, and technology and productivity remained unchanged. Any surpluses from the estates were never sufficient to compensate for the setbacks of 1720 and 1728.

Accumulation of Debts, Bankruptcy, and Sales

Debt became the most serious problem facing the large landowners. Interest on censos was collectable even when the estates were unproductive. Therefore, during the 1720s interest on capellanias and various other legacies accumulated as debt. Debts went unpaid in 1720 with few problems, because both the estate owners and their creditors expected a relatively rapid recovery. Apparently, in only one case were creditors insistent upon collection.

After the 1728 flood the burden of debt led to bankruptcy proceedings and the sale of estates on an unprecedented scale. Usually, creditors initiated these proceedings after the owner's death. When Don Francisco de Seña y Chirinos died in 1739, creditors pressed his heirs to sell Pomalca and his other property to satisfy their claims. Likewise, Calupe was deeply in debt at the death of its owner, Don Antonio González Casana. Pedro, Don Antonio's son, had arranged in 1731 to acquire Calupe after his father's death by paying 80,000 pesos.* He took possession in 1740. His father's creditors, among whom was Don Francisco Malerva, his father's agent in Lima, pressed Pedro for satisfaction of the debts. Don Pedro managed to secure financial backing and hold onto Calupe until 1756, when the estate was embargoed and placed under church administration. The immediate reason for the take-over was the death of sixty slaves, a major financial loss that deprived Don Pedro of the means with which he had hoped to become solvent.⁴¹

In other cases, owners declared themselves bankrupt to prevent sinking deeper into debt. For example, after Don Francisco de Seña's death, General Domingo Navarrete y Fernández, a Spaniard and ex-Corregidor and Justicia Mayor of the district of Chiclayo (1734-40), and Baltazar de Ayesta, a wealthy Limeñan merchant, bought Pomalca in partnership. Navarrete acted as resident administrator on the estate, while Ayesta served as the agent in the capital. Together they invested thousands of pesos to improve the irrigation infrastructure and restock Pomalca with capital equipment. Although they set aside 7,000 pesos with which to purchase slaves, these were never acquired, because of their extreme scarcity in the Viceroyalty. Unable to secure the needed labor for full production and, consequently, without the means to pay the accumulating interest, Navarrete decided to give up the estate. In explaining his reason for breaking his contract with Ayesta and for declaring bankruptcy, Navarrete said that Pomalca was decadent, unproductive, and unprofitable.

*The amount actually paid in cash was 80,000 pesos minus the value of the censos recognized by the estate.

41. AAT, Testamentos, 1757, pp. 45-45v and 74v.

A summary of the accounts for the years 1743 to 1750, submitted to the Real Audiencia in Lima in the suit to terminate the partnership, showed a deficit of 6,631 pesos 2 reales.⁴²

Such bankruptcies produced costly disruptions of production on the sugar estates. Concursos de acreedores, or bankruptcy proceedings, implied lengthy lawsuits during which the hacienda y trapiche was placed under church or state administration while creditors submitted documentation to substantiate their claims. Inventories and itemized assessments were taken. Judges, notaries, and various religious and state officials (the fiel executor, defensor de obras pias, defensor de menores, etc.) had to be present and paid. The administrator of an estate under deposit earned 1,000 to 1,200 pesos annually. These extra costs were added to the amount already due and deducted from the money an estate earned or from the purchase price upon its sale.⁴³

The recurrent pattern of debt, bankruptcy, deposit, and sale led to plummeting real estate values. Calupe, appraised in 1741 at 52,499 pesos, sold for 16,100 pesos in 1762. Sipan's value dropped from 25,000 pesos in 1719 to 11,100 pesos in 1752 and 8,000 pesos in 1761.⁴⁴

A very rough measure of this economic stagnation and degeneration is apparent in the amounts paid for the right to collect the diezmos (tithes) in the district of Chiclayo. The ecclesiastical authorities in Trujillo auctioned the right to collect the diezmos in Chiclayo to the highest bidder every two years. All agriculturalists had to pay a theoretical ten percent of the commodities produced for sale. The difference between what the highest bidder collected, after costs, and what he paid for the privilege was his profit. Therefore, the amount someone was willing to pay for the collection privilege affords a general standard by which to judge local agricultural prosperity and reflects the total value of commercial agricultural production in the Valley.

The use of diezmo figures as an agricultural barometer for the Lambayeque Valley can, at best, show general trends. Together the six sugar estates accounted for the bulk of the Valley's commercial production and sales, but the sensitivity of the diezmo figures to the sugar industry's relative well-being is tempered by the fact that the two estancia owners and the Indian communities of Chiclayo, Reque, and Eten also paid tithes on their produce. In general, the prices of hides, soap, foodstuffs, etc., produced by the estancias and Indian communities remained constant or increased during this period--making up, in part, for the low value of sugar.

42. This is the only example of accounts kept by the owner himself. AN, Gremial, 1743-50, p. 103; AAT, 1742, pp. 7-7v.

43. AAT, Testamentos, s/f; AN, Temporalidades, 1767, p. 106.

44. ANCR, Sipan, 1720; ANCR, Sipan, 1761, p. 42; AN, Terran, p. 496, 3 October 1752, p. 81v; AAT, Testamentos, 1743, p. 57v; 1750, pp. 2v, 85; 1758, p. 217.

The available data presented in Table V indicate a pronounced downward trend between the seventeenth and eighteenth centuries.

TABLE V

Amount Paid for the Right to Collect the Diezmos
in the Partido de Chiclayo and Anexos Various
Dates, Seventeenth and Eighteenth Centuries

Years	Highest Bid/2 yrs. (in pesos)	Years	Highest Bid/2 yrs. (in pesos)
1625-26	4,500	1697-98	3,250
1629-30	4,900	1705-06	4,350
1637-38	5,400	1707-08	4,000
1649-50	4,200	1709-10	4,400
1653-54	4,400	1717-18	3,300
1657-58	4,750	1757-58	2,000

Source: AAT, Diezmos, for the years and place cited.

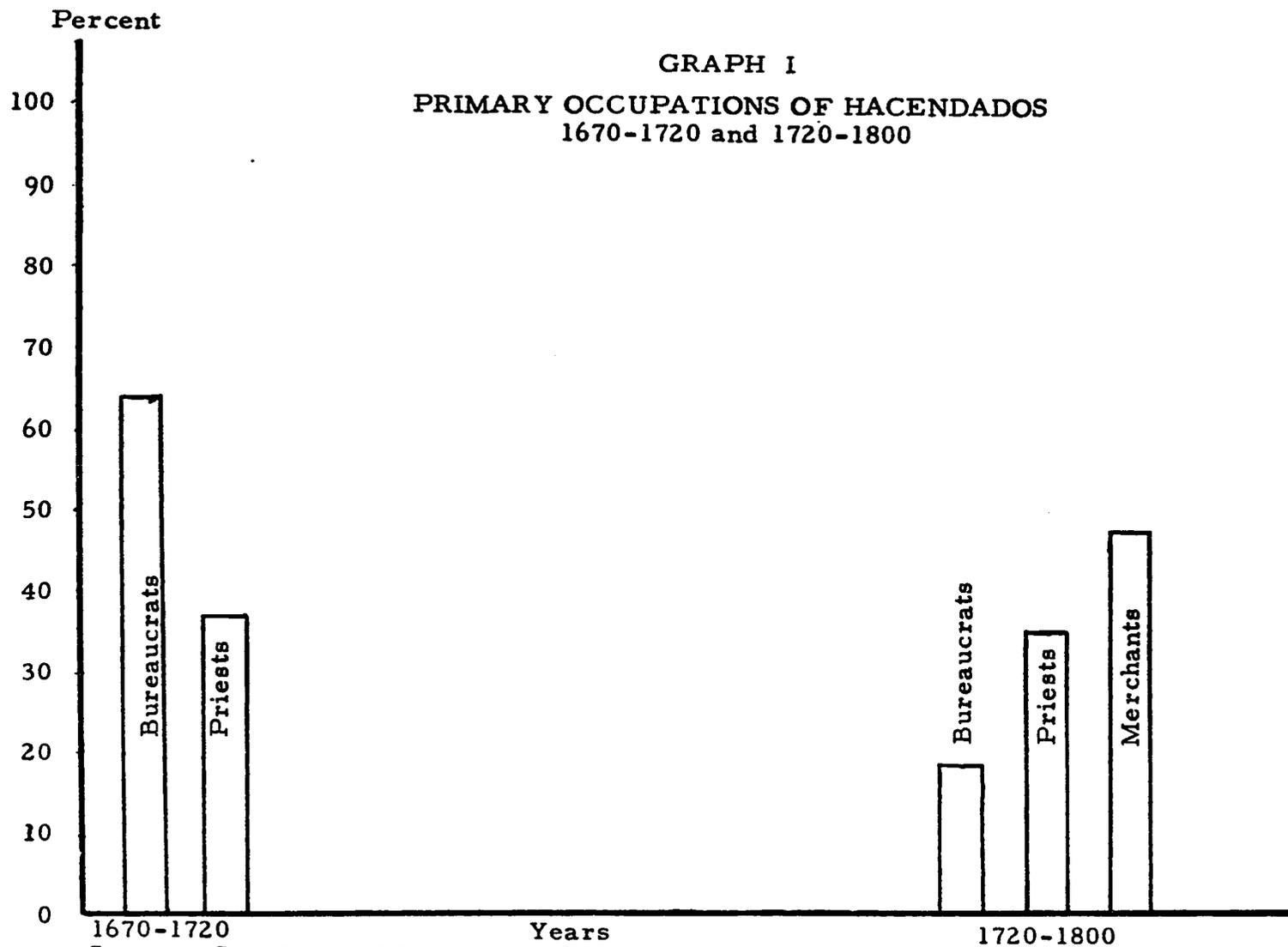
Ownership and Financing

Information on the occupations and business interests of a majority of the post-1720 sugar estate owners is available. (See Appendix I.) On the basis of these data it appears that estates passed from the hands of an elite of high-level government functionaries or bureaucrats, through the hands of priests, and, finally, into the hands of merchants or businessmen. A comparison of the primary occupations of the hacendados between the prosperous and the decadent phases of the estates' development is presented in Graph I. Apparently, priests and businessmen, especially those who had made their money through commerce, were the only members of society with the resources and the motivation to buy property at this time, even at bargain prices. (See Table VI.)

Secular priests owned four of the six estates at one time or another after 1720. Purchase, inheritance, and transfer were the mechanisms by which the priests acquired the estates.

Although the information is spotty, it appears that during the eighteenth century businessmen gradually displaced priests as owners of at least four of the six estates.* Purchase was the means of acquisition in each case.

*Biographical information on the owners of Calupe and La Punta is incomplete. Future research may indicate that Don Pedro González Casana, Don Pablo Vélez, owners of Calupe between 1740-57 and 1789-1814,



Source: See Tables III and VI.

Known N = 11
Unknown N = 4

Known N = 18
Unknown N = 7

TABLE VI

Selected Biographical Information for Owners of the Sugar Estates, 1720-1800

Owner	Estate.	Dates of Ownership	Place of Birth	Occupation	Locally Married	Place of Residence
Capitán Antonio González Casana	Calupe	1719-1739	Chiclayo	n.a.	yes	Zaña
Don Pedro González Casana	Calupe	1740-1757	n.a.	n.a.	n.a.	Chiclayo
Licenciado Rafael Vélez	Calupe	1762-1789	n.a.	Priest	--	Lambayeque
Don Pablo Vélez	Calupe	1789-1814	Chiclayo	Bureaucrat	n.a.	Chiclayo
Dr. Joseph Laso de Mogrovexo	Luya	1745-1775	Spain	Priest	--	Ferreñafe Trujillo Lima, Luya
Dr. Francisco Martínez de Tamayo	Luya	1775-	n.a.	n.a.	n.a.	n.a.
Pedro Fernández de la Coterá	Luya	ca. 1782	Spain	Merchant Bureaucrat	yes	Lambayeque
General Don Domingo Navarrete y Fernández	Pomalca	1742-1750	Spain	Bureaucrat	yes	Lambayeque
Don Balthazar de Ayesta	Pomalca	1742-1750	n.a.	Merchant	no	Lima

Don Francisco Malerva	Pomalca	1768-1775	Chiclayo	Priest Merchant Tina Owner	--	Chiclayo
Don Juan Alexo Martínez de Pinillos	Pomalca	1784-19th century	n.a.	Bureaucrat Merchant	no	Trujillo
Don Juan José Martínez de Pinillos	Pomalca	1784-19th century	n.a.	Bureaucrat Merchant	no	Trujillo
Capitán Matias de Ripalda	La Punta	1724-1742	Cuenca	n.a.	yes	n.a.
Doña Tomasa de Saavedra Viuda de Ripalda	La Punta	1742-1764	Lambayeque	No position	no	Lambayeque
Licenciado Feliciano de Ripalda	La Punta	1764-1778	n.a.	Priest	--	Lambayeque
Licenciado Matias Villodas	La Punta	1778-1784	n.a.	Priest	--	n.a.
Capitán Manuel Antonio Quiñones	La Punta	1784-1802	Chiclayo	Bureaucrat	no	Chiclayo
Don Valentín de Aguilar	Sipan	1725-	n.a.	Shipowner	n.a.	Lima
Don Francisco Pimentel y Sotomaíor	Sipan	1746-1751	Peru	Shipowner	n.a.	Lima
Licenciado Bonifacio J. Gastelu y Robles	Sipan	1752-1755	Peru	Priest	--	Motupe

(TABLE VI continued)

Owner	Estate	Dates of Ownership	Place of Birth	Occupation	Locally Married	Place of Residence
Don Pedro Gastelu	Sipan	1755-1761	n.a.	n.a.	n.a.	n.a.
Don Pedro de Ribas y Lupianes	Sipan	1761-	n.a.	Priest	n.a.	n.a.
Don Miguel de las Torres y Zánchez	Sipan	ca. 1797	n.a.	n.a.	n.a.	n.a.
Don Antonio Sánchez Navarrete	Tuman	1786	Quito	n.a.	n.a.	n.a.
Don José Antonio Muñecas y la Guarda	Tuman	1792-1804	Spain	Bureaucrat Merchant	no	Lambayeque

The new owners initiated several projects designed to capitalize on the estates' potential. Several experimented with new crops. Under Malerva, for example, Pomalca produced cotton and indigo as cash crops besides sugar and molasses. Aguardiente, previously produced exclusively for internal consumption, began to be made on an expanded scale for the local market. Innovations also included more intensive use of marginal land. Malerva commenced planting corn to feed pigs, which he raised primarily for lard. La Punta's owner started supplying legia (lye) to the tinajas y tenerias in the Valley. Tobacco began to be cultivated directly by the estate owners on a large scale for the Real Estanco (Crown Monopoly). By 1790, 6,000 fardos (bales) were annually sent from the Factoria of Chiclayo to Callao and Valparaiso. Rice, too, became a commercial crop.⁴⁵

In 1767 Tuman was already producing these products. Later, owners increased the product mix to include honey, grapes, corn, and fruit. Sugar continued to be manufactured, but on a much reduced scale.⁴⁶

The new owners had to have independent sources of income for acquisition of the property and its continued operation, given that inheritance of sugar estates was of little importance after 1720. Of 32 known property transfers between 1720 and the end of the century, 22 were by sale, 4 were by inheritance, and 2 were by other means. (See Appendix I.) No information is available on four of the transfers. Also, because the cost-price squeeze and the natural disasters of 1720 and 1728 no longer permitted the estates to be largely self-financing, many owners sought church loans to finance estate operations and innovations.

The manuscripts available reveal that priests had several sources of income which could be used to finance the acquisition of an estate and its operation. Probably the least significant source of income was the support clergymen received from the Crown. More important was the income derived from capellanias and other legacies. Most clerics served several simultaneously and received an annual interest of five percent of the principal on each. Thus, the capellania founded by Don Francisco de Seña for 10,000 pesos guaranteed the sum of 500 pesos to the beneficiary each year (before it was "lost" in a concurso de acreedores in the late 1750s).

It is impossible to determine the total income received by a clergyman from these legacies, but the amount was probably significant.

(Note continued) respectively, and Capitán Manuel Antonio Quiñones, owner of La Punta from 1784 to 1802, also were engaged in business activities outside the sugar industry.

45. AAT, Testamentos, 1775, p. 1; Don Teodoro de Croix, "Memoria," M. A. Fuentes, ed., Memorias de los Virreys..., II (Lima, 1859), p. 267.

46. Macera, pp. 47-48; Macera and Márquez, pp. 177-78.

Licenciado Feliciano de Repalda, owner of La Punta (1764-1778), for example, served so many capellanias that he renounced one for lack of time to fulfill the obligation of saying the masses.⁴⁷

Although lists of the legacies served by the priest-owners of the haciendas y trapiches are unavailable at this time, an idea of the amount of income earned by one priest is indicated by the following example. During the first third of the eighteenth century, Licenciado Nicolás de Valderas, a local priest, served six capellanias whose principal totaled 24,000 pesos. From these sources alone he earned 1,200 pesos a year.⁴⁸

Nevertheless, it is unlikely that the income from legacies and that from other clerical duties would alone be sufficient to buy and/or run an estate. Therefore, a priest would have had either to inherit an estate and some capital or to be engaged in other lucrative business activities.

Two priests, Don Rafael Vélez and Don Francisco Malerva, clearly exemplify clerics engaged in business who invested their profits in sugar estates. Don Rafael Vélez owned a tina y teneria situated near the community of Lambayeque and many herds of goats which he grazed on the surrounding pasture. He also owned an estancia of beef cattle in the province of Olmos, some leagues to the north. As Table VII shows, the price of soap had increased over the century. Vélez used the profits from his tina to buy and refurbish Calupe.⁴⁹

Francisco Malerva, another clergyman engaged in business, was born in the Valley and studied in Lima. Apparently, he initially made money as the agent in Lima for the owner of Calupe in the 1740s. Twenty years later, he returned to Chiclayo and in 1763 bought the estancia of Collus and its tina and teneria. He also acquired the Hacienda of Janque, near Piura, a half-dozen houses and several stores in Chiclayo which he rented. In 1768 he bought Pomalca. His correspondence and estate accounts show that he utilized capital produced from his urban real estate and the tina for investment in Pomalca.⁵⁰

Similarly, merchants and shipowners used the profits from their commercial activities to acquire and operate the estates.

Finally, both priests and businessmen tapped ecclesiastical sources of funds for operating expenses and innovations. Unfortunately, lists of mortgages for only one estate are complete enough to document a suspected general trend toward increasing reliance on short-term loans from

47. AAT, Capellania, 1793-1818.

48. AAT, Visita, 1784; AAT, Testamentos, 1742.

49. AAT, Testamentos, 1772, 1775, and 1777.

50. AAT, Testamentos, 1743, 1775, and 1777.

TABLE VII

Price of Soap, 1668 to 1795

Year	Price per quintal (in pesos)	Notes
1668	11.5	Local price
1746	12	Local price
1772	12	Price in Trujillo
	15 -18	Price in Lima
1776	10 -12	Local price
	12.5-14	Price in Lima
1784	14	Local price
1794-95	17.5	Local price
	24	Price in Lima

Sources: AN, Real Audiencia, L. 173, 1668; AAT, Testamentos, 1775; AAT, Testamentos, 1746, 1776, 1779, 1784, 1794-95.

ecclesiastical institutions. La Punta recognized two capellanias worth 7,000 pesos in 1700, so that there was no dependence on external ecclesiastical financing. In 1741, out of a total of 10,820 pesos, 6,720 pesos, or 62 percent, represent three capellanias, and 2,000 pesos, or 18 percent, short-term institutional loans. The source(s) of 2,100 pesos (19 percent) could not be determined. Thirty-seven years later, 53 percent of the loan capital had been borrowed from the church.⁵¹

Qualitative evidence in the form of private correspondence between Don Francisco Malerva, Pomalca's owner, and his agent in Trujillo, Don Silvestre Montalvo, shows the importance of church-administered capital for agricultural activities in the Valle Viejo. Without new foundations of capellanias and obras pias, the traditional source of investment funds, Malerva depended on church loans for much of his working capital. Montalvo, who also was the Cura Rector of the Cathedral of Trujillo, arranged for needed loans at Malerva's bidding and paid the interest.⁵²

La Punta and Tuman

Pomalca, Calupe, Sipan, and Luya were the first estates to experience general stagnation and decadence. Both La Punta and Tuman avoided this enervation and continued to grow (measured by number of slaves and

51. AAT, Capellania, 1804; AN, Real Audiencia, L. 9, C. 97, 1801; AAT, Capellania, 1773.

52. AAT, Testamentos, 1779, pp. 223-25, 292; AAT, Capellania, 1804; AN, Real Audiencia, L. 9, C. 97, 1801; AN, Tierras y Haciendas, L. 22, C. 198, 1784, pp. 75v and 126v.

area cultivated) until the late eighteenth century--1784 and 1789, respectively. Inventories show that both estates maintained over 100 slaves, while the slave populations of their neighbors aged and dwindled. This anomaly or time lag can be partially explained by the fact that as the two largest and possibly most efficient producers in the Valley, they remained profitable longer. Moreover, any cutback in production on these two estates signified a greater loss than on the other four, because of higher fixed costs.

Furthermore, La Punta's delayed decline can be attributed to the fact that it remained in one family for several generations; the estate thereby avoided the disruptive effects of church or state administration and the cost of concursos de acreedores. Also, La Punta was never as heavily mortgaged as some of the other estates. The ratio of foundations to value was always relatively low. When mortgages on Luya amounted to 94 percent of its total value and Sipan was mortgaged for more than its total worth, La Punta recognized mortgages equal to only a third (1764) of its value. (See Table VIII.) Moreover, La Punta's owner, as a priest, was the beneficiary of at least a fourth of the debt; non-payment to himself was equivalent to a 25 percent reduction in expenditures.

Apparently, however, La Punta was not profitable; debts, although accumulated more slowly, finally forced the estate's sale. In 1778, Licenciado Feliciano de Ripalda, the estate's owner, donated it to his nephew, Licenciado Matias Villodas, as recompense for having paid his bills for several years. By solving the problem of debt within the family, the estate was spared the disruption of expensive and time-consuming litigation. The sale of La Punta by Villodas in 1784 marked the beginning of problems with financing, lawsuits, embargoes, and sales.

Tuman also escaped the enervating procedure until late in the century, because it was owned by the Jesuits until 1767 and then state-administered until 1786. It seems that both the Jesuits and the state subsidized Tuman at different times during the eighteenth century. Before 1767, Tuman's advantage lay in the Jesuit policy of economic expansion and their ability to raise large amounts of capital. The Compañía's system of internal finance made it possible for profits from one estate or school, or for money obtained through donations, to be used to revitalize other property. Pablo Marcera Dall'Orso cites several examples of such renovations in his book, Instrucciones para el manejo de las haciendas Jesuitas del Perú. If the property failed to make a return on the invested sum, the Order made up the difference from funds destined for obras pias. When Viceroy Amat ordered the Jesuits expelled and their property confiscated, he also recommended that this system of internal finance and the policy of "inversión y revalorización agrícola" ["investment and agricultural refurbishment"] be continued. Tuman, once sold to private citizens, experienced the same troubles as outlined above for the other estates.⁵³

53. The quote is cited by Macera, p. 23. See also pp. 15-19 and 27.

TABLE VIII

Mortgages as a Percent of the Total Value of the Sugar Estates,
Various Dates, Late Seventeenth and Eighteenth Centuries

Estate	Year	Amount of Censos (in pesos)	Total Value* (in pesos)	Percent
Calupe	1693	17,350	67,000	21.0
	1704	20,000	55,000	36.0
	1719	41,100	58,500	70.0
	1741	37,358	52,499	71.0
Luya	1698	4,000	12,000	33.0
	1712	12,000	34,305	35.0
	1717	8,000	40,000	20.0
	1745	15,000	23,000	65.0
	1768	17,000	18,000	94.0
Pomalca	1699	7,500	15,325	49.0
	1742	25,000	40,000	62.5
	1784	13,688	23,150	59.0
La Punta	1764	20,000	60,000	33.0
	1784	43,000	58,000	75.0
Sipan	1719	16,300	25,000	65.0
	1752	9,000	11,100	82.0
	1761	9,000	8,000	112.5
Tuman	no data available			"

*The figures presented under the rubric "Total Value" in Table VIII represent (i) assessed value as reported in inventories or appraisals of the period or (ii) purchase price as quoted in bills of sale.

Sources: AAT, Testamentos: 1703; 1704, p. 6v; 1742, p. 102; 1743; 1744, p. 34; 1753; 1766, p. 53; 1784; s/f; An, Real Audiencia, L. 9, C. 97, 1801; AN, Tierras y Haciendas, L. 22, C. 198, 1784, p. 69v; AN, Tierras y Haciendas, L. 28, C. 261, 1789; ANCR, Sipan, 1720. pp. 1v, 5; ANCR, Sipan, 1761, pp. 31 and 38; ANCR, La Punta, [1803], p. 97.

The examples of Tuman and La Punta show that the price decline, rising costs, and natural disasters are insufficient to explain the ruin of the sugar estates. In contrast to the previous years of vigorous expansion, the cost-price squeeze led to stagnation, but was not sufficient by itself to cause serious economic hardship. The floods of 1720 and 1728, by disrupting production for several years and causing costly property damage, sunk at least four of the estates into debt.

The mounting debt burden and the inability of the owners to generate or mobilize capital because of continuing low prices, stiff competition, and rising costs, were necessary to precipitate bankruptcy and forced sales. The resulting expense of prolonged legal proceedings and the associated interim management only aggravated the drain of the rural economy and hastened ruin. Tuman and La Punta remained viable operations even under the adverse market conditions until their owners' ability to obtain credit made escape from debt and its ramifications impossible.

IV. CONCLUSIONS

Summary

I have attempted to describe and analyze in socio-economic terms the sugar estates of the Lambayeque Valley during 130 years of their colonial development. The continuities and changes during this time are related in two parts. The first section provides a description of the estates' organization of production during the prosperous period of their development--roughly between 1670 and 1720--and, as such, is a prelude to later analysis. The haciendas y trapiches are depicted as vast estates whose arable land was dedicated primarily to the cultivation of cane. The supply of water and workers acted as the major restraints on the area and degree of intensive land use. Given the pre-industrial level of technology, cane cultivation and processing were labor-intensive activities. Negro slaves, mixed bloods, Europeans, and Indians worked together and gave rise to a multi-tiered social structure on the estates. As long as prices for sugar remained relatively high, the estates prospered and expanded without dependence on large influxes of outside capital. Finally, the sugar estates, far from being self-sufficient, were production units caught up in and dependent upon a complex economic web of trade relations with both their immediate hinterland and distant markets.

Conditions changed in the eighteenth century. The high sugar prices enjoyed during the late seventeenth century undoubtedly attracted competitors. As a result, prices spiraled downward, while costs remained stable or increased. This cost-price squeeze was further complicated by the two major floods in 1720 and 1728. The loss of markets compounded the estates' problems and precipitated a series of bankruptcies and forced sales which disrupted production and sent rural real estate values plummeting.

The practical effects of these changing circumstances on the organization of production on the sugar estates after 1720 were several. Without major technological innovations, the demand for labor remained high. The loss of mitayo labor in the early years of the eighteenth century and the scarcity and rising cost of Negro slaves forced hacendados to rely increasingly on free labor for both skilled and unskilled tasks. Secondly, the estates lost their status as largely self-financing entities and became more and more dependent on outside loans, especially

from ecclesiastical institutions. Partnership was another mechanism used to pool resources and lessen reliance on borrowing. The prevailing adverse economic conditions led to a change in owners who particularly after 1750, abandoned monocultural production and diversified. A general pattern of bureaucrat-priest-businessman characterized the progression of individual landownership over the 130 years of the study.

The hacienda y trapiche, in short, was a dynamic and changing institution. The modifications in the organization of production which occurred after 1720 were rational adaptations to shifting conditions. The degree and direction of change were functions of the potentialities of local conditions and the external factors discussed above.

Areas for Further Research

This essay should be regarded as a first step, however incomplete, toward a definition of the agrarian history of the Lambayeque Valley and, by extension, the north coast of Peru in the late seventeenth and eighteenth centuries. The discussion raises many questions: some of which are commented on in the text and others which are only suggested. Such basic issues as the role and importance of smallholders, the definition and extent of monocultural production, and the economics of free versus slave labor require further study. The documentary sources on the last point leave the impression that the hacendados preferred slave labor, despite its high initial cost of acquisition and the continuing costs of maintenance. Was not free labor more economical? The changing demographic characteristics of the slave populations and the related problems of labor supply and recruitment are two additional areas requiring future attention.

Likewise, a social analysis of the owners promises rewards. An account of the ties among different families in the landowning elite, a definition of the landowners' position as a vested interest group in local politics, and the documentation of their political power and influence are all aspects of the social history of the Valley which merit clarification. Biographical information would also be invaluable in determining the validity of the impression that in the seventeenth century, hacendados began their careers as government officials, only subsequently acquiring land; while in the eighteenth century, men began as merchants, used the profits to invest in land, and, having become landowners, entered the ranks of local bureaucrats (i.e., that land was an accepted means of acquiring prestige and gaining upward social mobility).

A second group of questions raised here is less obvious but no less essential to an understanding of the historical events. For example, when did the boom phase of sugar production begin in the Valley? On this point all we know is when the estates began production (about 1650). Dating the start of the boom rests, in part, on the compilation of sugar prices from the date of the introduction of this crop in the Valley to 1693. Another major area left almost unexplored in this paper is the impact of government policy in the Valley Viejo, especially under Bourbon

direction. The relaxation of trade restrictions and the introduction of the tobacco monopoly are the only two programs mentioned. Free trade hurt sugar production, while the tobacco monopoly probably stimulated the direct cultivation of that crop by estate owners. The alcabala (sales tax) was increased from four to six percent in 1776, but its effect on marketing and profitability could not be documented.⁵⁴ Finally, one cannot talk about the sugar industry in the Valley in a vacuum. Further work is needed to show to what extent the developments in the Valley mirrored general economic conditions in the Viceroyalty and the rest of Latin America.

54. Pedro Dávalos y Lissón, História republicana del Perú, vol. I (Lima, 1931), p. 107; Virgilio Roel, História social y económica de la colonia (Lima, 1970), p. 245.

APPENDIX I
Chronology of Landownership
1670-1800

Date	Owner	Mode of Acquisition	Area	Population	Total Value	Value of Censos
1692	Núñez de Alzo	purchased	433 fanegadas			
1693	Bachiller Francisco de Palma y Vera	purchased from Núñez de Alzo		49 slaves	67,000 pesos	17,350 pesos
1695	Jesuits	donation from Palma y Vera		52 slaves	55,000 pesos	
1704	Capitán Nicolás de Urrutia Gallardo	purchased in public auction after released by Jesuits	433		55,000 pesos	20,000 pesos
1715	Don Bartolomé Pérez Zavala	purchased in public auction held to dispose of Urrutia's estate	433	100 slaves	41,000 pesos	
1719	Capitán Antonio González Casana	purchased from Pérez Zavala	433	52 slaves	58,000 pesos	41,100 pesos
1731	Don Pedro González Casana	purchased from his father	434	83 slaves	80,000 pesos	30,000 pesos

Date	Owner	Mode of Acquisition	Area	Population	Total Value	Value of Censos
1740	Don Pedro González Casana	took possession after father's death			52,499 pesos	37,358 pesos
1757	Church administered					
1762	Licenciado Rafael Vélez	purchased in auction of González Casana's goods	433 fanegadas	30 slaves	16,100 pesos	
1789	Don Pablo Vélez		563			
<u>Luya</u> 1697	Don Baltazar de Robles	purchased from the previous owner	90		12,000 pesos	4,000 pesos
1712	Don Miguel de Robles Garay	purchased from his father	200	19 slaves	34,304 pesos	12,000 pesos
1745	Dr. Joseph Laso de Mogrovexo	purchased in auction of Robles y Garay's goods			23,000 pesos	15,000 pesos
1775	Dr. Francisco Martínez de Tamayo	inherited from Laso de Mogrovexo				
	Don José Ignacio Iturregui	purchased in an auction				

1782	Don Pedro Fernández de la Coterá				
<u>Pomalca</u>					
pre- 1692	Capitán Martín Núñez de Alzo				
1692	Don Martín Núñez de Alzo Cavanillas	inherited from his father			
1695	Licenciado Tomás and Don Joseph Núñez de Alzo	inherited from their brother, Martín	21 slaves		
1699	Don Juan Bonifacio de Seña	purchased half the estate from Thomás	19 slaves 7 mitayos	15,325 pesos	7,500 pesos
1702	Don Juan Bonifacio de Seña	purchased other half from Joseph			
1709	Don Francisco de Seña Chirinos	purchased from his father	203 fanegadas		
1738	heirs of previous owner	inheritance			
1742	Don Domingo Navarrete	purchased in the auction of Seña's estate		40,000 pesos	25,000 pesos

Date	Owner	Mode of Acquisition	Area	Population	Total Value	Value of Censos
1743	Don Domingo Navarrete and Baltazar de Ayesta	partnership		72 slaves		
1754	Church administered					
1758	Doña Francisca Leal Rayo	purchased in public auction			24,000 pesos	
1768	Don Francisco Malerva	purchased in public auction when Leal Rayo did not meet her financial obligations				
1784	Don Juan Alexo and Juan José Martínez de Pinillos	purchased in public auction of Malerva's goods			23,150 pesos	13,688 pesos
<u>La Punta</u>						
pre-1697	Gerónimo Rodríguez Puiconsoli					
1697	Don Félix and Juan Rodríguez				12,000 pesos	
	Don Félix Rodríguez	bought half from his brother Juan				

1711	Doña Maria Rodríguez	auctioned on petition of Don José Rodríguez	433 fanegadas		
1714	Don Bartolomé de Robles y Garay	purchased in public auction			
1724	Capitán Matias de Ripalda	purchased from Robles y Garay			
1742	Doña Tomasa de Saavedra Viuda de Ripalda	inherited from her husband	104 slaves	60,000 pesos	20,000 pesos
1764	Licenciado Feliciano de Ripalda	inherited part and purchased part from his mother's other heirs			
1778	Licenciado Matias Villodas	given to him by his uncle in payment of debts	104 slaves		43,000 pesos
1784	Don Ignacio V. de Lara	purchased from Villodas		58,000 pesos	43,000 pesos
1784	Capitán Manuel Antonio de Quiñones	purchased from Lara		58,000 pesos	43,000 pesos
1789	Don Thomás García de la Banda	purchased "por fuero de heredad"		58,000 pesos	43,000 pesos

Date	Owner	Mode of Acquisition	Area	Population	Total Value	Value of Censos
1802	Don Manuel Antonio de Quiñones	re-possessed after deposit of three years in lawsuit against de la Banda				
<u>Sipan</u>						
1708	Licenciado Félix Rodríguez					
1709	Capitán Gregorio de Arguellas	inherited	100 fanegadas		25,000 pesos	
1715	Don Antonio Vidaurre					
1725	Don Valentín de Aguilar	purchased				
1746	Don Francisco Pimentel y Sotomaíor	purchased		18 slaves		
1752	Don Josef and Antonio Pimentel y Sotomaíor	inherited from father				
1752	Don Bonifacio J. Gastelu y Robles	purchased from Josef and Antonio Pimentel			11,100 pesos	9,000 pesos

1755	Don Pedro Gastelu	purchased from Gastelu y Robles	11 slaves	11,100 pesos	9,000 pesos
1761	Doña Antonia Berru Viuda de Gastelu	inherited from her husband	11 slaves	8,000 pesos	
1761	Don Joseph Aniseto de Zamúdio	purchased from Antonia Vda. de Gastelu		8,000 pesos	
1761	Don Pedro de Ribas y Lupianes	purchased by right of retrieval, the right of recovering a thing sold to another		8,000 pesos	
1797	Don Miguel de las Torres y Zánchez				
<u>Tuman</u> early 17th century	Compañia de Jesús	donation			
1767	State	expropriated from the Jesuits	180 slaves	110,000 pesos	
1786	Doña Maria Ana Daroch y Moreno Viuda de Miguel Phelan	purchased in public auction from the State		74,566 pesos	57,986 pesos

Date	Owner	Mode of Acquisition	Area	Population	Total Value	Value of Censos
1786	Don Antonio Sánchez Navarrete	acquired from Daroch who could not keep up payments			73,067 pesos	
1792	Don José Antonio Muñecas y la Guarda	purchased "a censo" from the State				

APPENDIX II

A Note on Sources and Methodology

This study is based almost exclusively on colonial manuscripts in such Peruvian archives as the Biblioteca Nacional and Archivo Nacional in Lima, notarial archives in Chiclayo and Lambayeque, and the Archbishop's Archive in Trujillo. These repositories of primary documents contain records of court cases, notarial registers, and administrative correspondence between government bureaucrats.

Records of both civil and criminal cases, presented before secular and ecclesiastical courts, were reviewed. These records contained information on the point or incident in question, individual documents presented as evidence in the case, and related correspondence.

The bulk of the litigation-related manuscripts used in this study can be categorized by subject into five groups: testamentos, capellanias y censos, concurtos de acreedores, visitas, and títulos de propiedad. Testamentos include documents related to wills and their execution. The wills, themselves, often present biographical information and list both rural and urban properties and business interests of the deceased. In these court cases the evidence may include contracts of various sorts, property titles, account books, inventories, and appraisals. Account books typically indicate input and produce markets, employment, investment, wages, credit sources, prices, volume of production, and other aspects of estate production. Hacienda inventories and appraisals describe and assess business and personal property such as slaves, livestock, buildings, hand tools, household effects, fields under cultivation, and crops in the field and stored. From these data one can surmise a great deal about the nature of production processes, technology, labor systems, levels of living, and prices.

Capellanias or chantries are private endowments of funds which are invested in a piece of real estate (e.g., a hacienda y trapiche) to create a perpetual stream of interest payments (at five percent per year) for a priest or individual. The capital in the foundation was never repaid, unless the property owner wished to relieve himself of its financial obligations. Court cases dealing with capellanias present copies of the wills and/or contracts founding the capellania, genealogies, petitions, and supporting documents submitted by priests to the ecclesiastical courts requesting the interest payments in return for their service. Contracts founding capellanias include descriptions of the real estate in which the capital was invested and lists of the property's other outstanding debts and mortgages to show that the property was a safe investment.

Censo is the generic term for mortgage. In colonial manuscripts, the term refers to both capellanias and short-term mortgages from individuals or the church. Ecclesiastical records provide most of the examples of mortgages used in this study. Included in these records are

loan contracts, account books, and correspondence between church officials and landowners concerning these matters.

Concursos de acreedores are court cases dealing with bankruptcy. The bankruptcy proceedings reviewed for use in this essay were all associated with the eighteenth-century economic difficulties faced by the sugar estates in the Valley Viejo after 1720. Concursos de acreedores were initiated to give creditors the opportunity to submit documentation supporting claims on the debtor's property. If a priest or the church as an institution had a claim in a case, the ecclesiastical courts assumed jurisdiction. All the concursos cited in this study were church administered.

As a first step in bankruptcy proceedings, the church embargoed the debtor's real property. When the church assumed control of a sugar estate, for instance, an outside administrator was hired to supervise operations. After claims were established, the church auctioned the debtor's goods to satisfy the creditors.

Concurso records, therefore, include account books, claims from private individuals based on simple receipts or letters of credit, demands from priests who served capellanias for unpaid interest payments, and related correspondence. If the concurso de acreedores was initiated soon after the death of a hacienda y trapiche owner, the records include documents dealing with the administration of the will and settlement of the estate in general. In such cases, the bankruptcy proceedings yield the same types of information as the more narrowly defined court cases discussed above. They also provide information on marketing networks and give valuable insights into the juridical and financial role played by the church during colonial times.

Visitas are notarized eye-witness accounts, typically containing important information related to rural properties, water rights, and population. Fragments of visitas de tierras were found in the Biblioteca Nacional, Archivo Nacional, and the Archbishop's Archive in Trujillo. These documents supplied detailed accounts of property rights, population size and composition, and mentioned land use and cropping patterns.

Court cases involving títulos de propiedad contain documents establishing claims to land, water rights, houses, and other real property. Property titles and related documents often present survey and appraisal information, trace ownership back several generations, and discuss conflicts with other hacendados, smallholders, and indigenous communities. These cases together with visitas de tierras afford the clearest and most complete picture of land tenure in the Valle Viejo.

Registers of individual notaries contain many of the individual contracts, foundations, and agreements submitted to the courts in the above-mentioned legal proceedings.

The methodological implications of using various types of documents are several. Both court cases and notary registers are important for the cases or contracts they present as well as for the incidental

information their pages contain. Used concurrently, these manuscripts are highly complementary, because each type of document provides different information or presents a problem from a fresh perspective. The use of a number of dissimilar sources also provides a means to verify and clarify basic information. Where conflicts in data appeared that could not be resolved by checking additional sources, the information contained in the manuscript closest in time and place to the event was tentatively adopted, pending future research. Use of such data is clearly indicated in the text.

The information on the Lambayeque Valley contained in these documents was first used to establish a basic chronology of landownership for each of the major estates. The chronology includes the names of owners, dates and circumstances of transfer, sale price or value of the property, the amount of the estate's recognized liens, area and population figures. This information is presented in Appendix I. My attention then turned to detailing the organization and operation of the various estates at different times. Information of the estates' physical layout, use of natural resources, technology, labor system, and administrative hierarchy added form and life to the basic chronology. Deducing from the detailed picture of the sugar estates thus obtained, I defined general trends and established the basic periodization.

In this study little use was made of administrative correspondence between government bureaucrats dealing with official business and general problems, primarily because its value was not immediately evident to the researcher in the field. Such bureaucratic records remain a potential source of information which could provide a broader economic perspective in which to view the estates' development.

As in other historical studies, the available documents impose limitations on this essay's scope. The documents utilized in this research refer primarily to large estates. This reflects in part the fact that estate owners, being men of means and position, had the resources to engage in lengthy court cases. Furthermore, sugar estates were prime candidates for capellania-related investment.

Given the documents available, I have little information on small-scale farming operations. The sources consulted mentioned small, independent farming activities rarely and then only in passing, e.g., a witness testifying in a court case identified himself as owning and farming a small plot of land near Zaña.

Sharecropping, too, was infrequently mentioned as a form of land tenure. The few documents that do make allusion to such activities indicate that sharecroppers settled on marginal land* on the borders of the large estates. The complete absence of any reference to such activities in estate account books indicates that the sharecroppers' relations with the landowner were informal, exchanges were in non-monetary

*Marginal land had only seasonal irrigation in the Valle Viejo.

terms. This fact plus evidence cited in Section III leads me to believe that debt peonage in its most commonly-referred-to form--resident workers indebted to the hacienda store--did not exist on the sugar estates at this time. Tenants probably provided the owner with small amounts of foodstuffs or labor for the use of the land. Defining the role and importance of small-scale agricultural activities awaits a more complete review of the extant records.⁵⁵

In addition to the limits imposed on this study by the availability of sources, the analysis is hindered by fragmentary and nonrepresentative data. For example, profitability could not be determined rigorously from account books, because these typically were incomplete. Generally, they recorded only local transactions; records for the products sold and supplies bought in Lima were frequently omitted. Furthermore, all surviving eighteenth-century account books (except one) cover periods when the different estates were embargoed and under church or state administration. Several manuscripts suggest that management under such circumstances was corrupt.^{*56}

Given these problems, other indices are employed in this essay to show the relative trends of prosperity and decline in the late seventeenth and eighteenth centuries. Prosperity, for example, is shown by documenting investment and expansion; decadence by diezmo figures, prices, and the absence of investment and expansion.

ABBREVIATIONS FOR ARCHIVES

AAL	Archivo Arzobispal de Lima
AAT	Archivo Arzobispal de Trujillo
ACI	Archivo de Comunidades Indígenas (Lima)
ACM	Archivo de Augusto Castillo Muro and Juana Rosa Sime (Lambayeque)
AN	Archivo Nacional (Lima)

55. AAT, Testamentos, 1775, p. 83; AAT, 1664.

*Hired administrators amassed fortunes by siphoning off earnings from hacienda transactions. Managers inflated the costs, e.g., registering the purchase of a cow for five pesos rather than the actual four pesos charged. They also committed such abuses as recording payment to a priest for burying a slave twice, etc. The difference between recorded costs and real expenditures was pocketed.

56. The exception is an account book for Pomalca for 1743-50. AN, Gremial, Libro de cuentas de particulares, 1743-50.

ANCR Archivo Notarial Carlos Rivadeneira (Lambayeque)
ANGF Archivo Notarial Garcia Flores (Trujillo)
ARL Archivo Rural de Lima }
BN Biblioteca Nacional (Lima)
OCIL Oficina de las Comunidades Indígenas (Lambayeque)

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