Formation of the Miraflores Hacienda: Lands, Indians, and Livestock in Eastern New Spain at the End of the Sixteenth Century

Miguel Aguilar Robledo

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Formation of the Miraflores Hacienda: Lands, Indians, and Livestock in Eastern New Spain at the End of the Sixteenth Century

Miguel Aguilar-Robledo

Coordinación de Ciencias Sociales y Humanidades,
Universidad Autónoma de San Luis Potosí

Although the literature on Mexican haciendas is abundant, those properties formed in the tropical lowlands are poorly known. Based on late 16th century archival information, this case study examines the origin and growth of large estates in the tropical piedmont of the Mexico's Gulf Coastal Plain, in the Huasteca. The paper outlines the context for estate formation; next, it describes the details of the Miraflores Hacienda formation (land grants, sales, transfers, auctions, 'squatting' and usurpation), including four sketch maps; finally, the case material is applied to propose an explanatory model for the productive, agrarian, environmental and semantic transformations of the large estates.

Aunque la literatura sobre las haciendas mexicanas es abundante, aquéllas formadas en el trópico son poco conocidas. Basado en información de archivo, este estudio de caso examina el origen y consolidación de las haciendas en la Huasteca. El artículo esboza el contexto que permitió la formación de haciendas; enseguida, describe los detalles de la formación de la Hacienda de Miraflores en el siglo XVI (dotaciones de tierras, ventas, transferencias, remates, *paracaidismo* y usurpación), incluyendo cuatro mapas de croquis; finalmente, el material de caso es utilizado para proponer un modelo para explicar las transformaciones productivas, agrarias, ambientales y semánticas que sufrieron las haciendas.

Introduction

The colonial hacienda of Mexico grew out of land grants given to early stockraisers to become landed estates that competed with indigenous pueblos until, through accretion and consolidation, they dominated settlement patterns and the rural economy. In the absence of opportunities for Spanish free-hold farming, and with the increasingly overt support of the colonial government, these estates became a key instrument of hispanization of the countryside (Lockhart 1969). By the eighteenth century, the haciendas were complex and diversified institutions, by which a wealthy few imposed a social hierarchy of domination that became a hallmark of post-Independence Mexico.

After the seminal work by François Chevalier (1976 [1953]), the study of the Mexican hacienda, at both a general and regional level, has generated an abundant literature (Moreno García 1982; Van Young 1983; Nickel 1988; Jarquín Ortega 1990; Avila Palafox 1992). Through these efforts many of Chevalier's initial generalizations have been nuanced or refuted. Nevertheless, after 50 years of intensive investigation, research on the hacienda is still needed, although it remains a challenge to transcend post-Chevalierian revisionism (Schell 1986). This is why periodic re-

views of research on the topic are useful because they reveal both our changing understanding and what is still lacking. These 'missing links' include the Iberian versus American antecedents of the large estates, the origin of the hacienda, and its development in different regional contexts, to cite just a few examples. The haciendas of the tropical lowlands, which differ from the stereotype emerging from temperate and semiarid regions, have received little attention (Aguilar-Robledo 1998b). This article seeks to redress the deficiency by examining the origin and growth of one particular hacienda in the subhumid tropical piedmont of Mexico's Gulf Coastal Plain, in the jurisdiction of Santiago de los Valles de Oxitipa, in the region known as the Huasteca.

The present study is based on a comprehensive and unusual file deposited in the *ramo* of *Tierras* of the Mexican Archivo General de la Nación[1] consisting of 202 manuscript pages, and is supplemented by other primary and secondary sources, both published and unpublished. As a case study, it analyzes the main processes involved in the formation of the haciendas, that were instrumental in the transfer and consolidation of the Spanish land-holding system in the Huasteca after the mid-16th century. The first section outlines the context for the formation of the big estates in the region through the Spanish conquest and its demographic consequences, the impact of epidemics, the introduction of livestock, the granting of *encomiendas*, the Chichimec War, and the policy of indigenous resettlement (*congregaciones)*. Next, the formation of the Miraflores Hacienda is traced in the area covered by current municipalities of Tampacán, Tampamolón, Tanquián and San Vicente Tancuayalab, which evolved from a stockraising *estancia* into an hacienda and later into a *mayorazgo* (entailed or inherited estate). The article explains at the micro level how Indian lands were transferred to the Spanish system through land grants, sale, transfers, auctions, 'squatting,' and usurpation, resulting in conversion of the pre-Hispanic property system into the Spanish agrarian code. Of singular importance are four contemporary, large-scale sketch maps attached to the documents that not only show places mentioned in the text, but also show how colonial space in the region was reconfigured or transformed. The Miraflores case study is used to propose an explanatory model for the changes associated with the consolidation of the haciendas in this tropical region including their productive, agrarian, environmental, and semantic dimensions.

The Context for Estate Formation in the Huasteca

Several factors facilitated the shift from the pre-Hispanic to Spanish land-holding system (see Aguilar-Robledo 1998a). The first was the outcome of the conquest itself. Thousands of Indians were killed in battle when Hernán Cortés conquered this region, during 1522-1523, and again during the bloody repression led by Gonzalo de Sandoval following a 1523 indigenous upraising. After the final subjugation, enslaved Indians were traded to the Antilles for livestock used to establish a pastoral economy in that region. Others were sold in New Spain (Mexico) before the arrival of Nuño de Guzmán as district governor in 1527 (Paso y Troncoso 1939-1940: v. 1: 153-166; v. 14: 166-194; Zavala 1952; Matesanz 1965; Chipman 1967; Doolittle 1987; Jordan 1993). The net result of the conquest was a dramatic reduction of the indigenous population (Pérez Zevallos 1993).

The introduction of Old World diseases set in motion epidemics with high mortalities. Although no accurate data exist on regional demographic impacts, the epidemics of 1545-48 and 1576-81, called the "cocoliztli" and the "great cocoliztli" respectively, were catastrophic for the indigenous population (Prem 1992; Pérez Zevallos 1993: 20; Melville 1994: 40).

Maltreatment by the Spanish *encomenderos* was added to the Indians' misfortunes and, through their labor and

tribute grants, they contributed actively to the demographic decline and formation of large landed properties. The *visitas* (tours of inspection) of Gómez Nieto (1532-33),[2] Gaspar Xuárez de Avila (1550), and Diego Ramírez (1552-53) had the double purpose of modifying the tribute load to conform to the new demographic realities, as well as ending the abuses by the encomenderos (Scholes 1946; Pérez Zevallos 1993, 1998). Despite the protectionist policy of the Viceroy Luis de Velasco I, the Indians, who were so far removed from their presumed protectors and so close to their exploiters (Melville 1994: 154), could do little to halt their own subordination.

The devastation caused by these factors was clearly visible by the mid-16th century. The testimony of several contemporary observers can be noted. According to Gaspar Xuárez de Avila, in 1550, the province of Pánuco "has been very disordered and gone waste since the time of Nuño de Guzmán." As envoy of the Crown to ameliorate the situation, Xuárez remarks that due to the "excessive work demands" "the province has been much diminished" (Pérez Zevallos 1993: 20). In 1553, Diego Ramírez, upon concluding his *visita* to the region, asserted that "the Natives [of the Huasteca] have been the most oppressed and dominated than I have seen anywhere because they have not had any instruction other than tribute-paying and servitude to their encomenderos, *calpisques* [tax collectors], *corregidores* [district administrators], and others" (Paso y Troncoso 1939-1940: v. 7: 57; v. 15: 214-227). Finally, in 1554, the Agustinian Nicolás de Witte explained that "all that land [the Huasteca] was waste, although it was the most populated under the sun, attested to by the ancient buildings that we found there" (Cuevas 1913: 146).

Another factor that favored the formation of haciendas was the policy of resettlement in *congregaciones* (Cline 1949: 369). This colonial policy, aimed at consolidating the scattered indigenous population, had several expressions at the beginning of the colony. For the whole of New Spain, the basic principle was established during the 1530s when Vasco de Quiroga effected several Indian congregations in Michoacán. However, it was in 1550-64 and 1593-1605, following major epidemics, that nucleation of the indigenous population was systematically pursued. Religious conversion, tribute collection, and administration were important reasons for this effort to consolidate dispersed Indian settlements (Cline 1949; Gerhard 1977; Torre Villar 1995).

In the Huasteca, resettlement was accelerated by the precarious position on the frontier that was open to attacks by the Chichimec groups from the north. Even though this nucleation of the indigenous population began with the establishment of Spanish towns, the systematic congregation was delayed until 1592 when the Viceroy Luis de Velasco II, in order to facilitate tribute-collection and geopolitical control, charged Captain Pedro Martínez de Loaysa with consolidating the remaining Indians from Tantulan, Tamacolite, Tamalacuaco and Tanzuy, indigenous settlements that had been depopulated because of Chichimec assaults. Another settlement of Santiago de los Valles de Oxitipa was established in 1533.

The newly nucleated settlements of the region were far from peaceful. The congregated Indians, frequently overtaxed, fled from the heavy tribute loads. Enforcement of the policy often encountered determined opposition by the caciques (*ok'lec*) of several towns. To achieve their goals, the Spaniards combined the use of force and the granting of privileges.[3] Juan Bautista de Orozco was appointed as *juez congregador* (judge of resettlements) in 1598, charged with the resettlement of all the Indian inhabitants of the Huasteca.[4] Though the details of his assignment are unknown, the overall effects were soon visible in the distribution patterns of the regional population.

The insecurity of the Huasteca from periodic assaults by Chichimec groups also facilitated the formation of the large estates. Although the beginning of the

Chichimec War is usually associated with the opening of the road to the silver mines from Mexico City to Zacatecas during the mid-1500s, Chichimec raids in the northern Huasteca remained a problem even into the first half of the 18th century. The sedentary Huastec Indians suffered from those battles in two ways: first, the direct pillage of their towns meant heavy casualties and the abandonment or destruction of their personal possessions and crops; and second, the impact of levies or mandatory recruitments to participate in the defense of the border pueblos.

The Indian pueblo of Tampacayal where the Spaniards established the Hacienda Miraflores was already abandoned by 1569. The inhabitants who survived the bloodshed and epidemics moved to Tantala, which was one of Tampacayal's two *sujetos* (subject hamlets) where tribute load was previously collected.[5] Indians from Tanchana, Tamonal, and Tamanal fled from their towns due to Chichimec assaults in 1590.[6] In the following years, the *Coyolnoques* and *Alaquines*, defiant Chichimec Indians, ravaged peripheral pueblos such as Tantulan, Tamacolite, Tamalacuaco, Tanzuy, Tanchipa, and Tampaquelan.[7] The most important Huastec center of Tanchipa to the north of Valles was totally destroyed by the *Olocnoques* (*Coyolnoques*) in 1666 (Stresser-Péan 1977: 581). The same happened to Tamalacuaco to the north of Tamuín that was devastated by the *Tancalguas* in 1670 (Stresser-Péan 1977: 501).

The Chichimec Indians destroyed almost forty Huastec pueblos between 1570 and 1609, representing an aggregate population several times larger than that of the 'Chichimec' peoples in the region (Stresser-Péan 1977: 580). Furthermore, while there had previously been a fuzzy peaceful no-man's land between the Chichimecs and the Huastecs to the north of the Tamesí River, this war created a real frontier about 100 km southward in the foreland of tighter Huastec settlement area adjacent to the Tampaón and Pánuco Rivers. This natural defense line was reinforced by several garrisons, one of them located between Tlacolula and Tamuín.[8] This border area exposed to Chichimec raids became known as the "war strip." The intensification of the Chichimec invasions was closely related to the bloody slaving expeditions led by Luis Carvajal, who arrived in the Huasteca in 1567 and eventually became governor of Nuevo León (Stresser-Péan 1977: 499).

Dislodging the northern Huasteca population accelerated the consolidation of large stockraising estates. The disappearance of Indian towns in the "war strip" led to the opening up of the region for additional Spanish (viceregal) land grants, particularly for the grazing of huge sheep herds. This subhumid tropical region became part of a larger interregional circuit of transhumance that was used for winter grazing from the early 17th century until well into mid-18th century (Butzer and Butzer 1995; Aguilar-Robledo 1997b, 1998b).

The introduction of livestock into the region after 1527 led incrementally to the abandonment, usurpation, or sale of indigenous lands. Indian complaints about the destruction of their crops were, as in many other parts of New Spain, frequent.[9] In fact, stockraising encroachment went hand in hand with privatization of ancient Indian lands in the region (Butzer and Butzer 1995; Aguilar-Robledo 1997, 1998a, 1998c).

Turning to the roots of the haciendas, the impetus for estate formation in the Gulf lowlands was given by the encomiendas that were granted by Cortés to recompense his primary supporters. The grantees were allowed to extract tribute and labor from the indigenous pueblos assigned to them, although the encomenderos were not allowed to live in such pueblos and had no property rights. It was not illegal, however, to establish stockraising ventures on uncultivated areas, which qualified as *realengo* (royal lands) since indigenous rights to commonage were not recognized (Schell 1986: 40-41; Butzer and Butzer 1995: 154). Unlike in Central Mexico where Indian communities were densely spaced, encomenderos

in the partly forested tropical lowlands readily found large tracts of suitable land for their estancias between the communities assigned to them. It was difficult to control their operations from Mexico City so many encomenderos moved into the region. Some examples from the study area illustrate the point: during the mid-16th century, the Indians from Tantala that were subject to Tampacayal paid tribute in kind, but also had to lend their services in the coterminous cattle estancia of their encomendero Diego de Torres Maldonado. The same applied to Diego Cortés in his encomienda of Tampaca (Paso y Troncoso 1905: v. 1: 237). In 1567, the encomendero of Tancuayalab and Tamistla, the *licenciado* Nicolás Alemán, justified his application for additional land from the viceroy Gastón de Peralta on the grounds that the requested estancias had already been stocked with mares and stallions for more than twenty years.[10] Although documentation for early land grants in the area is spotty, in the eastern Huasteca the majority of land grants recorded between the 1550s and 1580s were awarded to encomenderos and their descendants or heirs (Karl W. Butzer, pers. comm., 1998).

Formal impetus toward the formation of big estates was given through actual land grants for agricultural and stockraising purposes. The stockraising *estancia*, a Spanish-American creation (Chevalier 1976 [1953]: 117-150), was by far the most common type of landed *merced* in the Huasteca. Judging by the existing land grant records, as incomplete here as in other regions of New Spain (Prem 1978; Butzer and Butzer 1993, 1995; Melville 1983, 1994; Sluyter 1995, 1997, 2001), the allocation of land grants began in the Valles jurisdiction in 1541 and did not end until 1739.[11] During the period, the rate and regional concentration of land grants in the tropical lowlands varied considerably, as specific tracts without continuing Indian settlement (as a result of depopulation and relocation) were opened up for Spanish enterprises (Butzer 1992). For example, leaving aside unconfirmed land grants (*acordados*[12]), of the 358 land grants recorded for the Valles jurisdiction,[13] 156 (43.6%) were awarded in 1614; 63 in 1613 (17.6%); and 36 in 1615 (10%), all granted by the viceroy Diego Fernández, with most being concentrated in the "war strip." This reflected Spanish policy toward frontier resettlement and pacification, as well as its interest in expanding winter sheep grazing from Central Mexico to the Huasteca tropical lowlands (Butzer and Butzer 1995). These lands had already mostly been emptied of sedentary occupation by disease, Chichimec destruction, and indigenous settlement consolidation.

The Mesoamerican tradition of access to communal lands added to the Spanish principle that use of land created possessionary rights (the Iberian *presura*), gave rise to 'squatting' on a large scale. In the Valles area a large percentage of land applicants, encomenderos, and other Spaniards had already long occupied the requested lands, so the majority of the land grants only sanctioned a *de facto* situation.

The Indian lands were also eventually converted to the new tenurial system.[14] Though it was difficult for the dwindling native population to establish legal claims to their ancestral lands, some of their communities received titles. Some indigenous persons also obtained land grants within the new landholding system. Titles were reaffirmed by the Indians themselves or with the assistance of Franciscan missionaries, sometimes as late as the 18th century.[15]

The irregularities inherent to the process of land acquisition would be solved through the *composiciones*, which represented a final step in the imposition of the Spaniards' tenurial model.[16] Even though the AGN file for the Miraflores Hacienda does not include a *composición*, it is likely that the title of this estate was cleared as a collective composición, a 'fast track' model that was first used in 1643.

Frontier conditions precluded the survival of small stockraisers, because livestock rustling and Chichimec raids were frequent. This meant the accretion of es-

tates big enough to survive in these unsafe areas (Stresser-Péan 1977: 514-515; 1980: 108). The composiciones legalized the flawed titles of these large bordering estates, recognized land sales carried out before the required minimum period of tenure, and gave title to lands acquired by 'squatting,' usurpation, or illegal sales. In fact, the composiciones corrected any defect in the original titles and set the stage for the formation of large landed estates.

Formation of the Miraflores Hacienda in the Valles Jurisdiction, 1563-1588.

The formation of the Miraflores Hacienda can be analyzed as a twofold process: first, the consolidation of the estate itself that consisted of several estancias; and second, the qualitative transformations these pieces of land went through to become an hacienda and, eventually, a *mayorazgo*. The first process illuminates how Spaniards acquired land during the early colonial times, while providing a close up view of the actors involved in agrarian disputes in the Miraflores area. The second process, although incompletely documented, suggests the type of transformations that occurred in the sphere of production, tenure, and environment, associated with the formation of haciendas and estancias.

Although it never reached the status and dimensions of the large estates of the Mexican highlands, Miraflores was consolidated into an hacienda through the amalgam of several stockraising estancias between 1563 and 1588 (Table 1). The first core of the hacienda was the Miraflores estancia, belonging to Alonso de Villaseca, who was considered "the wealthiest man of New Spain" (Chevalier 1976 [1953]: 127). He was the owner of several haciendas and mines in Ixmiquilpan, Pachuca, Zacualpan, Guanajuato, and Zacatecas. He lived in Mexico City, and was a great benefactor of the Jesuits (Vargas Rea 1947a).[17]

The acquisition and consolidation of several individual properties to form the Miraflores Hacienda took about 25 years. It eventually comprised five cattle estancias and six *potreros* (equine stud farms), covering about 19,312 hectares. Although not all the estancias forming Miraflores were contiguous (Figs. 1-4), Villaseca eventually consolidated this property.

Table 1 documents the low level of compliance with the land granting ordinances. Although it was illegal to sell a land grant before the four-year minimum period of tenure, Hernando de Larrea and Isabel Delgado transferred their lands to Villaseca just one month after they were granted, in 1572 and 1574 respectively. To justify their unlawful actions, both claimed to be unable to stock their stud farms with the required 500 horses.[18] In Larrea's case, the infraction was double because he did not obey the extra restriction stipulated by Viceroy Enríquez of not selling his granted land at any time to any person owning more than two estancias, a condition that did not fit Villaseca[19] who had begun to purchase lands to add to Miraflores from 1568 onwards.

Table 1 records seven land purchases, from both Spaniards and Indians. For example, the Tantima estancia was sold four times and auctioned once in just 25 years. Patrimonial land was also purchased from the Indian pueblos, including *bichow tsabál* (town's lands), and *kwenchal tsabál* (hamlet's lands).[20] The pueblos of Topla and Tampacán also sold parts of their land to the stockraisers. Although the sale of indigenous land was not common in the Huasteca region, the cases related to the formation of the Miraflores Hacienda throw light on the details of this phenomenon.

The regulations involved in the purchase of indigenous land, an act of cultural translation, illustrate how the imposition of the Iberian tenurial system took place. They were intended to avoid abuses on the part of the Spanish buyers, a goal not always achieved. Such rules were aimed at converting the pre-Hispanic indigenous tenure regime, that

Land Grants (cattle estancias[1] and stud farms[2])	**Grantee/Owner**	**Form of Acquisition**	**Amount Paid (*pesos de oro común*)**	**Dates (not in chronological order)**
1 cattle estancia in Tantima, near Tanlocoten	Topla pueblo	patrimonial	-	?
same estancia	Francisco de Soto	purchase	$70[3]	Feb. 17, 1563
same estancia	Juan Alonso de Hinojosa	auction	$350	?
same estancia	P. de Lacalle and Leonor de Torres	purchase	$ 400[4]	June 18, 1566
same estancia	Diego de Ribera	purchase	?	?
same estancia	Agustín Guerrero de Luna	purchase	$ 400[5]	Jan. 14, 1588
2 stud farms in Tanjoco and Tampachacán	Nicolás Alemán[6]	land grant	-	April 12, 1567
same stud farms, two slaves, and farm tools	Alonso de Villaseca	auction	$3,120	Nov. 21, 1573
1 cattle estancia in Tampalaque	Baltazar Camacho	land grant	-	1571 ?
same estancia	Alonso de Villaseca	?	?	?
1 cattle estancia in Cuçahapa	Diego de Montenegro[7]	purchase	$30	Nov. 26, 1567
same estancia	Alonso de Villaseca	purchase	$100	May 26, 1568
1 cattle estancia called Miraflores	Diego de Torres Maldonado[8]	land grant	-	1568 ?
same estancia	Alonso de Villaseca	purchase	$ 400[9]	Jan. 4, 1569
"A piece of land" (Chachapalame), near Huexco, Topla Tampacayal, and Miraflores	Tampacán pueblo	patrimonial	-	Before 1510[10]
same land	Alonso de Villaseca	Purchase	$100	Dec. 18, 1570
1 stud farms, and 2 *caballerías*[11]	Alonso de Morales	*Acordado*[12]	-	Sept. 1, 1571
1 stud farm in the Sabana de Tancolol	Hernando de Larrea	land grant	-	June 30, 1572
same stud farm	Alonso de Villaseca	transfer	$100	July 20, 1572
1 stud farm in Tamistla	Isabel Delgado[13]	land grant	-	May 20, 1574
same stud farm	Alonso de Villaseca[14]	transfer	$100	May 4, 1574
2 stud farms near Tamistla	Francisco Hernández de Carmona	*acordado*[15]	-	April 10, 1574
1 cattle estancia near Tlanchinamol, Huexco and Tampacán	Juan de la Mota	land grant	-	Dec. 4, 1581

Total: 5 cattle estancias, and 6 studfarms. Estimated surface: 19,312 hectares. This figure includes neither the land covered by the *acordado* granted to Alonso de Morales nor the unknown surface of Chachapalame.

Notes:

1. A *sitio de estancia de ganado mayor* or cattle estancia covered approximately 1,756 hectares, 5,000 *varas* or 3,000 *pasos de Salomón* to a side. Although some circular grants can be verified, the square cattle estancia soon became dominant. Apart from other restrictions, it had to be stocked, within a year, by 500 head of cattle (Solano 1991: 201, 228-229, 242-245).
2. Although the surface of a stud farm or *potrero* was never officially defined (Galván 1865; Solano 1991; Robelo 1995 [1908]; Carrera Stampa 1950), some land grants awarded between 1589 and 1590 validate the equivalence of a potrero with a cattle estancia (*Mercedes*, v. 15, f. 77r-77v, 81r-81v, 284v-285r; *ibid*. v. 16, exp. 187, f. 51v-52r). Indetermination has given rise to misinterpretations (*e. g*. Sluyter 1995: 268, 276). Moreover, after a detailed land survey in the Huasteca, Butzer and Butzer (1995) conclude that *potreros* were devoted to horse and mare-raising, a conclusion also confirmed in the study area (Aguilar-Robledo 1998c). Finally, Butzer and Butzer (1995: 163, 176) argue that the Huasteca had more than 60% of the stud farms of New Spain.
3. On September 9, 1563, viceroy Luis de Velasco I confirmed this transaction by granting Soto the same cattle estancia he had previously purchased, bordering Tanlocoten (or Tanloqueten), a pueblo entrusted to the Crown (*Tierras*, v. 3696, exp. 6, f. 23r).
4. In addition to the money, Lacalle and Torres paid 2 mules (*ibid*., f. 24r).
5. Plus "one stallion donkey." Guerrero purchased this piece of land through his "front-man" Martín de Urquieta, on January 20, 1587, the year before (*ibid*., f. 17v, 19r-19v).

was based on usage, custom, and oral tradition. The aim was to convert native practices to the Iberian version, which privileged the written record and included a developed, juridical concept of property. In this regard, the Spanish conquerors were more culturally sensitive than, for example, their English counterparts in New England, who did not recognize any tenurial rights that existed prior to their arrival (Cronon 1983). Although facilitated by the parallels between the Meso-American and Iberian tenure systems (Schell 1986: 38-40), this conversion was never totally completed due to the resilience of the former.

Indigenous communities needed a royal license to sell their land and, once obtained, they had to demonstrate their property and their compelling need to sell it. In order to guarantee that all sales were final, Indians had to relinquish the use of any legal resource to stake a later claim. Thus, once the transactions were over, no party could claim to have been cheated. Frequently, the arguments to justify the sale of Indian lands concealed the real causes behind such desperate actions: the fear that Spanish stockraisers might invade Indian lands without paying anything; or the implicit recognition that the dwindling indigenous population could no longer keep possession of their ancient lands.[21] Apart from land sales, the granting of new lands or the confirmation of ancient indigenous possessions (through *mercedes*, *reducciones*, *conversiones*, and so on) were alternative procedures to transform the Mesoamerican land holding into the Iberian property regime.

The auction of inherited lands was also a common way to acquire an estate (Table 1). In the Miraflores case, two auctions were recorded. Through the first one, of 1573, Villaseca acquired two stocked stud farms, part of Nicolás Alemán's bequest. The highest bid at the auction (3,120 *pesos* of gold) was a very high price for these landed estates. The mule and horse-breeding farms of Alemán, Tampachacán and Tanjoco were stocked with "200 young and adult mares, about 70 cows, and 20 mules, 6 donkey stallions, 2 African slaves, one set of farm tools, and all the mares and livestock that have been culled."[22] The auction inventory showed that herd size (and composition)[23] on the two stud farms was below the required 500 head of cattle or horses (Aguilar-Robledo 1998c). In this case, after a competitive bidding Villaseca eventually became the

6. Son of Francisco Alemán and Beatriz Sánchez, encomendero of Tamistla and Tancuayalab, and *Alcalde* of the *Casa de Moneda* (*Mercedes*, vol. 1, f. 37v-38r). Tamistla (written as Tamiutla) had apparently been an encomienda of the Crown in *c*. 1548 and 1571 (Paso y Troncoso 1905: v. 1: 237; v. 3: 150-151). Although Paso y Troncoso (1939-1940: v. 15: 223-224) calls it Tanistla, he says that this pueblo "was entrusted to the settler Alonso de Mendoza; once he died, it passed on to his widow Leonor de Lara, who remarried Hernando Alemán, its current possessor" (see also: Anonymous 1936: 357). It is unknown whether Nicolás and Hernando Alemán were actually the same person. Yet, in 1573 Alemán's son, his homonymous and testamentary executor, empowered Alonso Montaño to "collect from the Indians of Tamistla and Tancuayalab, that which the said Alemán, my father, had in encomienda, the tributes they must pay according to the last assessment, before they escheated to the Crown after my father passed away" (*Tierras*, v. 3696, exp. 6, f. 11r-12v). All his belongings were auctioned off November 21, 1573. Finally, Paso y Troncoso (1905: v. 3: 150-151) states that Tamistla (Tamiutla, Tanistla or Tanistal) "was resettled with Tancuiche at the beginning of the 17th century."

7. Montenegro purchased the land ("3000 *pasos de tierra*") from the Indians of Cuzahapa. Apparently, he twice sold the same land. First to Villaseca, and later on (April 7, 1570) to Francisco de Mérida y Molina (AGN, *Tierras*, v. 736, exp. 8, f. s/n).

8. Encomendero of Topla, Tantala, Tampacayal and their respective subject hamlets. Torres Maldonado was son of Diego de Torres and Catalina Maldonado, widow of Cristóbal de Ortega, first holder of these encomiendas (Paso y Troncoso 1905: v. 3: 146; v. 1: 241; 1940: v. 15: 225-226; Anonymous 1936: 359).

9. Plus five stallion donkeys and "one old jackass" (*Tierras*, v. 3696, exp. 6, f. 38r).

10. This date is inferred. During the survey carried out to grant the Indians a license to sell this piece of land on December 18, 1570, the elders of the pueblo said that they had owned it "for more than 60 years" (*ibid*., f. 44r).

11. A *caballería de tierra* covered 42.8 has. Given its agricultural orientation, it could hold only a few draft animals.

12. The requisite investigation to enforce this acordado showed the disputes among the Spaniards to take over the land. In this case, Morales' request met the determined opposition of the encomendero Diego de Torres Maldonado (see Note 7 above). The end result of the acordado is unknown.

13. Daughter of the conqueror Alonso Delgado, and widow of Francisco de Urbina (*Tierras*, v. 3696, exp. 6, f. 5r).

14. From 1568 to 1574, Villaseca acquired four stud farms, three cattle estancias, and a "piece of land," namely, more than 12 thousand hectares, to form Miraflores.

15. Although the file does not include the final resolution of this acordado, it seems that the requested land was granted since in the title of an attached document it is stated that viceroy Enríquez granted "two stud farms," precisely those mentioned in the acordado granted to Hernández de Carmona.

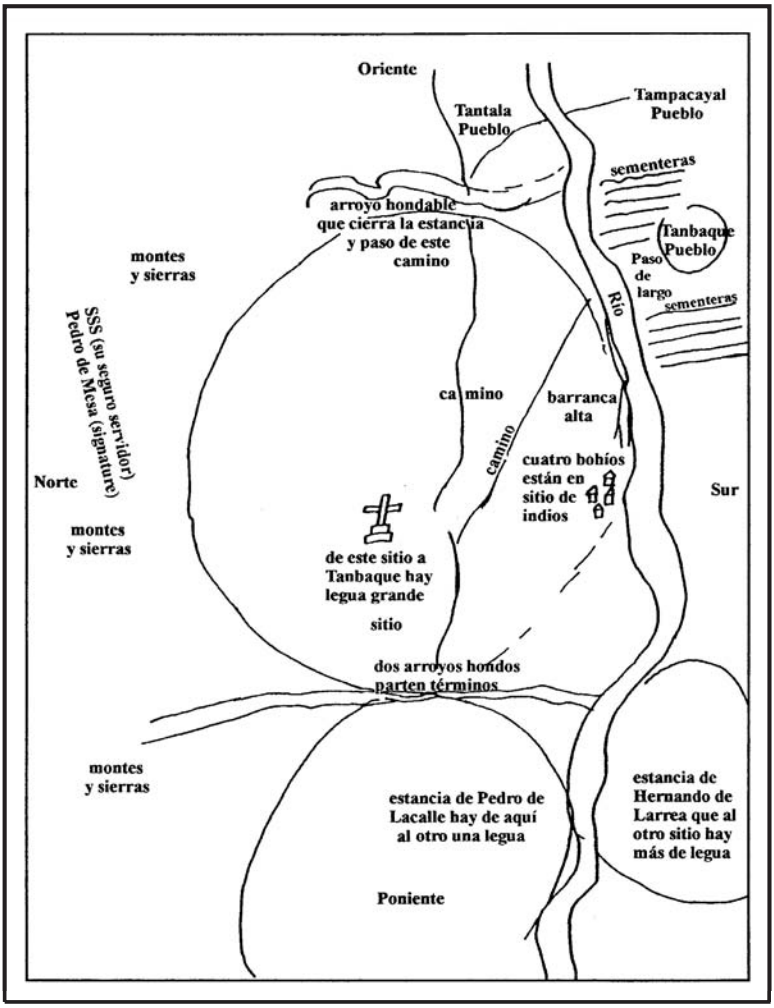

Figure 1. The Miralores Hacienda, Tantala, Tampacayal, adn Tanbaque. One of the competing representations of a contested site in litigation, *c.* 1571. Miraflores lies upstream (below). No scale provided. It includes Pedro de Mesa's and two unidentified signatures. Source: AGN, Map Cat. No. 2606, and *Tierras*, v. 3696, exp. 6, f.70r.

highest bidder by just 10 pesos. In the second auction, carried out at some unknown date between 1563 and 1566, Juan Alonso de Hinojosa bought the Tantima cattle estancia for 350 pesos.[24]

Several inferences can be made from the monetary figures registered in Table 1. First, the transfer price of uncultivated land was generally low (100 pesos per stockraising estancia). Second, from the stockraisers' point of view, the land of the pueblos was considered as cheap as *baldía* (unoccupied) or *realengo* land, in all likelihood due to the uneven power relationships. Third, although at first sight the prices for land appear quite inconsistent, there is a clear enough pattern. Alonso de Villaseca acquired at least four properties for only 100 pesos, although other purchases indicate that

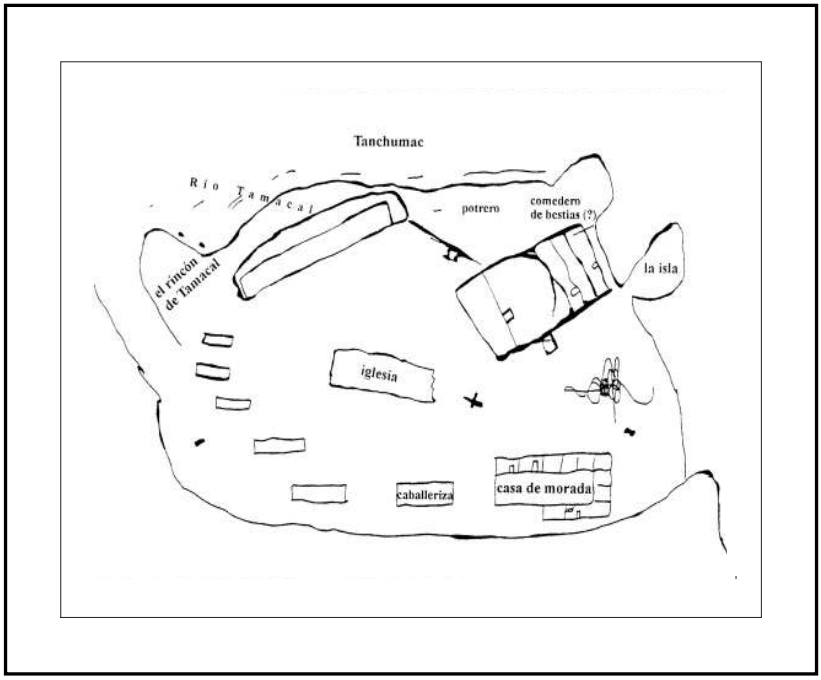

Figure 2. Layout of the headquarters of the Miraflores estate on terrace on the right side of the Río Moctezuma (above) *c.* 1571. The animal and living quarters are distinct, with small cultivated fields scattered on the margin around a central chapel. No scale given. It includes an unidentified signature. Source: AGN, Map Cat. No. 2607, and *Tierras*, v. 3696, exp. 6, f. 72r.

350 to 400 pesos was a more realistic price for a cattle estancia, presumably stocked. The implication is that these are nominal payments, necessary to legalize the transfer, but in fact the sales must have been "pre-arranged," either paid for and acquired earlier. In other cases the seller was probably a "front-man" working for someone else. Finally, the high auction bids for the *potrero* (land grants intended for mare and horse raising) are significant, and suggest that a single horse stud was worth in the order of 1500 pesos. That points to two basic economic realities: (i) an equine farm would require high quality grass cover on prime agricultural land, because horses cannot browse on leaves or adapt to coarse, high-cellulose grass types; (ii) there were two ways for a stockraiser in the Huasteca to earn cash, either to run cattle to the mining center of San Luis Potosí for sale as very lean beef and tallow,[25] or to breed mules and horses for the far more lucrative demands of New Spain's ever expanding transport system[26] to cart grains and supplies to San Luis Potosí, or to transport silver to Mexico City and on to the seaport of Veracruz (Karl W. Butzer, pers. comm., 1998). The English traveler John Chilton, a late 16th century witness, observed that "from here [the Valles jurisdiction] is where the Christians take out their sturdy mules to all parts of the Indies, including Perú, because with them they carry all merchandises" (García-Icazbalceta 1869: 459; Ruvalcaba-Mercado 1996: 125).

The 1571 acordado registered in Table 1 reflects the emerging agrarian conflicts among the Spaniards. The enforcement of this acordado issued by Viceroy Enríquez, aimed at granting a piece of

land to Alonso de Morales in the Sabana de Tanchochol next to Tampacayal, provoked strong opposition from the Indians. This reaction was orchestrated behind the scene by their encomendero, Diego de Torres Maldonado. Since the mid-16th century he had run stockraising estancias in areas next to his encomiendas, and he intended to request a land grant in the same area, where the ancient Tanchochol pueblo had been located during the early 1560s. To do so, Torres not only personally contradicted the Alonso de Morales request, but also influenced five Indian witnesses to openly oppose the application. In due course, Alonso de Morales found his own five witnesses to appear to back up his claims. Finally, Torres convinced two more Indian witnesses to contradict what was said in favor of the request. Faced with these conflicting views, the *alcalde mayor* of Pánuco, Pedro de Mesa, had to send his opinions to the Viceroy Enríquez for a final decision. Mesa also accused Torres of "malice" because he had conspired with the Indians of Tampacayal to build four thatched huts on the land (Fig. 1)[27] a few days before the investigation to claim that Tanchochol was still populated. Mesa added that although the estancia was not "fenced as required [...] doing so by the requesting party would keep livestock from crossing the river to the field crops of Tanbaque and Tampacayal," which

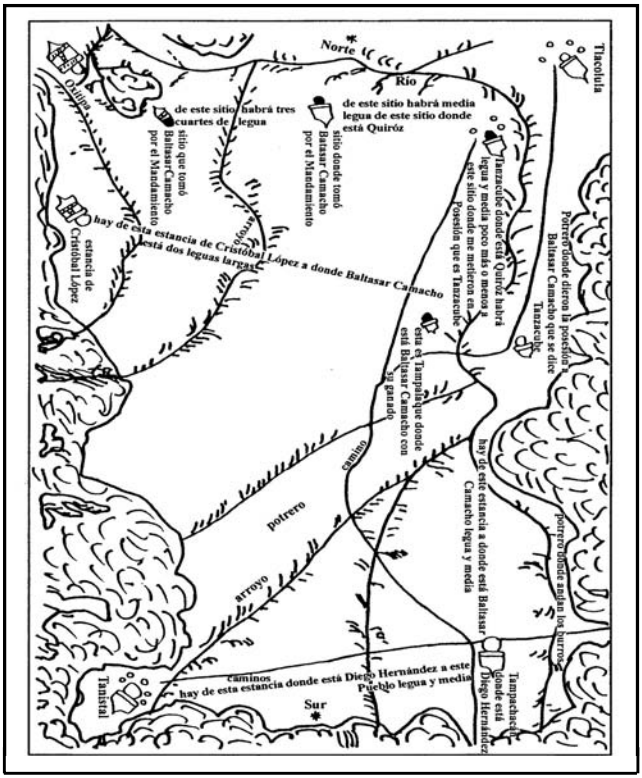

Figure 3. Oxitipa, Tlacolula, Tamistla, and Tampachacan, near Miraflores. Sketch map of the spatial relationships betwen the properties of the imposed colonial landscape, *c.* 1571. Creeks are identified by fringing vegetation. No scale given, but the distances provided imply that the map covers an area of about 12 by 18 kms, roughly half of the actual dimensions, bearing in mind that the representation is greatly distorted. Note Oxitipa and Tlacolula above, and Tanistal (Tamistla) and Tampachacan below. Anonymous. Original in color. Source: AGN, Map Cat. No. 2608, and *Tierras*, v. 3696, exp. 6, f. 73r.

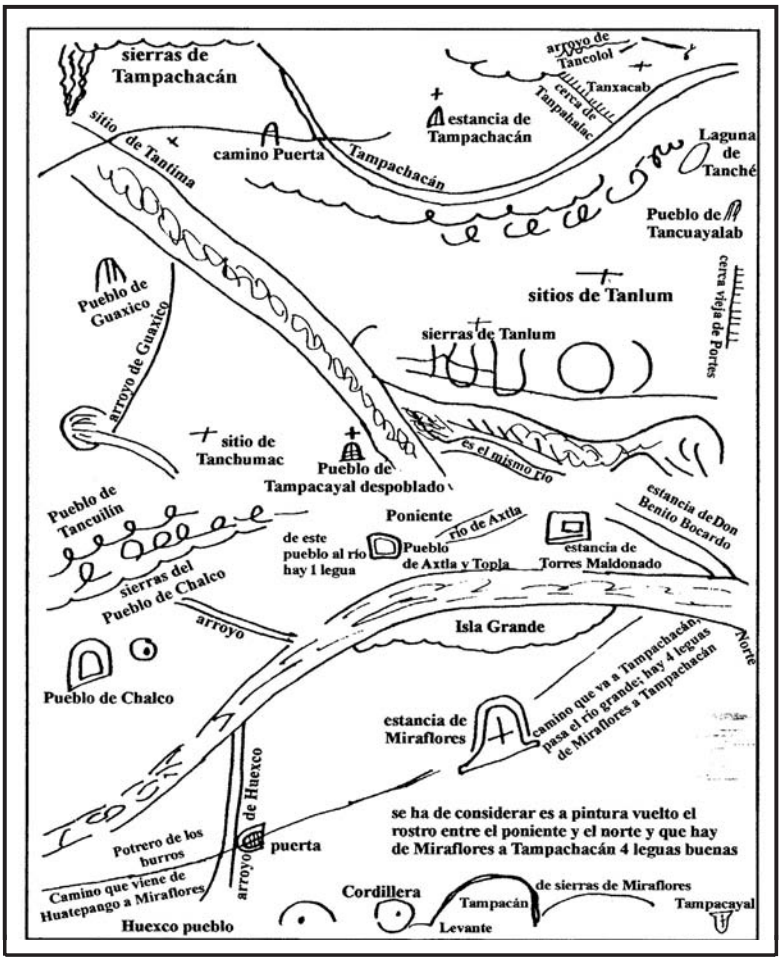

Figure 4. Naive but detialed representation of properties and pueblos near Miraflores, *c.* 1601, incorrectly shown as situated well south of the Río Moctezuma which runs across the map from west (left) to east (right). Figure 3 fits approximately at the top (note Tampachacan and Tanxacab=Tanzacube). No scale provided. Anonymous. Source: AGN, Map Cat. No. 2609, and *Tierras*, v. 3696, exp. 6, f. 88r.

would make the land grant feasible.[28] Unfortunately, the file does not include the viceroy's answer,[29] nor the outcome of the acordado granted to Francisco Hernández de Carmona who, unlike Morales, was apparently successful.

The investigation of Viceroy Enríquez included four sketch maps.[30] These are redrawn, with transcribed glosses, in Figures 1 to 4, which help understand the processes at work[31] and to illustrate the layout of the Miraflores Hacienda (Fig. 2).[32]

One of the Miraflores maps, signed by Pedro de Mesa, illustrates several issues (Fig. 1). First, it includes three circular stockraising estancias that, due to their shape, left ungranted areas that en-

couraged illegal land holding. Second is the dating of the map that, like the other three (Figs. 2, 3, 4), was supposedly drafted in 1573. Nevertheless, given the date of the *parecer* (opinion) of the alcalde mayor on October 23, 1571, makes it unlikely that the map was drawn two years later.[33] Further, the acordado issued to Morales requested Mesa to depict the sites of the pueblos, to note the distances and the field crops, and to take depositions from each party involved; having done so, he was to send the information to the viceroy with his sworn opinion.[34] It is improbable that Mesa first sent the information and had the maps done two years later. Therefore, it seems more likely that the sketch maps in Figures 1, 2, and 3 were actually drawn in 1571. A third issue is the

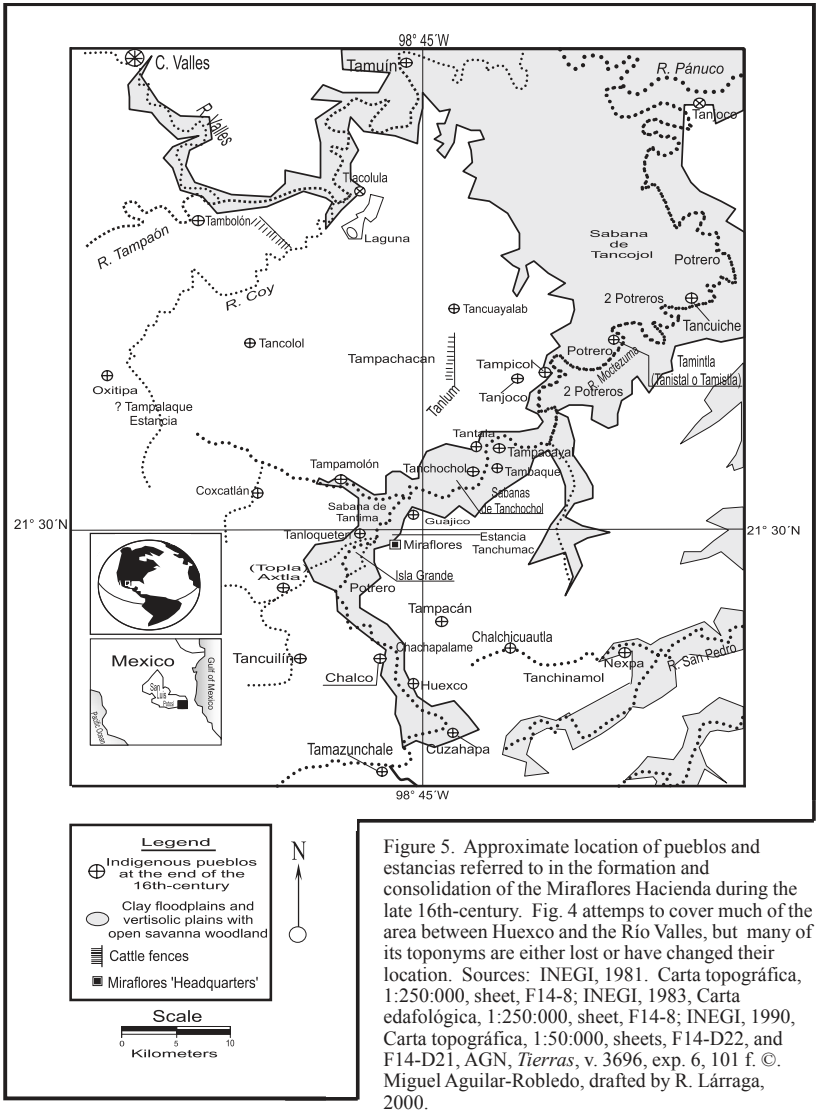

Figure 5. Approximate location of pueblos and estancias referred to in the formation and consolidation of the Miraflores Hacienda during the late 16th-century. Fig. 4 attemps to cover much of the area between Huexco and the Río Valles, but many of its toponyms are either lost or have changed their location. Sources: INEGI, 1981. Carta topográfica, 1:250:000, sheet, F14-8; INEGI, 1983, Carta edafológica, 1:250:000, sheet, F14-8; INEGI, 1990, Carta topográfica, 1:50:000, sheets, F14-D22, and F14-D21, AGN, *Tierras*, v. 3696, exp. 6, 101 f. ©. Miguel Aguilar-Robledo, drafted by R. Lárraga, 2000.

difficult coexistence of mobile stockraising and indigenous agriculture. Figure 1 identifies the field crops of Tampacayal, Tanbaque, and Tantala pueblos entrusted to Torres Maldonado, but in spite of their separation from stockraising estancias by the Tampacayal River,[35] Indian agricultural plots could potentially be ravaged by wandering animals.

The sketch map represented in Figure 1 demonstrates broader processes occurring elsewhere, namely the seizure, domination, re-creation, and integration of the indigenous world to the material and ideological realm of the conquerors. It exemplifies how the transfer and consolidation of the Iberian tenure system was taking place in this border region of New Spain after the mid-16th century.

The map (Fig. 3) showing in its four corners the pueblos of Oxitipa (current Tanute, Aquismón), Tlacolula (SW of Tamuín), Tamistla (written as Tanistal, ancient pueblo close to Tancuayalab, and resettled in Tancuiche in the early 17th century), and Tampachacán (between current Tancuayalab and Tanquián) was drafted by an anonymous cartographer. In all likelihood, it was based on the survey carried out in October 1571 in the Sabana de Tanchochol. Although Oxitipa and Tlacolula are mentioned in several colonial documents, this may be the only map where these two pueblos were ever represented. The map also shows the distances and location of the Cristóbal López, Baltazar Camacho (Tanpalaque), and Diego Hernández stockraising estancias, apart from the stud farms, *arroyos* (creeks), roads, the "*potrero* where the female donkeys are grazing," and other geographical features. This colorful rendition helps portray the ongoing processes of land privatization, and the emerging stockraising landscape of the Huasteca.

Usurpation of indigenous lands through the establishment of congregaciones is also documented in the AGN file for Miraflores. Although what follows depicts a successful story, this was more the exception than the rule. While enforcing the resettlement policy in the region in 1601, the juez congregador Alvaro de Paredes ordered the surviving 20 tributaries of the ancient pueblo of Guajico, which used to hold more than 200 houses, to move to the *cabecera* (head town) of Axtla. Two years later, the much-cited encomendero Diego de Torres Maldonado, without any title, set up an estancia in the vacated site "with people, mares, donkeys, and cows." This action elicited a conflict. Villaseca's son-in-law, Agustín Guerrero de Luna, by then also owner of the Miraflores estancia, complained before the Viceroy Marquéz de Montes Claros of the Torres' usurpation. The viceroy charged Captain Pedro Martínez de Loaysa to investigate the conflict. The captain ordered seven witnesses to appear before him, four Indians and three Spaniards. As a rule, the witnesses agreed on the illegal character of the action and the damages Torres had inflicted to his entrusted Indians, especially the destruction of their banana groves and fruit-bearing trees to clear up the land and the prohibition to cultivate the fertile floodplain of the Tampacayal River. Loaysa ordered Torres' administrator to vacate the estancia, an action that he personally supervised. While doing so, Loaysa noted that the royal policy was aimed at protecting the Indians, who were entitled to keep their ancient possessions. Finally, in a solemn ceremony carried out in February 1605, Loaysa gave back the usurped land to its original holders (Torre Villar 1995: 182-183).[36]

The fourth sketch map of the file (Fig. 4)[37] is included following the report on the Guajico resettlement. This anonymous map is quite comprehensive but although it is dated in the AGN catalogue as 1573, given the information that it contains, as explained below, it was most likely drafted in the early 1600s. It covers the current areas of Tanlajás, Tampamolón, Tancuayalab, Axtla, and Tampacán, and is rich in ancient toponyms. It includes Tampachacan, Tancolol, Tancuayalab, Guajico, Tanchumac, Tantima, Chalco, Tancuilín, Axtla, Tampacayal, Miraflores, Tanxacab,

and other pueblos and estancias. It also depicts roads, rivers, and ranges (Fig. 5). Although naive in terms of modern cartographic knowledge, it clearly records the occupation of the greater Huasteca region around 1600. The details included suggest that it was drawn by someone quite familiar with the region.

Apart from the maps, a process that is visible in the file is the consolidation of extensive stockraising in the region, particularly horse and mule-breeding. As documented in Table 1, stockraising was the Spaniards' economic system that brought land expropriation and development to the region. Although examples abound in the file, one merits special attention, the setting up of a "stockraising partnership" based on the Tancolol estancia, that was part of Miraflores. In Ixmiquilpan, in 1578, Villaseca renewed his business partnership with the deceased Cristóbal López de Curbelo, through his widow Catalina de Alba. In the inventory carried out to resume the partnership "at loss and profit" for two more years are included as Tancolol's mobile assets, namely 7 stallion donkeys, 8 stallions of different brands and colors, 82 mares, 200 yearling mules, 6 gelded horses, 25 wild colts older than two years, 3 tamed he-mules, 40 branded colts, 60 cows and 2 bulls. These animals total 433 head of larger stock, with a predominance of mules and mares.[38] These unique data exemplify the herd composition on a potrero, and confirm that stock numbers in Tancolol approximated those legally required.

Once consolidated, the Miraflores Hacienda was transformed into a mayorazgo. Although it is unknown when Agustín Guerrero de Luna, owner of the Tantima estancia, married Mariana de Villaseca, Guerrero established the entailed estate with the substantial assets of his wealthy wife (Vargas Rea 1947b: 66, 70, 101-112). The setting up of a mayorazgo, an Iberian institution that was legally inalienable (Vassberg 1984: 104), was aimed at preventing the break-up of a consolidated estate, to ensure that it could pass intact from one generation to the next (Chevalier 1976 [1953]: 363-364; Vargas Rea 1947a: 21). Although in 1620 the deceased Jesuit priest Alonso Guerrero Villaseca, son of Agustín Guerrero and Mariana Villaseca, had willed the estate to the Company of Jesus, with a *concierto* (agreement) that seriously undermined the entailed estate, Juan Guerrero Villaseca, brother of Alonso, was able to keep it intact at least for a few decades (Vargas Rea 1947b).

The survival of the mayorazgo is attested to by a late 17th century ecclesiastic procedure. In 1695, as a result of a *censura*[39] sent by the Archbishopric to the priest of Tampamolón, several witnesses declared that the lands of the Miraflores mayorazgo still "belonged to Don Juan Guerrero Villaseca."[40] By then, the Miraflores Hacienda included Tanchoy, Tancolol, Tampachacán, Miraflores, San Antonio, and Tanchumac.[41]

Discussion: A Model for Stockraising Hacienda Formation

The Miraflores Hacienda file provides unusual insights for an explanatory model to elucidate the relationships between land tenure, land use, and environmental, and semantic change. Although they appear to be autonomous, the process of consolidation of the hacienda offers some resolution as to their blurred linkages. Most importantly, Miraflores evolved from estancia to hacienda to mayorazgo. This transformation not only involved estate consolidation, but also productive, semantic, and environmental considerations. By the late 16th century Miraflores was both an hacienda *and* estancia, since the hacienda was formed by a group of estancias, one of them called Miraflores. Best documented is the evolution of the tenurial and productive dimensions, that constitute the foundation for such a model, as complemented with semantic and environmental inferences.

Land use changes help clarify the ambiguous situation of estancia and hacienda and thus to pin down their semantics. Although throughout the Miraflores file "hacienda" and "estancia"

are used interchangeably, the transformations they went through suggest some ideas to clarify their meanings. In the following discussion, it is important to bear in mind that a potrero, at first conceived of as an equine stud farm, eventually evolved, as a segmentary property, like other land grants: it was either subsumed by the hacienda or turned itself into an independent *rancho*.[42]

A key aspect in the transition from estancia to hacienda was the establishment of sedentary herds. The estancia, as Chevalier (1976 [1953]: 121) points out, represented the grazing place where the herds remained in a more or less permanent fashion. The confinement of the herds through 'fencing' gave a concrete and definite content to property 'rights.' The transition from the estancia to the hacienda, a process that varied both in time and space, had much to do with the productive transformations of stockraising, at least in the subhumid tropics. Furthermore, the word hacienda, among other meanings,[43] was equated with a herd. So, the hacienda was the mobile wealth of any stockraiser. On the contrary, the estancia was the place, the site where the mobile hacienda stopped to graze. The mobility of the hacienda arose from the mobile character of the livestock. Thus, when the herds (or haciendas) were constrained to the boundaries of an estancia, it also appeared possible to pin down the meaning of the hacienda. Through this "fixing" or "grounding" process, the hacienda occupied or filled the physical space, the *locus*, of the estancia and, thus turned it into a fixed property. In other words, the hacienda overlapped the estancia and integrated it as part of its fixed, spatial capital. Thus, as the hacienda took over the estancia the former became sedentary and, because of this, came to mean the herd *plus* its grazing site, an estate and its mobile asset at the same time.[44] To become viable and profitable enough, the emerging stockraising hacienda had to involve several estancias or segmentary properties, both coterminous and separate. The repetition of this process, through accretion, laid the foundations for subsequent large estate consolidation and, like in Miraflores, eventually made possible its transformation into a mayorazgo.

Turning the herds sedentary also occasioned semantic changes. The mobile stage of the herds gave rise to a hacienda as a mobile asset. Consequently, the grounding of the hacienda meant also the pinning down of its meaning. In other words, changes in stockraising made it possible to stabilize the meaning of the hacienda, and its seat, the estancia in a geographic sense.

The transition from the mobile to the sedentary stage of stockraising was tightly related to the evolution of the tenure system. Although it is difficult to establish a clear processual order, apparently the system worked like this: the herds remained mobile while the property system allowed a great flexibility in the setting of limits. In other words, land use and land tenure change reinforced each other. Conversely, as property rights came to be more precise, the herds had to occupy grazing stations in a more or less permanent fashion. Although the fences (see Fig. 4) were intended to stop livestock from invading the *milpas* of pueblos, the appearance of border disputes also could potentially lead to fencing. Nonetheless, it is important to bear in mind that during the formation of Miraflores the transition toward the fixing of the herds was still in motion. Because of this, agrarian conflicts were not widespread and the meanings of estancia and hacienda were still interchangeable. However, as Butzer (pers. comm., 1998) notes, the linkage between property 'rights' and mobility of stockraising is logical but it is also 'loose.' As all the land is awarded to the Spaniards and to some of the pueblos, there is no more *realengo*. Therefore, technically at least, livestock should not be able to move beyond the property lines, although they would remain mobile within those lines, or between different, unconnected 'estancias.' Unlike sheep, moved from one pasture to another through stone fences (*cañadas*), the only way to control the movements of larger stock would be

by *vaqueros* on horseback until the invention of barbed wire fencing in the mid 19th century.[45]

Herd mobility also had important environmental implications (Melville 1994; Butzer and Butzer 1992, 1995, 1997; Aguilar-Robledo 1997, 1998c). In fact, environmental impact was inversely proportional to animal mobility.[46] The increased sedentary nature of livestock, with progressive demarcation of properties, should hypothetically increase the environmental impact of pasturing. Nevertheless, the prevailing extensive stockraising (*ranching*) in Miraflores brought little environmental impact, except in those areas where livestock was concentrated (trampling in *rodeo* sites, watering places, or grassy spots). Environmental impacts of stockraising in a 16th century tropical region, as Sluyter (1995, 2001) suggests, at worst, involved changes in the floral composition —*e. g.*, overgrazing of palatable species or favoring specific floristic dominance.[47] Indeed, because of its mobile nature, stockraising could not change the type of vegetation and cause deforestation, a contrasting image from that described by Melville (1983, 1990, 1992, 1994) for the Valley of Mezquital.[48]

This result is explained by the environmental differences between the tropical lowlands and the arid and semi-arid highlands. These environmental differences were indeed influential in the following ways: (a) the lowland margins of the Gulf Coastal Plain were broken by multiple rivers, separated by irregular, hilly interfluves. Compared with the interior *Altiplano*, the landscape was therefore compartmentalized into tracts of savanna grasslands on level or flooded ground, and rougher, wooded areas in between; (b) the relatively short dry season, the deeper soils, and the milder winters provided year-round grazing in the low country, in contrast to winter dormant pastures on the Mexican plateau; (c) a denser and perennial ground-cover was also much less susceptible to accelerated soil erosion than that of the Altiplano, thus compensating for the rougher topography in the foothills where Miraflores was situated (Karl W. Butzer, pers. comm., 1998). This tropical environment allowed the deployment of a double strategy of permanent and seasonal grazing, well suited for *estante* (fixed) and *transhumante* (seasonally mobile) larger and smaller stock (Butzer and Butzer 1992: 7; 1995; Aguilar-Robledo 1998c).

These features presumably favored fragmentary property holdings and would either allow higher stocking rates or require less extensive mobility to cope with seasonal or episodic variation in pasturage. In either case, the more stable soil cover and the deeper, more fertile soil types (*e.g.* vertisols) would remain productive over much longer spans of use. Thus a profitable hacienda could be operated on a smaller scale since it required less land, and could find ways to function with ecological stability even with relatively less herd mobility. Most important, however, is that mule and horse-breeding farms required permanent and high-quality pastures. This meant that the lowland areas provided had a lucrative source of income as the demands of the transport system of New Spain and beyond expanded exponentially (Karl W. Butzer, pers. comm., 1998).

While the establishment of stockraising estancias meant the containment of herds, mobility still remained within the property limits, livestock could still wander in search of water and green grass. On the Miraflores Hacienda, livestock could go practically unrestrained with fencing being rare and without herders, the animals could roam within the natural barriers of the estancias, such as rivers and mountain ranges.[49]

The transition towards sedentary herding, from estancia to hacienda through the consolidation of the Iberian property system, as well as the increasing environmental impact, were continuous and interrelated processes.[50] This triple transformation of land use, land tenure, and environmental impact was correlative of a semantic change, from that of the hacienda as mobile property to that

of the hacienda as fixed asset. The interrelated productive, agrarian, environmental, and semantic processes evolved simultaneously. This complex transition and its consequences, of course, have to be read against the background of the depicted regional context.

To give this model a stronger sense of historical refinement, a few reflections on the changing functions and meanings of estancia and hacienda are useful. Since the etymological sources are not helpful, one must go by the implied meaning of the 16th century terms (see Butzer and Butzer 1995: 154-155). First of all, the initial terms of *sitios* or *asientos*, given out by the Mexico City *cabildo* since 1526 are for grazing rights, not property rights (Chevalier 1976 [1953]: 123). Secondly, the mobile herding economy was given major impetus by the delay to award land, until 1541-42. Thirdly, the *estancia* that in southern Spain refers to the hut where a herder remains overnight evolved from the concept of *asiento*.[51] Fourthly, by the mid-16th century an estancia is a 'headquarters' for a mobile herd, where the animals are rounded up, and where the owner must build at least a corral.[52] According to Chevalier (1976 [1953]: 144), this 'stabilization' stage was established by the late 1560s, when the estancias were more accurately defined. It goes without saying that this fixing stage would bring about far-reaching consequences. Fifthly, by its definition as a place (*sitio de estancia*) with each segment (separate grant unit) theoretically obliged to have a corral and housing for its herders, the estancia takes on the implied meaning of a segmentary property, as distinct from an estate (hacienda). Finally, the owner of several estancias, particularly if they are in different places, has an estate or hacienda (Karl W. Butzer, pers. comm., 1998).

The hacienda represents a hierarchical structure covering multiple activities in different places, with different levels of managers, like *mayordomos* (managers) and *vaqueros* (cowboys) with different groups of workers living in clusters of houses (*ranchos*) adjacent to each center or operation.[53] Some of these are Spaniards or *mestizos*, who may hold leases to *solares* of agricultural land, others may be *indios* with no more than share-cropping rights on a small plot of land. The hacienda grows out of consolidation of several estancias to become a rural institution that differs in scale and functional complexity, so that the difference is both qualitative and quantitative. Miraflores in the late 1500s is exactly midway in this transition.

In conclusion, although the 16th century primary data that record the formation and consolidation of the Miraflores Hacienda do not allow firm generalizations, they elucidate many of the details of how this process worked in the tropical lowlands of New Spain. By comparison with the estates of the Altiplano, Miraflores was relatively small, and its accretion was complex and essentially small scale, but the prices attained for stocked lands were sufficiently high to suggest good profitability, particularly from mule and horse-breeding enterprises. This suggests new angles from which to reexamine the *ideal type* of large estates of the semiarid or temperate highlands. Similarly, the outlined model suggested here draws more explicit attention to the productive, agrarian, environmental, and semantic transitions to hacienda consolidation that can be tested in further case studies both in the tropical lowlands and throughout the elevated plateaus of Latin America.

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[1] *Archivo General de la Nación* (AGN), Mexico City, *ramo Tierras*, v. 3696, exp. (*expediente*) 6, f. (*folio*) 1r (*recto*) to 101v (*vuelta*). Other primary materials, also in manuscript form, are found in the AGN *ramos Mercedes*, *General de parte*, and *Indios*, as variously cited bellow.

[2] The lengthy Gómez Nieto *visita* is to be found in the *Archivo General de Indias* (Seville, Spain), *ramo Justicia*, v. 234, n. 1, f. 772r-902v.

[3] AGN, *Ramo* (hereafter cited just by its title) *Indios*, v. 6, first part, exp. 370, f. 99r-99v; *ibid.*, exp. 445, f. 118r; *ibid.*, exp. 621, f. 165r-165v.

[4] *Ibid.*, second part, exp. 916, f. 235r. After Martínez de Loaysa (1592-1593) and Juan Bautista de Orozco (1598), Alvaro de Paredes performed as *juez congregador* beginning in 1601.

[5] *General de parte*, v. 2, exp. 81, f. 39v; see also Paso y Troncoso 1905: v. 3: 148.

[6] *Indios*, v. 4, exp. 531, f. 149v-150r; *ibid.*, exp. 550, f. 154r-154v.

[7] *Ibid.*, v. 6, first part, exp. 370, f. 99r-99v; *ibid.*, exp. 371, f. 99v-100r.

[8] *General de parte*, v. 4, exp. 385, f. 111r-111v; *ibid.*, v. 5, exp. 884, f. 185v; see also Stresser-Péan 1980: 107-108.

[9] See, for example: *Mercedes*, v. 3, exp. 372, f. 152r-152v; *General de parte*, v. 1, exp. 1200, f. 226v; and *ibid.*, exp. 1203, f. 227r.

[10] *Tierras*, v. 3696, exp. 6, f. 13r.

[11] *Ibid.,* v. 736, exp. 8, f. s/n (1541); *Mercedes*, v. 72, f. 245r-245v (1739).

[12] An *acordado* was an official statement following a land request whereby the local authorities were ordered to perform a survey to decide whether an application could effectively turn into a land grant. All acordados did not end up as land grants.

[13] This figure is based on the land grant records extant in the AGN *Mercedes* and *Tierras ramos*. It does not take into account a handful of landed mercedes and *acordados* registered by secondary sources. Though a reasonable effort was made to verify them, the lack of details rendered most of these hints almost useless (see Meade 1970: 42-51; Meade de Angulo 1983: 183-206). The estimate includes a partial transcription of the manuscript deposited in the *Krauss Collection*, Library of Congress, Washington, D.C., doc. n. 140 (Zavala 1982).

[14] Direct example includes the sale of Indian lands from an Indian community to a Spanish buyer.

[15] *Tierras*, v. 3443, exp. 4, 32 f.; *ibid.*, v. 248, first part, exp. 8, 26 f.; *ibid.*, v. 387, exp. 2, 24 f. See also Velázquez 1987 [1898-1899]: v. 4: 334-365.

[16] The *composiciones* were a fiscal, administrative, and legal measure to confirm land grants provisionally awarded by the viceroy, by granting a royal patent. The process required, at least in theory, the checking out of property titles to see whether a given proprietor possessed more lands than those to which he was legally entitled. If this was the case, the owner had to pay to the King, in installments, an additional fee proportional to the difference so as to legalize the tenure. This "agrarian reform" included individual patents, based on three royal decrees of 1591, and the collective composiciones after 1643, preceded by decrees of 1631, 1635, and 1640. Though at first the composiciones implied the measuring of the properties to be legalized, once the collective *composición* of Huejotzingo and Atlixco had become a model, many landowners paid the Crown to have their lands *compuestas* "in bulk," that is to say, without the requisite surveys. That tended to legalize 'squatting' and usurpation of Indian lands, representing a legal step that favored the formation of

great latifundia (Fonseca and Urrutia 1851: 398-428; McBride 1923: 56-58; Chevalier 1976 [1953]: 326-338; Solano 1976: 649-670; 1991: 43-74). On the process of transfer and consolidation of the Iberian tenurial system see also Paso y Troncoso (1939-1940: v. 7: 57; v. 15: 214-227), and Aguilar-Robledo (1998a).

[17] He owned as much as 1.5 million pesos. Apart from tithes, between 1572 and 1580 Villaseca donated 156,690 pesos to the Jesuits (Vargas Rea 1947a: 9, 11, 15).

[18] *Tierras*, v. 3696, exp. 6, f. 3v, 15r.

[19] *Ibid*., f. 14r.

[20] These types of land tenure are the regional equivalents to *altepetlalli* (*altepetl*'s land), and *calpollalli* (*calpolli*'s land) that Lockhart (1992) cites for the Valley of Mexico.

[21] *Ibid*., f. 26v-36v, 49v.

[22] *Ibid*., f. 7r.

[23] Apart from the requisite equine population, it was also common to stock a stud farm with some cattle.

[24] This property was owned by the deceased Francisco de Soto and, before him, the pueblo of Topla.

[25] According to an estimate, the average bulk weight of a cow in 1575 was 155 kg (Chevalier 1976: 141, 432, Note 91).

[26] Although livestock prices varied regionally throughout the 16th century depending on supply and demand. In distant places such as Tabasco, for example, "horses were cheaper than cows" in 1575; generally speaking, a horse was worth more than 100 pesos, and a mare 60 to 70 (Chevalier 1976: 139, 426, Note 3). García Martínez (1994: 22) notes that "...at first, mules were as expensive as horses."

[27] *Tierras*, v. 3696, exp. 6, f. 70r.

[28] *Ibid*., v. 3696, exp. 6, f. 71r, 57r-72r.

[29] Because of this, the land covered by this acordado is not taken into account in Miraflores estimated surface. Had this been the case, it would have increased to 21,153 hectares.

[30] Numbers 2606, 2607, 2608 and 2609 of the AGN catalogue. According to this source, the four maps included in the file were drafted in 1573. However, as argued in the body of the text, three of them (2606, 2607, 2608) were most likely sketched in 1571. The fourth (2609) was most likely drafted in the early 1600s.

[31] *Tierras*, v. 3696, exp. 6, f. 73r.

[32] *Ibid*., f. 72r. This map is erroneously located in Veracruz by Von Wobeser (1989: 192-193). The Río Tamacal is referred to as "Tampacayal" in the body of the file.

[33] *Ibid*., f. 71r.

[34] *Ibid*., f. 58r.

[35] At present it is known as the Moctezuma River.

[36] *Ibid*., f. 79r-87r. The royal decree commanded that "the sites and lands vacated by resettled Indians must not be granted to anybody else" (Torre Villar 1995: 182).

[37] *Tierras*, v. 3696, exp. 6, f. 88r.

[38] *Ibid*., f. 75v.

[39] A *censura* was a summons, called upon from the pulpit and with threat of excommunication, to compell all those who knew something on a specific subject, in this case the Miraflores mayorazgo, to make a deposition before the ecclesiastic judge "to clear their conscience" (*Tierras*, v. 3696, exp. 6, f. 94r-94v).

[40] *Ibid*., f. 100v-101r.

[41] For a reason not explained in the file, though it is stated that the mentioned stockraising estancias belonged to Miraflores, it is also asserted that they were possessed as tenants or holders by persons not related to the Guerrero Villaseca family. For example, Tancolol, owned by Villaseca in 1578, was in 1695 in the hands of Francisco Martínez de Loaysa, who also possessed Tanchoy. Juan García Caballero had leased "Miraflores and Tampachacan." In the late 17th century, some descendants of the Guerrero family, including captain Bartolomé Guerrero and captain Luis Moreno Monroy y Guerrero Villaseca, appeared as holders of the mayorazgo titles (*Tierras*, v. 3696, exp. 6, f. 74v-77r, 94r-101r).

[42] Chevalier (1976 [1953]: 407-408) suggests three meaning for the word *rancho* during the early colonial era: first,

a hut or provisional refuge used by shepherds, like the *estancia* of southern Spain; second, a modest independent stockraising station; third, a dwelling site annex to an hacienda. Further, as the same author (*ibid*.: 427, Note 22) points out, sometimes rancho was equated with a herd (*hato*), something quite frequent in the Valles jurisdiction during the 17th century. Brading (1978: xvii) defines a rancho as a "small landed property, a subordinate section of an hacienda").

[43] It also meant a fortune, an exchequer, and the widely known large rural landholding (Schell 1986: 57-58).

[44] Hoffmann and Skerritt (1992: 669) suggest that the notion of landed property evolved in tight connection with herd size.

[45] García Martínez (1995) describes an interesting case of a 305 km *cañada* to move cattle from Pénjamo to Huehuetoca in the late 18th century.

[46] As Butzer and Butzer (1995: 181-182) rightly conclude, "Spanish livestock raising and related management practices did not lead to ecological deterioration..." The reason was that early colonial stockraisers were aware of the risks of overstocking, and they "adhered to a highly mobile management strategy, in order to limit environmental impact" (see also Butzer and Butzer 1997: 170-171). Mobility involved local, intermediate, and long-distance herd movements. This was the case in Miraflores, and the rest of the Valles jurisdiction (Aguilar-Robledo 1998c: 23-29). Finally, as Sluyter (1996: 167-169) shows for the 16th century coastal piedmont of central Veracruz, stockraisers resorted to local transhumance to cope with pasturage scarcity.

[47] A case in point is *Parmentiera edulis*, a shady plant that becomes conspicuous in livestock's resting areas because of its leaves and succulent fruits.

[48] Butzer (1990: 144, 148, Note 6), and Butzer and Butzer (1995: 177) openly disagree with Melville's methodological criteria and catastrophic conclusions. Further, although including a small part of her study area, both authors conclude that "continuity rather than [environmental] change" should be emphasized (Butzer and Butzer 1997: 170).

[49] Round ups were carried out in the site named Tanchumac, "where the main culling of the Miraflores Hacienda [livestock] used to take place," according to a 1695 witness deposition (*Tierras*, v. 3696, exp. 6, f. 100v-101r).

[50] Here it makes sense Sluyter's (1997: 37, Note 3) suggestion that "... the emergence of the hacienda from the estancia connoted an ecological transformation."

[51] According to Schell (1986: 41), estancia derives from *estantes*, which "refers to a nonmigratory herd, and was used in other contexts to mean a fixed position for something with mobile capabilities..."

[52] It is symptomatic that during this 'stabilization' stage, as Chevalier (1976 [1953]: 145, 434, Note 104) points out, "estancia" was sometimes equated with "dehesa" (enclosed pasture). This illustrates what was in progress: the rising of incipient property rights (*ibid*.: 121, 137-150).

[53] The surviving clusters, through time, turned into full-fledged communities and *rancherías* — *i.e.* disperse clusters of houses.

References

Aguilar-Robledo, M. 1997. Indios, ganado, tenencia de la tierra, e impacto ambiental en la Huasteca Potosina, siglos XVI y XVII. *Huaxteca. El hombre y su pasado* 2(3): 15-25.

_____. 1998a. La transferencia y consolidación del sistema español de tenencia de la tierra en una región indígena fronteriza de la Nueva España: el oriente de San Luis Potosí, siglos XVI y XVII. *Espacio y desarrollo* 10: 47-74.

_____. 1998b. Haciendas y condueñazgos en la Huasteca Potosina: notas introductorias. In *Nuevos aportes al conocimiento de la Huasteca*, J. Ruvalcaba, ed., pp. 123-152. Mexico City: Centro de Investigaciones y Estudios Superiores en Antropología Social/ Centro de Investigaciones Históricas de San

Luis Potosí/Centro de Estudios Mexicanos y Centro Americanos/Instituto Politécnico Nacional/Instituto Nacional Indigenista/ Universidad Autónoma de Chapingo.

_____. 1998c. Ganadería, tenencia de la tierra, e impacto ambiental en una región fronteriza de la Nueva España: la jurisdicción de la Villa de Santiago de los Valles de Oxitipa, 1527-1821. *Estudios geográficos* 69(230): 5-34.

Aguilar-Robledo, M. and Contreras Servín, C. 1995-1996. Cartografía del siglo XVI. Tanlu: una de las primeras mercedes otorgadas en la Huasteca Potosina. *Boletín. Archivo General de la Nación* 6: 37-68.

Anonymous. 1936. Encomiendas de indios. *Boletín del Archivo General de la Nación* 7(3): 352-361.

Avila Palafox, R. ed. 1992. *Las formas y las políticas del dominio agrario. Homenaje a François Chevalier*. Guadalajara: Universidad de Guadalajara.

Brading, D. 1978. *Haciendas and Ranchos in the Mexican Bajío. León 1700-1860*. Cambridge: Cambridge University Press.

Butzer, K.W. 1992. Government Policy and the Emergence of Cattle-Raising in the Gulf Tropical Lowlands of New Spain, 1550-1600. Unpublished Paper, *Meeting of the Conference of Latin Americanist Geographers,* Santo Domingo, Dominican Republic.

_____. 1993. The Sixteenth-Century Environment of the Central Mexican Bajío: Archival Reconstruction from Colonial Land Grants and the Question of Spanish Ecological Impact. In *Culture, Form, and Place: Essays in Cultural and Historical Geography*, K. Mathewson, ed., pp. 89-124. Baton Rouge, LA: Geoscience and Man.

_____. 1995. Transfer of the Mediterranean Livestock Economy to New Spain: Adaptations and Consequences. In *Global Land Use: A Perspective from the Columbian Encounter,* B. L. Turner II, A. Gómez Sal, F. González Bernáldez, and F. di Castri, eds., pp. 151-193. Madrid: Consejo Superior de Investigaciones Científicas.

_____. 1997. The 'Natural' Vegetation of the Mexican Bajío: Archival Documentation of a 16th-Century Savanna Environment. *Quaternary International* 43-44: 161-172.

_____. 1998. Personal communication, University of Texas at Austin.

Butzer, K.W. and Butzer, E.K. 1992. Early Spanish Settlement and Land Use Patterns in the Lowlands of Central Vera Cruz 1519-1618. Unpublished paper, *Symposium on New Perspectives on Central and Southern Gulf Coast Settlement Patterns, Congreso Internacional de Antropología e Historia*, Veracruz, Mexico.

Carrera Stampa, M. 1950. The Evolution of Weights and Measures in New Spain. *Hispanic American Historical Review* 30(1): 2-24.

Chevalier, F. 1976 [1953]. *La formación de los grandes latifundios en México. Tierra y sociedad en los siglos XVI y XVII*. Mexico City: Fondo de Cultura Económica.

Chipman, D. E. 1967. *Nuño de Guzmán and the Province of Pánuco in New Spain, 1518-1533*. Glendale, CA: The Arthur H. Clark Company.

Cline, H. F. 1949. Civil Congregations of the Indians in New Spain, 1598-1606. *Hispanic American Historical Review* 29(3): 349-369.

Cronon, W. 1983. *Changes in the Land. Indians, Colonists, and the Ecology of New England*. New York: Hill and Wang.

Cuevas, M. 1913. Cartas de fray Nicolás de Witte. *Anales del Museo Nacional de Arqueología, Historia y Etnología* 5(2): 136-151.

Doolittle, W. E. 1987. Las Marismas to Pánuco to Texas: The Transfer of Open Range Cattle Ranching from Iberia through Northeastern Mexico. *Yearbook, Conference of Latin Americanist Geographers* 13: 3-11.

Fonseca, F. and C. Urrutia. 1851. *Historia general de la real hacienda escrita por orden del virrey, Conde de Revillagigedo*. Mexico City: Imp. García Torres.

Galván, M. 1865. *Ordenanzas de tierras y aguas...en la República Mexicana*. Mexico City: Librería del Portal de Mercaderes.

García Icazbalceta, J. 1869. Documentos históricos. Viajes a México en los siglos XVI, XVII y XVIII. *Boletín de la Sociedad Mexicana de Geografía y Estadística* 1: 446-456.

García Martínez, B. 1994. Los primeros pasos del ganado en México. *Relaciones. Estudios de historia y sociedad* 59: 11-44.

_____. 1995. Los caminos del ganado y las cercas de las haciendas. Un caso para el estudio del desarrollo de la propiedad rural en México. *Historia y Grafía* 5: 13-29.

Gerhard, P. 1977. Congregaciones de indios en la Nueva España antes de 1570. *Historia mexicana* 26(3): 347-395.

Hoffmann, O. and Skerritt, D. 1992. Enquête sur une figure peu connue du monde rural: le *ranchero* du Mexique. *Cahiers du Sciences Humaines* 28(4): 665-684.

Jarquín Ortega, M. T. ed. 1990. *Origen y evolución de la hacienda en México: siglos XVI al XX*. Mexico City: El Colegio Mexiquense/ Universidad Ibero Americana/Instituto Nacional de Antropología e Historia.

Jordan, T. G. 1993. *North American Cattle-Ranching Frontiers*. Albuquerque: University of New Mexico Press.

Lockhart, J. 1969. Encomienda and Hacienda: The Evolution of the Great Hacienda in the Spanish Indies. *Hispanic American Historical Review* 49(3): 411-429.

_____. 1992. *The Nahuas After the Conquest*. Stanford: Stanford University Press.

Matesanz, J. 1965. Introducción de la ganadería en Nueva España, 1521-1535. *Historia mexicana* 14(4): 533-566.

McBride, G. M. 1923. *The Land Systems of Mexico*. New York: American Geographical Society.

Meade, J. 1970. *Historia de Valles. Monografía de la Huasteca Potosina*. San Luis Potosí: Sociedad Potosina de Estudios Históricos.

Meade de Angulo, M. 1983. *La Huaxteca Potosina en la época colonial. Siglo XVI*. Mexico City: Velux.

Melville, E. G. K. 1983. *The Pastoral Economy and Environmental Degradation in Highland Central Mexico, 1530-1600*. Unpublished PhD thesis, Department of Anthropology, University of Michigan.

_____. 1990. Environmental and social change in the Valle del Mezquital, Mexico, 1521-1600. *Comparative Studies in Society and History* 32(1): 24-53.

_____. 1992. The long-term effects of the introduction of sheep into semi-arid subtropical regions. In *Changing Tropical Forests,* H. K. Stern, and R. P. Tucker, eds., pp. 144-153. USA: Forest History Society.

_____. 1994. *A Plague of Sheep. Environmental Consequences of the Conquest of Mexico*. Cambridge: Cambridge University Press.

Moreno García, H., ed. 1982. *Después de los latifundios. La desintegración de la gran propiedad agraria en México*. Zamora, Mexico: El Colegio de Michoacán.

Nickel, H. J. 1988. *Morfología social de la hacienda mexicana*. Mexico City: Fondo de Cultura Económica.

Paso y Troncoso, F. ed. 1905. *Papeles de Nueva España*. Madrid: Sucesores de Rivadeneyra.

_____. 1939-1940. *Epistolario de Nueva España, 1505-1818*. Mexico City: José Porrúa.

Pérez Zevallos, J. M. 1993. *Los indios de la Huasteca (1521-1553)*. Mexico City: Unpublished manuscript.

_____. 1998. Las visitas de la Huasteca (siglos XVI-XVIII). In *Nuevos aportes al conocimiento de la Huasteca,* J. Ruvalcaba, ed., pp. 95-122. Mexico City: Centro de Investigaciones y Estudios Superiores en Antropología Social/Centro de Investigaciones Históricas de San Luis Potosí/Centro de Estudios Mexicanos y Centro Americanos/Instituto Politécnico Nacional/Instituto Nacional Indigenista/ Universidad Autónoma de Chapingo.

Prem, H. 1978. *Milpa y hacienda. Tenencia de la tierra indígena y española en la cuenca del Alto Atoyac, Puebla, México (1520-1650)*. Wiesbaden: Franz Steiner Verlag.

_____. 1992. Spanish Colonization and Indian Property in Central Mexico, 1521-1620. *Annals of the Association of American Geographers* 82(3): 444-459.

Robelo, C. 1995 [1908]. *Diccionario de Pesas y Medidas Mexicanas Antiguas y Modernas, y de su Conversión para Uso de los Comerciantes y de las Familias* (Facsimile copy). Mexico City: Centro de Investigaciones y Estudios Superiores en Antropología Social.

Ruvalcaba Mercado, J. 1996. Vacas, mulas, azúcar y café; los efectos de su introducción en la Huasteca, México. *Revista Española de Antropología Americana* 26: 121-141.

Schell, W. 1986. *Medieval Iberian Tradition and the Development of the Mexican Hacienda*. Syracuse: Syracuse University Press.

Scholes, W. V. 1946. The Diego Ramírez Visita. *The University of Missouri Studies* 22(4): 1-99.

Sluyter, A. 1995. *Changes in the Landscape: Natives, Spaniards, and the Ecological Restructuration of Central Veracruz, Mexico, during the Sixteenth Century*. Unpublished PhD thesis, Department of Geography, University of Texas at Austin.

_____. 1996. The Ecological Origins and Consequences of Cattle Ranching in Sixteenth-Century New Spain. *The Geographical Review* 86(2): 161-177.

_____. 1997. Landscape Change and Livestock in Sixteenth-Century New Spain: The Archival Data Base. *Yearbook, Conference of Latin Americanist Geographers* 23: 27-39.

_____. 2001. Ganadería española y cambio ambiental en las tierras bajas tropicales de Veracruz, México, siglo XVI. In *Historia ambiental de la ganadería en México,* L. Hernández ed., pp. 25-40. Mexico City: Instituto de Ecología-ORSTOM.

Solano, F. 1976. El régimen de tierras y la significación de la composición de 1591. *Revista de la facultad de derecho de México* 26(101-102): 649-670.

_____. 1991. *Cedulario de Tierras. Compilación de Legislación Agraria Colonial (1497-1820)*. Mexico City: Instituto de Investigaciones Jurídicas, Universidad Nacional Autónoma de México.

Stresser-Péan, G. 1977. *San Antonio Nogalar. La Sierra de Tamaulipas et la frontière nord-est de la Mésoamérique*. Mexico City: Mission Archeologique et Ethnologique Française au Mexique.

_____. 1980. Le nord de la Huasteca. *Actes du XLIIe Congrès International des Américanistes* 9B: 103-111.

Torre Villar, E. 1995. *Las Congregaciones de los Pueblos Indios. Fase Terminal: Aprobaciones y Rectificaciones*. Mexico City: Universidad Nacional Autónoma de México.

Van Young, E. 1983. Mexican Rural History since Chevalier: The Historiography of the Colonial Hacienda. *Latin American Research Review* 18(3): 5-61.

Vargas Rea, L., ed. 1947a. *Donación de bienes a la Compañía de Jesús en el siglo XVI*. Mexico City: Vargas Rea.

_____. 1947b. *Concierto entre el Mayorazgo de Guerrero y la Compañía de Jesús*. Mexico City: Vargas Rea.

Vassberg, D. E. 1984. *Land and Society in Golden Age Castile*. Cambridge: Cambridge University Press.

Velázquez, P. F., ed. 1987 [1898-1899]. *Colección de documentos para la historia de San Luis Potosí*. San Luis Potosí: Archivo Histórico del Estado.

Von Wobeser, G. 1989. *La formación de la hacienda en la época Colonial. El uso de la tierra y el agua*. Mexico City: Universidad Nacional Autónoma de México.

Zavala, S. 1952. Nuño de Guzmán y la esclavitud de los indios. *Historia mexicana* 1(3): 411-428.

_____. 1982. *Libros de asientos de la gobernacion de la Nueva España. (Periodo del virrey don Luis de Velasco, 1550-1552)*. Mexico City: Archivo General de la Nación.