

Social and environmental change in Colonial Michoacán, west  
central Mexico

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## **Abstract**

### **Social and environmental change in Colonial west central Mexico: an archival essay.**

The fall out from the Quincentennial anniversary of the “discovery” of the Americas has yet to settle. One of the key issues still in need of address concerns the nature of the social and environmental change wrought by colonialism. Until recently, research in this field has been determined by a series of antiquated myths, largely creations of Eurocentric Renaissance and Romantic philosophies. This study aims to provide a more objective insight into the degree of regional Colonial impact by focusing on an archival reconstruction of post-Conquest social and environmental change in the highlands of Michoacán, west central México.

Archival evidence suggests that the Spanish encountered an already degraded landscape in this region, reflective of several centuries of pre-Hispanic settlement and exploitation. Contrary to conventional wisdom, however, little evidence emerges to suggest that there was an immediate and deleterious environmental impact following European contact, despite the introduction of livestock and plough technology to an area where they had hitherto been absent. Indeed, tangible evidence of ecological disturbance in the area does not emerge until the 18th century - a period recognised to have been one of population recovery and resource monopolisation. A detailed survey of litigation documents suggests that this period witnessed an acceleration in the number of indigenous claims for land reinstatement, concomitant with a marked increase in the number of references to infertile and degraded territory and apparent heightened concern over water sources.

It is here argued that de-intensification of land use in the wake of indigenous depopulation and the imposition of conservative land use practices accounts for the negligible environmental impact in the early post-Conquest period. By the later 17th and 18th centuries, progressive climatic drying, population expansion, resource monopolisation and social inequality had combined to create a period of acute resource stress and landscape instability and consequent civil unrest. It was this untenable situation that was to play itself out in the Wars of Independence that characterised the first two decades of the 19th century.

## Acknowledgements

I think it was on the plane over to Mexico on a reconnaissance trip in May 1995, that I began to appreciate what a Ph.D. was all about. Here I was about to undertake a piece of research in an area of the world which had until that time evoked only text book images of poverty, earthquakes, pollution and overcrowding. The language had a few months earlier been alien to me, and to a geography and archaeology student with no experience of archival investigation, the prospect of interpreting social and environmental history from manuscripts written in ancient Castillian was somewhat daunting. In retrospect, the past three years have admittedly been challenging and at times traumatic, but on the whole, truly fascinating, educational and immensely enjoyable. For this, I am indebted to a group of people here in Sheffield, in Mexico and at home in Liverpool, all of whom deserve recognition.

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## Glossary of Spanish terms and phrases employed in the text

*Agostadero*: seasonal grazing

*Alcade*: judge and council member

*Alcade Mayor*: Spanish official in charge of a district

*Alcadía*: district or jurisdiction of an *alcade mayor*

*Arroyo*: ephemeral stream/ channel

*Audiencia*: court and governing body under the viceroy, or the area of its jurisdiction.

*Baldías*: vacant or public lands

*Barranca*: ravine

*Barrío*: neighbourhood or community

*Caballería de tierras*: unit of agricultural land, measuring about 42.5 hectares.

*Cabecera*: head town

*Cabildo*: municipal council

*Capellanía*: entrusted property and funds left to and held by the priesthood /brotherhood.

*Cañada*: low-lying wet location, gully/ or “sheep walk” when used in terms of transhumance practices.

*Casta*: group of mixed racial ancestry

*Cédula*: royal (or other) order

*Cerro/ Cerrito*: hill, small hill/ hillock.

*Citaqua* (sometimes also written *Zitaqua/ sitaqua*): plot of land

*Cofradía*: sodality; a lay brotherhood, responsible for financing religious services and maintaining the church.

*Composición de tierras*: legalisation of land titles

*Congregación*: congregation or concentration of formerly scattered *Indio* communities.

*Corregidor*: Spanish officer in charge of a district

*Corregimiento*: Institution office or a jurisdiction of a *corregidor*.

*Criollo*: Mexican born of Spanish descent

*Despoblado*: depopulated/ abandoned town site

*Dueño*: land owner/ landlord.

*Ejido*: municipal common lands

*Encomendero*: possessor of an *encomienda*.

*Encomienda*: grant of Indian tribute and labour/ area of the Indians granted.

*Eriaza*: uncultivated land

*Escribano*: secretary or scribe

*Español*: Spaniard or Creole

*Estancia*: sub-ordinate Indian community; ranch

*Estancia de ganado mayor*: cattle ranch.

*Estancia de ganado menor*: sheep/ goat station.

*Expediente*: file of papers bearing on a case

*Fanega*: unit of dry measure; 1.5 bushels. Can also mean a measure of land (31 or 178 ha in size).

*Ganado mayor*: cattle, horses, mules or donkeys

*Ganado menor*: sheep, goats or pigs

*Gobernador*: governor

*Hacendado*: owner of an *hacienda*

*Hacienda*: landed estate

*Labor*: farm, generally for agriculture

*Legajo*: bundle of documents

*Legua*: league

*Llanos*: flatlands

*Loma*: small hill

*Maguey*: agave cactus

*Matlazáhuatl*: disease outbreak of epidemic proportions (probably yellow fever or typhus).

*Mayorazgo*: entailed estate

*Merced*: land grant

*Mesquite*: mesquite/ mesic vegetation

*Mesta*: stockmen's association

*Mestizo*: individual of mixed ancestry (usually *Indio* and Spanish).

*Milpa*: planted maize plot

*Monte*: forest, region of brush or scrub, mountain

*Mulatto*: individual born out of African/ Indian liaisons.

*Nopal*: prickly pear cactus (*Cactus opuntia*).

*Ojo de agua*: spring of water

*Partido*: district

*Pelado*: stripped of vegetation (literally “bald”).

*Peninsulares*: Spanish immigrants

*Pleito*: legal dispute

*Principal*: member of the *Indio* upper class; a hereditary status.

*Pueblo*: Indian town

*Quebrada*: gorge, or used as an adjective with land/ *tierra* to mean broken terrain.

*Rancho*: ranch

*Realengos*: unappropriated or royal lands

*Regidor*: councilman in a *cabildo*.

*Relación*: descriptive report

*Repartimiento*: labour draft

*República de Indios*: Indian community/ republic.

*Sementera*: planted field

*Tasación*: tribute levy

*Temporal*: unirrigated cropland

*Tepetate*: hardpan layer, caliche

*Testigo*: witness/ impartial adjudicator

*Tierra caliente*: a warm, hot lands.

*Tierra fria*: cold lands

*Tierra templada*: temperate region

*Tributo*: tribute

*Vara*: unit of measure, roughly 33 inches. Can also mean staff or office of a *cabildo* member.

*Vecino*: permanent resident of a village, town or city etc.

*Viceroy*: highest ranking representative of the Spanish crown.

*Vista de ojos*: boundary inspection

## Chapter One

### Introduction: contexts of Colonialism

Western historical tradition places the initiation of Colonialism with the European “encounter” with America. The lands Columbus sighted on the 12th October, 1492 might not have been the much-mythicised East that had captivated mariner’s minds for over a century, but their discovery was to set in motion four hundred years of European investment, exploitation, socio-political and environmental change in this so called “New World”<sup>1</sup>.

Colonialism did not, however, begin with the Columbian “discovery” of America. It has recently been suggested, for example, that this event should not be viewed in historical isolation (Schwartz, 1994), but should rather be seen as representative of a continuous and global process that had occurred many times before 1492 and increasingly thereafter. There had, for instance, been other periods of Conquest and colonisation, both European and non-European, before the great “voyages of discovery” of the 15th and 16th centuries. One must consider, for example, the Classical colonisations of the Romans and the Greeks, while the Arabs and Turks conquered the coasts of the Mediterranean, parts of Africa and west Asia, reaching as far as India in the seven centuries leading up to the first Iberian explorations overseas. Hindus from India had, in contrast, colonised south-east Asia in earlier centuries, and still controlled much of its trade by the time the Chinese explored the eastern seaboard of Africa and colonised Tibet in the 15th century. Similarly, the expansion of the Russian empire predates the European enterprises overseas by over two centuries. Starting in the 12th century, for example, the Russians extended their territorial domains in the search for fur, although colonisation was to be arrested by the Mongol domination of the succeeding two hundred years.

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<sup>1</sup> A term first coined by explorer and self-publicist Amerigo Vespucci. German cosmographer, Martin Waldseemüller, named the lands America in honour of Vespucci (Phillips, 1994).

It was the European endeavours of the 15th to 19th centuries, however, that were to alter the *dimensions* of colonisation, the nature by which it operated and which, in the words of Ferro (1997), initiated the Colonial processes that “set the seal on the unification of the world”. In this respect, the significance that the 15th and 16th century so called “voyages of discovery” are accorded in Eurocentric historical perspectives would appear to be justified.

### **1.1 Colonial ventures and the American template**

The maritime prowess and quest for adventure that enabled the Europeans to reach parts of America, Asia or Africa in the 15th and 16th centuries did not necessarily render them capable of building Colonial empires in all these locations. In the first three centuries of colonisation, for example, the Europeans found themselves in contrasting situations in different parts of their newly discovered world. In Islamic North Africa, they held little advantage over the Turks or Arabs. Throughout the Indian Ocean and further east, they lacked technical superiority, and were, moreover, handicapped by distance, small numbers and a lack of cavalry. Whatever their intentions, the Europeans could not at first have easily established empires in any of these places.

By contrast, most parts of Sub-Saharan Africa and all areas in America were weaker than Europe in terms of their military and industrial capabilities, and were moreover, sensitive to the diseases which the Europeans carried with them. Indigenous society in these areas was thus more easily subsumed under European control. Consequently, the Portuguese had little difficulty in establishing their power up the Congo and the Zambezi in the early 16th century and could have created Colonial empires here and elsewhere in Africa. The fact they did not was largely a reflection of the climatic constraints to European agriculture in Africa. Europeans thus chose not to expand territorial or political domination there but rather to exploit the trade in gold dust, slaves and ivory. The exception to this was the establishment in 1652 of a Dutch peasant colony in the Cape which evolved around cereal production and the rearing of livestock (Harrison, 1987). Not until

the close of the 19th century, however, would territorial expansion in Africa become more of a European concern, typified by the politically-motivated “scramble” for territory that took place in the 1880s between the five major Colonial powers of the period - France, Germany, England, Portugal and Belgium. It was America, however, that was to initially prove the most attractive and technically possible Colonial venture, and which provided the outlet for the first exploitative European overseas endeavours.

For the Europeans of the 15th, 16th and 17th centuries profit was usually the prime motive underlying expansion overseas. Their empires were to emerge almost as a by-product of this pursuit of wealth. Several stimuli, for example, influenced the Iberian “discovery” of the Americas. There was the quest for adventure and the search for the fabulous and the fantastic fostered by the so-called “novels of chivalry” popular in Medieval Europe. Yet there was also an apparent religious preoccupation stemming from the so-called “Age of Crusades” in which the Christian empire aimed to strengthen and extend its dominion after nine centuries of Islamic rule. Yet it was the search for the rapid accrual of wealth either by seeking the so-called “spice route” to the east or through the discovery of gold that provided the main driving force behind some of the first exploratory Iberian ventures. When the respective monarchs of Spain and Portugal authorised the subjugation of the Americas, for example, their prime concern may well have ostensibly been the diffusion of Christianity and of their own influence. The expeditionary armies, however, were not royal armies so much as commercial enterprises seeking rewards for their bellicose endeavours in Conquest in the form of labour, tribute, gold or land. Recent research has also suggested that the role of Christendom in the *Reconquista* of Spain, let alone its influence in exploration overseas, was “propelled by more earthly impulses than earlier and more fastidious scholars chose to contemplate: demographic pressure, climatic change, developing military technology, the needs of an emergent aristocratic elite, the appetites of sheep and cattle” (Highfield, 1989, cited in Phillips, 1994). A series of stimuli: myth and legend made popular in the 15th century novels of chivalry (Bodmer,

1992), commerce, avarice and a range of social and environmental determinants, camouflaged by apparent religious zeal, are thus thought to have provided a composite driving mechanism for the 15th century Iberian explorations.

More than the taste for adventure or the struggle against Islam, it was fishing which provided the initial motivation for French interest in Canada. This enterprise was later to be supplanted by their investment in the fur trade along the St. Lawrence River, while French agricultural colonies were established further south. Up until the close of the 16th century, England was similarly only interested in exploration if it led to trade routes and the advancement of commerce. Enterprises in the West Indies, India, the North Atlantic and Russia were all initially profit driven (Harrison, 1987), only later being buttressed by the idea of establishing English colonies, an objective in part stimulated by religious zeal, in part by mercantilism (Ferro, 1997).

The Dutch had a similarly simplistic plan to earn money when they set out across the globe. In Java and in the East Indies, for example, the Dutch considered only returning home with their fortune in spices. Their investments in the Americas, in contrast, stemmed from the creation of commercial enterprise in the form of the West India Company which by 1648 came to possess three American colonies.

It was from these early Colonial investments that European empires overseas were to expand, such that by the early 18th century the geographical distribution of European overseas possessions was well-established. Its obvious feature, however, was that colonies and bases were very unevenly distributed in different parts of the world. America was gradually being covered by the territorial dominions of Spain, Portugal, England, France and Holland. In Africa in contrast, and in the east, although there were many European settlements, they were inhabited by relatively few Europeans. By the 19th century, however, although the colonies in the Americas had gained Independence and Colonial empires were in retreat in these locations, European powers had penetrated into every continent. The Industrial Revolution had by this time allowed for the development of

overseas interests in areas hitherto rendered difficult, while the internal expansion of existing Colonial bases was taking place in response to frontier insecurities (Fagan, 1984; Harrison, 1987; Ferro, 1997). So began a second phase of Colonial expansion in Asia, Africa and by this time also Australasia, but driven more by the quest for political and territorial power than pure commercialism.

It was the European endeavours in the Americas, however, that were to provide the template, albeit crafted by different stimuli, for the later imperialist enterprises of the 19th and 20th centuries. In this respect, the impacts of European Colonial activities in the Americas deserve special attention.

### **1.2 The Colonial model: Spanish Conquest and Colonisation**

At every stage of European overseas expansion, there was one or more political power which overshadowed the rest. In the 16th, 17th and 18th centuries, these were Spain and Portugal. Their primacy lay not only in the fact that they were the “discoverers” of the New World, but that they provided a model of its Conquest and colonisation which other Europeans would employ or adapt. It was the exploits of Spain in Mexico, however, that showed Europe how to establish a Colonial *empire* in the New World.

Spain had itself been subject to Colonial rule. Between 206 BC and 409 AD the area was occupied by the Romans. They in turn were followed by the Visigoths - a Germanic people - who came to rule Spain until the arrival of the Muslims in 713 AD. From the eleventh to the middle of the thirteenth century, however, the region of Muslim Spain divided against itself, could not make an effective resistance and thus succumbed to the counter attack of Christianity underway by this time. Through what became known as the Age of Crusades, the Christian powers thus began an offensive which enabled them to re-conquer all of the peninsula except for a narrow strip in southern Andalusia.

Each one of the dominant Colonial powers to govern Spain was, however, to leave its own idiosyncratic imprint on Spanish society and landscape, and in turn helped to influence the way the Spanish Conquest and colonisation process in

the New World would operate. The first Spanish colonists, for example, came equipped with a complicated and polyglot administrative and political system reflective of centuries of both Roman and Islamic Colonial rule. With the benefit of their own experience as colonists gained in the protracted *Reconquista* of Spain from Muslim control and the still recent Conquests of the Moorish kingdom of Granada (1482-1492), the Canary Islands (1478-1496) and in the Caribbean (Quesada, 1994), the Spanish came to mainland America with their own theoretical “blueprints” for imposing territorial expansion and control. It was Mexico that was to provide the testing ground for these “blueprints”.

Despite the dense pre-Hispanic populations and advanced military organisation that prevailed in certain areas of Mexico at the time of their arrival, especially in the central Basin area of the country - the hub of pre-Hispanic cultural activity - the Spanish were able to establish control with relative ease and rapidity. Their success stemmed from their superior weaponry<sup>2</sup> and cavalry, but perhaps more significantly, from their exploitation of internal rifts and rivalries that existed between pre-Hispanic cultures at the time of contact. Creating an alliance with the Tlaxcaltecs - the long standing enemies of the Aztecs - as well as with other lesser tribes, a very small number of Spanish *conquistadores* were in effect able to defeat what can only be considered a formidable army of Aztec warriors. Moreover, in the wake of this victory in 1521, other civilisations of equal strength and status to the Aztecs were passively to concede power to the Spanish. The same tactic - that of taking advantage of internal friction and rivalries - was later to be employed by the French in their Colonial exploits in the Maghreb, the British in India and the Russians in the Caucasus (Ferro, 1997).

Yet it was in colonisation of this New Spain<sup>3</sup> and settlement that Spanish “opportunism” was to be demonstrated more fully. With the failure to find the

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<sup>2</sup> In the words of Fray Motolinía in his letter to Charles V in 1555 “*The advantage of having horse and cannon is very necessary in this land for it gives force and advantage to few against many*”.

<sup>3</sup> The limits of New Spain in the 16th century were not the same as for modern Mexico. New Spain comprised the whole of the central heartland of Mexico from the gulf to the Pacific, and to the south as far as the Isthmus of Tehuantepec. The present states of Chiapas, Tabasco,

spice trade of the east, the Spanish turned their attention to whatever resources were at hand. To begin with, the emphasis was on the pillage of mineral resources, and the exploitation of indigenous labour and existing systems of food production. As the savage epoch of the *conquistadores* (up to about 1540) came to be replaced by a more orderly period of settler rule, however, and with the massive native depopulation that was triggered off by the introduction of European disease pathogens to which the indigenous population held no immunity, wealth was seen to consist less in gold and more in an active investment in the land and the soil. Attention thus shifted from the exploitation of natural resources to territorial appropriation. So began a progressive process of Spanish land accumulation and monopolisation of the natural resources therein. In this way the Spanish in the Americas would set a precedent for European Colonial ambition, and land in America was possibly to become as important as trade in the development of the European colonies.

Europe was not overcrowded, but parts of it were densely populated and also marginal with respect to agriculturally productive territory, and in relation to known agricultural techniques. Moreover, wars and religious conflicts had created an artificial demand for space. For more than four centuries, therefore, America was to act as a “safety valve” for European land hunger. So began a process in which the regionally distinct agrosystems of the Old World were to be assimilated in a unique adaptation to the environmental constraints of the different regions within the Americas. The impacts that this was to wield on the respective landscapes and peoples encountered were to prove similarly variable.

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Campeche and Yucatán were not regarded as belonging to New Spain. Nor, for the purposes of formal nomenclature, were the north-west and north-east - areas of shifting frontiers and spasmodic Colonial advance over huge, thinly populated regions. These were known as Nueva Galicia and Nuevo León respectively, but for all practical purposes, they can be considered as extensions of the viceroyalty of New Spain, which had its seat in Mexico City. The term New Spain was first used by Hernan Cortés, Captain in the Conquest of Tenochtitlán, in concluding his second letter from Mexico to King-Emperor Charles V, dated October 30th, 1520 (Cheetham, 1974).

### 1.3 Impacts and “the other”: Eurocentrism and environmental change

The fallout from the Quincentennial anniversary of the “discovery” of the Americas has yet to settle. The 500 year commemoration of the arrival of the Spanish to the so-called “New World” in 1492 served to enhance an emerging discourse and debate between historians, anthropologists, geographers, archaeologists and theologians alike seeking to justify or condemn Colonialism at the global scale. Attention has traditionally focused on the nature of the European impact on the New World, but has adopted a distinctly European perspective, essentially “because the history which the colonist writes is not that of the despoiled country but the history of its own nation” (Fanon, 1952). Research to date has contributed to this so called “invention of America” (O’Gorman, 1976), whereby Europeans are effectively responsible for the creation and recreation of an American history. As a result, a whole range of stereotypes and myths regarding the New World lands and peoples have been formulated.

The “Coming of the White people” is, for example, traditionally heralded as a benchmark in the study of landscapes and cultures in Mexico, to the extent that historical investigations of environmental-cultural interactions have traditionally been carried out within a three tier pre-Colonial, Colonial and post-Colonial time-frame. Yet it has recently been suggested that many of the accepted theories upon which such a time-frame has been based were fostered by the Europeans themselves as a result of the pre-Contact wont for the fantastic and mysterious, a religious zeal, and, latterly, the Romanticised European ideals of the 18th and 19th centuries (Axtell, 1992; Pagden, 1994). Metaphors regarding the deity like status of the European *Conquistadores*, and the inferior standing of the indigenous peoples of the New World and the landscapes they occupied, for example, were not, it is now argued, promulgated by the indigenous peoples themselves as is traditionally assumed, but flowed naturally from the concepts of Renaissance and Enlightenment (Harris, 1995). To begin with, for example, the Europeans regarded “civilisation” as synonymous with Christianity. An ignorance of Christendom thus deprived “other” cultures of the right to a place in civilised

society. The Europeans thus felt it a worthy and just cause to convert the “uncivilised” peoples to Christianity and hence a more “ordered” way of life. Adopting what can be considered to be distinctly Machiavellian principles<sup>4</sup>, therefore, the violence of Conquest was, from a European perspective, justified. Such early Eurocentric themes, whereby Europeans argued for the apparent superiority of the Old World over the New were, moreover, to be enhanced by the enduring Romantic genre of the “Noble American Savage”, epitomised in the Enlightenment writings of such “romantic primitivists” as Voltaire, Rousseau, Diderot and Montesquieu (Pagden, 1993, 1994; Wilson, 1995).

The same tendency towards “othering” has taken place with respect to the American landscape. Bowden (1992), for example, discusses the “progressive mythologisation” of New World environmental history, suggesting that major American beliefs regarding the pre-American environment were all created successively as myths by the Europeans in the centuries after contact. Until recently, research into the environmental history of the Americas has indeed been determined by two allied, if antiquated, Eurocentric myths, largely creations of Arcadian Renaissance and Romantic philosophies (Harris, 1995; Pagden, 1993, 1994; Butzer, 1992). The first is suggestive of a pristine environment on the eve of Conquest, with the inference that pre-Columbian populations lived in harmony with their environment and refrained from altering the landscape, which was then devastated by European colonisation - an issue recently reviewed by Denevan (1992). The second acknowledges the negative environmental impacts wielded by pre-Hispanic land use systems but attributes accelerated landscape degradation to the European introduction of plough agriculture and livestock (Simpson, 1952).

Only recently has the validity of this European “creation” of the Colonial past come into question. Attention is now beginning to be focused on the impacts and responses engendered by European contact from the perspective of the

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<sup>4</sup> Machiavelli (1513) suggests in *The Prince*, for example: “*Cesare Borgia was accounted cruel (but) this cruelty of his .....restored order and obedience*”. The Prince himself was loosely based on Ferdinand, King of Spain at the time of the first explorations and the discovery of the Americas (cited in Thomas, 1994: 251).

*conquered* and *colonised* (Schwartz, 1994), and on the reciprocal impacts of cultural exchange and progressive syncretism that took place subsequent to the first encounters (Sanders, 1992; Elliot, 1992). The traditional European periodisation of American history is facing revision (Van Young, 1983; Harris, 1995) and that pre-Columbian societies did transform the landscape considerably and in many cases destructively is now beginning to be appreciated. Less attention has, however, focused on establishing the nature of the European impact in the New World and the nature of environmental change in the post-Conquest period in the light of these developments.

In this investigation I aim to address this issue by attempting an archival reconstruction of post-Conquest environmental change in central Mexico - an area of extreme environmental sensitivity which has witnessed long-term human settlement and exploitation and widespread land degradation. This area was one of the first to be colonised by Europeans but unlike other environmentally sensitive regions of the world which have been subject to Colonialism and landscape degradation, Mexico possesses a rich archival legacy dating back to the Conquest as a result of the imposition of the Spanish bureaucracy. This vast body of both fiscal and juridical archives thus available provides a unique window through which to view the social, economic and environmental changes that took place in Mexico after European contact.

## PART ONE

### Chapter Two

#### Environmental and historical contexts

##### 2. 1 Climate, culture and environmental change in the pre-Hispanic period

Mexico represents one the most climatically sensitive areas of the world (Wallen, 1955, Kutzbach and Street-Perrott, 1985; Liverman, 1993), and has experienced climatic change on the long (Heine, 1988; Bradbury, 1989; Metcalfe *et al.*, 1991) and short timescales (García, 1974; Jauregui and Kraus, 1976; Jauregui, 1979; Metcalfe, 1987, O'Hara and Metcalfe, 1995). Yet despite climatic vulnerability, this region has provided a focus for human settlement and exploitation for over eight millennia. Cultural development has, however, been far from linear. Rather the course of Mexican history and prehistory has been characterised by "*a cyclical process of formation and disintegration of great political unities*" (Broda, 1979: 61). Cultural evolution has thus been punctuated by periods of florescence and decline, as regional population centres rose to power and flourished, only to face stagnation and collapse, and be superseded by new cultural foci (Table 3.1). Phases of population expansion and contraction are thought to have accompanied this periodic "rise and fall" scenario, and it seems feasible that there should have occurred alternate phases of landscape exploitation and abandonment in consequence.

Various hypotheses have been posited to explain this sequence of cultural discontinuity, which is by no means idiosyncratic to the New World<sup>1</sup>, with climatic vagary (Shimkin, 1973; Willey and Shimkin, 1974; Dahlin, 1983; Metcalfe, 1987) population pressure (Sanders, 1981; Williams, 1989) and stress on natural resources (Vaillant, 1944), soil erosion and ecological instability (Cowgill, 1964; Sabloff and Lamberg-Karlovsky, 1974; Williams, 1972), and economic downturns (Rathje, 1973) being cited as plausible causes of cultural collapse. Progressive cultural cycles in a context of climatic vulnerability and drought susceptibility had,

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<sup>1</sup>see Zangger (1994) for a discussion on the cultural evolution in the eastern Mediterranean.

nevertheless, served to alter the nature of the landscape in Mexico by the time European contact was made. A good deal of environmental disturbance and in some cases, deterioration, had already taken place. In central Mexico, for example, evidence of pre-Hispanic soil erosion (Cook, 1949; García-Cook, 1986; Werner, 1986; O'Hara, 1991; Metcalfe., *et al.*, 1994), population pressure and resource stress in a context of perennial land use (Williams, 1989; Butzer, 1992) and exploitation of more marginal tracts of land (Williams, 1972) testifies to pre-Hispanic land use strategies that were not the most environmentally sensitive. Establishing the nature of change and impact in the wake of European contact has, however, provided a source of contention and debate.

## **2.2 Concepts of degradation: misguided judgements and the political ecologists**

It cannot be doubted that the arrival of the Europeans led to both profound immediate - and more protracted, though equally significant - changes in the New World. Historians now agree that the European discovery of the Americas touched off waves of epidemics which led to massive indigenous depopulation, given the lack of immunity of the native population to Old World diseases (Roberts, 1989). In consequence, dramatic cultural and societal change immediately followed, and in some cases even preceded<sup>2</sup>, European contact in some areas of the New World, not least Mexico. In addition to the more immediate impacts of European contact, however, there occurred a series of progressive, and what were to prove to be long-term, economic changes. With the new administration came a set of settlement and land use policies and procedures, fed in part by Mediterranean, Islamic and Roman custom (see Part Two, Chapter 5). Spanish colonisation also entailed a translocation of European systems of production, so that the arrival of the Spanish heralded the introduction of a new crop complex and, perhaps most significantly, the arrival of domesticated livestock

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<sup>2</sup> It has been suggested that Old World diseases may have actually been dissipated along trade routes, direct contact with Europeans not necessarily being implicated in the transfer (Gerhard, 1982; Roberts, 1989).

- cattle, pigs, sheep and goats - to an environment where they had hitherto been absent. The Mediterranean plough also made its first appearance in the New World, only digging sticks (*coas*) being employed to till the ground in pre-Conquest Mesoamerica (Donkin, 1979).

The detrimental environmental impacts resulting from such European systems of land use have long provided a forum of debate and controversy. The heavily eroded and deeply dissected landscape of the Mediterranean landscape today is, for example, thought to be a consequence of European agricultural practices, overgrazing, deforestation and the use of the plough. Periods of expansion of agricultural and pastoral activities, and the consequent exploitation of more marginal tracts of land are thought to have resulted in short-lived episodes of soil erosion and ecological instability, while abandonment scenarios have been equated with ecological stability (Pope and van Andel, 1984; Bintliff and Snodgrass, 1985; van Andel and Zangger, 1990; van Andel *et al.*, 1986; van Andel *et al.*, 1990a; van Andel *et al.*, 1990b; Bintliff, 1992; Zangger, 1990; 1992; 1993; 1994). It seems feasible, therefore, that the translocation of herd animals and the cultivation of European crops, combined with the use of the aforementioned ox-drawn plough, to a supposedly "pristine" environment in the New World would reduce biodiversity, increase ecological fragility and therefore result in degradation.

Traditional theories regarding the cause of degradation in central Mexico have, indeed tended to focus on the negative impacts wrought by the arrival of the Europeans, and their destructive land use systems (Klein, 1920; Simpson, 1952). Such theories have recently found renewed support from a group of political ecologists in America. Shelter suggests, for example, that "pre-Columbian America was the first Eden - a pristine natural kingdom" before the Spanish arrived (Shelter, 1991: 226), while Sale (1990) champions the widely held dichotomy of the benign Indian landscape and its devastated Colonial counterpart, maintaining that it was the Europeans who transformed the New World landscape.

The introduction of a livestock economy has been highlighted as a key component in this destructive process in central Mexico. Melville (1990; 1994), for example, has proposed that during the 1570s, sheep herds in the Valle del Mesquital, Hidalgo State to the north of the modern day state of Mexico and to the north-east of Michoacán, multiplied beyond the capacity of the land available to support them. Based on an archival investigation in the area, providing evidence of degeneration in the vegetative cover and consequent desiccation of springs in the later 16th century, it was concluded that:

“there was a rapid and profound process of environmental degradation caused by overstocking and indiscriminate grazing of sheep in the post-Conquest era” (Melville, 1990).

In contrast, earlier investigations of soil erosion in central Mexico (Cook, 1949) suggest that despite the introduction of large herds of cattle and sheep to central Mexico in the immediate post-Conquest period, the erosion caused:

"has been trivial compared with that caused by agriculture....and has been of relative insignificance in the deterioration of the land". (Cook, 1949).

Other studies would similarly tend to suggest that the role of Spanish agro-pastoral systems in precipitating environmental degradation in post-Hispanic Mexico has been overstated. Employing land use and landscape references derived from over 6000 land grant records (see Methodology for a discussion of this document group), Butzer and Butzer (1993; 1995) have attempted to reconstruct the environment of the Bajío region of central Mexico at the time the Spanish arrived, concluding that the degraded landscape of today is similar in principle to the biotic zonation that existed during the mid-16th century. These findings suggest that there occurred no major ecological impacts in the immediate post-Conquest period, despite supposed heavy grazing pressures in the area at that time (Butzer and Butzer, 1993). Evidence of reduced rates of soil erosion in the immediate post-contact period in the Basin of Pátzcuaro, Michoacán (O'Hara, 1991; O'Hara *et al.*, 1993) would, moreover, suggest that the arrival of the

Spanish may have even served to mollify processes of soil erosion and environmental degradation already underway when the Spanish arrived.

Indigenous depopulation may well have served to reduce the amount of land under cultivation in the immediate post-contact period. The degree to which the apparent negligible environmental impact and reduced rates of erosion in the immediate post-Conquest period reflect this depopulation and a consequent reduction in the amount of land being exploited, remains unresolved. Alternative explanations could relate to the loss of the majority of erodible mantle by this time, or a decrease in erosion in real terms as a result of the imposition of Spanish agrosystems. It has recently been suggested, however, that Mediterranean agrosystems were in fact more sophisticated, adaptive and environmentally-conservative than has traditionally been assumed (White, 1970; Diemen and Freidl, 1976; Spurr, 1986; Delaigue, 1988; Wells, 1992:87-101; Burford, 1993; Butzer, 1993) - a factor that has been employed to account for its long term sustainability in what is traditionally considered to be a "fragile" ecosystem (Butzer and Butzer, 1993, 1995; Butzer, 1996). Investigations of early post-Conquest land use dynamics in the New World are now suggesting that some of these conservative agro-pastoral techniques, including long and short-distance transhumance treks and crop rotation cycles, were introduced to the New World landscape at an early stage after Conquest (Butzer, 1988; 1996). The adoption of such policies could, therefore, be used to explain the apparent limited overall ecological impact in the immediate post-Conquest period (O'Hara, 1991; Butzer, 1992; 1996; Butzer and Butzer, 1993; 1995).

Tangible evidence of ecological disturbance does, however, emerge for central Mexico in the latter half of the 18th century (Metcalf *et al.*, 1994; Butzer, 1996; Frederick, 1995), a period recognised to have been one of population "explosion" as *Mestizo* (mixed race) populations swelled and indigenous populations witnessed recovery (Israel, 1975). It is expected that environmental deterioration and degradation will have varied temporally and spatially in response to long-term land use, the intensity of land use and the

environmental context within which these activities took place. If real, however, these trends would tend to highlight environmental degradation as a function of population density and the consequent intensity of land use, *in addition to* the nature of land use *per se*.

### **2. 3 Drought, impacts and the question of “differential vulnerability”**

The relatively detailed climatic records derived from historical sources indicate that annual rainfall in Mexico has varied considerably over the post-Conquest period (Gibson, 1964; Florescano, 1972, 1980; Swan, 1981; Leyden 1987; Metcalfe, 1987; O’Hara and Metcalfe, 1995) (see Fig. 10.1, Chapter Ten). A general trend of climatic drying, punctuated by short-lived wetter periods, can be ascertained over the course of the Colonial period, with the severe droughts noted for the later 16th, 17th and 18th centuries perhaps reflecting the impacts in the Tropics of the cooling associated with the “Little Ice Age” in Europe (O’Hara and Metcalfe, 1995). Variations in precipitation and hence also water availability were to have profound implications for a society which, although distinctly hierarchical in structure, was essentially dependent at all levels on water supply (Endfield and O’Hara, in press). It has been suggested, for example, that the impacts of drought on agricultural systems and communities are determined as much by the level of technological, economic and political development as by the severity of the meteorological event itself (de Castro, 1975; Franke and Chasin, 1980; Dando, 1980; García, 1981; García and Escudero, 1982; Watts, 1983; Hewitt, 1984; Bryson, 1988). That certain sectors of society were effectively more vulnerable to changes in water security is now beginning to be realised. Recent studies in north and central Mexico have, for example, illustrated that poverty, landlessness, inappropriate technologies, poor soils and political weakness render some sectors of society more susceptible to the impacts of drought and changes in the water supply than others. Climatic variations, it is argued, then become a “trigger”, rather than the root cause of demographic, economic, political and environmental stress (Liverman, 1990). Yet there has been a relative neglect of the

environmental impacts and societal response resulting from annual variations in precipitation and drought in the historical past. A need has, moreover, been recognised to assess the degree to which this apparent “differential vulnerability” to drought is in some way a reflection of the changed access to and provision of natural resources as a result of the social, administrative and land use changes wrought by the imposition of Spanish Colonialism.

#### **2. 4 Purpose of the investigation**

Research into environmental change in Mexico carried out to date has, therefore, served to illustrate the need for more systematic regional scale investigations of environmental change in the post-Conquest period. Three issues can be highlighted as being in need of consideration.

- Firstly, there is a need for a better comprehension of the regional processes of adjustment, acculturation and adoption of agricultural techniques in the post-Conquest period, and so for an assessment of the degree of continuity of indigenous agricultural and cultural practices and/or a progressive assimilation of Old World techniques, cultivars and livestock. There is specifically a need to assess the degree to which land use in the post-Conquest period sought to minimise environmental degradation.
- Secondly, research to date has produced conflicting evidence with regard to the respective environmental impacts of pre- and post-Conquest society on the environment. Although impacts will inevitably have varied regionally according to land use history and the natural environmental context within which such activities took place, there is a relative lack of archival reconstructions of environmental change at the regional level with which to compare the evidence already available. Attention should be focused on establishing the nature of the environment that was encountered by the Spanish, the immediate post-Conquest impact and the longer term changes in order to elicit the degree to which environmental change was a function of different systems of land use and/or population density and land use intensity.

- Thirdly, the impacts of climatic vagary on society in Mexico are known to have stimulated agricultural and economic crises. Less attention has, however, been paid to the societal response engendered by such fluctuations, and the degree to which these responses reflect the economic status and ability of specific sectors of Colonial society to “cope” or adapt. Attention should be focused on achieving a better understanding of the impacts of the imposition of the Spanish Colonial administration on traditional systems of resource management, and the degree to which the changes therein exacerbated problems of water shortage for certain sectors of society during periods of climatic vagary.

The present investigation proposes to bridge these lacunae by attempting a reconstruction of Colonial land use and tenure dynamics, environmental change and societal response in the state of Michoacán in west central Mexico (Fig. 3.1). The state lies in the Neovolcanic Axis (NVA) of central Mexico which crosses the country at around 19°N. These volcanic uplands represent a distinctly eroded and degraded environment lying within an area of extreme climatic sensitivity. Despite variations in mean annual precipitation (Wallen, 1955), this region has provided an attractive focus for human settlement (Metcalf *et al.*, 1994), and both pre- and post- Hispanic populations were to establish settlements in the many closed lake basins of the area, attracted by the temperate humid microclimates, fertile alluvial soils and lacustrine resources in these locations (Fig 3.2). Research to date, however, suggests that the Spanish encountered an already degraded landscape in this region at the time of contact, and one that had undergone periodic cycles of erosion and ecological disturbance related to a plethora of human and climatic causes and on a range of spatial and temporal scales (O’Hara *et al.*, 1993; Metcalfe *et al.*, 1994). Less is understood about the nature and scale of environmental change in this area in the wake of Spanish contact. Here I attempt to employ historical sources to address this issue.

A range of archival and documentary sources will be used to reconstruct the nature of agrosystem change and acculturation in the post-Conquest period, and to trace the way in which landscape perceptions and the apparent condition of

the environment in this area changed after the arrival of the Spaniards. Attempts will also be made to illustrate the degree of variance in the way the landscape was perceived over time and to highlight how the apparent severity of impacts and responses resulting from environmental change varied according to the social and economic status of the society affected. It is first necessary, however, to establish an environmental and cultural context within which the investigation will be carried out, and to discuss the methodological approach adopted.

## Chapter Three.

### The Environmental and Cultural Context

#### 3.1 Michoacán: location and landforms

The state of Michoacán (Fig. 3.1) is located in the south-west of the central plateau (*Mesa Central*) of Mexico and covers an area of some 59,864 km<sup>2</sup>. It is bordered to the east by the states of Mexico, to the north by Querétaro, Guanajuato and part of Jalisco, to the west by Colima and Jalisco and to the south by Guerrero. Rainfall in this region is strongly seasonal, falling in the summer months between May and October, the dry season lasting from November to April. Lying close to the northern margin of the tropical summer rainbelt, however, rainfall decreases sharply along a south-north gradient from over 1000 mm/ year in the volcanic highlands of the *Mesa Central* to less than 400 mm/ year towards the sub-tropical desert further north (Wallen, 1955; Metcalfe *et al.*, 1994).

The state encompasses two major geological provinces: the Neovolcanic uplands (Neovolcanic Axis of Mexico (NVA) and the *Sierra Madre del Sur* (Fig. 3.3), bounded by two major river systems shown in Fig 3.2: the Lerma Santiago to the north and the Balsas to the south (West, 1948, Gorenstein and Pollard, 1983; INEGI, 1985; Pollard, 1993). Within these two main regions are several major geographical regions and sub-regions (INEGI, 1985) each possessing distinct characteristics of climate, topography, geology and vegetation. Three general geographical divisions can, however, be identified on the basis of climatic and topographic parameters. These are the central plateau itself forming the *tierra fria* or cold lands, the northern and southern tropical rims of this central plateau - the temperate lands or *tierra templada* - and the Balsas depression and Southern Sierra Madre to the south - the *tierra caliente* or hot/warm lands (Gorenstein and Pollard, 1983; INEGI, 1985; Pollard, 1993) (Figs. 3.4 and 3.5). It should be noted, however, that this three-fold division represents an oversimplification of what is a geographically-complex area.

**Figure 3.1 Michoacán and the states of west central Mexico**



Figure 3.2 Lake Basins in the NVA of Mexico (from O'Hara *et al.*, 1994).

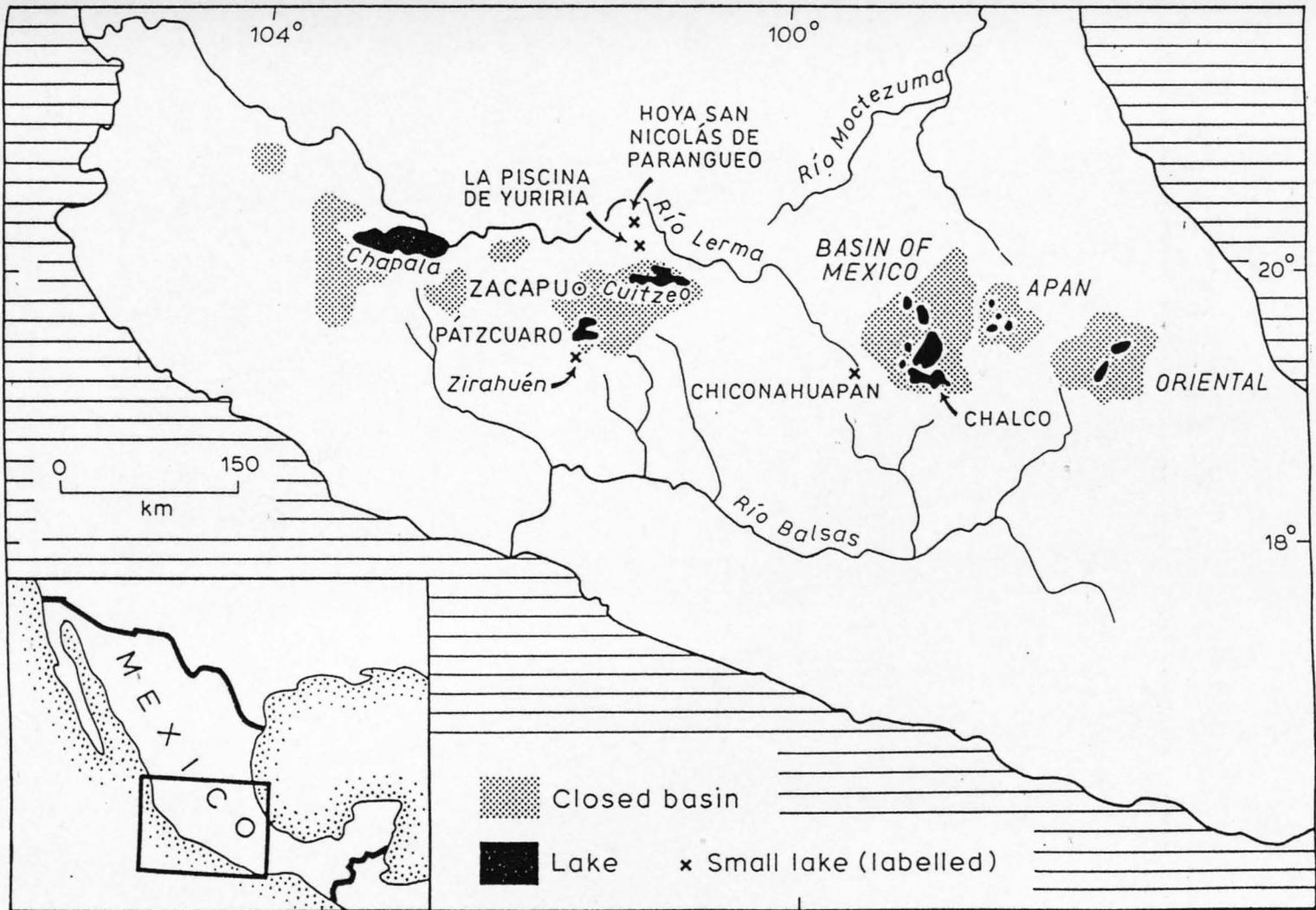


Figure 3.3 Geological provinces of Michoacán

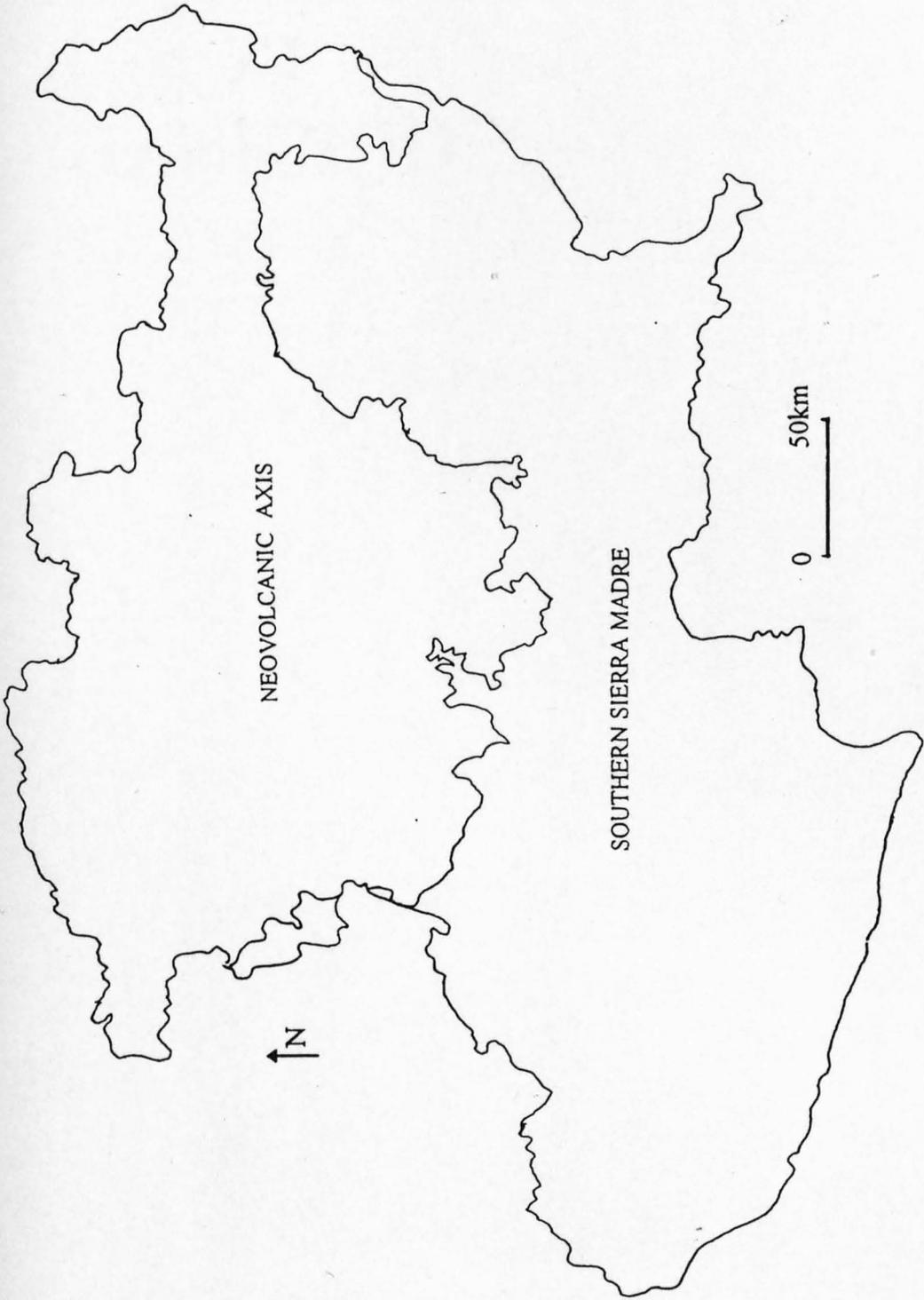
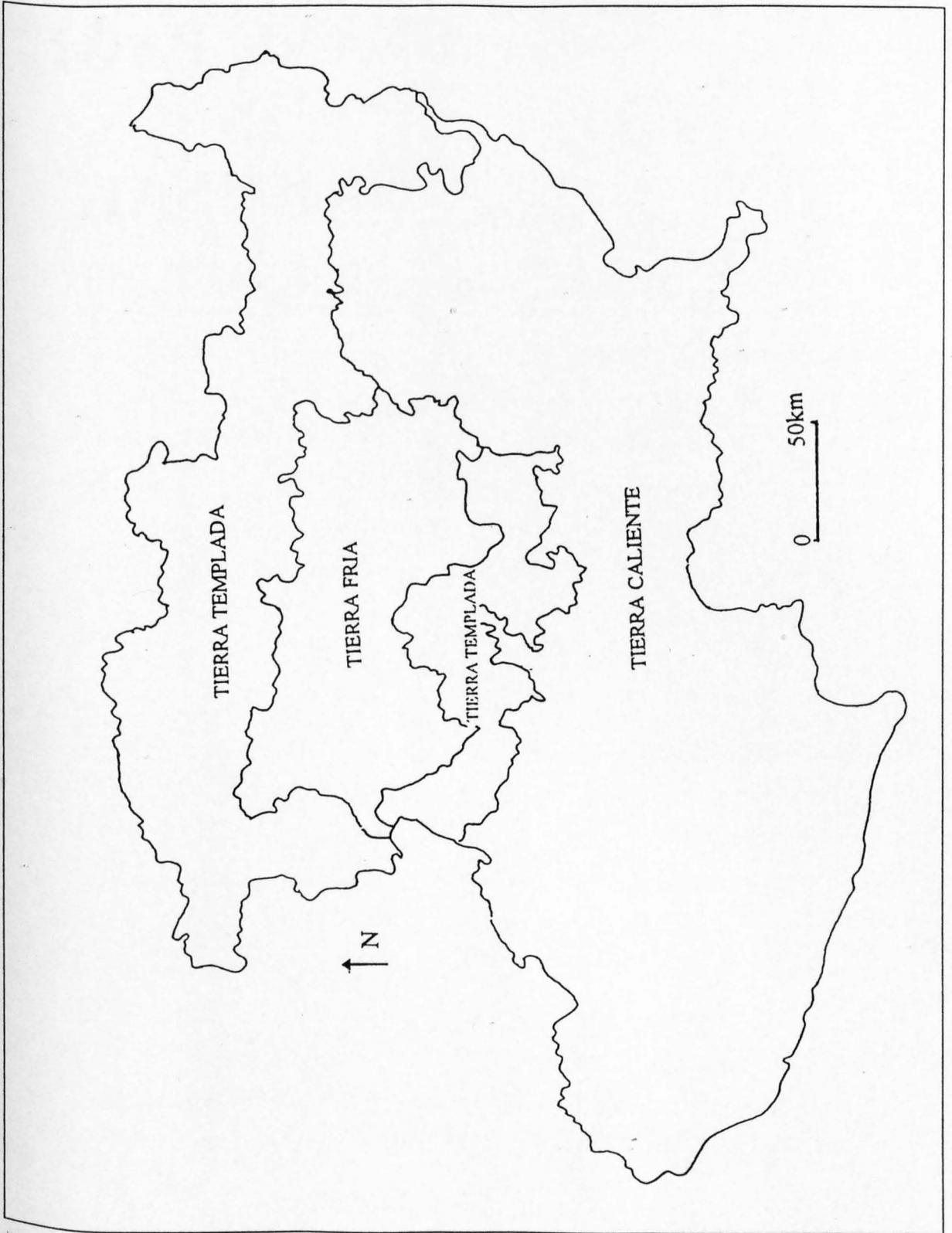


Figure 3.4 The *tierra caliente*, *templada* and *fria* of Michoacán



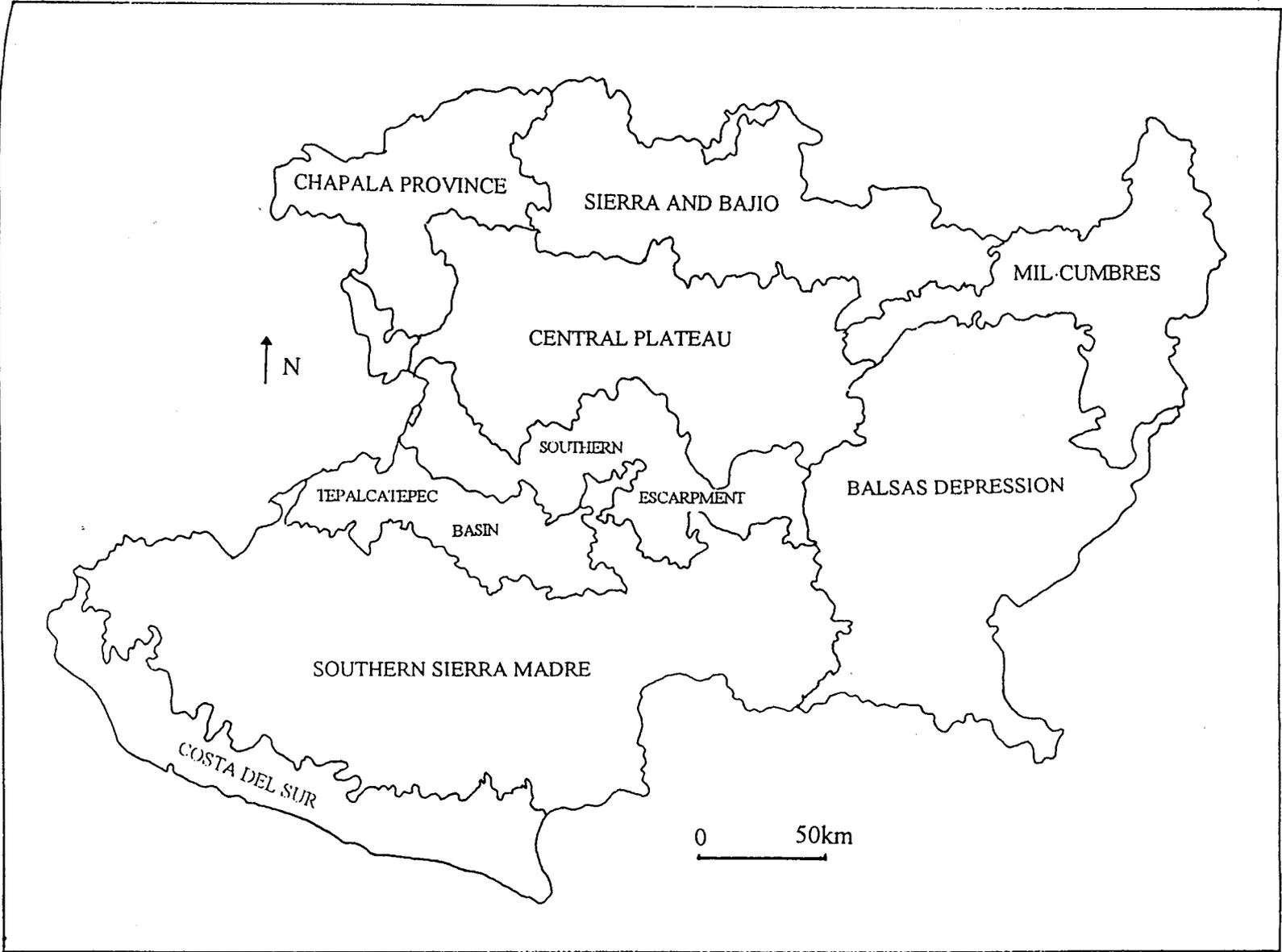


Figure 3.5 Geographical regions of Michoacán

### 3.1.1 The *Mesa Central* : the *tierra fria*

Dominated by cenozoic volcanic mountains and lying above 2000m a.s.l, the *Mesa Central*, represents a high volcanic region, whose surface has been roughened by large composite volcanoes and lava flows (*malpais*). There are more than 3000 cinder cones within this region as a whole (cited in Pollard, 1993) and the area is the location of the region's most recently active volcano, Paracutín, which last erupted on February 20th, 1943. The landscape is characterised by small intermontane basins some of which contain lakes, including Pátzcuaro and Zirahuén. The soils of the *Mesa Central* reflect the volcanic ancestry of the area and the bedrock is dominated by basalts, andesites, rhyolites and lava flows (INEGI, 1985). The dominant soils are young, volcanic andosols, deep black and red in colour, formed from volcanic ash surfaces, although organic rich luvisols are also common. Both types of soil are susceptible to erosion once stripped of their vegetation cover (West, 1948; Toledo and Bassols-Barrera, 1984).

The area experiences mean annual temperatures of 18°C in the valleys, and 12.5°C in the mountains. Frosts are common for up to 80 days each year, imposing limitations on the nature of the cultivars. Winter temperatures in the northern plateau and Lake Pátzcuaro areas are, however, somewhat milder than those of the sierra and the number of days with frost is smaller (O'Hara, 1991). Rainfall averages 646 mm yr<sup>-1</sup> in the north to over 1642 mm yr<sup>-1</sup> in the wetter south (INEGI, 1985) again reflecting the climatic gradient that characterises central Mexican plateau as a whole. The vegetation in the plateau area is characterised by deciduous species such as oak and associated broad leafed trees on the lower slopes and around lake basin areas. On the upper slopes of the volcanoes, where cold winters and cool summers prevail, solid stands of fir can be recognised, while herbaceous species provide fodder for the sheep and goats that graze the high mountain slopes (West, 1948, Pollard, 1993). A good deal of deforestation has taken place for agricultural purposes and to satisfy demands for timber. Indeed, it is estimated that the Basin of Pátzcuaro is now 75% deforested, with xerophytes such as acacia, mesquite and various cacti (mainly *Opuntia* or

prickly pear) common in areas that have been severely degraded (Caballero *et al.*, 1981).

### 3.1.2 The semi-tropical rims: the *tierra templada*

The semi-tropical rims of the *Mesa Central*, to the north and the south, lying at lower elevations than the plateau itself (2000 -1200 a.s.l), form another geographical area. The northern rim (Sierra and Bajío region) includes the Lerma River Basin, Lake Chapala, Lake Cuitzeo and Lake Yuriria (see Fig. 3.2). The southern rim, often referred to as the southern escarpment (West, 1948), is geologically similar to the sierra or central plateau area, and has witnessed Pleistocene and recent volcanism, although the canyons formed by the escarpment's deeply entrenched streams represent the most salient features of the area (West, 1948). In the plateau rim areas, the soils are again predominantly volcanic in origin. To the north, soils are alluvial volcanics and include highly fertile vertisols, feozems, luvisols and some andosols in the mountains, while soils to the south consist mainly of black vertisols and mountain andosols (INEGI, 1985).

Temperatures in the rim areas are slightly higher than those of the *Mesa Central*, ranging from 18.1°C to 21.9°C and frosts are more rare, averaging 20 days each year. Rainfall varies from 720 mm yr<sup>-1</sup> along the northern rim to 1699 mm yr<sup>-1</sup> in the southern rim. In the northern rim, pine-oak forests are again to be found in the higher elevations, while the plains are predominantly under cultivation. Sub-tropical matorral, now dominates the lake shore environs of the Cuitzeo Basin, with woody plant species in areas that have previously been under cultivation and in those areas where human occupation and exploitation has been significant (Ceballos-Corona *et al.*, 1994). The southern rim area, in contrast, exhibits a more varied vegetation, this area representing a transition zone between the pine-oak forests of the central plateau area and the tropical scrub land characteristic of the Balsas depression further south (see Section 3.1.3 below).

### 3.1.3 Sierra Madre, the coastal lowlands and the Balsas Depression: the *tierra caliente*

South of the escarpment lie the Balsas depression and the southern Sierra Madre, often treated as one region. These areas are both composed of Mesozoic deposits, including igneous metamorphic and sedimentary bedrock. The Balsas depression, and the tributary Tepalcatepec Basin, lie below 500 m a.s.l., while the southern Sierra Madre, located to the south-west of the Tepalcatepec Basin, lies between 1500 and 500 m a.s.l, and is composed of volcanic mountains and small intermontane valleys. Acidic young shallow regosols and acidic Acrisols are common soil types in the Balsas depression and Tepalcatepec Basin, while red clay Luvisols, and young rocky lithosols are common in the southern Sierra Madre.

Mean annual temperatures in the Balsas and Tepalcatepec Basins range from 27.1°C to 28°C, average rainfall ranging from 546 mm yr<sup>-1</sup> to 725 mm yr<sup>-1</sup> respectively, while the southern sierra, experiences tropical climatic conditions, with average temperatures of 23°C (*tierra templada*) and rainfall no higher than 989 mm yr<sup>-1</sup>. Deciduous oak forest interspersed with scrub vegetation dominates the vegetation in both the Balsas depression and the Southern Sierra Madre area and there are many cultivars in these area, ranging from fruits and vegetables to cotton.

## 3.2 Cultural development in Michoacán

The state of Michoacán today is home to a population of over 3,870,604 distributed in 115 districts<sup>1</sup>. The economy is based for the most part on agriculture, the timber industry, fishing in the many lake basins of the state and in the production of artisan crafts produced mainly for the tourist market. Despite four centuries of demographic change, however, the population of this area is still predominantly indigenous (Mapes *et al.*, 1994), reflecting the several thousand years of cultural activity in the area predating the arrival of the Spanish in 1522 (Table 3.1) and the survival of a significant indigenous population after the

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<sup>1</sup> According to 1995 figures.

Conquest. Traditional indigenous traits prevail, exemplified by the production of local handicrafts which have remained unchanged for centuries, and the holding of traditional weekly markets (Plate 3.1).

The many lake basins of the area, with their fertile, alluvial soils and lacustrine resources provided attractive settlement foci for agrarian based populations which are thought to have been established in the area from 3,600 years BP onwards (Hutchinson, *et al.*, 1956; Chadwick, 1971; Oliveros, 1975; Porter-Weaver, 1981; Watts and Bradbury, 1982; Michelet, 1986; Arnauld, 1987; Macias-Goytia, 1989; Pollard, 1993). When the Spanish arrived in the area, however, they were to encounter a distinctive population known as the Purépecha<sup>2</sup>, whose cultural traits were far removed from those of their predecessors as well as those of other contemporary cultures of central Mexico at that time. The origins of this idiosyncratic group of people, however, remain something of a mystery.

According to the *Relación de Michoacán*<sup>3</sup>, a series of migrations of peoples into central Michoacán took place in the Postclassic (950 BP - 450 BP) - a period which approximates with the rise of the Toltec culture group at Tula or Tollan, and the Aztec (or México) at Tenochtitlán (Table 3.1) (Coe, 1994). These movements involved peoples referred to as Chichimecas, Nahuas and the *uacúsecha* (eagles), thought to be the ancestors of the people who were to become the Purépecha royal dynasty (Pollard, 1993). The peoples are said to have been predominantly hunters and gatherers who migrated from the north, and who like other culture groups before them, settled in small, discrete communities

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<sup>2</sup> The term Purépecha is commonly used interchangeably with "Tarascan" or "Tarasco" denoting the population of the state of Michoacán (e.g. "The Tarascan State of Michoacán"). There are several theories regarding the origin of the term. One theory suggests that Tarasco is a derogatory term, coined by the Aztecs, the long-term rivals of the Purépecha. Bernardino de Sahagún, the authority on indigenous society in Mexico in the 16th century, suggested in his "*Historia General de las Cosas de la Nueva España*" that the term Tarascan stems from a Purépecha deity known as "Taras" "from whom they took their name", while the *Vocabulario en Lengua Michoacano* (Mexico, 1559) suggests that the origins of the term lie in the Purépecha word for idol - "Thares". As Nicolás León notes (1888), however, no other author makes reference to this god.

<sup>3</sup> *Relación de Michoacán*: p.185 (see Chapter Four: Methodology for discussion of the *Relación de Michoacán*).

around the Basin of Pátzcuaro. From then on, several different language groups apparently emerged in the Basin of Pátzcuaro, all competing for political and administrative hegemony (Pollard, 1993). A succession of wars followed in which political and economic power was eventually awarded to the *uacúsecha*, the Purépecha elite. Their warrior leader, Tariacuri, was to unite the various independent polities, that had emerged in the vicinity of the Basin of Pátzcuaro, into a unified state during the first half of the 14th century.

The *uacúsecha*, founded their first town on the shores of Lake Pátzcuaro (Plate 3.2) (Gorenstein and Pollard, 1983). Ihuatzio, located on the south-eastern arm of the lake, became the first capital, to be followed by Pátzcuaro for a short period in the 14th century which was then succeeded by Tzintzuntzan on the eastern shore of the lake as the royal seat of power when the Spanish arrived in the area in 1522 (Coe, 1994: 154). Following Tariacuri's death, his son and nephews extended the state beyond the Basin and began the political, economic and social changes from which was to emerge a new Mesoamerican civilisation (Pollard, 1993).

**Table 3.1. Chronology of settlement and exploitation in central Mexico and western Mesoamerica (from Petrequin *et al.*, 1994).**

Years BC/AD	Western Mesoamerica: major cultural periods	Central Mexico: general cultural sequence	Years BP
1500	Late (PUREPECHA)	Tenochtitlán (AZTEC)	450
1250	Postclassic		700
1000	Early	Tula (TOLTEC)	950
750	Epiclassic	Coyotlateleco	1200
500	Classic		1450
250		Teotihuacan	1700
AD	Final		1950
BC			
250	Late Preclassic (CHUPICUARO)	Cuicuilco	2200
500			2450
750	Preclassic	Development of regional capitals	2700
1000	Middle El Opeño		2950
1250			3200
1500	Preclassic	Towns	3450
1750			3700
2000	Early		3950
2250		Development of an agrarian economy	4200
2500			4450
2750			4700
3000	Protoceramic		4950
3250			5200
3500			5450
3750			5700
4000			5950
4250			6200
4500	Preceramic		6450

### 3.3 The Purépecha

#### 3.3.1 Empire

Upon arrival in Michoacán, the Spanish encountered an empire of considerable size. In the Late Postclassic, the Tarascan state was bounded to the south and west by areas under Aztec control, and to the north by the Chichimecas (Gorenstein and Pollard, 1983). On the basis of ethnohistorical and linguistic evidence, the territory over which the Purépecha held control extended beyond the Lerma River in the north and beyond the Balsas in the south. To the west, it included Lake Chapala and the Coalcoman region of Jalisco, while the eastern frontier followed a line drawn from Acámbaro in the north, passing through Zitacuaro and ending south of the Balsas River (Gorenstein and Pollard, 1983:4) (Fig. 3.6). It is uncertain how far up the Balsas River the Purépecha reached, and to the north their frontier fluctuated from time to time as they endeavoured to push back the Chichimecs and Otomis<sup>4</sup> (Porter-Weaver, 1981; Coe, 1994). Raids reached as far west as Guadalajara and Jalisco, but the "empire" itself probably included only the lands in modern state of Michoacán.

#### 3.3.2 Culture

As among the Aztecs, a vast pantheon of deities appear to have been worshipped by the Purépecha as identified in the distinctive material culture with its polychrome, animate and calendrical attributes (Pollard, 1993). That religious activities acted as a major focus in the Purépecha lifestyle is testified not only by the terraced superstructures or *yácatas* (Coe, 1994:156), but also by the eight temples (*cues*) located at Tzintzuntzan and elsewhere in the Purépechan realm. The most ancient and revered deity was the fire god, *Curicaueri*, for whom the Purépecha maintained perpetual bonfires. The location of these centres, it seems, was in harmony with the construction of these huge bonfires and the burning of large quantities of wood (Gorenstein and Pollard, 1983:124), the significance of which is further attested in the *Relación de Michoacán* (O'Hara, 1991: 25). That

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<sup>4</sup> Otomis: another tribe who came to settle in the Basin of Mexico.

considerable deforestation would have taken place in the vicinity of these *yácatas* and *cues* seems indisputable.

Water was also of key significance and was and remains central to the Purépechan way of life as might be expected in an area of extreme climatic sensitivity. A series of myths and legends surrounding the discovery, acquisition, reduction and loss of water illustrate its significance in Purépecha culture, but perhaps more significantly hints at the variability of supplies and the consequent impacts on society (García, 1995), as does the vast array of deities associated with this most crucial of resources. The goddess *Cuerauaperi*, for example, is thought to have been associated with agricultural productivity, seeds and harvests, in much the same way as the partnership of the water God *Tlaloc* and the agricultural deity *Xipe Totec* were venerated by the Aztecs (Warren, 1985). In addition, she was associated with the formation of clouds and rain, thereby providing a link between precipitation and successful harvests.

The apparent preference for lake settlement locations by pre-Hispanic culture groups reflects the perceived value of lacustrine resources. In addition, there is thought to have been a good deal of Purépecha symbolism associated with lake waters and especially the islands within the lakes. There was, for example, special significance attributed to the former island of Jarácuaro in the southwestern portion of Lake Pátzcuaro (Plate 3.3) where a periodic ceremony associated with the agricultural Goddess, *Xaratanga* is thought to have taken place (Warren, 1985; Ugarte, 1992).

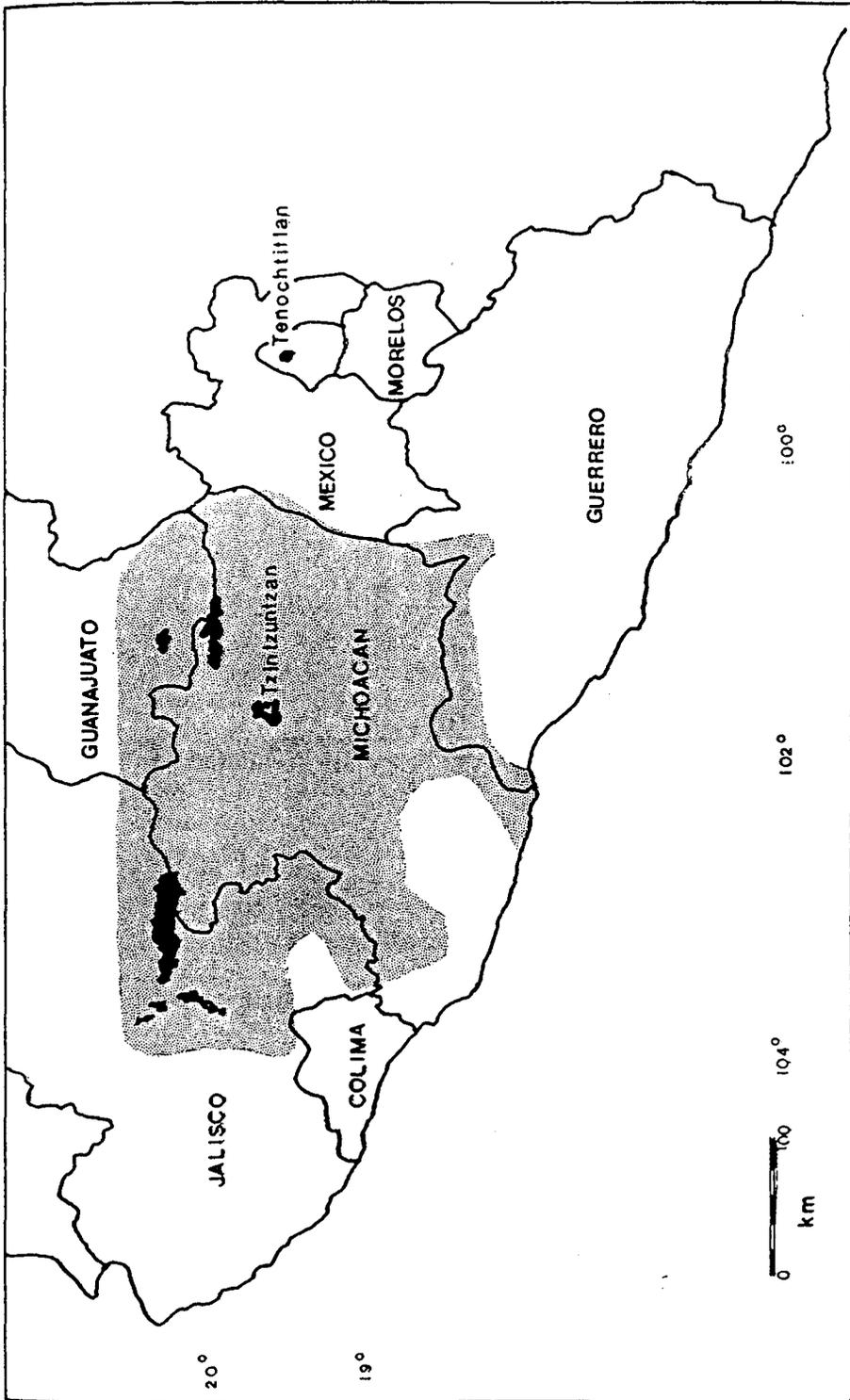
The Purépecha are considered to have been a superior civilization - a society of equal complexity to the Aztec, with a distinct social hierarchy and elitism, manifested in architectural design and burial practices. They are thought, moreover, to have possessed a metallurgical prowess which they employed successfully in the manufacture of weaponry, an accomplishment that might go some way to explaining their success in averting an Aztec take-over (Thomas, 1994:36). Trading strategies, social and political organisation and mechanisms of economic production are also thought to have been fairly sophisticated and well

developed, judging by the degree of imported material within the Purépecha realm and, furthermore, by the presence of Purépecha influences elsewhere. Indeed, it was the advanced exchange and trading system that is thought to have allowed a distribution of supplies and specifically foodstuffs during times of agricultural crisis (Gorenstein and Pollard, 1983).

**Plate 3.1 Pátzcuaro market, April 1996.**



Figure 3.6 Extent of the Purépecha kingdom in the immediate pre-Conquest period (after Pollard, 1993)



**Plate 3.2 Lake Pátzcuaro, viewed from the now extinct Volcan de Estribo, looking north-east across the lake from the southern shore of the lake, April, 1996.**



**Plate 3.3 The former Island of Jarácuaro, (now connected to the mainland)  
as viewed from the south-west shore of Lake Pátzcuaro, April, 1996.**



### **3.4 Pre-Conquest agrosystems: population pressure and the exploitation of marginal lands**

Adopting Denevan's (1992) terminology it would seem that the Spanish encountered a "distinctly humanised" landscape in Michoacán. People are thought to have been active in the area for over eight millennia but a series of agricultural communities, culminating with Purépecha, had exploited the region's lands for over 3,500 years by the time the Europeans arrived (Metcalfé *et al.*, 1994). The altitudinal profile of the Purépechan realm had, however, allowed for the exploitation of several different natural environments and ecosystems. According to Toledo *et al.*, (1980), for instance, the Purépecha exploited five different natural environments: woodlands, agricultural zones in the mountains, terraces, lake shores and river banks and floodplains. There was, accordingly a diversity of products available from these different ecological regions. Thus the Purépecha were able to exploit the lakes for fish, the forests for wood and timber and the fertile volcanic and alluvial soils for agriculture. There was, moreover, a good deal of exchange of the products derived from these different ecosystems. Fishing-based populations of the highlands are thought to have traded with agrarian populations from other ecological realms, principally the *tierra caliente* lands. Furthermore, the Basin of Cuitzeo is thought to have been a major trading foci, dealing with products from the *tierra fria*, *templada* and *caliente* (Beltran, 1982).

#### **3.4.1 Agricultural diversity**

An agricultural system, based for the most part on human labour, had developed in central Mexico, as with the rest of Mesoamerica. Animals suitable for domestication had been absent from the area since the Pleistocene extinctions, and as a consequence, all agricultural tasks had to be carried out manually, without the aid of traction or pack animals (Sanders, 1992). Simple hand tools such as the *coa* or digging stick were used primarily for the planting of crops (Donkin, 1979), which, in common with the rest of the New World comprised the trilogy of maize, beans and chile. Indeed, maize was produced in practically all

towns that came under Purépecha control, and chile and beans were produced in the majority of the townships excluding those of the higher altitudes of the *Meseta*. Together these cultivars provided up to 60-80% of the diet making up the bulk of carbohydrates and protein foods, particularly for the poorer classes. Agricultural production did, however, incorporate other plants and there was a great variety of other commodities available, both wild and domesticated, making the diet exceptionally rich (Whitmore and Turner, 1992). Pumpkins (*puru puru* in Purépecha) were also of considerable importance, but again mainly cultivated in the basins of the Balsas and Tepalcatepec, in the hotter lands of the western Michoacán, but also in the more temperate regions around Lake Cuitzeo and in the vicinity of the Basin of Pátzcuaro. The Purépecha also capitalised on the *maguey* (*Agave*) cactus which grew wild in this area. The *Relación de Michoacán*, continually makes reference to the cultivation of “*Acamba ahetri*”, one form of *Agave* which was used to make *Pulque*, an alcoholic beverage still popular today, while different species of *Agave* were used for the production of thread and yarn.

Other staples included cotton (*xurata*) which was also used to make rope, yarns and blankets - all valued tribute (tax) commodities according to royal legislation. This grew preferentially in the hotter lands of the Basin of the Rio Balsas and Tepalcatepec. The production of cacao is less well documented. There exists little reference to it in the *Relación de Michoacán*, and it is not thought that cacao was of much significance to the Purépecha (Pellicer, 1994). Later, however, during the Colonial period, it was to be used more generally as a form of currency. Native fruits were varied and consumed in great quantities. In the *tierra caliente* lands of Tuzantla, Ajuchitlan, Churumucu, Sinagua, La Huacana and Apatzingan, for example, black, yellow and white *zapotes* (naseberries, or a type of plum), custard apples, guavas, citrons, and *aguamochiles* were all grown, although guavas and *zapotes* were also grown in the more easterly districts of the province. In the colder and more temperate lands, in contrast, above 2,100m, only citrons and plums were grown. Tobacco, and other sicotropic and medicinal (curative) plants were also commonly grown by the people of Michoacán.

### 3.4.2 Land use and tenure

Landscape exploitation in Michoacán had proceeded within a distinctly hierarchical framework. Land tenure among the Purépecha conformed in general to the Mesoamerican pattern in which each community settlement had lands that fell into three categories (Barrett, 1973; Florescano, 1976). These were:

- lands that supported various public offices and the religious establishment and were worked by commoners;
- those that were the personal property of members of the ruling class and were worked by serfs; and
- those that were held and worked by commoners.

The *Relación de Michoacán* indicates that some *Señores* and *principales* (Indian lords) did employ slaves to work their lands, but it is clear that some *plebeyos* (lower classes, sometimes simply referred to as *Purépecha*) owned small plots in which to grow maize and squashes for subsistence purposes<sup>5</sup>. The Indian nobility, however, controlled the more favourable plainslands and areas that were irrigated (*de riego*) such as those along the shores of Lakes Pátzcuaro and Zirahuén (Turian)<sup>6</sup> and Chilchota<sup>7</sup>, Pinzandaro<sup>8</sup> and Tuzantla<sup>9</sup> in the *tierra caliente* lands (please refer to Fig 4.1), while the *plebeyos* collectively farmed lands on the slopes and ridges to avoid frosts, and were reliant for the most part on rain-fed agriculture (*de temporal*).

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<sup>5</sup> *Relación de Michoacán*: p12.

<sup>6</sup> AGNT 3127 (1) fs. 30; 35; AGNT 29 (3) fs. 6, 23-24. (cited in Pellicer, 1994). *Anales Museo Michoacano*, 1968: 178-182. AGNT 851(2), fs. 51f-52v; AGNT 402 (parte 2), fs. 101f-101v and 102f-102v. (Please refer to Chapter Four, Section 4.9 for key to footnote referencing of archival sources).

<sup>7</sup> AGNT 238 (5), fs. 53

<sup>8</sup> AGNT 104 (3), fs. 1-9.

<sup>9</sup> AGNT 3348 (3), fs. 9f, 10, 10v, 16f and 33f.

### 3.4.3 Demands on natural resources

Crops were grown for several purposes: to fulfil subsistence and tribute<sup>10</sup> demands, to pay the Purépecha *cazonci* (King), and for deity-related activities. Here, however, was an essentially labour-intensive system of exploitation - a contrast to the exploitative mercantile oriented, extensive system that it was to be replaced by in some locations after Spanish Conquest. This is not to suggest, however, that the demands of the domestic market were in any way insignificant. There is a good deal of contention over the size of pre-Hispanic populations in Michoacán as in the rest of Mesoamerica, but extrapolations of statistics from early surveys and various documentary sources suggest a high pre-contact population, which would in turn have imposed considerable demands on the rural sector.

Estimates for the population in the Basin of Pátzcuaro the heartland of the Purépechan empire at the time of Spanish contact vary considerably (Pollard 1980; 1993). Sanders (1970), for example, suggests a contact basin population of 95,000-106,000, while Cook and Borah (1960) put forward a higher estimate of 210,000. A population of between 25,000 and 35,000 has been posited for the population of the former capital of Tzintzuntzan alone during the immediate pre-Hispanic period with an urban density of some 4452 people per km<sup>2</sup> (Pollard, 1993). The implications are for a dense population, at least in the heartland area around the Basin of Pátzcuaro. It is to be expected, therefore, that there was considerable land exploitation in order to satisfy the demands of such a populace. Indeed, it is thought that 45% of the lands in the basin were under agriculture in the immediate pre-Conquest period, providing the principal food supply for the population of the area<sup>11</sup>.

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<sup>10</sup> Tribute was a form of taxation operative in pre-Hispanic Mexico. Goods (foodstuffs and local hand made commodities such as blankets and mats) would be collected, usually on a monthly basis, by local administrators and representatives of the *cazonci*'s court. The goods would be amassed in a central collection and were used to support the indigenous nobility.

<sup>11</sup> The figure today is thought to be in the region of 32.6% (Mapes *et al.*, 1994).

Based on a documentary investigation of maize yields in the Basin of Mexico, Williams (1989) has suggested that the carrying capacity of the area had been reached, if not exceeded, by the time European contact was made. An independent ethnoarchaeological investigation, also based in the Basin of Mexico, has, moreover, suggested that exploitation of more marginal lands took place during such phases of population pressure (Williams, 1972). Problems of sustainability in this context are perhaps to be expected given that the population of the Basin area is estimated to have increased from some 160,000 in AD 1350 to 1.2 million in the immediate pre-Conquest period (1519), implying a sustained annual growth rate of 1% per annum for 150 years (Sanders, 1981). Though it is difficult to assess whether demographic pressure had reached such proportions in Michoacán in the immediate pre-Conquest period, it seems at least conceptually feasible that population expansion would have imposed increasing stresses on the rural sector. Indeed, according to Pollard and Gorenstein (1980), maize production from the lands in the vicinity of the Basin of Pátzcuaro was apparently insufficient to satisfy the demands of the increasing populace in the immediate pre-Conquest period.

Several different scenarios have been forwarded to explain the survival and continuity of Purépecha society in this area in view of this supposed shortfall in supply. It is probable that maize and other supplies were imported from elsewhere, employing the advanced trading and communication links of the Purépecha empire (Gorenstein and Pollard, 1980). The increasing body of evidence of pre-Hispanic soil erosion derived from the lake basin areas of the Purépechan state (García-Cook, 1986; O'Hara, 1991; O'Hara *et al.*, 1993; 1994; Metcalfe *et al.*, 1994), however, would suggest that the agricultural and land use strategies, at least in these settlement foci, had not necessarily been the most environmentally sensitive. Moreover, rates of soil erosion reach a peak in the Postclassic period (O'Hara, 1991). It seems feasible to assume, therefore, that more marginal tracts of land were being exploited. It could well be that the heartland of the Purépechan empire, like that of the Aztec in the Basin of Mexico, had also reached critical levels of

population and landscape exploitation by the time the Spanish arrived. It was this cultural and environmental context that the Spanish encountered when they arrived in Michoacán in 1522.

### **3.5 Iberian antecedents**

#### **3.5.1 Introduction**

Spanish ideals and customs were not simply transplanted into this New World environment. The civilisation that the Spanish encountered had advanced political, economic and administrative infrastructures and had occupied and exploited the natural environment for over eight millennia. For this reason, the arrival of the Spanish could not, and did not, lead to a wholesale transformation of society and landscape. Rather Spanish contact was to set in motion a gradual process of syncretism between indigenous and Spanish society and culture (Sanders, 1992; Elliot, 1992). It is undeniable that Spanish Conquest was, however, to wield profound impacts on both environment and peoples of the Americas, but Old World antecedents and New World transformations should necessarily each be examined in their own right (Butzer, 1988). The following section will, therefore, be used to discuss some aspects of the antecedent Spanish customs, legal and administrative frameworks and land use and tenure practices that will have inevitably have affected the manner in which lands and resources came to be administered and exploited in the New World.

#### **3.5.2 Spanish agrosystems and land use practices on the eve of Conquest.**

At the end of the 14th century, depression was apparent in many of the areas of Castile, long before other areas of Europe. Throughout the 15th century, however, Castile had undergone recovery and expansion to become one of Europe's main economic powers. There had occurred a marked increase in population, and the number of people was to double throughout the 15th century, until it reached approximately 4.5 million around the year 1500 (Quesada, 1994). Urban growth was one of the results of this population increase and cities came to

form a dense and wide network, “with the population and labour force necessary to lead economic life on the eve of an incipient mercantile capitalism” (Quesada, 1994:110). This period also witnessed an increase and investment in both subsistence agriculture and cash crop production to feed internal urban and external markets, while the livestock economy had simultaneously expanded. The late Medieval crisis and the transformations that ensued culminated in the consolidation of the existing social system based on feudal overlordship, so reinforcing the social influence of the Castillian aristocracy (Kamen, 1991). According to Eric Wolf (1959), therefore, “there were in reality two Spains, or two tendencies at work in the Iberian peninsula” in the late 15th century. Indeed, at that time, Spain was at the cross-roads of a mercantile, capitalist economy, that was emerging out of a basic agrarian, feudal one (Sanders, 1992). A combination of feudalism and expansionism, therefore, formed the pivot from which the colonisation of the New World was to operate.

Spanish culture in the 15th and 16th century was part of a broad Mediterranean tradition, with elements derived from the arid lands of the Middle East, representing a unique adaptation to Mediterranean landscapes. Land use reflected this polyglot legacy, and had developed according to an admixture of cultural land use strategies and policies. Agrarian activity, though dominated by Mediterranean pastoralism, reflected previous periods of Roman and Muslim “Colonial” rule and so retained vestiges of Roman and Islamic legislation and custom (Glick, 1979). Domesticated animals have been verified on pre-Hispanic sites of the Western Mediterranean even before the introduction of pottery and sedentary agriculture proper (Lewthwaite, 1986), but the essential elements of the Spanish agricultural economy came to include the growing of small grains (wheat and barley) as staples, and the raising of a great variety of secondary crops including a range of vegetables and fruits, along with food crops which had recently been introduced from Asia and Africa, all selectively cultivated according to the spatially varied ecological conditions within the different regions Spain (Sanders, 1992). What should be highlighted, however, is the duality that

characterised late Medieval Spanish systems of land use, for farming and livestock raising always formed a complementary but interlinked economy. It was the so called “dual” nature of Iberian agricultural activity on the eve of Conquest, involving both livestock and agriculture, that was to later prove significant in the way the lands of the New World were exploited.

### **3.5.3 Pastoral activity in Medieval Spain**

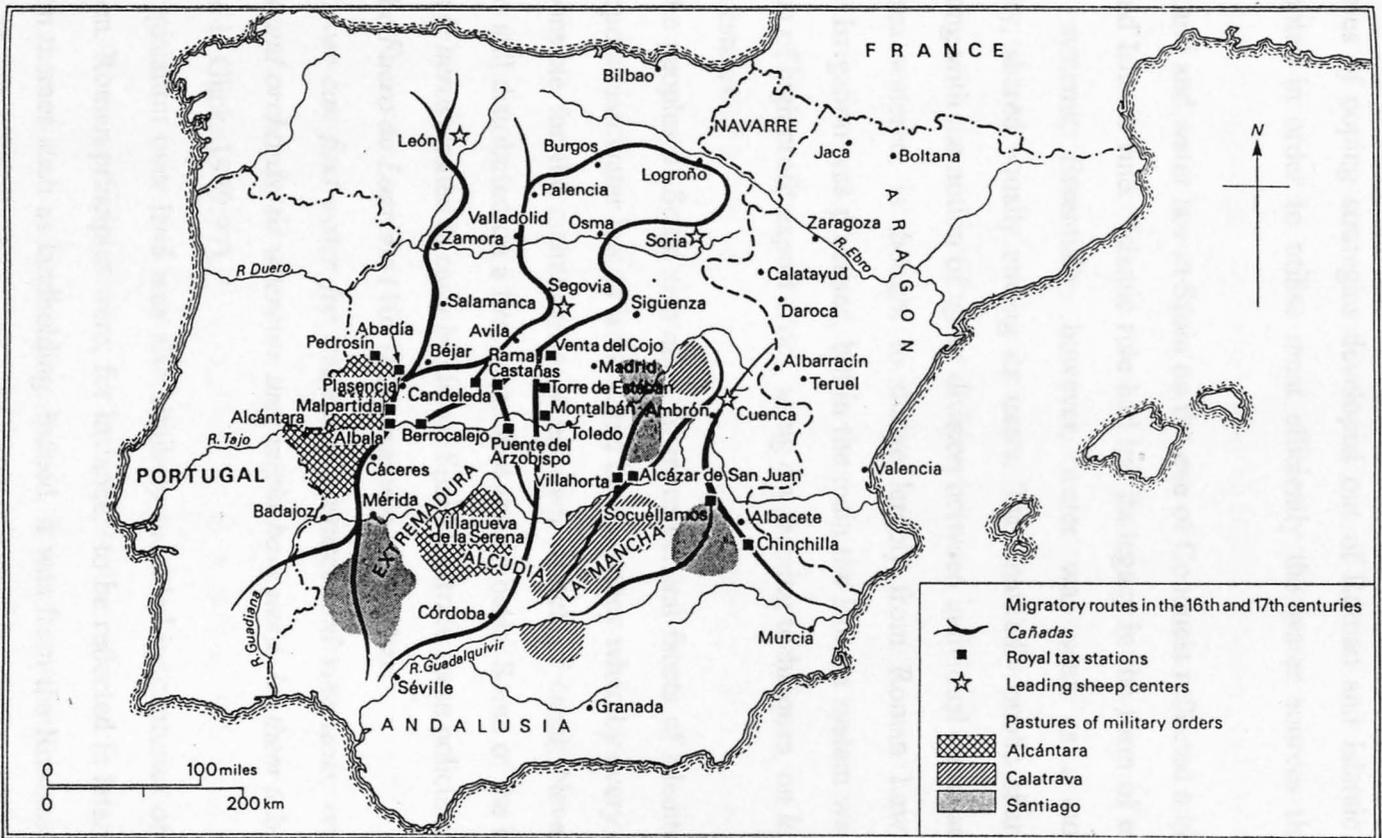
The fundamental coupling of cultivation and livestock raising in the rural economy of Spain is hinted at in the Visigothic Law code, but apparently becomes concrete in the Christian documents of the later Middle Ages (Butzer, 1991; Vassberg, 1996). This duality was expressed in different forms of land ownership. Cultivated land was intrinsically sub-divided and carried clear title, whereas pasture zones remained to some degree in the public domain (Butzer, 1988), a practice that was to prove particularly pervasive in Medieval Iberian - and afterwards New World pastoral activities. The holding of land was ultimately based on usufruct, implying that uncultivated or abandoned land (*tierra eriaza* or *baldia*) was free and open to appropriation, according to and subject to Royal decree and official land grants. There was also a policy of communal land holding ensuring free community access to woodlands and grazing pastures (Florescano, 1976). Such policies were to be transferred to the Spanish colony wielding profound implications for the indigenous populations, their systems of land use and traditional resource management strategies. All uncultivated land previously classed as communal amongst the indigenous populations could effectively be opened up to Spanish-introduced livestock . Furthermore, the fact that, at least to begin with, the indigenous populations were not in possession of any livestock, effectively blocked their access to common land and the natural resources - most notably wood and water - within these lands (Butzer and Butzer, 1995).

The spread of livestock raising in Castile during the Middle ages, led to the movement of great herds around different pastures, allowing the cultivation of lands coupled with the benefits yielded by animal fertilizers (Le Flem, 1972;

Vassberg, 1996). The establishment at the hands of Alonso the Tenth (“The Wise”) of a formal transhumant sheep grazers union (the *Mesta*) in 1284, however, ensured organised long-distance sheep walks or *cañadas* and cross-border treks of great herds and flocks, along well planned routes and roads (Fig. 3.7). The herds and flocks of the *Mesta* were to double in size during the 15th century, largely a response to the increased urban demands for livestock products (meat, wool and cheese). There was, in addition, another migratory pattern of smaller dimensions as well as a stationary livestock industry bigger in size that grazed in *ejidos* or communal grazing lands and other communal lands administered by the municipal governments. In total, there are estimated to have been around 6 million head of cattle and sheep in Castile in 1492 (Quesada, 1994).

In Spain, there was also a policy whereby herds from elsewhere or from other communities (*ajeno*) were allowed to graze on the left-over harvest stubble (*rastrajo*). The Spanish insisted on this right in the Mexican environment, though this was to cause much contention between the stockraisers and the agriculturists, given the fact that animals were put to pasture sometimes before harvesting was complete. Indeed, dating back to the Visigothic law code of the seventh century, unenclosed and uncultivated land in settlement areas was effectively open to herders to pasture their animals for two days without obligation to seek the owners permission; public roads could not be closed and an eighteen inch stretch of land had to be kept clear on either side of the road for the passage of livestock (Butzer, 1988). Such evidence indicates unusual rights for itinerant livestock herders. The problems of achieving a balance between agriculture and livestock did not, however, become a problem until the close of the 15th century, as the population of southern Spain especially increased, demand accelerated and more and more land was needed for agricultural purposes. A competition for space thus emerged as the first colonisers were beginning to emigrate to the New World (Vassberg, 1996). It was this problem, however, that was to be transposed to New Spain (see Chapter Six and Chapter Nine).

Figure 3.7 Trans-peninsular sheep walks (cañadas) in 16th and 17th centuries (after Vassberg, 1996, and adapted from Le Flem, 1982: 51)



### 3.5.4 The use of lands and waters

It is significant that specific areas of Spain (predominantly from the southern areas of the country, including Andalusia, Extremadura and Castile (Butzer, 1988) from which the *conquistadores* came, were, like the Mexican *Meseta*, subject to periodic drought and water shortages, and it is not surprising that a series of coping strategies developed out of Roman and Islamic custom were adopted in order to utilise most efficiently the water sources that were available.

Land and water law in Spain on the eve of Conquest reflected a history of Roman and Islamic rule. Islamic rule had left its legacy in the form of extensive irrigation systems. Essentially, however, water was seen as a communal commodity, shared equally among its users. This markedly public character of water, along with the notion of water division between individual farms according to the area watered, is thought to derive largely from Roman Law (Glick, 1979:73). Irrigation was practised, but in the main the Roman system was one of production of high profit export crops, using dry farming techniques, on *latifundia* and large estates.

The peoples of Spain also adopted more general facets of Mediterranean and Mesopotamian water law as is indicated by the policy whereby every irrigator was responsible for the maintenance of his own stretch of canal. Nevertheless, water was still distributed on a first come first served basis. Some of the laws and privileges (*Fueros*) issued in early Medieval Spain illustrate these policies (Kamen, 1991). The *Fuero de Logrono* (1095) for example, states that:

*“whoever can find water for irrigating pastures and vineyards, or for mills and orchards, or wherever they might have need, let them take it”*  
(cited in Glick, 1979:97).

Legislation over land was also similarly moulded by centuries of cultural subjugation. Roman principles were, for instance, to be reflected in later Spanish statutes on themes such as landholding. Indeed, it was from the Romans that the concept of large amalgamations of land into *latifundia* was derived. Roman Spain

had indeed been agriculturally distinguished for its large scale production of cereal grains, olives and grapes. After the long process of re-Conquest of Spain from Muslim control, a series of colonisation and settlement policies were established. The availability of land led to particular judicial, social and economic forms characteristic of frontier settlement. The typical form of land acquisition of property was the *aprisio* (*presura* in Castilian), a modality of “squatters rights” in Germanic customary law, which owing to the exaggeratedly low density of population, came to acquire particular vigour in medieval Spain (and also came to be practised in New Spain after Conquest and into the present day). *Aprisio* was officially a formula whereby any person or group of persons could lay claim to land simply by virtue of occupying it (*presura*) and by bringing at least a portion of it under cultivation (*escalio*). Land conquered from the enemy under Islamic as well as Germanic law was held by the Sovereign.

But beginning with the Conquest of Toledo in 1085, a new settlement policy was introduced. Rather than leaving the business of settlement to the will of individual settlers or groups of settlers, the royal administrators of Castile and Aragon took an active hand in the process through the surveying and apportionment of already developed parcels of agricultural land, a process known as *repartimiento* (Glick, 1979). As the Christians came to take over more lands from Muslim ownership, the fear of reprisal subsided and it was at this time that the crown began to grant special *repartimiento* grants, as charters of title to lands not yet conquered. Grants of lands were, however, also awarded to ensure settlement of vacant or abandoned lands (Butzer and Butzer, 1993). Similar policies would later act as justification for claims to lands and resources in complicated law suits in New Spain.

The Spanish thus arrived in New Spain equipped with a complicated history of legislative control over water and lands, representing an admixture of Visigothic, Roman and Islamic custom. The impacts that the introduction of such traditions, customs and policies were to have on the landscape and people of Mexico were to be profound. New settlement and land use systems, changes in

land tenure and resource exploitation and new cultivars and livestock were all introduced to Spanish America together with a series of disease pathogens to which the indigenous population of the Americas held no resistance. In Parts Two and Three, I aim to trace the degree to which land use and resource acquisition were to change in the wake of European contact, and to assess the impacts that these changes were to wield on society and the landscape in Michoacán. It is first necessary, however, to outline the methodological approach adopted in this investigation.

## Chapter Four

### Methodology

#### 4.1 Introduction : archives as media of historical information

The Spanish Colonial administration, both in Spain and in Mexico, began compiling a series of document collections on population, settlements, landscapes and economic resources for the different regions of Mexico immediately after contact. Combined with the national and state level judicial documents dealing with law suits and land grants that span the whole of the Colonial period, and the various pictographic, ethnohistorical sources dating back to the pre- and early post-Conquest period, these unique media of historical information can be used to provide a coherent record of “change” in the post-Conquest period (Butzer, 1990).

The vast body of untranscribed archival material, now housed in the various regional and national archives and libraries of Mexico, has long been recognised as a tool with which to reconstruct demographic change (Borah and Cook, 1960, 1963; Cook, 1949; Cook and Borah, 1960, 1968, 1971, 1974, 1979; Cook and Simpson, 1948; Williams, 1989), land-use and tenure reorganisation (Chevalier, 1952; Barrett, 1973; Prem, 1984; Licate, 1981; Piñon-Flores, 1984; Ruvalcaba, 1985; Rojas Rabiela, 1985, 1988, 1994) and agricultural dynamics and cultural syncretism (Simpson, 1952; Dusenberry, 1963; Matesanz, 1965; Taylor, 1972; Lopez-Lara, 1973; Osborn, 1973) following Conquest. To date, however, archival research has tended to mainly focus on the Basin of Mexico, given that this was the hub of both pre- and post-Hispanic activity and as such has the most bountiful archival record available. More recently, attention has shifted to more regionally-based archival studies away from this heartland area (Cline, 1992) and, more pertinent to the present discussion, to the reconstruction of past climates and human-environmental interfaces (Butzer and Butzer, 1993, 1995; Melville, 1990; 1994; O’Hara, 1991; O’Hara and Metcalfe, 1995).

These pioneering archival investigations have highlighted the need for more detailed regional histories of social and environmental change in the post-Conquest period, but have also provided a methodological framework with which such histories can be obtained. Butzer (1992) and Melville, (1994) have, for example, identified a series of ethnohistorical and Colonial archival sources from which to elicit information on agrosystem change and land use dynamics in Mexico after the arrival of the Spanish, while recent archival reconstructions of environmental change in central Mexico have highlighted several document groups (*ramos*<sup>1</sup>) and historical sources that can be employed to reconstruct micro-scale environmental characteristics for particular locations at specific points in time (Butzer and Butzer, 1993; Melville, 1994).

This investigation makes use of these archival and documentary collections together with published surveys, chronicles and travelogue material, in order to reconstruct the potential causes and consequences of social and environmental change in Michoacán over the course of the Spanish Colonial period (1522-1821). It is the purpose of this chapter to discuss the nature and contents of the historical sources that have been employed for this purpose, and the limitations and disadvantages of using archival material to interpret historical social and environmental change.

#### 4.2 Ethnohistorical sources

There are several sources of ethnohistorical information available for the student of Mexican history. The *codices* and pictorial documents of the pre-Hispanic period have, for example, provided a good deal of insight into the nature of pre-contact agricultural practices and the composition of the traditional crop repertoire (Anderson and Dibble, 1963; Rojas Rabiela, 1985, 1988; Williams, 1982; Butzer, 1992). Some of the ethnohistorical sources of the immediate post-Conquest period, often compiled by Colonial administrators and members of the first religious orders to arrive in the colony, using information provided by

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<sup>1</sup> *Ramos*: literally “branches”, but used to refer to different Colonial document groups.

indigenous informants, have, in contrast, supplied demographic and environmental information for specific regions of Spanish America at the time of contact (Berdan and Durant, 1980; Acuña, 1984-1987), and can thus be employed to highlight the composition of society, its environmental and cultural context and the dominant systems of land use and exploitation during a time of cultural transition. A number of such ethnohistorical sources were exploited in this investigation.

#### 4.2.1 *The Relación de Michoacán*

One of the most pertinent documents on the nature of the Purépecha culture and society in the contact period is the *Relación de las ceremonias y población y gobierno de los Indios de la Provincia de Michoacán*. This document represents the narratives of a group of Purépecha noblemen, which are thought to have been recorded, transcribed and translated into Castillian Spanish between 1540 and 1541 by a Franciscan priest, believed to have been Fray Jerónimo de Alcalá (Warren, 1971), resulting in what turned out to be one of the “finest documents ever written about a prehistoric Native American civilisation” (Pollard, 1993). The *Relación*, as it is more commonly referred to, contains 140 *folios* and 44 illustrations formulated into three parts: religion, Purépecha society and official state history, including details of the Spanish Conquest itself. Although all but the first part or *folio* have been lost, several editions have been published in various formats<sup>2</sup> and it has been possible to extract some useful environmental information from some of the narratives and depictions that accompany the texts.

#### 4.2.2 *Relaciones de Michoacán*

The *Relaciones Geográficas* similarly deserve attention as some of the first ethnohistorical sources useful for reconstructing land use and tenure dynamics in

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<sup>2</sup> Several editions of the *Relación de Michoacán* have been published, based upon the manuscript in El Escorial, Madrid, or later copies in the Library of Congress, Washington D.C., and Morelia, Michoacán (see Warren, 1985: 328). The most detailed edition was produced in 1956, and more recently a new transcription, also based upon the Madrid document, was published in 1980. An English edition, based upon the Morelia copy, appeared in 1970 and a translation into French has recently been published (Pollard, 1993).

the wake of the imposition of a new Spanish bureaucracy. Made by order of the crown or church in ca. 1548, 1569-70, 1579-81 (and again later on throughout the course of the Colonial period for specific areas; see Section 4.6.2), the *Relaciones* represent the results of a questionnaire designed in Spain to elicit basic environmental and economic information about specific regions of the New World. As such, the *Relaciones* for Michoacán, recorded between 1579 and 1581 and now available in published form (Acuña, 1987), can be used to help illuminate some of the demographic changes, settlement and land use dynamics that took place in the first decades of Colonial rule (Butzer, 1992).

In many cases, however, these early surveys and descriptions were tailored towards exacting specific information on the economic or exploitative potential of the Mexican landscape (Quinn, 1994; Melville, 1994) and as such are thought to display a good deal of bias. The aims of the survey, for example, led the assessors - often members of the local Spanish administration - to ignore a lot of very useful information on the nature of the natural environment. Only certain aspects of that environment were deemed worthy of report by the individuals responsible for their compilation - a factor which itself contributes to the degree of subjectivity inherent in these particular archival sources. Furthermore, while the questions, replies and maps contain a vast amount of systematic information, it is not provided in a form which relates humans to their environment, or indeed links the constituent aspects of the environment into any kind of unity (Quinn, 1994) - a point noted by José de Acosta who at the close of the 16th century suggested that no author had made any attempt “*to explain the causes and the reasons for these novel phenomena of nature*”. Indeed, this was a task he charged himself with, resulting in his major work of 1590<sup>3</sup>. Nevertheless, these archival sources have provided one of the first detailed descriptions of the landscape, existing land use and perceived economic potential in Michoacán at the time of contact and in the early Colonial period. In this respect, the *Relaciones* have proved invaluable for the reconstruction of the cultural and environmental transitions taking place in Michoacán at this time.

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<sup>3</sup> Acosta (1590) *Natural and moral history of the Indies*. Mexico.

### 4.3 National archives

The Spanish bureaucracy in Mexico also left a legacy of atomised archival data in the form of national and regional level fiscal and judicial documents. The single most valuable documentary repository in Mexico for such material is the *Archivo General de la Nación* (AGN), home to by far the richest manuscript collection on the history of the Americas. There are in total 115 *ramos* (consisting of over 300,000 individual documents) dealing with Colonial New Spain alone now comprehensively indexed on a CD-ROM index. Recent investigations (Butzer and Butzer, 1993, 1995; Melville, 1990; 1994) have highlighted the potential of some of these *ramos*, particularly those entitled *Tierras*, *Indios*, *Mercedes*, *Civil*, *Inquisición*, *General de Parte*, *Tributos* and *Vinculos*, for the reconstruction of land use dynamics and environmental change in the post-Conquest period. Several of these *ramos* were exploited in this investigation.

#### 4.3.1 The *Tierras*

Foremost amongst the most useful documents are the *Tierras*, a body of 3700 litigation documents spanning the whole of the Colonial period, each one ranging from two to two hundred pages or more, (see example, A1 and A2, Appendix A). This *ramo* largely consists of disputes (*pleitos*) over lands, water bodies, infringements and encroachment onto properties, as well as claims of crop depredation by livestock. The *ramo* is divided into individual collections bound into *libros* and numbered. Individual disputes are recorded as *expedientes* within these *libros* (see Section 4.9, this chapter for notes on referencing archives throughout the text).

The information within such court cases, which on occasions spanned several generations, and often involved the use of witnesses and testimonies, includes landscape descriptions and territorial boundaries, which in many cases were farms, enclosures, barns, walls, corrals, wells and croplands, or natural landforms such as rivers, lakes, forests, hills and latterly crosses and *mojoneras* or

boundary stones. With many of the documents there are accompanying maps or *pinturas* depicting the lands in question. Time-specific micro-environmental information could thus be extracted (Table 4.1).

#### 4.3.2 The *Mercedes*

The main source for the study of both land holding and land use is the *Ramo de Mercedes* also housed in the AGN. The *Mercedes*, compiled into 87 volumes of 40,000 untranscribed pages, represent a vast body of land grant deeds, each one again indexed either by *expediente* or page number. These documents are in the main much shorter than the *Tierras* documents and typically carry a set of stipulations according to the nature of the land use for which the grant is being awarded (see examples, A3, A4 and A5, Appendix A).

*Mercedes* for *estancias* (livestock holdings) and agricultural land (*caballerias*) were officially granted by royal decree, but usually only after a survey of the lands in question had been carried out and submitted to the Viceroy for approval. As such, these documents not only detail the type of grant (i.e. for agriculture or for grazing or more rarely for building roadside inns and grist mills, decrees of abandonment, pledges for water, conversion grants and approvals of sale etc.), to whom and where, but usually also include a description of the land area to be granted and the major landscape features therein, compiled by the applicant and recorded by a viceregal magistrate (see Chapter Five, Section 5.4). As Prem (1992) has recently pointed out, the archival documentation for land grants can, therefore, be used not only to reconstruct the procedure of land allocation, but also to identify the nature of the landscape for the area relevant to the land grant, regional settlement histories and the different roles of the indigenous populations and the Spanish elites in this process. The information derived from these land grant documents is thus particularly versatile (Table 4.1).

Land granting in Michoacán is known to have begun officially in 1542, and appears to decelerate towards the third decade of the 17th century (Florescano, 1989; see also Table C, Appendix C). Many of the *mercedes* documents are,

however, missing. According to Prem (1978: 131), for example, less than 60% of the titles to grants for New Spain as a whole remain on record, while Melville (1990) arguing from cross-checks with other documentary sources estimates the figure to be more in the region of 50%. Consequently, only some of the *mercedes* for the state of Michoacán remain on record. Distinctions need to be drawn, however, between land grants requested and those actually awarded. It has, for instance, been suggested that two of every five *mercedes* requested were in actual fact denied (Prem, 1992). Any reconstruction of the rate of change of land use using land grant documentation needs to consider this demarcation. Moreover, it is thought that many more grants were awarded than there was land available (Prem, 1992). As such it has proved impossible to estimate with any degree of certainty the number of livestock held in a particular area or to delimit exactly where the *estancias* and farmsteads were located. Nevertheless, combined with other archival evidence, perhaps later documents dealing with *composición* (see below, Section 4.4), and hence providing in some cases an historical summary of land grants made in a specific area, some locations can be pinpointed. The body of land grants that are available for Michoacán have been employed in this investigation in order to extract information about the rate and scale of land use change in the early post-Conquest period, and also to assess the way this landscape in a particular location was perceived at the time a *merced* request was submitted.

#### **4.3.3. Additional *ramos* consulted in the AGN**

Other archival sources housed in the AGN can, and have proved similarly useful for investigating landscape characteristics at a particular point in time as well as land use dynamics and its impacts in the early Colonial period (Table 4.1). The body of documents dealing with foundations of new towns subject to relocation (*Congregaciones*) in the later 16th and early 17th century, for instance, include descriptions of the landscape in the area where relocation was planned, as well as brief assessments of the areas from which subjects were being moved. This

body of evidence could thus be used to elicit information on the perceived quality and potential of the landscape in the vicinity of the new town. Unlike the *Relaciones Geográficas*, the *Congregaciones* often include both *Indio* and Spanish perspectives and could thus be employed to determine the degree of cultural variation in the way the potential of a particular location was perceived at a specific point in time.

Other *ramos* were of more incidental use, providing isolated pieces of demographic, settlement and land use information. Among these, the *ramo* entitled *Civil* proved especially useful for charting the impacts resulting from the imposition of Spanish administration on the indigenous population in the early post-Conquest period. In contrast, useful information regarding indigenous involvement in water diversion programmes and public works, civil unrest, complaints and claims for depredation could be gleaned from the *Indios* records which span the entire Colonial period, but are more numerous in the early post-Conquest period.

A different set of *ramos* were exploited in order to establish the social and environmental context of Michoacán in the later Colonial period. Among the more useful was the document group entitled *Historia* (see also below, Section 4.6.3) which deals with land use, location histories, population statistics and characteristics of specific locations in the second half of the 18th century. Compiled into a series of volumes (volumes, eight, nine and ten pertain to Michoacán), these manuscripts were employed to elicit the nature of land use and settlement towards the close of the Colonial period.

More specific raw data on harvest yields was derived from the *Alhondígas*, or crop records. These records have, for example, been used to establish the regional impacts resulting from the climatically-driven agricultural crisis that affected central Mexico between 1785 and 1786 (Florescano, 1981). The *Alhondígas* for Michoacán have, moreover, provided some insight into the impacts of this disaster at the sub-regional level.

Perhaps the most significant source of contextual historical information employed in this investigation were the *Real Cédulas*, or royal decrees issued throughout the Colonial period. These published records of viceregal *mandamientos* (mandates) and local government *ordenanzas* (orders) (see Section 4.6.2: Paredes, 1995), and those publications dealing with Spanish Colonial legislation and crown policy regarding resource management and distribution (Florescano, 1976; Musset, 1992) can be used to establish a political and administrative framework. Any social and environmental “changes” can then be set against this legislation. Throughout the course of the investigation, therefore, any identifiable historical socio-economic trends could be set within the legal and political administrative infrastructure of the time.

#### 4.4 State archives

As well as the manuscript collections held in the national capital, Mexico also has a rich store of state and local archives, both civil and ecclesiastical. Like the *Tierras* of the AGN, the *ramo* entitled *Tierras y Aguas (de la época Colonial)*, housed in the *Archivo de las Notorias* in Morelia, Michoacán, west central Mexico, deals with litigation records over the course of the Colonial period, but more specifically during the 18th century. Most of the documents represent the results of *composición* which was a policy through which title to land could be ratified via a small monetary payment (see Chapter Five, Section 5.5). This document group proved particularly useful for investigating land and water disputes, climate change and impacts in Colonial Michoacán (O’Hara, 1993; Endfield and O’Hara, in press) and for eliciting snippets of micro-environmental information (Table 4.1).

Further documents are housed in the *Archivo de la Ciudad de Pátzcuaro*. The vast collection of manuscripts are uncatalogued and randomly stacked but again deal with judicial issues within Pátzcuaro and its *sújetos* and *barrios*. Although a large proportion of the documents, which span the entire post-

Conquest period up to the present day, deal with crime records (*Crminales*) in the jurisdiction, many of the manuscripts represent land disputes and court cases over territorial boundaries and / or natural resources, and as such include similar information to that held in the *Tierras* or *Tierras y Aguas*. Other documents housed in this archive, however, deal specifically with deeds of sale and often include detailed descriptions of the lands in question, inheritance rights and *hacienda* inventories - a source of historical information that Brading has exploited in an investigation of 18th and 19th century *haciendas* and ranches in the Bajío region (Brading, 1978).

Together with the manuscripts that deal with the last wills and testaments of land owning individuals in the jurisdiction, the collection of documents housed in the Pátzcuaro archive were used to elicit detailed information regarding the nature of land tenure and land use in specific areas of the jurisdiction at a particular point in time. Some of the *hacienda* inventories, for example, provided information on the numbers and type of livestock held in a particular location, the amount of land that was sown or left fallow, and the nature and condition of the working capital, that is to say the amount of farm machinery and seed stock owned by the *hacendado* (estate owner), the number of corrals, barns, out-houses and the type of living accommodation available on the estate, and in some cases the number of slaves employed by an individual *hacendado*. The land surveys, maps and *pinturas* that accompany many of these documents were also used to extract some micro-environmental information for the area in question. In this way a wealth of temporally and spatially specific social and environmental information could be gleaned from these archival sources.

#### 4.5 Spanish archives

Many documents pertaining to the development and history of New Spain, including references to Michoacán, are now housed in the *Archivo General de Indias* in Seville, Spain. As Melville (1994) has recently illustrated, many of the document groups such as *Audiencia de Mexico*, *Escribanía de Cámara* and

*Contaduria*, *Justicia* and *Mexico* can be used to elicit basic environmental and land use information (Table 4.1) as well as details of settlement and population dynamics, and as such have been useful in the present investigation. Though it has not been possible to access the original documents, some were consulted via publications and the microfilm units housed in the *Museo Nacional de Mexico* (see Section 4.6.1 below).

**Table 4.1 Summary table illustrating the potential of selected *ramos* in the AGN (Mexico), the *Archivo de las Notorias* (Morelia) and the AGI (Spain) for eliciting social and environmental data.**

<i>Ramo</i>	land use/tenure/ population	water/climate	environment
<i>Mercedes</i>	*	*	*
<i>Tierras</i>	*	*	*
<i>Tierras y Aguas</i>	*		*
<i>Indios</i>		*	
<i>Relaciones</i>	*	*	*
<i>Congregaciones</i>	*		*
<i>Tributos</i>	*		
<i>Civil</i>	*		
<i>Contaduria</i>	*		
<i>Audencia de Mexico</i>	*		*

## 4.6 Secondary sources

### 4.6.1 Libraries and Museums

Several of the many libraries and museums in Mexico City have archival repositories open to public consultation. In addition to the printed resources and original written and painted manuscript collections, housed in the library of the *Museo Nacional de Antropología*, for example, there is an important microfilm unit containing several hundred reels of films of manuscript materials from state, local and private archives. Here there are excellent documentary collections pertaining to the Colonial and post-Independence (1821 onwards) periods for many Mexican states. The *Biblioteca del Museo de Antropología*, also holds original documents and photocopies of documents dealing with Michoacán, that

are now housed in libraries in Paris (*Bibliothèque Nationale de Paris*) and Spain (*Archivo General de Indias*). Some of these documents deal with surveys and descriptions of various locations in Michoacán, notably Pátzcuaro and environs, and date back to the 18th and 19th century.

#### 4.6.2 Published surveys and syntheses

In addition to original manuscript collections, and those that are now available on microfilm, several archival indices and publications have been consulted for this investigation. Publications held in the library of the *Instituto Nacional de Historia y Antropología*, for example, and in the CIESAS (*Centro de Investigaciones y Estudios Superiores en Antropología Social*) library, and in the *Biblioteca del Museo Nacional de Mexico*, and dealing with a wide variety of issues pertaining to Colonial Michoacán and other regions in central Mexico, were exploited. Some useful travelogue reports and missionary accounts of the 17th, 18th and 19th centuries were also consulted in the library of the *Centro de Investigaciones Historicas* in the *Universidad Michoacana de San Nicolás de Hidalgo*, Morelia, Michoacán.

Many archival investigations to date have focused on cataloguing what is evidently a very rich collection of historical documents. Some of the publications resulting from these syntheses, and dealing specifically with Michoacán, have proved to be particularly useful for the reconstruction of past land-use, tenure and population statistics. Among them, *The Relación de Pátzcuaro*, dated to 1754 and reproduced in the *Boletín del Archivo General de la Nación* (second series, Tomo IV, Número 1, 1963) provides information on the landscape and population of the state as it stood in the middle of the 18th century. Similar location-specific environmental and demographic information - this time for an area in the *tierra caliente* zone of Michoacán - is included in the 1962 transcription of the *Relación de la Guacana*, as originally recorded by Balthazar Dorantes Carranza in 1605 (*Boletín del Archivo General de la Nación*. Tomo III, Número 4, 1962).

Some of the most valuable archival collections, dealing with all manner of early Colonial matters are now housed in the Ayer Collection of the Newberry Library, Chicago and the Kraus Collection of the Library of Congress, Washington. Although these archives have been synthesized and published in a slightly abbreviated form (Zavala, 1982), a more recent publication has combined archives from each collection with documents from the *Ramo Indios* housed in the AGN to provide a complete data set covering land grants, local ordinances, governmental and local administrative instructions and community and public works for 16th century Michoacán (Paredes, 1995). This publication was particularly useful for the investigation of the impacts resulting from Spanish activities in Michoacán in the first century after contact.

More detailed economic and demographic information for the later Colonial and early Independent periods was derived from three main publications.. The first, entitled *El Obispado de Michoacán en 1765* (Sanchez, 1985) was used to exact some invaluable demographic and settlement data for the state in the later Colonial period. The *Análisis Estadístico de la Provincia de Michoacán en 1822* (Lejarza, 1974), in contrast, provided the first insights into the population and economic status of the newly-formed state at the time of Independence.

#### **4.6.3 Missionaries and chronicles**

Many of the travel reports of the 17th and 18th centuries, and particularly those of the Franciscan and Augustin missionary orders, similarly provide a rich and detailed record of some of the cultural and environmental characteristics of specific areas of New Spain at particular points in time. Religious chroniclers of the early Colonial period such as Fray Toribio de Motolinía, for example, left a legacy of information on indigenous society and custom in late 16th century Michoacán (see Orozco, 1940), while the narrative of Ciudad Real (alias Alonso Ponce) who travelled widely though Mesoamerica in the latter part of the 16th century as secretary to Fransiscan missionary (Quintana and Farreras, 1976), includes information on the landscape through which he passed. Later travelogue

reports include that of Fray Diego de Basalenque (1644) an Augustinian monk, who provided detailed descriptions of the landscape in the basins of Lake Cuitzeo, as well as those of Yuririapúndaro and Pátzcuaro. Fray Alonso de La Rea (1643), Fray Juan Gonzales de La Puente (1624), and Fray Mathias de Escobar (1729) also include useful environmental information in the reports that they compiled.

Amongst the more significant of the 18th century chronicles was that produced by Fray Pablo de la Purísima Concepción Beaumont, a Spanish born medic to the Spanish royal household. The documentation he produced on the history of Michoacán is now compiled in three volumes and housed in the *Archivo General de la Nación (Historia)*, but includes references to the settlements, populations, landscapes and histories of the majority of the indigenous and planned Spanish towns in the province and as such represents one of the most useful sources of cultural and environmental information for 18th century Michoacán.

Plagiarism was not, however, uncommon amongst some of these early chroniclers. As such, any landscape and settlement descriptions that are provided in such records and testimonies may not reflect the contemporary situation at the time of writing. This is evident, for instance, in Escobar's writings on the province of *San Nicolás Tolentino de Michoacán* (1729) which clearly emulate those of Fray Diego Basalenque's *Historia de la Provincia de San Nicolás de Tolentino de Michoacán del Orden de San Nicolás* from close to a century earlier (1644). In addition, many of the missionary works of this nature were concerned not so much with the finer detail of the landscape and the environmental characteristics of a region, as with the nature of the settlement, the creed of the population within that settlement, and the wealth, power and working capital of the church in a particular location. As such the environmental information provided in such chronicles is often of a more macroscale nature. Nevertheless, all these chronicles were employed in this investigation to assess the way in which the landscapes in particular locations of Michoacán were perceived at specific points in time.

## 4.7 Research approaches

### 4.7.1 Case study areas

This investigation focuses specifically on an archival reconstruction of social and environmental change in the heartland of Michoacan, shown in Figure 4.1 - an area that includes the three lake basins, from south to north along the climatic gradient, Zirahuén, Pátzcuaro and Cuitzeo<sup>4</sup>, highlighted in the boxed area in Fig 4.1. The justification for this site selection is threefold.

Firstly, the archaeological and historical record for this area, which formed the heartland of the Purépechan realm, centring on the Basin of Pátzcuaro, is particularly provident (Gorenstein and Pollard, 1983; Pollard, 1993). The Spanish, like the pre-Hispanic societies before them, were attracted to the many lake basin locations of the central highlands for the provision of natural resources, the fertile alluvial soils and agricultural potential of these areas, and for the purpose of exploiting pre-existing pre-Hispanic social, administrative and infrastructural networks. As such, there is a rich documentary record available for these areas, detailing population and settlement characteristics, landscape, land use and land tenure in the immediate pre- and post-Conquest period, and the changes wrought therein by increasing Spanish hegemony.

Secondly, as discussed earlier, some of the lake basins in the NVA have been the focus of a series of multi-disciplinary investigations (O'Hara, 1991; Metcalfe *et al.*, 1991; O'Hara *et al.*, 1993; Metcalfe *et al.*, 1994) which have already established a good deal of evidence indicative of pre-Hispanic soil erosion. Focusing on an archival reconstruction of the nature of land use change in the wake of the Conquest in these areas and highlighting any evidence suggestive of landscape change during the post-Conquest period, could enable some idea of the nature of environmental change post-dating the arrival of the Spanish in the

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<sup>4</sup> Reference is also made, however, to locations now in the modern day state of Guanajuato, specifically Lake Yuririapúndaro (now called La Piscina de Yuriria).

vicinity of these areas to be gleaned. A more extensive environmental history for these areas might then be made available.

The lake basins included in the area selected for investigation lie on the rainfall gradient of this climatically-sensitive area but have different morphological characteristics and are thus thought to have responded differently to discrete variations in annual precipitation (see Chapter Ten). Studying documents pertaining to the lands in the vicinity of all three basins thus provides an ideal opportunity to investigate the different impacts of climatic perturbation and the varying human responses that such perturbations engendered.

Please note that a larger copy of the map, Fig 4.1, is provided in the back cover of the thesis and can be used to identify locations referred to throughout the text. Note, however, that not all locations referred to are located on his map. There are many references to *haciendas* and former *Indio* and *Español* towns that no longer exist and whose precise location could not be ascertained. Where possible some indication of location will be provided through reference to nearby settlements, whose locations can be pinpointed on the map, or by reference to the geographical region (*tierra fría, tierra templada or tierra caliente*) in which the locality in question is thought to have existed.



#### 4.7.2 Methods

Survey reports and early landscape descriptions from the *Relación de Michoacán*, the *Relaciones Geográficas* and some of the 16th century accounts and missionary reports, were in the first instance consulted to assess the initial perceptions of and reactions to the landscapes and peoples encountered in the region at the time of contact, and in the immediate post-Conquest period. Isolated archival references to disease epidemics, depopulation and land abandonment were then combined with more definitive population statistics derived from the *Relaciones, Congregaciones* and published sources in order to estimate the nature of demographic change in the wake of Spanish contact and the degree of spatial variation therein. Trends in demographic recovery and changes in the composition of society throughout the course of the Colonial period were assessed through published sources and *Historias* documents.

Royal legislation and local administrative mandates issued during the course of the contact and early Colonial periods were consulted to establish a broad appreciation of the early systems of land and natural resource management and distribution in the colony. Some 400 *Mercedes* documents were then employed to trace the rate and scale of land use change in the wake of the Conquest and the degree to which traditional indigenous systems of land use and resource management were to interdigitate with those of the Spanish over the course of the Colonial period. The extent to which these changes were to have an immediate impact on the environment in the vicinity of the three lake basin areas was assessed through two documentary media: macro-environmental descriptions included in travelogue reports and missionary accounts, and micro-environmental information derived from surveys and landscape descriptions and isolated landscape references derived from *Mercedes* and *Tierras, Congregaciones* and less official documentation.

Progressive changes in land *tenure* in the early Colonial period were monitored through land grant documents, while a detailed survey of *Composición* and inventory documents provided insight into the way land holding had evolved,

or had been changed through the imposition of Colonial policy, by the 18th century. A survey of an estimated 500 national, state and municipal level litigation documents pertaining to land *pleitos* in the area of concern and spanning the entire Colonial period was carried out to investigate the degree of social impact and response engendered by these changes and those associated with established trends in demographic recovery.

Litigation documents (*Tierras*, and the *Tierras Y Aguas*) and *Mercedes* documents, along with manuscripts pertaining to public works such as the *Indios* or *Civil* registers were employed to identify in the first instance general trends in archival references to water resources in central Mexico. Trends in water-related issues could then be compared with the available climatic record, the history of land use and land tenure change, and the demographic record in an effort to elucidate the degree to which concern over access to and acquisition of water was a function of climate fluctuation or changes in land tenure and resource administration set within a changing demographic, socio-economic and legislative context. The impacts and responses to changed water supplies or changed access to water was then investigated through the same litigation and land grant media in order to assess the degree to which water security became a class-dependent issue in the post-Conquest period.

Many different archival sources were consulted to exact macro-, meso- and micro-environmental information over the course of the post-Conquest period. Travelogue reports and accounts were first employed to elicit some broad-scale perceptions of the landscape in Michoacán at various stages in the later Colonial and post-Independence period, while *Tierras*, *Tierras y Aguas* and *Mercedes* documents and associated *pinturas* were consulted to derive time-specific micro-environmental information in and around the lake areas of concern in this investigation. Information was arranged by location and by time to produce a composite picture of landscape change over time in these locations. Set within the natural environmental context of the areas in question, this information could then be compared with the local land-use and exploitation history, descriptions of

the state of the landscape upon Spanish contact and available population records to assess the degree of local environmental impact resulting from changes in land tenure and land use intensity associated with the Colonial period

Adopting this methodology, it has been possible to glean some insight into the nature of post-Conquest social and environmental change in Michoacán, and hence to illustrate the potential impacts and consequences of Spanish Colonialism on the people and landscapes of the region. There are, however, a series of methodological and interpretative problems, related to the availability of documentation, the nature of the material within the documents and in the way in which this material is interpreted and employed, that demand attention. It is the purpose of the following pages to outline some of the problems that were encountered during the research and to highlight the limitations of archival reconstructions of historical change.

#### **4.8 Problems, prejudice and preconceptions: problems of archival interpretation**

##### **4.8.1 Availability and accuracy**

Although in excess of one thousand documents were consulted over the course of an eight month field season, this investigation employs only a fraction of the archival material available for Michoacán. Many potentially useful archival manuscripts are, for example, inaccessible given their antiquity and fragile nature and as such could not be employed in this investigation. All the original manuscripts consulted were in hand-written Spanish of varying levels of legibility (see Appendix A for examples of original *Tierras* and *Mercedes* manuscripts). Some degree of error resulting from the misreading or misinterpretation of the contents of the documents is, therefore, to be expected. In addition, given the size of these archival collections and the limited period within which this investigation was carried out, other potentially useful documents will inevitably have been inadvertently overlooked.

There are, in addition, lacunae in some of the *ramos* housed in the AGN (Greenleaf and Meyer, 1973). The *Ramo de Reales Cédulas* or royal decrees, for example, only begins in the year 1609. Copies of some of the royal legislation prior to that period may be found scattered through the *Real Cédulas Duplicadas*, but a large part of this sub-division consists of vice-regal decisions and miscellaneous documents of local origin. The AGN similarly does not have a chronologically-consecutive series of letters to crown and council of important Colonial officials: viceroys, treasury officials, local government agencies, bishops, members of religious orders. There is a *ramo* entitled *Correspondencia de Virreyes*, but it only begins with documents from the mid-18th century. Similarly, the *Ramo* entitled *Real Hacienda* provides only partial records for the fiscal history of Colonial Mexico.

As sources of historical information, the archival and documentary collections exploited in this investigation inevitably display some degree of subjectivity. In some cases, the information contained within a particular manuscript, for example, may have been influenced by the perceptive bias of their creator, and according to the target audience and purpose or theme of the document itself. In this way some of the environmental information contained within the archival sources can be considered flawed. This kind of accidental falsification can be recognised in a variety of the historical sources exploited in this investigation.

#### **4.8.2 “*Made in Spain*”: European cosmogenesis and the “recreation” of the New World landscape**

In Medieval Spain, the reaction to the “unknown” was to stimulate the fantastic. The Americas came to represent the sum of knowledge, legend and myth current at the time concerning all the strange places imagined to lie beyond the so called “Sea of Shadows” (Bodmer, 1992). Columbus’ own preconception of the lands he encountered and thought to be the easternmost islands of Asia, for example, was drawn from the writings of the ancient world such as those of

Aristotle, Plato, Albertus Magnus, Saint Anselm, Avicenna, Ptolemy and particularly drew on the travels of Marco Polo. Tales of griffins dragons, anthropomorphic monsters, but also of untold riches, wealth and fertile pastures, were stimulated by such writers, and proved sufficiently pervasive to provide, in effect, a model of what was to be expected in all the lands and countries that lay beyond the known western world.

When the Europeans arrived, therefore, they brought with them a series of preconceptions, ideals and, perhaps most significantly, a body of knowledge derived from their own limited experience and understanding. Explorations of the New World were thus geared towards the search for the “seven cities of Cibola” and the fabled “Fountain of Youth” than they were with the discovery and comprehension of the lands and peoples of this vast territory. Such myths also tended to reflect the expansionist and predatory strategies of the early “settlers”, cunningly fuelled on occasion by Indian informants in efforts to expel the Europeans from their territory. Early attempts to understand the nature of the environment the Spanish were dealing with were in this way limited. As Frost (1993) has recently suggested:

“Land and people were seen by many of the (Spanish) chroniclers through a special prism that rendered forms and colours in such a manner that they seemed like the fulfilment of old aspirations”.

Ultimately, therefore, preconception was to colour the way they viewed, perceived and thus described this “New World” (Elliot, 1992). Many of the first Spanish and other later European descriptions of the landscape in Michoacán thus carry with them a bias which serves to limit the accuracy of the information they convey.

#### **4.8.3 Eurocentricism and the “principle of attachment”**

One prevalent problem encountered in many of the documents from the early Colonial era at least, was the use by the Spanish of European terminology and nomenclature to describe landscape features and specifically, characteristics of the vegetation. There is, as Melville (1994) suggests, the very real possibility that

taxa were prescribed incorrect nomenclature on this basis, and there was a tendency to adopt European classifications in the descriptions of the vegetation (Butzer and Butzer (1993) that Pagden (1994) has recently referred to as “the principle of attachment” whereby attempts were made to assimilate the unknown with the known world of experience - this being predominantly European in nature.

The use of European terms in certain manuscripts has, in addition, been shown to be very vague. Some words such as “*monte*” for example, even in ancient Castillian dictionaries, (see, for example, Corominas, 1954) have several interpretative meanings, ranging anywhere from dense woodlands to scrubland. According to Butzer and Butzer (1993), however, it is possible to distinguish more precisely how the use of the term was intended, according to the nature of the qualifying adjective. Thus, when not qualified by terms such as “thick”, “closed” or “tall” (*espeso*, *cerrado*, or *alto* respectively), the woodland is thought to have been disturbed to some degree (Butzer and Butzer, 1993). In some of the documents dealt with in this project, however, it would appear that this was not always the case, and on occasion the term “*monte*” seems actually to have been used with reference to hills, hillocks, low mountains and ridges. One way around this potential problem was to compare and correlate several documents preferably from the same location in the same time period and search for unifying references, though admittedly in some cases a degree of discretion and, ultimately, informed guesswork was essential.

Other problems were encountered in trying to pinpoint the location of various places referred to in the manuscripts of the early Colonial period. Place names would appear to have varied from source to source depending on the culture and background of the informant or author of a particular manuscript. Some of the early *mercedes*, for example, use either the Purépecha or Spanish place names. Another problem, specific to this investigation stems from the attempts made to establish a new Spanish capital city in Michoacán in the early Colonial period. Throughout the 1520s and 1530s various locations were selected

as being suitable: Tzintzuntzan - the former Purépecha capital, Pátzcuaro, and in the Valle de Guayangareo (see Section 7.2, Chapter Seven). The “Ciudad of Michoacán” or at times “Mechoacan” referred to in the documents of the 1520s, and 1530s can thus mean any of the three aforementioned locations. Even into the 1550s, however, when the new capital city had been founded in the Valle de Guayangareo, (now Morelia), some authorities still referred to Pátzcuaro or Tzintzuntzan as “the city of Michoacán”. This confusion can preclude the value of the information conveyed by such documents.

#### 4.8.4 The discourse of dissent

Some of the more official documentation dealing with the lands and people of the new world can similarly be shown to harbour an element of subjectivity and bias. This is especially true of the judicial documentation. There remains the issue of personal perceptive bias in many of the first hand testimonies and reports, and Melville (1994) highlights some of the statistical problems in dealing with land grant documents and territorial disputes, given that there was little consistency in the way that lands were delineated. Many of the disputes over a piece of land, for example, would include testimonials and land descriptions provided by both parties involved in the dispute. Yet the delineation of the lands in question may well vary from one description to the next depending on the respective interest of the informants.

In addition to such accidental bias, however, there may also have been a good deal of deliberate falsification. This is especially true of the *Tierras* and *Tierras y Aguas* documents. Some element of prejudice will have inevitably conditioned and coloured the objectivity of the landscape and environmental descriptions provided in the documents, depending on the nature of the claim and the background of the plaintive / plaintiffs involved. Thus while law suits can provide us with information with which to reconstruct landscape changes, consideration must be given to their use as media through which the indigenous population in particular voiced dissatisfaction over discrimination and prejudice,

claimed for reinstatement of usurped lands, and through which the Colonial overlords were able to manipulate the administrative system in order to claim more territory and acquire monopolisation of natural resources. Indeed, as shall hopefully become clear in Part Three, it may be no coincidence that the number of *pleitos* over territory and natural resources becomes much more significant throughout the 18th century - a period when the indigenous population was in a numerically-stronger position to express dissent and resentment.

#### 4.8.5 Maps of intent and representations of resistance

As expressions of landscape and land use, maps and *pinturas* included in both fiscal and judicial document groups and in many cases signed by their creator and a local administrative official provide an alternative if more complicated medium for interpretation, for not only is there an element of subjectivity in their creation, reflecting the purpose of and the background of their creator but there is also a potentially greater element of error incurred when one comes to “read” the information displayed.

Symbolic expression of landscape and culture as texts was common place among the indigenous peoples of the Americas as indicated by many of the pre-Hispanic *codices*, and as Waselkov (1989) has sought to illustrate. It now seems probable, that there was also a good deal more indigenous participation in map-making and cartographies of early Colonial New Spain than was at first appreciated on this basis. This being the case, the de-coding of the map becomes an even more complicated and confusing process. There is a not only a cultural admixture of demonology and nomenclature with respect to landscape features and vegetation, but also a whole set of variable concepts concerning the way the landscape was perceived by different cultures. In sum, what was perceived to be productive and fertile land from an indigenous perspective may not be interpreted as such by a Spaniard or *Criollo*<sup>5</sup> member of society.

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<sup>5</sup> *Criollo*/ Creole: a Mexican born of Spanish descent.

In addition, as Harley (1992), and Butzer and Williams (1992) have indicated, there are “hidden cartographies” and more indirect intentions lying within the maps that may at first go unnoticed. A thirst for a rapid accrual of landscape information in New Spain to assess the country’s potential for Spanish exploitation was satisfied with a series of maps drawn up as addenda to the *Relaciones Geográficas*. In many cases these maps were based on information provided by indigenous populations and as such may well have been biased in order to overstate the nature of the Spanish impact. In addition, the *pinturas* accompanying the, *Tierras* or on occasion *Mercedes*, were used to strengthen cases of land usurpation and claims for reinstatement. When one also considers that an element of deliberate bias might have crept into the maps created, or co-created by the *Indios* in order to support land claims, or to deliberately mislead the Spanish - what Harley (1992) would term “representations of resistance” - the prospect of eliciting environmental information from Colonial maps becomes even more daunting. The information conveyed must be de-coded with caution, a good deal of discretion and, moreover, interpreted with an awareness of the intentions of their supposed creators.

#### 4.8.6 Secondary subjectivity

Determined by academic convention, some elements of the key terminology employed in this investigation would be considered ambiguous at best and warrant justification and explanation. The term “landscape” is used repeatedly throughout the body of the text according to its definition in the *Dictionary of Human Geography* (3rd edition) (Duncan, 1994), implying the whole concept of the land, the resources therein and the overall appearance and appreciation of the location. Some distinction should perhaps also be highlighted between the definitions of environmental impact, and environmental “deterioration” or “degradation” which are here employed independently to distinguish between landscapes that have been changed in some way and landscapes that have undergone some form of degeneration (i.e by removal of vegetation, topsoil etc.)

respectively. That the terms are subjective in themselves is here acknowledged, representing, as they can only do, “humanist evaluations” or assessments of the condition of a particular environment (Melville, 1994: 88). Given the nature of the historical evidence being dealt with, however, a good deal of subjectivity, stemming from the information itself as well as its interpretation, is unfortunately unavoidable.

Despite methodological problems, the potential of archival sources for the reconstruction of environmental change in central Mexico is vast. Yet the collections remain largely untapped for the investigation of past human-environmental interactions (Butzer and Butzer, 1993). This investigation thus seeks to exploit this potential for a reconstruction of demographic change, land use and tenure dynamics and environmental change Michoacán, west central Mexico in the wake of Spanish contact, focusing specifically on the lands in the vicinity of the three lake areas: Pátzcuaro, Cuitzeo and Zirahuén.

#### 4.9 Notes on referencing

Throughout the thesis, archival references are recorded as footnotes adopting the following scheme:

##### **Archivo General de la Nación: (Mexico City)**

AGNM	AGN <i>Ramo de Mercedes</i> (land grant documents)
AGNT	AGN <i>Ramo de Tierras</i> (litigation records)
AGNI	AGN <i>Ramo de Indios</i> (indigenous affairs)
AGNC	AGN <i>Ramo de Civil</i> (civil registers)

Also consulted in AGN:

*Ramo Alhondígas* (crop records)

*Ramo Historia* (documents dealing with local  
historical information)

*Ramo Tributos* (tribute listings)

Archives will be referenced in the following manner: the Ramo, the volume number, the expediente, and / or the page number. e.g.

Tierras, volume 636, expediente 4. AGNT 636, exp. 4

Mercedes, volume 27, page no. 56 AGNM 27, fs. 56.

(Page numbers may also be accompanied by f (*frente*) facing page or v (*verso*) reverse page).

### **Archivo de las Notorias, Morelia Michoacán**

*Ramos: Tierras y Aguas (de la época Colonial)* (disputes over lands and waters)

Leg 1, 2,3 etc.: *legajo* number.

TI: Tomo I/II etc.; Lib. 4: book 4 etc.

e.g Tierras y Aguas, Leg. 7, TI, exp. 20

e.g Tierras y Aguas, Leg. 8, Libro 4, exp. 35

### **Archivo Historico de la Ciudad de Pátzcuaro:**

P (Pátzcuaro), Caja (box) folder (folder no.), Exp (expediente), Fs: fojas (page no.).

e.g. P.Caja 17a, exp. 3, fs. 397-676.

e.g. P.Caja 56, exp. 2, fs. 219-318.

Kraus and Ayer Collections (published in Paredes, C. (ed) (1995) *Y por mi visto: mandamientos, ordenanzas, licencias y otras disposiciones*. Centro de Investigaciones y Estudios Superiores. Mexico) are referred to in footnotes either as Kraus or Ayer collection, with date and page number where applicable.

References to documents housed in the Archivo General de Indias will include *ramo* name and manuscript number, prefixed by AGI, e.g.: AGI México 45.

## PART TWO

### Experimentation and change: the contact period, 1522-1620

The system of landholding in Michoacán on the eve of the Spanish Conquest operated within a framework in which all members of the community found social status and material support related to their rights to land and the natural resources within them. With the arrival of the Spanish this system came under attack. The changes imposed on aboriginal society were to be profound. One of the most immediate impacts of Spanish contact was a dramatic decline in the indigenous population - a result of the introduction of Old World diseases from which the New World populations had been isolated. Yet the introduction of new settlement, colonisation and land use policies were also to greatly affect the people and landscapes of the region, modifying the administration and acquisition of lands and natural resources therein.

This section will deal with the immediate social and environmental impacts resulting from these changes in Michoacán. Attention focuses on the first century after Conquest, from 1522 (the Conquest of Michoacán) up to 1620 - a period which witnessed the implementation of a series of settlement and colonisation policies, the introduction to the Michoacán landscape of livestock and a suite of new cultivars, but also the initiation of a progressive syncretism between Spanish and *Indio* culture and society. As such this part of the thesis will provide some insight into the causes and consequences of change during a time of experimentation and adaptation.

## Chapter Five

### Contact, colonisation and consolidation

#### 5.1 The first Conquest of Michoacán

There was considerable Spanish interest in Michoacán prior to its Conquest in 1522. Still basking in the glory of the successful, if violent Conquest of the Aztec (Mexica) empire at Tenochtitlán in 1521, Spanish *conquistador* Hernan Cortés' initial interest in taking possession of the Purépecha empire lay in extending the territory over which the Spanish held power further west towards the "Sea of the South" (the Pacific Ocean). Several reconnaissance trips had been made to the kingdom of the Purépecha in order to investigate the mineral wealth of the province, the fertility and potential of its lands and the suitability of the region for Spanish colonisation and exploitation. The reports were favourable. Here was considered to be "*a very sizeable province.....*" and one that "*had shown itself to have there many riches*" (Herrera, 1615 cited in Ugarte, 1992). Indeed, on the strength of reports of the province's "*plentiful gold and silver*" (Bernal, 1919; Tome II, 313: 357-359), the need to appropriate power in this area was confirmed. Sending out captain Cristobal de Olid - "*a powerful captain and master of the field in the wars of Mexico*"- 70 cavalry soldiers and 200 experienced foot soldiers, Cortés gave instructions "*to investigate the whole province and its secrets and, if favourable, to establish a colony there in the capital city known as Huicicila (Tzintzuntzan)*"<sup>1</sup>.

The expedition posse, which also included allied Aztec and Tlaxcaltec forces set off in the summer of 1522, arriving at the great fortifications of Taximaroa, to the far east of Michoacán (the Spanish will have been coming westwards from Mexico City) in July of that year (Plate 5.1). Encountering no

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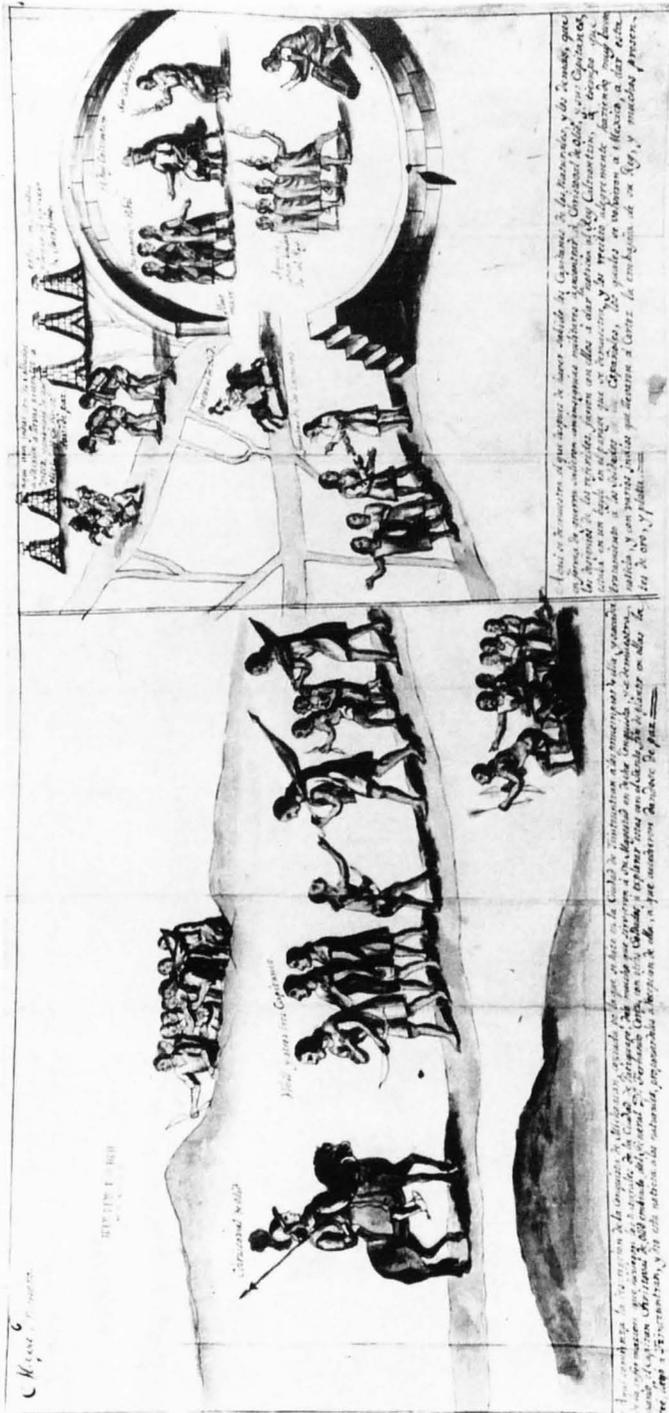
<sup>1</sup> Huichichila is the name accorded the capital city of Tzintzuntzan by the early Spanish colonists, based on a mispronunciation of "Huitzizillan" - the Purépecha name for the city. Shortly after Conquest, however, Tzintzuntzan was not considered to be a suitable location for the founding of the Spanish capital (see Chapter Seven, Section 7.2 for a discussion of the way in which this area was perceived by the first Spanish who visited and colonised the Basin).

resistance, Olid and his entourage then travelled through Michoacán to negotiate with the *cazonci* in the capital city of Tzintzuntzan. The confrontation between the Spaniard and the Purépecha king (Plate 5.2) was, however, a peaceful one. The Spanish were keen to avoid conflict and assume control with little resistance, while aware of the fate which had befallen the Aztecs - long-time rivals of the Purépecha - the *cazonci* passively handed over control of his kingdom to Cortés<sup>2</sup>. In contrast to the bloody encounter with the Aztecs in the Basin of Mexico, therefore, the Spanish were able to assume power in Michoacán with relative ease.

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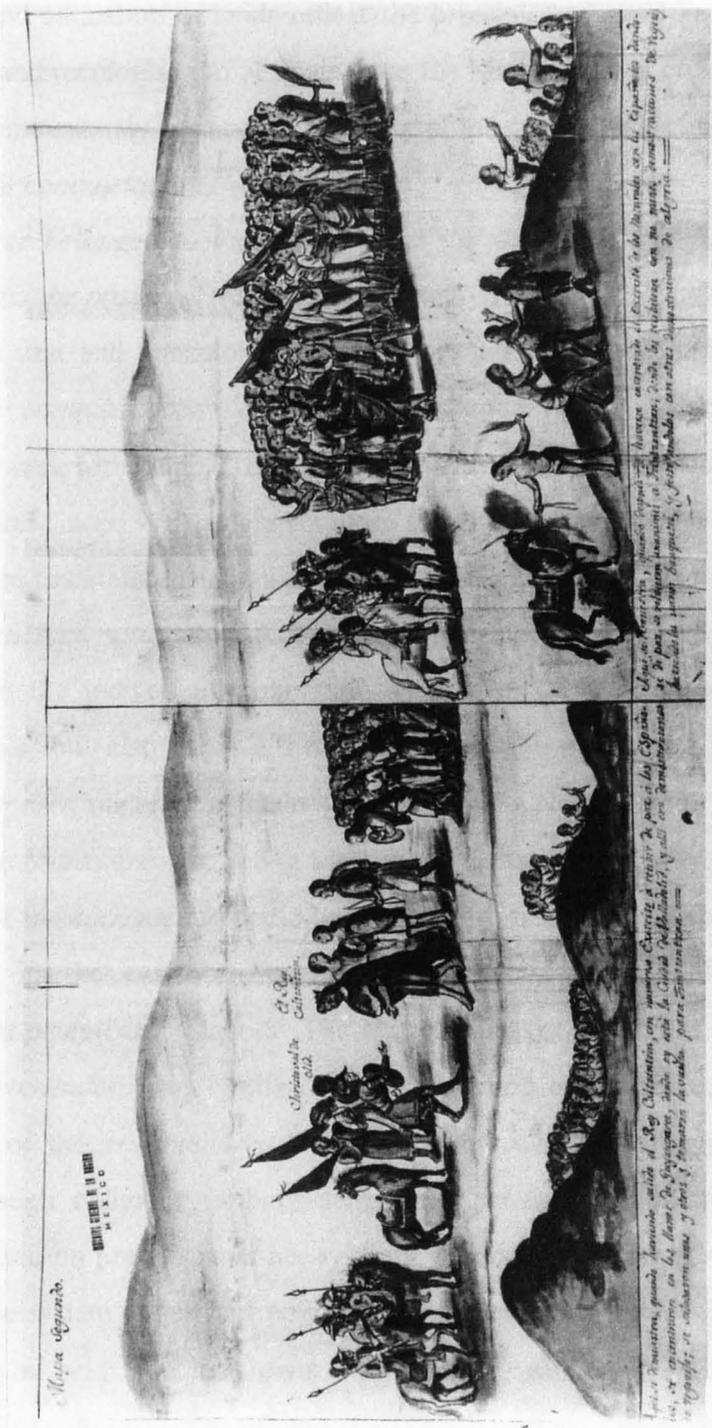
<sup>2</sup> Source: The Relación de Michoacán.

Plate 5.1 The heads of the *naturales*<sup>3</sup> meet with Cristobal de Olid who had come to negotiate with the *calzontzin* (*cazonci*). Beaumont: *Cronica de Michoacán* copy date 1792 (*Historia*, 9. Capitulo 2, fs. 15).



<sup>3</sup> “Naturales” here refers to the indigenous population of an area or residents of a specified location, and is frequently used in archival manuscripts. The term *Indios* is also commonly employed, and derives from Columbus’s misconception that he had discovered India.

Plate 5.2 The meeting of the *cazonci* and Olid in the plains of Guayangareo “where now is the city of Valladolid”. Beaumont: *Cronica de Michoacán*, copy date 1792 (*Historia*, 9. Capitulo 2, fs. 15).



## 5.2 Winner takes all: *encomiendas* and the first *Audiencia*

A set of policies concerning colonisation, land acquisition, use and tenure operative in Spain on the eve of Conquest, or devised immediately afterwards, were to be transferred to the New World. Many of the first laws regarding the distribution and allocation of lands reflect the principles adopted in the Christian Re-conquest and recolonisation of Spain from the Moors. Newly conquered lands, for example, immediately became the property of the crown. As exemplified by the law of the first *conquistadores* which states:

*“the water belonged to the king, just as did the lands, the fields, the forests and the pastures”* (cited in Solórzano y Pereyra, 1776).

Some of this vast and unexplored new territory was, however, also partitioned amongst the *conquistadores* as rewards for endeavour in Conquest. Each *conquistador* was, for example, entitled to two *caballerias*<sup>4</sup> of agricultural land to cultivate (Florescano, 1976), while yet more substantial “*regalias*” or royal “gifts” were presented to certain members of the conquering forces.

The *encomienda* system represented one such recompense, being at first imposed onto the indigenous population as a form of *repartimiento* grant to *conquistadores*, but also in an effort to reconcile the conflicting religious and capitalist purposes underlying Spain’s ideals for the New World. In return for protecting the *Indios* and instructing them in the Catholic faith, the *encomendero*, or landlord of the *encomienda* could levy tribute from them in the form of goods, money and, in the case of the first *encomienda* grants - the so called “*encomiendas primitivas*” - labour. The system was, therefore, basically a feudal one. The *encomendero* was overlord, while the *Indio* labour force, upon whom the survival of the *encomendero* was dependent, were effectively forced into serfdom through obligatory tribute demands. This form of taxation, although ultimately based on pre-Hispanic tax systems, reflected to some extent the feudal administrative system which had operated in Medieval Spain whereby goods and tithes would be paid to a land owner or overlord who could also demand the

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<sup>4</sup> Each *caballeria* of land measured 42.8 hectares (see Chapter Five, Section 5.5).

labour services (*corvée* labour) of the individuals under his jurisdiction (Butzer, 1991).

Soon after the Conquest of Michoacán, Cortés commissioned Antonio de Caravajal, a Spanish judge and ex-captain from the Conquest of Mexico, to compile a survey of the lands and resources of the region, which he did between July and August 1524. Based on the evidence Caravajal provided, Cortés awarded a series of *encomiendas* to a small number of individuals, including members of his family and friends, as well as the officials of the treasury, taking for himself the localities perceived to possess the better natural resources, including the Purépecha capital of Tzintzuntzan itself, Huaniqueo to the north, and the towns rich in minerals, such as Tamazula, Tuxpan, Amula and Zapotlán (Martinez, 1989). Amongst other Spaniards to benefit, however, were Francisco de Villegas who became *encomendero* of Uruapan and Juan de Solís, whose *encomienda* lands included Comanja. Such individuals became significant land owners in Michoacán in the early Colonial period and, together with at least 40 other *encomiendas* which were granted in Michoacán in the first years after Conquest (Appendix B, Table B1), helped determine the historical development of the region and its inhabitants.

To begin with, most *encomenderos* exercised control of their jurisdictions from residences in Mexico City. Livestock managers, farmers and mine administrators were all sent out by the respective *encomenderos* to manage the particular area over which they held control. In this way, as Warren (1985) suggested: “the Spanish had achieved what the Aztecs had been unable to: to make Mexico-Tenochtitlán the Royal seat of power and to reduce the kingdom of Michoacán to a tributary province”.

Overall control of the lands and peoples of the new colony was the charge of the first *Audiencia* of Mexico. Established in 1528, the *Audiencia* represented the main administrative council for New Spain next to the Spanish crown. To begin with, however, the council comprised a group of individuals resentful of the honour bestowed on Cortés as leader of the Conquest of Tenochtitlán. Thus the

privileges they granted certain individuals were often done so in an effort to undermine Cortés' power in the region.

Under the auspices of this corrupt administration, for example, several unofficial *encomienda* grants were awarded. Individuals to benefit included the *encomendero*, Juan Infante, who managed to accrue a vast amount of territory courtesy of falsified royal awards, including most of the lake shore barrios of Lake Pátzcuaro itself<sup>5</sup>, many of which officially belonged to Cortés (Martinez, 1989). It also became the norm for some of the *encomenderos* to abuse the tribute system, exacting excessive demands from their subjects (Paredes, 1979). Some *encomenderos* would even inflate his tribute lists by failing to strike off the dead and infirm, and would continue to extract payments in their names (Simpson, 1966), so imposing stresses on the community from which they originated to fulfil the demands. Over-exploitation of this kind was to become particularly severe with the expansion of mining activities in the colony. For although Cortés had exempted tribute *Indios* from working in the mines themselves<sup>6</sup> - an occupation reserved for slaves and prisoners of war - they were obliged to provide food for the miners as well as tribute commodities for their Spanish overlords.

The Spanish administration ensured that the *cazonci* still received the remuneration to which he was accustomed in pre-Hispanic times. In this way, the Spanish had effectively conquered the empire while the *cazonci*, effectively remained a figurehead for the populace. The tension that this ambiguous sovereignty stimulated, however, was to be metered out in the civil unrest that came to characterise Michoacán in the late 1520s. In Chilchota, to the north-west of the modern day state, for example, "*although the people were peaceful to begin with, a short time later some rebelled and killed some Spaniards for which they*

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<sup>5</sup> Guayameo was one of the areas over which Juan Infante held control, but was also the location that Vasco de Quiroga and Don Pedro (Huitzemanagri) chose to found the hospital-town of Santa Fé de la Laguna (see Section 5.4: Creating the "New Utopia": Spanish settlement and colonisation policy in the Americas, this chapter).

<sup>6</sup> Cortés had witnessed the dramatic demise of the indigenous populations on the Antilles as a result of disease and overwork in the mines.

were punished”<sup>7</sup>. Such events were typical of this period, and were to be emulated in many of the coastal and sierra settlements of the province (Martinez, 1989).

The events of this turbulent period were, however, to be brought to a critical climax with a second and more violent “Conquest” of Michoacán in the late 1520s. Possessing available natural resources, armoury, clothing and an army of “*Indios of War*”, Michoacán was selected by the ruthless Nuño de Guzmán, governor of the first as a suitable location from which to conquer the kingdom of Nueva Galicia, to the north-west of Michoacán. Arch rival of Cortés, and keen to undermine his power and possessions in New Spain, Guzmán also sought to take control of the some of the lands in Michoacán which Cortés had claimed for himself. Through a strange and fortuitous alliance between Guzmán and Purépecha nobleman Don Pedro Panza (Cuinierangari) - adopted brother of the *cazonci* and a close advisor and player on both sides in the Conquest drama - Guzmán was able to proceed with his plans to obtain territorial control of the area. Initiating a series of violent encounters with indigenous communities, however, he was to leave a trail of exploitation and injustice against the indigenous population in his wake. Indeed, it was Guzmán who was responsible for the barbarous torture and murder of the last official *cazonci*, Tangaxuan II (Cheetham, 1974), for which he was imprisoned in Spain in 1540<sup>8</sup>.

Only later with the institution of the more humanistic second *Audiencia*, and more specifically the arrival of one its chief members and chief advocate of *Indio* entitlements - Don Vasco de Quiroga, who was to become the first Bishop of Michoacán - would these injustices be recognised and indigenous rights begin to be upheld. A new set of settlement and colonisation strategies were established, and policies regarding the management and distribution of resources were revised. So began a new phase in the history of Michoacán during which a more formal and orderly Spanish Colonial administration would be established and throughout

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<sup>7</sup> Relaciones Geográficas de Chilchota. Source: Acuña, 1987.

<sup>8</sup> Guzmán was to die in prison in 1550.

which Spanish and Purépechan society and culture would begin to co-evolve and assimilate.

### 5.3 The second *Audiencia* and The New Laws of 1542

Indigenous property rights had been almost meaningless during the administration of the first *Audiencia*. *Indios* were effectively vassals to their *encomendero* overlords, obliged to supply tribute goods and their possessions and lands effectively being subsumed under Spanish control. With the imposition of the second *Audiencia* of Mexico in January 1531, however, and then the establishment of a viceroyalty in New Spain, at first under the leadership of Antonio de Mendoza, in November 1535 (Simpson, 1966), more egalitarian policies were enacted in the New World. Positive moves began to be made to protect the *Indios* and their culture and royal legislation began to recognise indigenous land holding systems and *Indio* rights to land. The crown was still keen, after all, to ensure the survival of the labour force and the main food producers of the colony. The Church also became an ardent protector of *Indio* rights and customs, although with an underlying intent to convert the populace to Christianity. Both crown and church policies, therefore, attempted to protect the indigenous population from exploitation at the hands of the first Spanish colonists by treating them as a separate society.

Central to the objectives of the new Colonial administration was the maintenance of the traditional indigenous systems of resource management and administration. Legislation instituted in the early Colonial period, for example, decreed that:

*“the Indios should be left their lands, their inheritance and fields and pastures...and they should not have a want of that which is necessary, and they have all the help and support possible for the sustenance of their houses and families”* (cited in Florescano, 1976).

A *Real Cédula* issued in November 1536, moreover, illustrated the crown's commitment to maintaining the traditional indigenous systems of resource exploitation:

*"the distribution of waters should be according to Indio custom"*

Similarly, among the fifty-four articles of the New Laws of the Indies issued in 1542, twenty-three were concerned with the status and treatment of the *Indios* (Simpson, 1966). Efforts were also made to ensure equal rights of access to natural resources:

*"the use of water was to be communal....we order that the use of all the pastures, woodlands, waters of the provinces of the Indies are to be common to all the present residents, and to those of the future so that they can enjoy them freely"* (cited in Musset, 1992).

Some protection of *Indio* customs, culture and environmental management was thus apparently afforded in the early Colonial period.

With this new legislation also came modifications to the early Colonial institutions. A new type of "reformed" *encomienda* (Ugarte, 1992: 209), based on an idea initially forwarded in 1532 by Bishop Juan Ramirez de Fuenleal, president of the second *Audiencia*, came into operation<sup>9</sup>. Legislation was instituted to restrict *encomienda* privileges and more restrictive controls on the use of labour began to be instituted in the 1540s. *Encomenderos* were first obliged to reside in the province of their *encomienda* (Prem, 1992) and were forbidden from grazing any form of livestock in the lands of the *Indios* under their jurisdiction. Ownership of agricultural land, in contrast, was not subject to regulation and hence was still possible. Tribute taken from *Indios* was to be fixed, and regulated and was not to be exorbitant, while *Indio* enslavement, even as punishment, became prohibited. *Encomenderos* were to retain their grants but were not to bequeath them to their heirs - a regulation calculated to destroy the system utterly within a generation. Indeed, many *encomiendas* began to be replaced by *corregimientos* (Spanish administrative districts based on the *cabecera* (see Section 5.4 below) through

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<sup>9</sup> The new reforms were adopted on a broader scale after 1573.

escheatment to the crown upon the death of the *encomendero*, or as a direct result of the New Laws.

The reforms were not received favourably by *encomenderos* whose authority was effectively being challenged, or the church who viewed *encomienda* as one of the more efficient media of evangelisation. Indeed, both parties attempted to ensure the survival of the *encomienda* throughout the course of the Colonial period (Simpson, 1966). Nevertheless, the power and influence of the *encomendero* was to be progressively reduced - a process which was aided by the disease pandemics and consequent waves of indigenous depopulation (Prem, 1992). The *encomendero* was, after all powerless without his labour force and tribute suppliers.

Former *encomienda* grants in Michoacán were thus modified and thence gradually disbanded along with the abuses they imposed. Through years of legal wrangling, for example, Juan Infante (see above Section 5.2) claimed rights to the lands he had been granted by the first *Audiencia* and the tribute collections therein, while the members of the second *Audiencia*, specifically Bishop Don Vasco de Quiroga, sought to remove these lands and the power to control the populations within them from Infante's possession. Only in 1553 were the former *encomendero*'s lands reinstated "*to the city and populace of Michoacán*"<sup>10</sup> (Martinez, 1989). By this time a more formal legislative framework had been established in New Spain, within which Spanish settlement and colonisation, land use and tenure were to be more tightly regulated.

In 1629, further legislation was issued to finally render *encomienda* grants inoperative after their so called "fifth life", that is to say after five generations of existence. The role of the crown was, in contrast, to become progressively more significant throughout the course of the Colonial period (Gibson, 1964), until finally, in 1718, most *encomiendas* in the Spanish Colonial empire had been

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<sup>10</sup> In many early documents there occur many references to "*the city of Michoacán*", but depending on decade or century, it represented Tzintzuntzan, Pátzcuaro, the entire lake basin, or occasionally the modern state capital of Valladolid (present day Morelia) (Pollard, 1993: 32). In this instance, it is thought to infer either Pátzcuaro or Tzintzuntzan.

abolished, bar some in parts of the Yucatan, Chile and in Paraguay (Ugarte, 1992). All former *encomiendas* had indeed finally disappeared from Michoacán by the close of the first half of the 18th century (Villaseñor y Sanchez, 1748; Alcedo y Bexerano, 1788).

#### **5.4 Creating the “New Utopia”: Spanish settlement and colonisation policy in the Americas**

Establishing order in the New World after the exploitative activities of the first *Audiencia* was one of the priorities of both the Spanish crown and the new local government. By the time they came to colonise Mexico, the Spanish had benefited from over fifty years as a Colonial nation, the failure to construct a Spanish Utopia in the islands of the Caribbean<sup>11</sup> serving to enhance the desire to achieve the Colonial goals of capital accumulation, control and conversion on the American mainland. In addition, the Spanish brought with them to the New World an extensive body of planning theory and practice - a legacy of Roman and Islamic and, to a lesser extent, Visigothic “Colonial” rule in Spain - with which they were to achieve this aim. Roman custom, for example, designated the role of the town and the “polity” as central to an orderly and law-abiding population, a legacy that was to pervade Spanish legislation of the 15th and 16th centuries. The town was considered an entry point to surrounding territories and was used as the seat of military control, religious conversion, political and fiscal administration, residence, control of native labour and as a means of distributing lands and “*converting overseas Spaniards from predatory to sedentary pursuits*” (Morse, 1962). Foremost amongst the Spanish objectives for more ordered settlement and control of their Colonial territory and its *Indio* subjects was, therefore, the establishment of such townships and “polities” (Licate, 1981).

In many locations, there were already pre-Hispanic settlements and trading foci which served this purpose. Upon contact, for example, there was a dense settlement network and well-established trading infrastructure in the Basin of

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<sup>11</sup> See Sauer, C. (1966) for a discussion on the impacts of Spanish colonisation in the Caribbean.

Pátzcuaro, which the Spanish sought to maintain (Paredes, 1991). As early as 1523, however, the Spanish set about founding a series of new towns with distinctive grid-iron street patterns and a pre-planned layout designed to conform to a set of crown stipulations and located according to a set of environmental prerequisites<sup>12</sup>. It was this initiative that would enable Spanish presence and control to be more firmly established in the newly conquered territories.

Before the crown could install such new polities, however, it had to first impose some kind of universal control over the colony and its inhabitants. Royal decrees, thought to have been compiled and issued between 1530 and 1550 (Licate, 1981), thus sought to organise a system of hierarchically-ordered settlements. The lands were first divided into major provinces (*provincias mayor*), within which existed minor provinces (*provincia menor* or *partidos* but also known as the *alcadía mayor* and *corregimiento*, see Appendix B, Table B2 and Fig B1), which, in turn encompassed a series of new or existing *Indio* towns (*pueblos*). These towns were organised in a system of *cabeceras* or head towns, and *sujetos* - their dependencies - which to some extent served to maintain the traditional indigenous way of life and customs. In the *cabecera* would be located a temple, a council office, a royal household for the *Indio* nobility, and perhaps also a market place. In effect, the *sujeto* towns were extensions of the *cabecera* where the parish residents of the area would normally be located. The *cabecera* was the means through which the Spanish organised Indian tribute and labour for their own use, while drawing on the subject villages in order to meet the tribute and labour quotas imposed by the *encomenderos* or the crown (Melville, 1994). In theory, *alcadías* were intended to replace the indigenous provincial organisation. In practice, however, the *cabecera* became a more influential, if local focus for Spanish control and influence.

Spanish officials entered the region as *corregidores* (officials in charge of *corregimientos* (see above, Section 5.3), *regidores* (councillors) lieutenants and

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<sup>12</sup> Discussed in *Recopilación* (1681) vol. 2, fs. 207-214: Fundación de pueblos en el siglo XVI. *Boletín del Archivo General de la Nación* 6; Nuttal, 1921.

constables, and as *alcades ordinarios* (magistrates) to investigate disputes (*pleitos*), check boundaries, to oversee the *repartimiento* or to direct the *congregaciones*. A series of *municipios* were also established representing small jurisdictional units delimited by the districts of a town or a city and the lowest level of the Spanish American administration (Bacigalupo, 1981). These units were governed by an *ayuntamiento*, or a council (*cabildo*), composed of six or twelve *regidores*, according to the importance of the locality, and two *alcades*. It was such people who held the so called *vara de justicia* (“wand of justice”) for particular districts, handling complaints and implementing crown legislation and policies.

Changes were also made to the pre-existing indigenous settlement patterns. Scattered *Indio* communities were, for example, brought together and relocated (*reducción*) in a series of new towns. *Congregación*, as this relocation policy was known, was based largely on ancient Roman urban customs, which tended to favour the aggregation of communities into quasi-military camp settlements “with gentleness and care”, for the purpose of “peaceful living”<sup>13</sup>. These new settlements also aimed to facilitate access between *Indio* communities that had previously lived “with a great space from one house to another”<sup>14</sup>, with the intention that the Indian “would take account of the manner of urban life and customs and be persuaded of the true knowledge of the gentleness of the doctrine”<sup>15</sup>. A series of new towns (*congregaciones*) were thus created in the 1540s, and then again after the 1580s in response to phases of *Indio* depopulation, with the dual purpose of imposing control and converting the *Indio* populations to Christianity.

Although the crown represented the head of the secular church, the arrival of various religious orders that together made up the regular church was to facilitate this process of resettlement, control and conversion. Thus while from a very early date, Crown policy mandated that bishoprics be formed upon the

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<sup>13</sup> AGNT 69, exp. 3, fs: 2v-3v.

<sup>14</sup> AGNT 73, exp. 3, fs. 2v.

<sup>15</sup> Encinas Cédulario, vol. 4, fs. 272.(cited in Licate, 1981).

colonisation of a new region - Michoacán being no exception - the missionary branches of the Church established settlements within these bishoprics through which evangelisation could proceed. The Franciscans who first arrived in the Spanish colony in 1524, for example, had established 47 *conventos* (monasteries) in the former Purépecha state by 1583: 21 in Michoacán itself and 26 in Jalisco (Ugarte, 1992). By 1626 the figures were 39 and 34 respectively. Similarly, the Augustinians, who arrived slightly later in 1533, came to possess over 20 *conventos* by the turn of the 17th century, rising to 31 by 1646. The Jesuits, whose entry into New Spain took place a lot later in 1572, established their first “house” in Pátzcuaro in 1573, but thirty years later they were in possession of 7 institutions in the Bishopric of Michoacán (Ugarte, 1992). Through these institutions the evangelisation of the Purépecha society was more or less complete one century after contact.

Having established centres from which to spread Christianity, the church also implanted its own settlement policies. Partly as a reaction to indigenous dispersal after the cruel and barbarous treatment of the Purépecha in the area at the hands of Nuño de Guzmán and the first *Audiencia*, and with the primary purpose of religious conversion, Bishop Don Vasco de Quiroga established a series of new settlements representing small, autonomous indigenous foci in the form of the so called “hospital-towns” of Santa Fé<sup>16</sup>. Based on Thomas Moore’s “Utopian” ideals, these “*pueblos-hospitales*” were essentially experimental communal towns and cultural settlements where urban families were taught crafts and rural families were instructed in agricultural techniques. The surplus production would theoretically go to the poor and the community as a whole. Under this scheme, European culture, religion and social organisation would effectively be “*superimposed on elements of the subordinate Indian culture*” (Licate, 1981:25). A series of such settlements each with a hospital, were established during the 1530s along the shores of Lake Pátzcuaro under the

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<sup>16</sup> AGI Escribanía de Cámara. Leg. 159-A, fs. 5r-6r.

advocation of the Virgin of the Immaculate Conception of María<sup>17</sup>. Among the first to be established was Santa Fé de la Laguna<sup>18</sup> to the north of the lake (Fig.6.1).

The establishment of the new towns in some cases entailed a wholesale redefining of territories around these existing towns and those newly established, such that former indigenous settlements including Tzentzenguaro and Tzurúmutaro to the south of Lake Pátzcuaro, were effectively relocated slightly, and the lands to which each town was entitled were redefined and redistributed (Pauwells, 1992). There was, in consequence, a good deal of indigenous resistance to the proposed moves, relocation in many cases effectively serving to remove a community from its livelihood and means of economic support (Lemoine, 1993). The Colonial administration did, however, make some efforts to ensure that the *Indio* populations retained some degree of control over their territory. A series of *Indio* republics (*Repúblicas de Indios*) were, for example, established in Michoacán (Appendix B, Table B3), over which resided an *Indio* governor, usually a member of the indigenous nobility. According to the size of the area and the population under his jurisdiction, he would be assisted in his task of control by either one or two *alcaldes* and between two and four Spanish *regidores*.

Pátzcuaro represented one of the most significant of these republics, being governed by Don Pedro Huitzemengari, who acted as *cazonci* according to pre-Hispanic custom, assisted by his sons Don Fransisco Tariacuri and Don Antonio Huitzemengari, his grandson Don Pablo, and his tutor and step-father, Don Juan Puruata, who was to become governor himself in 1581<sup>19</sup>. Retaining their traditional administrative and legislative infrastructures, such republics displayed a good deal of indigenous cultural cohesion, and more pertinent to this investigation, agricultural continuity throughout the Colonial period.

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<sup>17</sup> According to Pablo Beaumont in the "*Cronicas de Michoacán*" Talleres Graficos de la Nación AGN, T. III, fs. 147.

<sup>18</sup> The hospital-town itself was founded in 1532, but only became a *pueblo* in 1538.

<sup>19</sup> Source: Relación de Michoacán.

### 5.5 Territorial reorganisation: the *merced*, the new *merced* and *composición*

The establishment of a more formal legislative system under the second *Audiencia* also led to a review of the land granting process, and a series of new regulations were introduced to this end as from 1536. It was the new policies regarding land acquisition, and the mechanisms by which these policies were enacted, that would allow the Spanish to progressively appropriate former *Indio* lands and the resources within them, so achieving territorial domination. In this respect, the implementation of a series of new guidelines with respect to land tenure and administration of resources in the early Colonial period represents one of the most immediate yet pervasive changes associated with Spanish Conquest and colonisation.

The lands of New Spain were regarded as free, but in royal control (*realenga*) and could only pass into private possession by means of a royal award or grant (*merced real*) issued and confirmed by the king (Florescano, 1976). These *mercedes* began to be granted officially by the Viceroy of New Spain in 1542, although the measures for each land grant depended upon whether they were to be used for livestock grazing (*estancias/sitios*) or agriculture (*caballerias de tierra*). In 1536, for example, land grants were delimited according to specific uses<sup>20</sup>. Grants were made in terms of *caballerias de tierra* for agricultural purposes. Each *caballeria* is thought to have measured 42.8 hectares (or 106 acres), although there is some contention over the exact figure (Butzer and Butzer, 1995). The area of land granted to keep livestock (*estancias*) depended on the nature of livestock that were to be kept. Sites (*sitios*, later referred to as *estancias*) for pigs, sheep or goats (*estancias de ganado menor*) measured two thirds of a *legua* (league) square (2793 by 2793m, 780 ha or 1927 acres), while cattle (or horses and mares) were kept on plots (*estancias de ganado mayor*, sometimes written *maior*) measuring a *legua* square (4190 by 4190m, 1756

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<sup>20</sup> AGNM 7, fs. 125.

hectares or 4336 acres)<sup>21</sup>. These measures were not, however, formally specified and ratified until 1560 (Butzer and Butzer, 1995).

Strict regulations accompanied the granting of lands, designed to alleviate both overgrazing and crop depredation, and reflective of a long history of both in Spain. Thus it was deemed that no livestock other than draft animals could be kept on agricultural lands<sup>22</sup>, though the legislation enforcing this was not officially passed until 1581<sup>23</sup>. There were also fixed stocking rates on the *estancias*<sup>24</sup>, with limits imposed on the amount of livestock held within a delimited area being issued in 1564. There was, however, inevitably a good deal of corruption and many more head of livestock came to be held on each *estancia* despite the penalties and fines that could be imposed for such action. With the award of a grant also came an agreement to make certain improvements to the lands in question. Stipulations for *estancia* awards, for example, included the construction of barns and the building of livestock corrals to prevent depredation (Butzer and Butzer, 1993). In addition, lands had to be ploughed and sown if they had been granted for agricultural purposes, and “populated” with cattle/ horses, sheep or goats if the land was designated for livestock<sup>25</sup>.

There was a certain amount of protection afforded the existing *Indio* communities and their territories at least in the early post-Conquest period. Some territory was, for example, reserved for indigenous peoples according to early crown policy (see above, Section 5.3) and *Indio* lands were effectively sacrosanct as long as they remained cultivated. Yet indigenous territory were also declared inalienable except under special circumstances, and with the approval of the Viceroy in office at the time, and “buffer zones” were created between *Indio* and Spanish lands in order to protect the *Indio* possessions from Spanish usurpation. During the administration of the second Viceroy, Don Luis de Velasco (I) (1550-

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<sup>21</sup> AGNM 9, fs. 113v

<sup>22</sup> Kraus Collection: various entries.

<sup>23</sup> Kraus Collection; AGNM 11, exp. 6.

<sup>24</sup> AGNM 8, fs. 15v. (cited in Butzer and Butzer, 1993)

<sup>25</sup> AGNM 1, fs. 233 (1542); AGNM 3, fs. 135 (1550)

1564), for example, *estancias* awarded to Spaniards had to be at least one league (4190 m) away from the nearest *Indio* lands and at least half a league away from the nearest cultivated territory. In the regulations of 1567, however, these measures were reduced to 1000 *varas* (837m) and 500 *varas* (418.5m) respectively. In addition to these protective measures, provision was made to ensure *Indio* communities had sufficient lands for the production of subsistence and tribute goods. Each Indian settlement, for example, had sole use of the lands in a distance of 500 *varas* in each cardinal direction from the centre of town, the measures increasing to 600 *varas*/ 502m in 1687<sup>26</sup>, and indigenous communities were also entitled to an *ejido* of one square league (1750 hectares) according to a *cédula* of 1573 (re-affirmed in 1713) in which there was designated communal access for timber cutting, grazing livestock, hunting animals and gathering various products of the forest. The “legal fund”, as the 600 *varas* distance came to be known in the 19th century (Barrett, 1973), and the *ejido* were supposed to be the minimum lands to which the *Indio* communities held rights, and as the decree made plain, they were to have whatever additional lands they required<sup>27</sup>.

Special legal requirements also ensured, at least theoretically, that land grant awards would not impinge on any indigenous property close by and also served to protect the *Indios*’ lands already in use. Indeed, land grants could be declared void if negligence could be proven or if any environmental deterioration was seen to have resulted since the award was made (Florescano, 1976). The majority of the early 16th century *mercedes*, therefore, stipulated that the land use for which the grant was being awarded would proceed “*sin perjuicio*” that is to say

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<sup>26</sup> The allotment was increased to 600 *varas* (504 meters) according to a decree dated to 1687. The legal fund to which indigenous communities were entitled was measured from the last house in the town and “*in all four wind directions*”, North, East, West and South. This total amount of land is thought to have been in the region of between 80 and 100 hectares depending on whether the measurements were made in a circle or a square around the settlement. The Real Cédula of 1695, modified the location from where these stipulated measurements were made. Instead of starting from the last house on the town, the land measures now began from the church, normally located in the centre of the town (Florescano, 1971). See also: Fabila, M (1941) *Cinco siglos de legislación agraria* (1493-1940). Mexico.

<sup>27</sup> *Recopilación de Leyes de los Reynos de las Indias* (1681), Consejo de la Hispanidad, Madrid, 1987, vol. 2, Libro VI, título. 3, ley VIII, fs. 209.

without any “injury” or harm being inflicted on any neighbouring indigenous communities. Theoretically, under the early Colonial administration, therefore, Colonial society was to become a dual one in which native Mexicans, adopting some elements of Spanish culture, ostensibly continued to live within the framework of their landholding communities (Barrett, 1973), while Spanish land use was to be strictly regulated. In reality, *Indio* land rights were to be gradually undermined, their territorial privileges ignored and the livelihood of the autonomous indigenous community thereby threatened.

### 5.6 The *merced* and the Church

The Church had been considered an institution of privilege and corruption in 15th century Spain (Gibson, 1964), but also came to be regarded as a powerful and influential threat to the authority of the Spanish crown. As a result of papal concessions soon after the discovery of the New World, the American Church, organised along the same lines as the Church in Spain, was subordinated to the Crown in everything save matters of doctrine and religious discipline. Its role in the New World was thus to be restricted by Crown policy from the outset of Colonial activity. Between 1535 and 1542, policies were instituted to prohibit the granting of *mercedes* to the Church for agriculture and livestock rearing, and it was forbidden to pass or sell land into the hands of “*the church, a monastery, a hospital or anyone ecclesiastical*” (Florescano, 1976), each award enforcing this regulation in writing.

Such legislation was, however, often ignored and there were other mechanisms that operated to allow certain branches of the church, with the exception of the Franciscans, to amass property (Prem, 1978). All forms of pious donation were permitted, allowing the Church to expand the territory under its control. To begin with many members of the first religious orders to arrive in New Spain managed to accrue lands via donation from indigenous communities and from wealthy Spanish landowners. Each one of the Jesuit *haciendas* in Michoacán, which by 1773 numbered 14 (Ugarte, 1992) had, for instance, emerged as a result

of a donation of land or property from a “beneficiary” or “founder”. The *hacienda* of Tareta to the south-east of the Lake Pátzcuaro, for example, evolved from lands originally donated by an *Indio* principal, and came under Jesuit control until their expulsion in 1767<sup>28</sup>, while the college at Pátzcuaro was “founded” with the financial support from Doña Beatriz de Castilleja, who herself was to become one of the most wealthy female landowners of the early Colonial period. The college at Valladolid was financed by a certain Licenciado Roque Rodríguez Torrero, while the *hacienda* of San Nicolás de Yuririapúndaro - an Augustinian-run *hacienda* - evolved from a donation to the religious order by the General of the Chichimecas, Don Antonio de Sosa (Basalenque, 1644). In return, religious institutions were to act as lending bodies through their *capellanias* (entrusted property and funds left to and held by the priesthood) during times of agricultural and economic crisis.

Other forms of land acquisition were also practised by the Church. Time and again religious orders would obtain titles to land through individual purchasers acting in proxy for the Church, while “permits to sow land” (*Licencia para sembrar*) could also be granted for livestock-oriented *estancias*, thus converting a sizeable area of grazing land over to cultivation (Prem, 1992). The scale and impact of donations, licenses and purchases were such that the profits of the church were invested in the construction of numerable monasteries, churches, chapels, colleges, and religious buildings. Various religious institutions also invested in private mills, plantation estates and livestock *estancias*, and in this way were able to participate in the gradual introduction and diffusion of Spanish land use and tenure systems to the Mexican environment.

### **5.7 Disease and depopulation: the destruction of “Utopia”.**

As Spaniards penetrated the territories of New Spain they introduced a set of viruses to a population harbouring no immunity. This caused devastating epidemics and unprecedented mortality among the indigenous communities. Much of the discourse over American history has tended to be preoccupied with

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<sup>28</sup> AGNT 445, exp. 1.

establishing the nature, rate and scale of this indigenous depopulation - an area of enquiry which has stimulated five decades of research and which has recently been synthesised and summarised in Whitmore (1991). While it is agreed that the arrival of the Spanish triggered massive depopulation, debate rages as to the actual size of the pre-Columbian populations and the magnitude and scale of its decline (Roberts, 1989). Over the past five decades, there have evolved two schools of demographic thought in this respect: one group of scholars, collectively referred to as "The Berkeley School" would tend to support theories of huge pre-Columbian populations in the Americas which were virtually wiped out by European pathogens (Borah and Cook, 1960, 1963; Cook, 1949; Cook and Borah, 1957, 1960, 1968, 1971, 1974, 1979; Cook and Simpson, 1948). Others, more sceptical of the high population estimates, doubt the data sources and their interpretation (MacArthur, 1970; Rosenblat, 1976; Sanders, 1976; 1992), favouring lower estimates and less catastrophic population decline (Rosenblat, 1954; McEvedy and Jones, 1978).

There has similarly been a good deal of discussion regarding the nature of the epidemics themselves. It has been suggested, for example, that disease may have diffused along trade routes, direct Spanish contact not necessarily being implicated in the transmission process (Gerhard, 1982), while Gibson (1964) notes that there were several introduced diseases that appeared in multiple episodes, or what Borah (1992:7) has termed "compound epidemics". A series of such epidemics, which were stimulated by, amongst other Old World diseases, smallpox, swept through Mexico over the course of the 16th century, leading to several major periods of depopulation in 1520, 1531, 1545 and 1575-6, and resulting in a series of abrupt, irregular phases of depopulation (Slicher van Bath, 1978; Whitmore, 1991). These epidemics are thought to have been separated by phases of rapid recovery - a consequence perhaps of the high fertility rates that prevailed among native populations. One such period of recovery took place in the 1550s - a trend that can be identified as having been apparent in Michoacán (Table 5.1). Before a population could rebound demographically, however, another

epidemic usually struck so that the “die off” became cumulative, eventually leading to demographic collapse (Whitmore, 1991).

The impacts of the Old World diseases on the indigenous population of Michoacán were indeed dramatic. According to the 1579 *Relación* for Cuitzeo de la Laguna, for example, over a period of thirty three years, more than a third of the population of the town had been lost as a result of an illness referred to as “*terezequa*” or a “*straining of bad blood*”<sup>29</sup>. Syphilis had swept over the population of Pátzcuaro by the time the *Relación* for the area was compiled in 1581 (Acuña, 1987), although it was more generally noted that population in Pátzcuaro was more resilient to the introduced diseases than that of other locations - a trend attributed in the *Relación* of the area to “*divine intervention*”<sup>30</sup>. Nose bleeds had been one of the symptoms of the illness that had swept through Tiripetío “*for thirty five or thirty six years.....without there being a cure for it*”<sup>31</sup>, indicating that the disease was transmitted to this particular community in the 1540s, while in nearly all of the *relaciones* for the province in the late 16th century, some reference is made to the indigenous depopulation that the various “*pestilencias*” and “*enfermedades*” had caused by that time (Acuña, 1987).

The consequent depopulation that took place in early Colonial Michoacán was considerable. The population of the Purépecha state as a whole is thought to have fallen from an estimated 1.3 million inhabitants in the immediate pre-Conquest period to 30,000 by 1580 (Cook and Borah, 1960). As the figures in Table 5.1 illustrate, however, the magnitude, rate and scale of depopulation in Michoacán in the 16th and early 17th centuries was temporally and regionally varied. Depopulation was, for example, more severe in the *tierra caliente* lands (including the coastal zones) where high temperatures and humid conditions favoured the transmission of pathogens, whereas in the sierra lands, colder conditions reduced the spread of diseases and ensured a higher indigenous survival rate (Martinez, 1989) - a trend that conforms to those identified in other regions

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<sup>29</sup> *Relación de Cuitzeo de la Laguna, 1579*. Source: Acuña, 1987.

<sup>30</sup> *Relación de Pátzcuaro, 1581*. Source: Acuña, 1987.

<sup>31</sup> *Relación de Tiripetío, 1580*. Source: Acuña, 1987.

of the Americas subsequent to European contact (Newson, 1985; Butzer, 1992). Between 1524 and 1630, for example, the population of the *tierra caliente* lands witnessed a 94% decrease, falling from 140,051 in 1542 to 8,351 by 1630. In the sierra lands, in contrast, there is thought to have been an 88% decrease in population over the same period although the figures indicate a similarly dramatic reduction in size of the population, from 248,648 to 29,400. The population of the whole of the Basin of Pátzcuaro area alone is thought to have fallen from an estimated 46,000 in 1550 to 16,500 in 1580 (Pollard, 1993) - a decrease of 75% - while the Indian tribute population of Tzintzuntzan is thought to have fallen from 14,000 in 1539, to 8,000 in 1570, and to less than 5,000 in 1581. By 1601, the equivalent figure was only 3,026 (Paredes, 1979).

What is significant, however, is the actual number of survivors in the highland zones compared to the lowlands. Depopulation may well have been staggering in all areas, but given the size of the pre-Hispanic populations in the highland areas, which in essence formed the heartland of the Purépecha state, the number of *Indios* remaining in the highlands was sufficient to maintain a significant indigenous presence. Only residual indigenous populations in the order of hundreds were, however, to remain in some areas of the *tierra caliente*, specifically the coastal zone, towards the close of the 16th century (Pastor and Frizzi, 1989).

**Table 5.1 Population changes in Michoacán in the first century after contact  
(adapted from: Bochon de Lameiras (1994).**

Region	1542 <sup>32</sup>	1548 <sup>33</sup>	% change 1524-1548	1560 <sup>34</sup>	% change 1548-1560	up to 1630 <sup>35</sup>	% change 1560-1630	% change 1524-1630
Sierra <sup>36</sup>	248,648	40,337	-83.67	50,249	24.57	29,400	-41.49	-88.17
Tierra Caliente	140,051	21,192	-84.87	32,251	52.19	8,351	-79.11	-94.03

### 5.8 Discussion: from corruption to control and colonisation

The first decades of Spanish Colonialism in Mexico can be divided into two stages: a first characterised by disorder, corruption and exploitation and a second during which time a more formal Colonial administration was established. The Colonial period began, for instance, in legal and administrative disarray. Delays in the formalisation of a legal framework, through which lands and resources could be administered and distributed, effectively sanctioned the activities of the exploitative first *Audiencia*. Indeed, two decades were to pass after Conquest before *Indio* rights began to be respected and a more orderly and legalised system of Colonial rule began to be implemented.

This came in the first instance with the imposition of the second *Audiencia* and the establishment of a viceroyalty of New Spain, but also with the creation of a series of local level administrative jurisdictions all with their respective Spanish representatives and officials. The various arms of the Church also sought to implement a series of colonisation and settlement policies, hoping to simultaneously secure evangelisation of the native population. Legislation was revised to redress the excessive privileges and concessions bestowed on the first

<sup>32</sup> 1524-1547 from the *Visita de Caravajal, Tasaciones de Ortega; Libro de Tasaciones; Relaciones de Pueblos en la corona.* (Cited in Bochon de Lameiras, 1994)

<sup>33</sup> 1548 -1559, *Suma de Visitas; Libro de Tasaciones.* (Cited in Bochon de Lameiras, 1994)

<sup>34</sup> 1560 - *Pueblos in encomiendas and in crown possession.* (Simpson, 1966).

<sup>35</sup> Population figures for the Bishopric of Michoacán. (Cited in Bochon de Lameiras, 1994)

<sup>36</sup> Includes figures for the *tierra templada*.

colonists, who in many cases were *conquistadores*, and to gradually undermine the power of the *encomienda*, while more egalitarian policies regarding the administration and management of lands and resources, based to a large extent on traditional pre-Hispanic strategies, began to be introduced.

The Spanish ideals for a Utopian colony were however to crumble with the disease epidemics that befell the native population. The reduction in the indigenous population necessarily led to the abandonment of vast tracts of land hitherto exploited for agricultural purposes. In some locations territory was left untended either as a direct consequence of depopulation or in response to the enforced relocation of settlements and residual *Indio* communities such that cultivated fields were now too distant to be serviced efficiently by the indigenous populations that did survive the epidemics (Butzer and Butzer, 1995). The adaptive response by the Colonial administration to this unprecedented loss of life, and hence to the loss of the majority of the food producers was a Spanish investment in the land.

Significantly, lands considered useful or productive, especially in a mineral capacity, were rapidly designated royal property (*tierra realenga*) (Florescano, 1989), but vast tracts of land apparently not in use (*tierra eriazas*), or abandoned (*tierras baldías*) did become open to Spanish appropriation through the awarding of *mercedes*. The register of *Mercedes Reales*, for example, indicates that between 1542 and 1618, 66 grants for agricultural land amounting to some 166 *caballerías*, and 115 grants to keep livestock (140 *estancias de ganado mayor and menor*), were awarded in Michoacán (Pellicer, 1994). The *Tierras and Indios ramos*, however, chart the awarding of even more land grants and transactions in the first century after Conquest and it has recently been suggested that more land may have been granted than was actually available (Prem, 1992).

Nevertheless, to begin with this land granting system theoretically afforded the remaining *Indio* communities some protection. Each award carried with it strict regulations and stipulations designed to minimise impacts on the land and property of any local indigenous communities, while legislation was issued to

ensure supposedly adequate lands were made available for indigenous communities. Two policies issued between 1591 and 1616 and designed to increase the revenue of the royal treasury were, however, to assist in the transfer of territorial possession and land use from *Indio* to Spanish hands, and were thus to contribute to the undermining of indigenous rights to access land and resources. *mercedes* became open to appropriation by auction and effectively began to be sold to the highest bidder<sup>37</sup>. As depopulation rendered residual indigenous communities incapable of self-sufficiency, and unable to meet tribute demands, it was not unusual for individual *Indios* to sell their former lands at ridiculously low prices as *mercedes* to individual land owners in order to earn some immediate income. In the early Colonial period these land owners were the *encomenderos* and slightly later on, land owning individuals normally of Spanish descent or members of religious orders. In other cases, direct purchases took place in order that the Spanish land owners could bypass the lengthy and often tedious legislative process that was undertaken to avoid granting land that was already under previous title or claim (Prem, 1992). As market demands dropped in the wake of indigenous depopulation these landowners purchased more land via this process in order to dominate what market potential there was. In this way, they were able to eliminate any risk of being undercut in the market place by cheaper indigenous production (Yasamura, 1995).

An allied land grant policy, referred to as *composición*, was to assist in these processes of progressive alienation and agglomeration of territory. Gradually replacing the *merced*, which was phased out after 1618 and suspended more formally as a policy in 1643 (Florescano, 1976), *composición* was a process whereby title to lands could be confirmed and regularised by a small monetary payment. In this way, the Spanish crown effectively sanctioned those acquisitive individuals and institutions to appropriate lands that had been designated indigenous territory, or communal pasture and woodland according to both pre-

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<sup>37</sup> Discussed in J. Solórzano y Pereyra (1629-1639), *Politica Indliana* Lib. V, Cap. XII; Pinelo, LP. *Tratado de confirmaciones reales de encomiendas, oficios y casos en que se requieren para las Indias Occidentales*. Madrid.

and early post-Hispanic legislation, and thus legalised usurpation and illegal “invasions” of former *Indio* territory. It was such land-granting policies and procedures that were to thus facilitate the alienation of *Indios* from their former territories, enabling at the same time individual land owners and the Church to accrue vast tracts of land.

*Indio* communities and individuals actively attempted to defend the lands against such usurpation by similarly seeking to obtain rights to land through *composición*, but they often lacked specific titles and claimed land on the basis of “*possession immemorial*”. This latter claim was valid under a concept known as *prescripción*, but was more easily challenged than written documents of title. Moreover, in order to secure title, land had to be officially unclaimed so that an *Indio* technically had to give up his rights in order to then obtain legal rights to his own land. Often a lengthy process, *Indios* could be deprived of their lands before a reclamation had been passed. In this respect, indigenous land loss was inevitable.

It is now commonly accepted, however, that the combined impacts of depopulation and the imposition of such settlement, colonisation and land tenure policies heralded the emergence of the *hacienda*, or great estate, which came to typify the late Colonial and independent Mexican landscape (Chevalier, 1966; Frank, 1979), although academic debate rages as to the precise nature of the evolution of the great estates with a range of alternative explanations being offered (see, for example, Chevalier, 1952; Nickel, 1968; Lockhart, 1969; Florescano, 1976; Van Young, 1981; Lindley, 1983; Prem, 1992).

Whether they were to be responsible for the emergence of the *hacienda* or not, the land tenure changes associated with the imposition of the Spanish Colonial system was to have profound and pervasive social and environmental implications - an area of enquiry which will be addressed in more detail in Part Three. The purpose of the following chapter is, however, to trace how the Colonial land administration at first facilitated the introduction of Spanish land use systems to Michoacán and the transfer of land from *Indio* into Spanish hands in the early Colonial period. Attention focuses on the area highlighted in Chapter

Four, Fig 4.1, but reference will be made to other locations for comparative purposes.

## Chapter Six

### Change, exchange and continuity: agrosystem dynamics in the early Colonial period

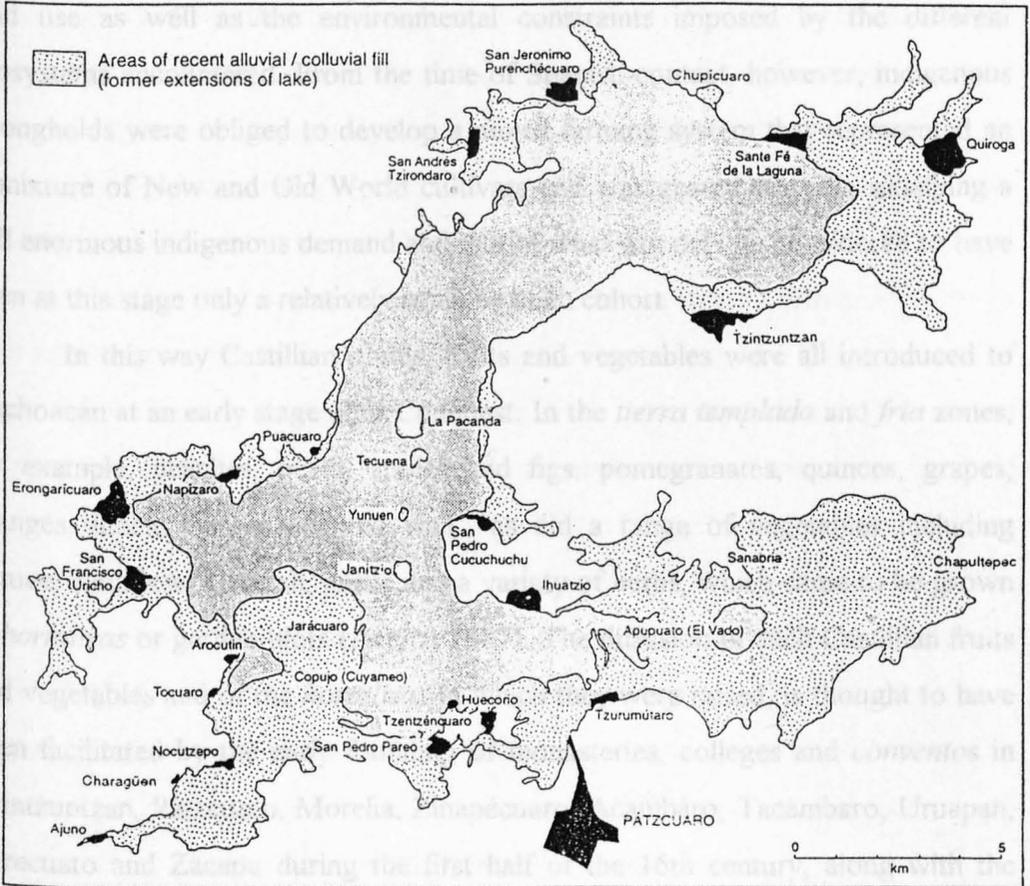
#### 6.1 Introduction

The avarice and lust for gold that motivated the Conquest of the New World served to delay an investigation of the potential of its lands. Profits were seen to derive more from the mines of the region than the soil. To begin with, therefore, the Spanish chose to exploit the indigenous population strongholds and the advanced socio-political administrative systems that were already in place in these areas to support their mining activities. The provision of labour, foodstuffs and other commodities in the form of a post-Conquest extended feudal system was in this way guaranteed. The ideals of a Spanish led, if *Indio*-based, Utopia were, however, to yield in the wake of the catastrophic depopulation that befell the newly-conquered peoples. This depopulation was to at once both necessitate and facilitate a Spanish investment in the land. With the loss of a large section of the *Indio* tribute payers and labour force, there was a need to produce food and commodities for survival - a challenge enhanced by an acceleration in demand stimulated by the mineral finds of the 1540s and 1550s (Pastor and Frizzi, 1989:127). The increase in the availability of “*tierras baldias*”, meanwhile, as a result of indigenous depopulation and relocation of residual indigenous communities, had served to facilitate the process of land granting, the take-over of land by the Spanish and hence the diffusion of Old World cultivars and livestock. The demands of the increasing urban market could in this way be satiated.

The dynamics of these changes in land use and tenure can be traced through early survey reports, land grant data (Appendix C) and documents dealing with *Indio* land usurpation and depredation. It is the purpose of this chapter to employ such sources in order to provide an overview of some of the land use changes that took place in Michoacán in the immediate post-Conquest period, highlighting the process by which Spanish systems of land use were introduced to

Michoacán, the rate and scale of the changes that took place and the degree of regional variation therein. Sites and locations referred to throughout the text are shown in figures 4.1 (Chapter Four) and 6.1.

**Figure 6.1 Settlements of Lake Pátzcuaro (from Endfield and O'Hara , in press).**



## 6.2 Cultivars and acculturation: agricultural co-existence and syncretism in post-Conquest Michoacán

The Spanish settlers in Michoacán found a set of environments different to those in which they were ecologically grounded. Some modification and adjustment to the systems of land use to which the colonists were accustomed was, therefore, essential. Yet the processes of agricultural adjustment can be seen to have been regionally varied, taking account of the extant indigenous systems of land use as well as the environmental constraints imposed by the different ecosystems encountered. From the time of Spanish contact, however, indigenous strongholds were obliged to develop a mixed farming system that represented an admixture of New and Old World cultivars and was geared towards satisfying a still enormous indigenous demand and that of what can only be considered to have been at this stage only a relatively small Spanish cohort.

In this way Castillian grains, fruits and vegetables were all introduced to Michoacán at an early stage after Conquest. In the *tierra templada* and *fria* zones, for example, peaches, pears, apples and figs, pomegranates, quinces, grapes, oranges, limes, lemons adapted well<sup>1</sup>, as did a range of vegetables including lettuce, cauliflower, radish, garlic and a variety of herbs, which came to be grown in *hortalizas* or garden plots (Acuña, 1987). The diffusion of such Castillian fruits and vegetables and of the *hortalizas* in which they were raised, is thought to have been facilitated by the early founding of monasteries, colleges and *conventos* in Tzintzuntzan, Pátzcuaro, Morelia, Zinapécuaro, Acambáro, Tacámbaro, Uruapan, Tarecuato and Zacapu during the first half of the 16th century, along with the development of the *pueblos-hospitales* (Pellicer, 1994). That the majority of entries in the *Relaciones* for Michoacán of the late 1570s and 1580s make reference to the presence of Castillian fruit trees<sup>2</sup> is indicative of their successful adoption (Acuña, 1987).

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<sup>1</sup> *Relaciones*: various entries. Source: Acuña, 1987

<sup>2</sup> See, for example, *Relación* entries for Yuririapúndaro, Cúitzeo de la Laguna, Chilchota, Pátzcuaro, Tancitaro, Pinzandaro-Arimeo, Tingüindín, Tuchpan and Zapotlan. The exception was Ajuchitlan which was said to have “no Spanish presence” (Acuña, 1987)

Several strains of Mediterranean wheat were introduced to Michoacán, though with more difficulty, given the inexperience of the *Indios* with this cultivar. Moreover, there were problems encountered with the seasonal cultivation requirements in the New World, where winter drought and summer rains were the norm. Given that Mediterranean wheat was, in contrast, accustomed to wetter winters and summer drought, irrigation became essential for a good harvest. Access to and provision of water was, therefore, a key determinant in the location of farms geared towards wheat production. *Caballerias* of land for irrigated wheat (*trigo de riego*) were consequently awarded in locations where there was, or could potentially be via diversion or damming schemes, a reliable source of water<sup>3</sup>.

The Spanish staple crop did not at all displace maize at least in the early Colonial period<sup>4</sup>. Maize was still grown on the slopes, according to Purépecha tradition, while wheat began to be grown in the fertile valley bottoms in order to take advantage of the more moist conditions in those locations. The resistance of wheat to cold and frost similarly rendered it an ideal ally for maize, the latter growing in winter and spring, the former in summer and autumn. For all these reasons, and due also to a demand for wheat from the small, but growing Spanish population<sup>5</sup>, wheat was adopted at an early stage and was being grown in the swamplands and fertile valley bottoms of the more central regions of Michoacán by 1547 (Pellicer, 1994). To begin with, however, only small wheat plots were tended in order to satisfy what was a solely Spanish market (Butzer, 1988). The vast expanse of dry farmed wheat characteristic of Castile was, therefore, not to be emulated in the early Colonial Michoacán landscape.

The gradual expansion of the area under wheat throughout the later 16th century can be monitored through the number of mills for which grants were

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<sup>3</sup> e.g. AGNT 79, exp. 1, fs. 25; AGNT 69, exp. 3; AGNM 18, fs. 63-65.

<sup>4</sup> Wheat was to later replace maize in some locations as environmental conditions adjusted and climatic drying took place throughout the course of the Colonial period (see Chapter Ten, Section 10.5).

<sup>5</sup> Butzer (1991) notes that throughout the Colonial period, Spanish settlements represented "oases" in New Spain. Despite undergoing massive depopulation, the indigenous population greatly outnumbered the European contingent.

obtained (Prem, 1992). *Mercedes* for wheat mills or gristmills, together with associated *caballerias* of land on which to grow the grain, began to be granted in the northern lands of the province, in the Chichimecas<sup>6</sup> and in the vicinity of Zacapu<sup>7</sup> and Queréndaro<sup>8</sup> in the 1550s. Wheat growing and processing was not, moreover, purely a Spanish occupation. *Indio principales* and noblemen also applied for grants for mills. Don Antonio Huitzemengari, for example, the son of the last *cazonci*, was in possession of a mill at Opopeo, close to Santa Clara to the south-east of Lake Zirahuén by the middle of the 16th century (Pellicer, 1994), and other grants were awarded to *Indio principales* for mills in the hotter lands of Jacona in 1559<sup>9</sup>, Maravatio in 1563<sup>10</sup>, Tangancicuaro in 1586<sup>11</sup>, while in Zinapécuaro to the south-east of the Basin of Cuitzeo, *Indio* pledges for mills were forwarded on three occasions in 1543, 1561 and 1563<sup>12</sup>.

With the indigenous adoption of wheat came modifications to the traditional Iberian modes of production. The *Indios* of Tiripetío, to the east of the Basin of Pátzcuaro, for example, cultivated wheat in a completely different manner to the Spanish, rooted in pre-Hispanic tradition and being tended intensively:

*“by hand in ridges and furrows like those of huertas (garden plots) and for this reason, everything germinates without any loss and they (the seeds/crop) multiply infinitely, although this takes up more land area.....”*

The implementation of certain simple hand tools, moreover, enabled the harvesting of much wheat from relatively little seed stock:

*“each one which sows is able to benefit with a mattock/hoe which breaks up the soil and sows and weeds/ hoes and makes a clear harvest.....”*

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<sup>6</sup> Kraus Collection, 21st March, 1551; Ayer Collection, 1552.

<sup>7</sup> Kraus Collection, 13th March, 1551.

<sup>8</sup> Kraus Collection, 24th October, 1551.

<sup>9</sup> AGNT 249 (2), fs. 132 and 135.

<sup>10</sup> AGNM 7, fs. 35v.

<sup>11</sup> AGNM 13, fs. 217v; AGNT 69 (5), fs. 4 and 45.

<sup>12</sup> AGNM 2, (133), fs. 50v; AGNM 5, fs. 293; AGNM 7, fs. 228v.

*from three or four almudes<sup>13</sup>, they make as much as ten or twelve fanegas<sup>14</sup> of maize”<sup>15</sup>...*

In this way Old and New world agro-technologies would appear to have begun to co-evolve.

The availability of lake water for irrigation meant that many of the lake basin areas of the highlands became foci in the expansion of wheat throughout the later 16th century. The Basin of Pátzcuaro was, for example, said to be the location for:

*“much (wheat), and it is very good, especially the species that they call seven headed because each one of the ears has seven heads, one in the middle which is the main one, and which is the biggest, and on the other two sides are six smaller seed heads, three to one side, and three to the other”* (Ciudad Real, 1585 in Quintana and Farreras, 1976). )

Lake water could also be used to process the grain:

*“the water with which they mill the grain is found only 20 paces away”*  
(Ciudad Real, 1585 in: Quintana and Farreras, 1976).

The availability of lake water for irrigation in the Basin of Cuitzeo was similarly capitalised on and irrigated wheat came to dominate the flat lands around the lake itself by the late 16th century, despite the fact that the land was initially considered to be infertile, degraded, “ruined” and unsuitable for cultivation (Acuña, 1987) (see Chapter Seven, Section 7.3). A *pintura* of Jesuit-owned lands in Tarímbaro to the south-west of Lake Cuitzeo, dated 1585, for example, illustrates the ploughing of farmlands described as “*de regadio*” (irrigated) (Plate. 6.1). It may be significant that the driver of the plough shown in the picture is robed in Spanish costume indicating perhaps this to still be a predominantly Spanish occupation at this time.

Wheat production in the area expanded in order to satisfy the demands of an increasing Spanish and *Mestizo* population and, along with Jacona, Cuitzeo was

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<sup>13</sup> Measure of seed stock/ area of land sown.

<sup>14</sup> Unit of dry measure: 1.5 bushels. See also Glossary.

<sup>15</sup> *Relación de Tiripetío*, 1580. Source: Acuña, 1987.

to become one of the main suppliers of wheat for the cities of Valladolid, Pátzcuaro and Zamora (Zubillaga, 1959; Moreno, 1985). Moreover, as the area under cultivation increased, there took place a concomitant increase in seasonal demands for indigenous labour for assistance with sowing and harvesting on the many *haciendas* that had started to emerge in the area<sup>16</sup>.

In some locations, wheat even began to replace maize as one of the staple crops, a transfer again facilitated by the availability of water sources. In Charo, for example, to the south of Cuitzeo and the north-east of Valladolid two small intermittent streams had traditionally been used for maize, but by the time Basalenque came to travel through the area in the 1640s, they were “sown with wheat” and it was, moreover, noted that the residents of the area:

*“never experience hunger, and they sell much of it to clothe themselves and to pay their tribute”* (Basalenque, 1644, cited in Moreno, 1985).

The clergy had also begun to participate in this process of agricultural expansion (Pastor and Frizzi, 1989), again capitalising on the availability of lake locations to provide irrigation water. By the close of the 16th century, for instance, the Augustinian-run *hacienda* of San Nicolás, in the vicinity of Yuririapúndaro, had become famous for the quantity of wheat it produced, and because of the number of mules the *hacienda* sent to market, laden with wheat crops (Basalenque, 1644, cited in Moreno, 1985).

The area under wheat had also expanded in the *tierra caliente* lowlands to the western and north-eastern areas of the state by the first decades of the 17th century. Writing in the 1620s, for example, the Franciscan chronicler, Fray Alonso de La Rea, noted that the fertile valleys of Chilchota, Tarímbaro, Maravatio, Salvatierra, Celaya, Santiago, Apaseo and Querétaro had become dominant wheat growing areas (La Rea, 1643), while one of the most productive of the church owned *haciendas* in Tamazula, in the modern day state of Jalisco, came to specialise in wheat production towards the close of the 16th century. A source of running water, aqueducts and irrigation works allowed for abundant annual

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<sup>16</sup> AGNI 4, exp. 724; AGNI 2, exp. 6.

harvests of wheat, garden crops and fruits. Wheat production also became especially important in the Bajío, which developed more than any other region in central Mexico, a character steeped in Castillian traits (Ugarte, 1992). Such was the acceleration in the amount of land that came to be sown with wheat, however, that in some areas the supply of the grain had apparently begun to exceed demand by the middle of the 17th century (Pellicer, 1994: 118).



### 6.3 Continuity and specialisation

The transfer of Spanish cultivars was a relatively rapid process, being more or less complete by the mid- to late 16th century. The Spanish-Mediterranean crop repertoire had been much-simplified and adapted according to the regionally varied cultural and environmental contexts of the colony (Butzer, 1996). There is evidence to suggest, however, that there was still a good deal of continuity in terms of indigenous agricultural production in Michoacán, especially in the highland areas of the state. Not witnessing to the same degree the dramatic depopulation of their lowland cousins, the peoples of the *tierra fria* lands were in a more fortunate position to maintain their traditional forms of land use and agricultural production.

The references and responses held within the *Relaciones Geográficas* for various locations, suggest that domestic production in these areas was indeed overwhelmingly dominated by indigenous cultivars - a trend apparent even today (Mapes *et al.*, 1994). Maize, beans and red chile continued to be grown in most of the towns listed in the documents, providing the bulk of the tribute commodities in these areas, although the spread of Castillian fruit trees seems to have been almost complete by this time. According to the *Relación de Pátzcuaro*, written in 1581, for example, the economic mainstay in the basin area was still maize, supplemented by fishing - both traditional indigenous activities. Nevertheless, wheat, barley and other European grains had been introduced to the area<sup>17</sup> and apparently ranked amongst the main products derived from the basin itself<sup>18</sup>. Indeed, according to Juan Infante, an *encomendero* who came to accrue a good deal of land in the *barrios* of the Basin of Pátzcuaro in the immediate post-Conquest period:

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<sup>17</sup> Relaciones de Michoacán: Ajuchitlan, Yuririapúndaro, Cuitzeo de la Laguna, Chilchota and sujetos, Necotlán, Pátzcuaro, Querétaro, Taimeo, Tancitaro, Pinzandaro Arimeo, Tingüindín, Tiripetío, Tuchpan, Zapotlan, Tamazula, Chocandiro, Tarequato, Periban. Source: Acuña, 1987.

<sup>18</sup> Relación de Pátzcuaro, 1581. Source: Acuña, 1987

“nothing more than maize is grown in these townships....the towns of Pomacorán and Sevina(n) do not raise garlic, nor beans....but only maize....” (Warren, 1984).

The *Relación de Necotlán* similarly refers to the “maize, red chile peppers, beans and squash of which they (the population) have great abundance”<sup>19</sup>, although the Spanish officials responsible for the compilation of the *Relación* likened the landscape of the area to that of Castile (Acuña, 1987). A syncretism between Spanish and indigenous influences was, nevertheless, recognisable among the population of the area judging by the range of commodities produced, which included a combination of dyes, silk, wheat, chickens from Castile, and indigenous maize, chile, beans and other legumes. Nevertheless, towards the close of the 16th century, the trilogy of maize, beans and squash, coupled with the growth of squashes and gourds and native fruits, supplemented by hunting and fishing<sup>20</sup>, still provided the main form of indigenous subsistence, although the area in which such cultivars were grown was to later be reduced to small house plots, *huertas* and allotments<sup>21</sup> - a process which was to compound problems of resource distribution and acquisition once the indigenous population recovered and the *Mestizo* population increased.

More profound land use changes in the Colonial period were, however, to take place in the *tierra caliente* lands where, as mentioned earlier, there occurred dramatic indigenous depopulation as a result of the rapid spread of European pathogens. In the lowland and coastal areas, the Spanish were forced to abandon most of their agricultural repertoire, since wheat, barley and many of the orchard trees did not thrive (Motolinía, 1541; Acuña, 1987). Commercial crops, however, were to provide, in the words of Butzer (1988) an “alternative thrust” for the Spanish colonists in these areas. With depopulation, lands formerly in *Indio* possession were quickly, and seemingly efficiently, transferred into Spanish ownership. The cultivation of bananas, sugar cane and cacao came to compete

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<sup>19</sup> *Relación de Necotlán*, 1579. Source: Acuña, 1987.

<sup>20</sup> *Relaciones de Michoacán*: various entries. Source: Acuña, 1987.

<sup>21</sup> *Historia* 73.

with native cultivars for land. Sugar cane was exploited industrially, and became the economic mainstay in Tacámbaro, Taretán, Tingambato, Tiripetío, Periban, Tajimaroa and Zitacuaro in the *tierra templada* zones. Sinagua and Tepalcatepec to the *tierra caliente* in the south of the province similarly came to be important sugar producing areas. In some places, notably Patuan and Taretán<sup>22</sup>, while the *Indios* continued to cultivate maize, beans and chile for subsistence purposes, as well as indigenous non-food cultivars such as cotton, their efforts began to be directed towards the production of bananas and sugar cane, and as such the land under cotton, and hence in indigenous control, was considerably reduced (Pellicer, 1994). Archival investigations of land tenure and agricultural dynamics have illustrated that even in these areas, however, some vestiges of traditional agrosystem techniques were maintained in the post-Conquest period (Barrett, 1973). It is stated, for example, that both plainslands and slopes were still sown "in the customary Tarascan manner"<sup>23</sup> - a reference, perhaps, to the traditional indigenous practices of slope cultivation using primitive hand tools such as the *coa*.

Certain towns were founded as administrative centres for the monocultural estates that were established in the *tierra caliente* zones of the western littoral. The towns of Concepción Zacatula and Colima (or Santiago de los Caballeros), for example, were specially constructed for Spanish populations, on the basis of the cacao economy that came to dominate this area (Carbajal, 1992). A full scale plantation economy did not, however, develop. Crops such as cacao, sugar, cotton, dyes and tobacco were sometimes grown directly by the indigenous people in lieu of labour service, or were more generally cultivated by tributary labour on small-scale Spanish estates and *Indios* were moved from the highlands to work the plantations of the lowlands. Many perished, however, given the extreme contrast in climatic and ecological conditions they were subjected to in the migration from the *tierra fria* to the *tierra caliente*, and Negro slaves began to be imported to

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<sup>22</sup> AGNT 69, exp. 3.

<sup>23</sup> AGNT 69, exp. 3.

make up for the shortfall in labour engendered by indigenous depopulation, despite the considerable costs that this immigration policy incurred (Carbajal, 1992). Thus the areas which had witnessed the most dramatic demographic changes in the contact period were those same areas where agricultural land use was to adjust and change most significantly.

#### 6.4 The introduction and diffusion of a livestock economy

Among the more significant of the land use changes that were to take place in the wake of Spanish contact were those resulting from the introduction of domesticated livestock. The Old World animal species proved more versatile than the plants and, in an environment with few domesticated animals, increased in number and diffused rapidly across the region according to ecological suitability and demand. It is acknowledged, however, that pigs were introduced to the central regions of Michoacán after one of the first Spanish reconnaissance missions to the Purépecha state (Martinez, 1989), although according to the *Relación de Michoacán* they were not initially favourably received by the *cazonci*<sup>24</sup>. Significantly, horses were also introduced early on, obviously being instrumental in the Conquest process itself. Excluding some cases of livestock husbandry among the Purépecha nobility<sup>25</sup>, however, the raising of livestock was to begin with solely a Spanish initiative. *Indios* were at first prohibited from keeping horses (Martinez, 1994), and it was not until the 1550s that certain members of indigenous society - largely the Indian nobility - were granted licenses to “*mount horses in the manner of a Spaniard*”<sup>26</sup>. The rearing of Castilian chickens, in contrast, was initially compulsory, even if the indigenous populations would later complain of the unsuitability of some of the lands for fowl<sup>27</sup>.

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<sup>24</sup> La Relación de Michoacán, III, capítulo 24, fs: 308-309. Confronted with swine, the *cazonci* asks of Anton Caicedo, sent by Cortés on a reconnaissance trip to Michoacán: “*What things are these? Are they rats which these people bring us?*”.

<sup>25</sup> AGNT 2712, exp. 7, fs. 41; AGNI 3, exp. 415; Ayer Collection, Taximaroa, 25th October, 1552; Sarrelangue, 1965: 175).

<sup>26</sup> Kraus Collection, Cutzmala, 17th February, 1551; Huangó, 21st February, 1551; Ayer Collection, Acámbaro, 6th February, 1553; Michoacán, 6th February, 1553.

<sup>27</sup> AGNI 4, exp. 246.

Nevertheless, reinforced by indigenous depopulation and capitalising on the availability of what were perceived by the Spanish to be suitable grazing and pasture lands, the diffusion of cattle, pigs, sheep and goats across the landscape of Michoacán was to take place in the space of about sixty years after contact.

Although some *sitios* for keeping sheep were granted in Mexico City in 1526, and livestock were being kept on some of the *encomienda* lands of New Spain in the early Colonial period (Martinez, 1989), official grants to raise livestock were not officially issued until 1542<sup>28</sup>. *Mercedes* in Michoacán, mainly for the rearing of cattle, however, only began to be awarded in larger numbers during the early 1550s, and only then for the more central-northern parts of the province around Tiripetío, Valladolid, Huaniqueo, Tarequato, Yuririapúndaro, Indaparapeo<sup>29</sup> and in the Chichimecas<sup>30</sup>. In Cuitzeo alone, there were thought to be 13 *estancias* by 1550<sup>31</sup>, although the nature of the livestock that was kept on them was not specified (Escobar-Olmedo, 1986). There was also a good deal of seasonal grazing on *agostadero* plots or seasonal pasture in this area. As reports of depredation indicate, livestock were also making their presence felt in Acámbaro<sup>32</sup>, Queréndaro<sup>33</sup>, Tiripetío<sup>34</sup> and Valladolid<sup>35</sup> around this time.

In the second half of the 16th century, there are some indications that the dual nature of the Spanish agro-pastoral economy had been transferred to the Michoacán with some degree of success. Towards the 1570s, for example, livestock *estancias* began to be granted in conjunction with small amounts of

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<sup>28</sup> AGNM 1, exp. 248, fs. 118; AGNM 1, exp. 467, fs. 217.

<sup>29</sup> Kraus Collection, Tiripetío, 29th May, 1551; Yuririapúndaro, 11th September, 1551; Indaparapeo, 2nd January, 1552; Indaparapeo, 5th March, 1552; Tacascuaro, 25th August, 1576 (AGNT 2764, exp. 9); Tarímbaro and Indaparapeo, 5th June 1578 (AGNT 2737, exp. 6, .fs. 31v-32r); Penjamo, 11th May, 1552; Huaniqueo, 11th May, 1552; Yuririapúndaro, 9th June, 1552; Yuririapúndaro, 27th June, 1552; Taximaroa, 25th October, 1552.

<sup>30</sup> Kraus collection, Chichimecas, 30th January, 1552; Ayer Collection, Chichimecas, 6th May, 1552; Chichimecas, 13th May, 1552; Chichimecas, 28th June, 1552; 30th August, 1552;

<sup>31</sup> Biblioteca Nacional de Madrid. Sección Manuscritos de America. Manuscrito 2800 "Tasaciones de pueblos en Nueva España", fs. 59v-60f.

<sup>32</sup> Kraus Collection, 8th October, 1551.

<sup>33</sup> Kraus Collection, 1551.

<sup>34</sup> Ayer Collection, 21st June, 1552.

<sup>35</sup> Ayer Collection, 22nd. September, 1552.

agricultural land for subsistence purposes<sup>36</sup> and *Indios* had by this time also begun to rear and raise livestock on a broader scale. Indeed, indigenous communities were actively encouraged by Viceroy Mendoza to keep livestock (Torquemada, 1610: 1, 611.), and already by 1544, *Indios* had been ordered to pay tithes on their livestock (Puga 1563: 149). Encouragement to keep all types of livestock was reaffirmed in 1550 and 1551 (Solano, 1991: nos. 56 and 59), and by 1560, some *Indio* communities or dignitaries were receiving licenses to run flocks of 12,000 to 28,000 sheep (Simpson, 1952: 14). Such licences would appear to have been obtained by members of the indigenous society in Michoacán in the later 16th century. The 1579 *Relación* for Cuitzeo, for example, details the *rebaños*, or small flocks of sheep (between 200 and 400 head) that the *naturales* reared for wool to sell and for the purpose of making clothes, and indigenous communities of the area were, moreover, described at this time as “*keeping their flocks in good order and together, like in Spain*” (Acuña, 1987).

The benefits of manure for fertilisation and the availability of animals foodstuffs in times of shortage must have proved providential for the indigenous population just as it had for agro-pastoral societies in the Mediterranean (Halstead, 1989). Indeed, it has been suggested that the reduced subsistence risk wrought by the arrival of livestock to New Spain, far outweighed the problems imposed by depredation (Lewthwaite, 1986; Butzer and Butzer, 1995; Butzer, 1996), although only one reference to the direct use of manure as a fertiliser has been discovered in this investigation<sup>37</sup>.

On the whole, however, the *Relaciones* are thought to have underestimated the degree to which the indigenous populations had by this time adopted facets of the Mediterranean livestock economy, related in part to the

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<sup>36</sup> e.g. AGNT 2721, exp. 36; AGNT 2764, exp. 9; exp. 4; AGNT 2681, exp. 17; AGNT 79, exp. 5, fs. 35; AGNT 83, exp. 2, fs. 18; AGNT 3669, exp. 5; AGNM 18, exp. 212, fs. 64 and fs. 255; AGNM 20, fs. 115; AGNM 20, fs. 116; AGNM 9, fs. 12v; AGNM 22, fs. 96; AGNT 22, fs. 179; Kraus Collection, Indaparapeo; Ayer Collection, Huaniqueo, 11th May, 1552. Tlazazalca, 14th June, 1552; Michoacán, 30th January, 1553; Michoacán, 20th January, 1553; Michoacán, 30th January, 1553; Michoacán, June, 1553.

<sup>37</sup> AGNT 322, exp. 1.

more informal livestock management practices of the indigenous communities (Butzer and Butzer, 1995), but also due to the fact that livestock were only kept at a domestic level scale by the indigenous communities, more for subsistence purposes than for commercial enterprise.

### 6.5 Shifts in emphasis: 16th century developments in the livestock economy

The archival land grant records indicate that there was something of a shift in terms of livestock husbandry from cattle to sheep in the mid-16th century. In 1560, for example, a series of sites for sheep grazing were granted in Cuitzeo and Copándaro<sup>38</sup>, though the lands were designated community and hospital property and so were not held in private possession as such. Similar grants were made for sheep grazing around Tarímbaro to the south the Lake Cuitzeo in 1561<sup>39</sup>, where the prevalence of extensive stretches of *tierras baldías* provided suitable conditions for sheep herds. Indeed, one *pintura* from 1587 illustrates the herding of sheep in this area (Plate 6.2), while another shows the extent of *tierras baldías* available for such purposes (Plate 6.3). Former cattle ranches in the area were being converted to sheep stations<sup>40</sup> and throughout the course of the 1560s, and 1570s, the number of sheep stations around Lake Cuitzeo<sup>41</sup> and elsewhere in the north<sup>42</sup> similarly increased.

Changes in land use policies such as these reflect the legislation issued during the mid-century period by the then Viceroy Don Luis de Velasco (I). Efforts were made, for example, to remove cattle, seen as the main protagonists of crop depredation, if only because of their size, away from the central, settled agricultural areas to more marginal northerly borderlands. The reduction in claims for depredation after this period, or at least up until the 1590s, is perhaps indicative of the success of this marginalisation policy.

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<sup>38</sup> AGNM 5-6(1), fs. 306.

<sup>39</sup> AGNM 5, fs. 222; AGNT 272, fs. 327.

<sup>40</sup> AGNM 5, fs. 222.

<sup>41</sup> AGNM 9, fs. 12v; AGNM 13, fs. 242.

<sup>42</sup> AGNT 2764, exp. 9.

Some grants were, however, still being made to raise cattle in the more central regions in this period<sup>43</sup>, most probably to ensure the availability of dairy products, and crop depredation was to continue to provide a source of contention between agriculturalists and livestock owners throughout the course of the Colonial period (see Part Three, Chapter Nine).

The later 16th century did indeed witness a significant increase in the amount of land granted for livestock *estancias* in the more northerly parts of the province<sup>44</sup>, partly a consequence of the crown's marginalisation policy, but perhaps more specifically in response to the wave of epidemic induced mortality and land abandonment that took place in the early 1590s, and the two *Real Cédulas* issued in 1591 effectively facilitating the acquisition of land titles by direct purchase from the crown and thereby facilitating the take up of abandoned land by individuals (Florescano, 1976; and Chapter Five, Section 5.8). The north of the province was in this way to become a livestock dominated area. It is estimated that the region covering the lands of Tlazazalca, Zacapu, and Huaniqueo, to the north-west of the Basin of Pátzcuaro and to the east of the Basin of Cuitzeo, alone received 232 awards for cattle estates and 98 awards for sheep stations in the 16th century (Paredes and Piñon, 1984).

That the juxtaposition of agricultural land and grazing stock was, however, to result in depredation is to be expected. Indeed, a series of claims relating to crop loss and damage caused by straying livestock emerge during the 1580s and 1590s<sup>45</sup>. The crown issued strict regulations over stocking limits in response. These were 500 head of cattle or horses for an *estancia de ganado mayor*, and 2000 head of sheep, goats and pigs for an *estancia de ganado menor*<sup>46</sup>. As Butzer

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<sup>43</sup> AGNT 2721, exp. 22; AGNT 2737, exp. 6.

<sup>44</sup> AGNM 2, fs. 6; AGNM 2, fs. 78v; AGNT 2694, exp. 11; AGNM 18, fs. 63; AGNM 18, fs. 63f-65f; AGNM 18, exp. 212; AGNM 18, exp. 214; AGNM 18, fs. 222; AGNM 18, fs. 255; AGNM 20, fs. 115; AGNM 20, fs. 255; AGNM 22, fs. 72f and 72v; AGNM 22, fs. 99f; AGNM 22, fs. 96; AGNM 22, fs. 157; AGNM 22, fs. 149; AGNM 22, fs. 183v.

<sup>45</sup> AGNI 2, exp. 823/824; AGNI 4, exp. 825; AGNI 4, exp. 567; AGNI 4, exp. 570; AGNI 3, exp. 388; AGNI 5, exp. 120.

<sup>46</sup> Kraus Collection, 1551.

and Butzer (1993) indicate, however, there were often more animals kept on *estancias* than were specified in a particular *merced*, and there were in addition many exceptions made as to the amount of livestock held and the amount of land included in each grant, depending not only on the perceived land quality but also the proximity of indigenous properties. In some cases, indigenous communities were paid by local Spanish officials to keep vigils and guard their crops against straying livestock<sup>47</sup>, given that this form of monetary deterrent would often prove less expensive than reimbursement for actual damages or crop loss by grazing stock. Vigilance was, however, not always possible. Disease epidemics, and the consequent depopulation and out-migration of residual indigenous communities had, for example, left the croplands of Pinzandaro Arimeo, which lies to the west of the province in the district of Tancitaro, open to depredation by livestock “without guard, which was a thing of great sadness”<sup>48</sup>.

There was renewed concern in the 1590s and around the turn of the 17th century over the large numbers of livestock being moved around areas where lands were sown with crops. There were indeed many law suits claiming damages for depredation towards the close of the 16th century, particularly around the Basin of Cuitzeo, as illustrated by the many land disputes and *Indio* claims dealing with depredation in this area<sup>49</sup>. Similar concern was expressed by the *naturales* of the town of Indaparapeo. Livestock had apparently been allowed to graze crops and trees indiscriminately, resulting in deforestation, harvest losses, an inability to produce tribute goods and a consequent loss of livelihood for the indigenous communities of the area<sup>50</sup>. Even in the more central areas, however, where livestock rearing was discouraged there were cases of crop depredation filed

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<sup>47</sup> Ayer Collection, Acámbaro, 20th August, 1553.

<sup>48</sup> Relación de Tancitaro: Pinzandaro Arimeo, 1580.

<sup>49</sup> AGNT 2682, exp. 19; AGNT 2681, exp. 21; AGNI 4, exp. 567; AGNI 4, exp. 570; AGNI 4, exp. 587; AGNI 4, exp. 724; AGNT 2681, exp. 21; AGNT 2777, exp. 25; AGNI 3, exp. 291; AGNI 3, exp. 388; AGNI 3, exp. 703; AGNT 2681, exp. 22; AGNT 2682, exp. 24; AGNI 3, exp. 824; AGNI 5, exp. 962; AGNI 5, exp. 120; AGNT 2737, exp. 4; AGNT 2721, exp. 3.

<sup>50</sup> AGNI 4, exp. 587; AGNT 2777, exp. 25.

around this time. Cattle from Apupato<sup>51</sup>, to the south-east of the Basin of Pátzcuaro were, for example, being held responsible for crop depredation in the area at the turn of the 17th century (1604)<sup>52</sup>. It must be borne in mind, however, that not all claims for depredation will have been legitimate and in some cases may have even been contrived, given that *Indios* would often sow crops in areas that would inevitably be subject to grazing, in order to receive monetary recompense from livestock owners (Butzer and Butzer, 1995). Large fines were indeed imposed on the stockraisers should they be seen to have been negligent<sup>53</sup> and land grants could be declared void if damage had in this way been inflicted. Litigation was, however, often a tardy and expensive process - a factor which in many cases was to work against the *Indio* populations (Butzer and Butzer, 1995).

Nevertheless, land grants continued to be awarded in the more central settled areas into the 17th century<sup>54</sup>, and seasonal grazing pasture was, in addition, being made available on *haciendas* in the vicinity of the Pátzcuaro basin<sup>55</sup>. The expansion of livestock by this time indicates not only a rise in the Español population and hence an increase in the amount of land under European type land use systems, but perhaps also the adoption of such systems by *Indios* themselves.

That there had been a rapid expansion in the number of livestock by the first half of the 17th century is illustrated by Dutch academic, Joannes de Laet who, writing in 1625, suggested that:

“*These animals had multiplied to infinite numbers.....*” (de Laet, 1625).

This trend was, moreover, to persist such that by August 1709, there were thought to be no less than eight sheep and cattle stations in various locations around Pátzcuaro, along with a total of 34 *caballerias* of agricultural land, all of which had been granted in the late 16th and early 17th centuries<sup>56</sup>. Furthermore,

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<sup>51</sup> The hill of Apupato is occasionally referred to as “*El Vado*” - the ford, when the water level in Lake Pátzcuaro rose and rendered the surrounding area subject to flooding.

<sup>52</sup> AGNT 3448 (unico).

<sup>53</sup> e.g. AGNI 3, exp. 291; AGNI 3, exp. 338.

<sup>54</sup> AGNT 3669, exp. 5; AGNM 30, fs. 255-256; Tierras y Aguas, Leg. 9, TI, exp. 24.

<sup>55</sup> AGNM 27, fs. 56.

<sup>56</sup> Tierras y Aguas, Leg. 4, TII, exp. 53.

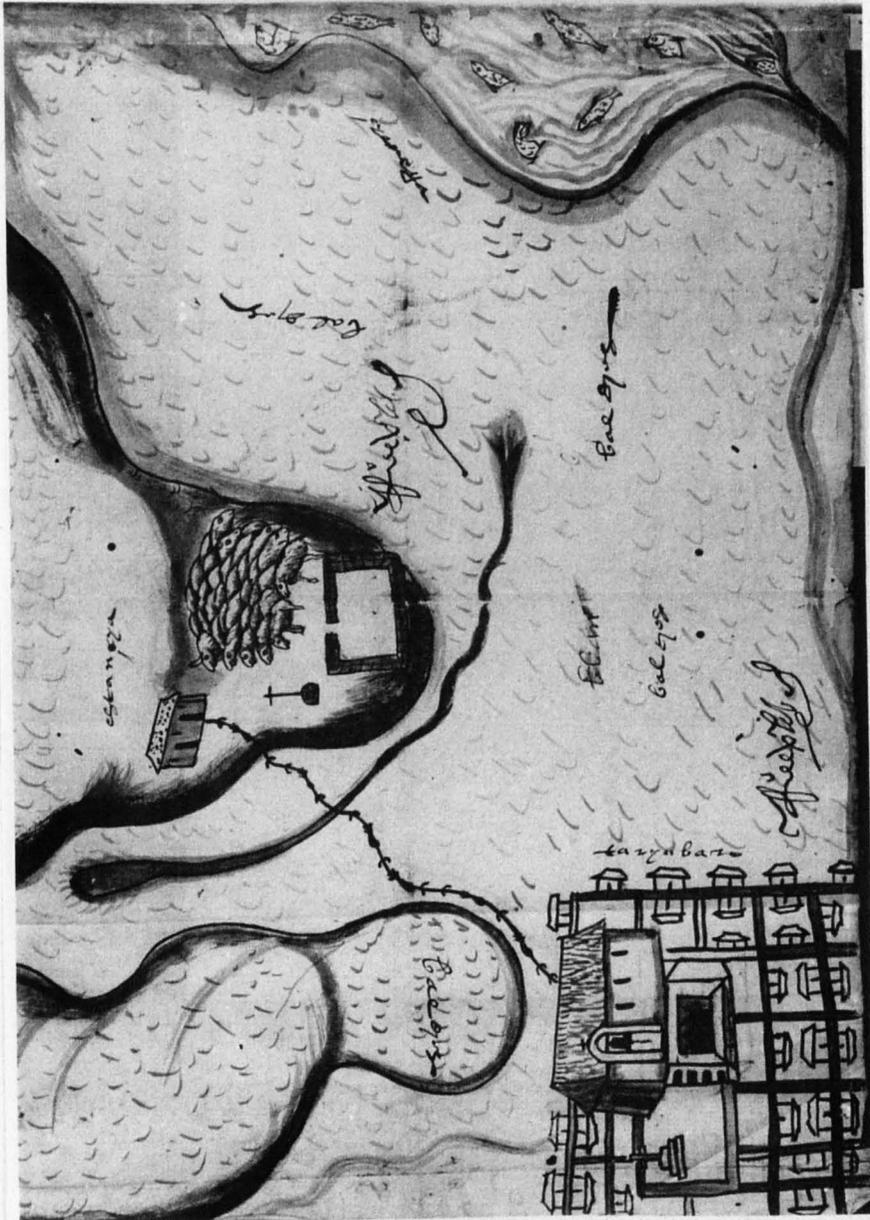
over 40 *estancias* or *sitios* for cattle and sheep, 39 of which are specified as sheep stations, were noted in the area around Lake Cuitzeo alone according to a *composición* document and accompanying map dated August 1716<sup>57</sup>. There is a lack of exact data, however, from which to reconstruct the actual numbers of livestock that were held in Michoacán throughout the Colonial period, and with which to monitor the rate of their diffusion. In his “*General map of Mexico towards the middle of the 17th century*”, however, Chevalier (1952) estimates that cattle estates had expanded across the whole of the bishopric and province of Michoacán, covering all territory except that of the Sierra Madre del Sur, and sheep estates had diffused across almost the entire province in the first hundred years after Conquest (Ugarte, 1992:231).

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<sup>57</sup> Tierras y Aguas, Leg. 4, TII, exp. 59.

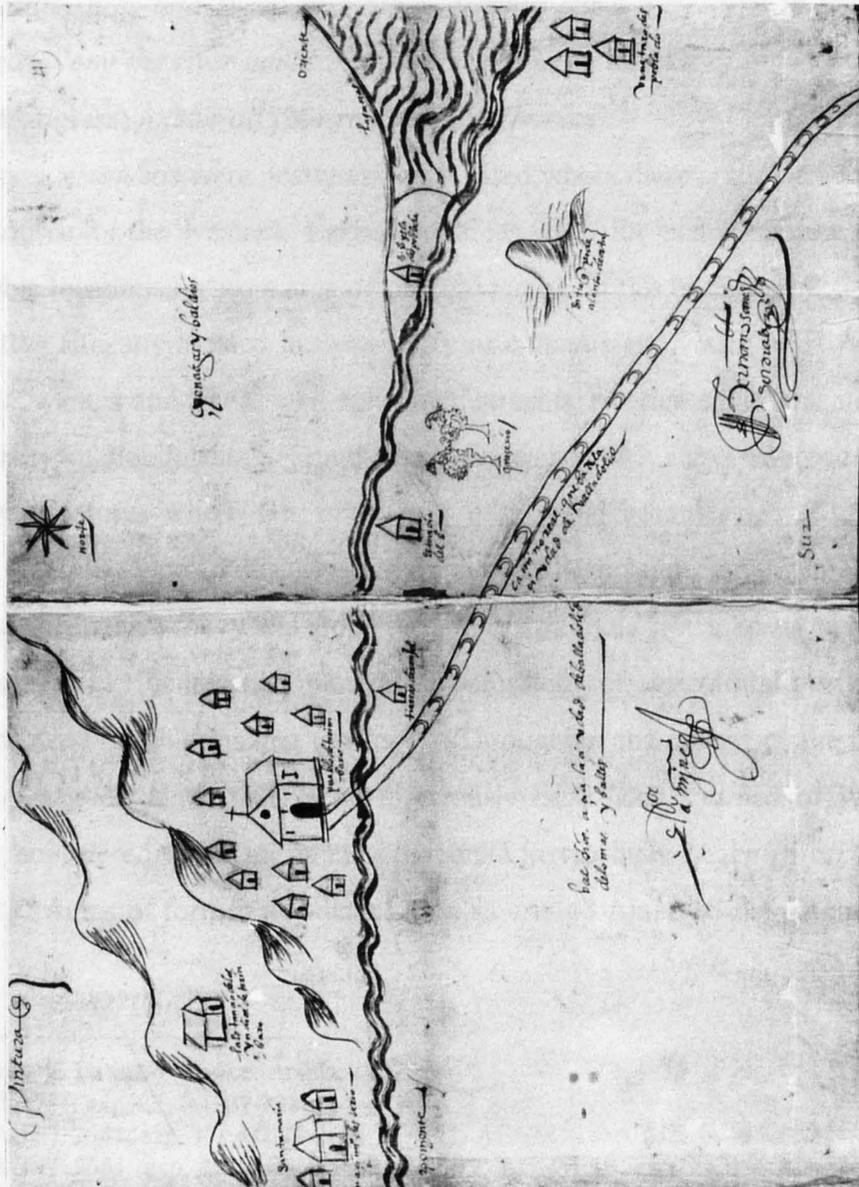
**Plate 6.2 Sheep herding in Tarímbaro, 1587 (AGNT 2721, exp. 37, fs. 416).**

The *pintura* shows a sheep herd located on a hillside *estancia* close to the town of Tarímbaro. The rest of the land in the vicinity is classed as “*baldios*”, not in use and thus available for appropriation through the granting of *mercedes*. The *pintura* may in this way have been employed almost as a form of propaganda to illustrate the potentially available land in the area, and to show that no *Indio* settlement or sown fields were likely to be affected by grazing livestock in the area. Note the corral and barn in the *estancia* lands, illustrating that the improvements required by *merced* legislation had been made.



**Plate 6.3 Lands in the vicinity of the town of Tarímbaro (AGNT 2721, exp. 36, fs. 404).**

Note the abundant “*tierras baldíos*” illustrated on the *pintura*, some of which to the north (“*norte*”) are described as “*ciénegas y baldíos*”, (swampy and abandoned). Note also the former *Indio* towns to the east (“*oriente*”) described as “*despoblada*” (depopulated) The *pintura* thus implies that there is abandoned land in the area, not being exploited at the time the *pintura* was created.



## 6.6 *Estancia* location, transhumance and seasonal mobility

Clear trends emerge in the nature of the locations that were considered suitable for the rearing of cattle and sheep. In many cases, for example, only those areas considered to possess good pasture lands were selected as suitable locations for *estancia* awards. The availability of a year round supply of fodder rendered Tiripetío one such suitable location, and according to the 1580 *Relación* for the area:

*“cattle, pigs and sheep and many grazing stock were kept in fertile lands along the river banks..... there seems to be no lack of green yerba (herbs/grass) fodder all year round for the horses”*<sup>58</sup>.

In addition, *estancias* were nearly always located where there could be access to a water source for the livestock. Lake shore areas were, for example, often selected as suitable locations for *estancias de ganado maior* on this basis<sup>59</sup>. Sheep stations were often similarly located in the vicinity of *cañadas* and water filled ravines<sup>60</sup>, close to swamps and lakes<sup>61</sup> and ephemeral streams, riverine environments and in the vicinity of floodplains<sup>62</sup>. Some grants were, however, also awarded in high mountain pastures where few other land uses could be sustained (Butzer and Butzer, 1995). Some of the rougher terrain of the uplands, often described as “pedregal” (uneven, rocky and stony terrain) or “*malpais*” (lava flows or badlands landscapes) was, for instance, thought to be useless for agricultural purposes but could provide suitable grazing territory<sup>63</sup>. Throughout the course of the Colonial period, however, lands that would previously have been spurned or were not initially considered as having grazing potential increasingly began to be used for livestock. Areas of former woodland, such as around Ajuno to the south-west of

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<sup>58</sup> *Relación de Tiripetío*. Source: Acuña, 1987.

<sup>59</sup> AGNT 2721, exp. 22, fs. 222-238.

<sup>60</sup> e.g. AGNT 2681, exp. 17; AGNT 2681, exp. 21; AGNM 4, exp. 215, fs. 215 f.

<sup>61</sup> e.g. AGNT 2681, exp. 22; AGNT 2682, exp. 19; AGNM 18, exp. 212; AGNM 5-6 (1), fs. 306; AGNM 5, exp. 215; AGNM 18, fs. 157v-158f.

<sup>62</sup> e.g. AGNM 22, fs. 71; Kraus Collection, Yuririapúndaro, 11th September, 1551; Ayer Collection, Huaniqueo, 1552); AGNT 3669, exp. 5; AGNT, 2737; AGNM 5-6 (2), fs. 216. Tierras y Aguas, Leg. 4, TII, exp. 53.

<sup>63</sup> e.g. AGNM 5-6 (1), fs. 306v; AGNM 30, fs. 255v.

Lake Pátzcuaro, for instance, began to be seen as being suitable for cattle grazing<sup>64</sup> - presumably favoured for the availability of browse. This trend could reflect the gradual improvement in comprehension and awareness of the environment in the region and its potential for different types of land use or the fact that as more land came to be taken up by land grants for agricultural and livestock rearing, territory hitherto considered to be more marginal began to be exploited.

There is evidence to suggest that certain elements characteristic of the Spanish *Mesta* systems were translocated to New Spain. There was the formation of a formal stockgrazers union in Mexico City in April 1537 (Prem, 1992), and a *cédula* issued in November of 1539 relates to the collection of Episcopal tithes (*diezmos*) from seasonally mobile herds (Puga, 1563: 119; Orozco and Berrera, 1859: v.27 cited in Butzer and Butzer, 1995). References to cross-border treks<sup>65</sup> and transporting stock across long distances in Michoacán<sup>66</sup>, indicate that transhumance was indeed practised in the region from an early stage in the Colonial period and on a range of different spatial scales. There was certainly a good deal of seasonal mobility of livestock, with designated *agostadero* or dry season grazing pasture being made available on the outer limits of northern towns of the *tierra templada* such as Indaparapeo<sup>67</sup>, Zinapécuaro<sup>68</sup> and Yuririapúndaro<sup>69</sup>, where the presence of mesquital stands and bushes for winter fodder for herds of livestock from elsewhere (*ajena*) was capitalised on<sup>70</sup>. There was similarly said to be seasonally-available pasturage for 100,000 cattle, 200,000 sheep and 10,000 mares in the districts of Querétaro in the north-east of the province (Acuña, 1987).

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<sup>64</sup> AGNM 30, fs. 255-256.

<sup>65</sup> Relación de Querétaro, 1582. Source: Acuña, 1987.

<sup>66</sup> Ayer Collection, Mechoacán ( in this case Valladolid), 1552.

<sup>67</sup> AGNI 4, exp. 587.

<sup>68</sup> AGNI 5, exp. 962.

<sup>69</sup> AGNI 4, exp. 567.

<sup>70</sup> Relación de Querétaro, 1582. Source: Acuña, 1987.

In the 1620s, transhumance had become common practice in the northern parts of the province. Cattle were, for example, grazed:

*“in the months of drought in the tunal scrublands”, while “during the rainy season they move into the fields to graze”* (de Laet, 1625).

Towards the close of the 18th century, similar practices appear to have been adopted in the vicinity of Santiago Tupitaru near Tacámbaro to the south of the Basin of Pátzcuaro and Zirahuén where *“during the dry season livestock graze the woodlands of Tacámbaro”* while in the wet season, *“the livestock move onto the shores of the lake”*<sup>71</sup> (in this case the small Lake of Tacámbaro). As in Spain, therefore, transhumance on a range of scales would appear to have been practised in Michoacán since the early Colonial period.

### 6.7 Discussion

In the initial confusion, corruption and lack of disorganisation that characterised the immediate post-Conquest period, the lands of the newly-conquered territories were granted on a spontaneous and haphazard basis. A more formal and legalised land granting system was, however, implanted in New Spain in the early 1540s. Thus was introduced the *Real Merced* - a mechanism through which Spanish land appropriation could proceed and by which the introduction of Spanish land use systems was facilitated. Depopulation and the land use and tenure policies of the early Colonial administration were, however, to act as catalysts in this transfer process. The massive reduction in *Indio* population, for example, both necessitated and facilitated the subsumation of lands into Spanish control by reducing the number of tribute payers and labour, and hence requiring a greater Spanish investment in the land, while at the same time leaving tracts of land available as *tierras baldias* and thus effectively open to Spanish appropriation and acquisition for this purpose.

Waves of depopulation were thus followed by waves of *merced* awards as more and more lands formerly under cultivation were left untended and

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<sup>71</sup> Historia 73.

abandoned. There was, for instance, a clear increase in the number of *mercedes* granted in the early 1590s (see Appendix C) in response to a phase of epidemic-induced depopulation of the 1580s (Melville, 1994). In this way, the granting of *mercedes* and hence the transfer of land into Spanish possession reflects the degree of indigenous presence and land use in an area. It follows that where depopulation was more dramatic, post-Conquest land use changes were to be more significant, and that, in contrast, where there was a greater indigenous survival rate, land use changes were to be less marked.

Among the more significant land use changes to take place were those associated with the introduction of livestock to the region. Cattle, sheep and pigs, and Castillian chickens were all introduced to the area in the first decade after Conquest but only really began to diffuse across the region during the 1550s. Some of the more conservative livestock grazing strategies traditionally employed by the Spanish were also transferred to the colony. Transhumance, operating on a range of spatial and temporal scales, for example, appears to have been adopted almost as soon as livestock had been introduced to the area. Theoretically this would ensure that livestock never stayed in one place for a sufficiently long time to diminish the grazing potential of that location, while providing a ready supply of fertilizer for near-by agriculturalists in the areas through which they moved (Lewthwaite, 1986; Vassberg, 1996). As litigation documentation illustrates, however, there was an acceleration in concern over crop loss and depredation in the later 16th and early 17th centuries (accounting for the early Colonial peak in land related disputes illustrated in Fig 9.1, Chapter Nine) as a result of this agro-pastoral coupling. In this respect, some of the traditional problems associated with Spanish land use systems would also appear to have been transferred to the new colony.

There appears to have been something of a deceleration in the number of grants awarded for cattle *estancias* around the 1560s, concomitant with an increase in the number of sheep stations that were approved. Whether this represents an early attempt to reduce crop depredation in the more central areas

remains open to conjecture. Cattle were initially, if erroneously, regarded as the main culprits of crop depredation, especially by the indigenous claimants unaccustomed to animals of such stature, and it could be this misconception that conditioned the decrease in the number of *estancias* awarded to keep cattle and the coincident increase in those granted for sheep apparent in the *mercedes* records of the 1560s. No formal decrees or statutes were, however, encountered in this investigation to suggest that the apparent change in the nature of livestock held was in any way related to Colonial administrative policy. As depredation persisted, however, more formal and determined measures to minimise depredation were adopted. Capitalising on the availability of what were perceived to be suitable grazing lands in the area, efforts were made to marginalise livestock to the more northerly and less settled borderlands of Michoacán.

Livestock rearing and grazing would, however, latterly become more of a marginal and secondary economic pursuit anyway as the demand for agricultural commodities accelerated in response to population recovery, and then demographic expansion, in the later 17th and 18th centuries. Indeed, by the mid-19th century it was suggested that:

*“In Michoacán, livestock grazing does not have the same importance as it does in some of the neighbouring states”* (Mühlenpfordt, 1844).

Something of a re-intensification of agriculture and a de-emphasis of livestock rearing was, therefore, to take place in Michoacán throughout the course of the Colonial period.

Some degree of syncretism between indigenous and Spanish culture and agrosystem land use was, however, to result. Spanish cultivars, most significantly wheat, and Castillian fruits would, for example, appear to have adapted particularly well to most areas of Michoacán. Irrigation was, however, essential for the production of wheat and in some way conditioned its expansion specifically in the vicinity of the lake basin areas, but apparently complementing, at least to begin with, the production of traditional indigenous cultivars in these areas. Even where land use changes in the wake of Spanish colonisation were

more marked, however, traditional pre-Hispanic methods of tending and cultivation, employing simple hand implements and exploiting the frost-free slopes would appear to have been maintained. In some locations, therefore, Spanish and indigenous agrosystems were to combine and co-evolve.

Yet the degree to which land use was to change, continue unchanged or develop in the post-Conquest period was as much a reflection of existing systems of exploitation and land use, the way in which the landscape in a particular location was perceived at the time of contact and the way this perception was to mutate over time. To some extent these adaptations would reflect an improved awareness of different areas for specific types of land use, but also a change in the condition of the landscapes itself. In the following chapter I aim to employ archival and documentary sources to trace the way in which the early Colonial landscape in Michoacán was perceived and to assess the degree to which environmental perception conditioned the manner in which the land in a particular location came to be exploited. In so doing it will be possible to glean some insight into the nature of environmental deterioration or degradation at the time of contact and the nature of the immediate impact resulting from any post-Conquest land use and tenure changes. The chapter will thus establish an environmental context for the contact and early Colonial period (up to 1620) in Michoacán which can then be used in Chapter Eleven (Part Three) as a starting point from which to investigate the degree of long-term environmental impact resulting from the imposition of Spanish Colonialism.

## Chapter Seven

### First impressions, first impacts: perceptions of the landscape in 16th century Michoacán

#### 7.1 Introduction

Traditional theory would stress the “revolutionary” land use changes associated with the arrival of the Spanish to the New World (Simpson, 1952). The charge has been extended to cover the degree of environmental impact that such changes engendered. Melville (1994:59) has, for example, recently suggested that:

“by adding a completely new element to the dynamics of ecological and social change, they [the Spanish] triggered an ecological revolution”.

There is little doubt that the introduction of livestock and an essentially “new” set of cultivars was to lead to some quite dramatic changes in the way the various landscapes of Michoacán came to be exploited. Yet there was a good deal of regional variation in the degree to which the components of the Spanish agrosystem, and the framework within which it operated, were adopted. This selective transfer varied spatially according to environmental constraints and the nature of the land use already in operation when the Spanish arrived in a particular area - Spanish settlement and colonisation was, after all, to intrude on a landscape extensively exploited for agriculture and already much modified by several millennia of human activity. It is perhaps to be expected, therefore, that the environmental impacts resulting from the imposition of Spanish agrosystems will have been equally varied, dependent as much upon post-Hispanic as pre-Hispanic land uses and the regionally-distinct characteristics of climate, vegetation, topography and geomorphology.

Early reconnaissance trips, reports and surveys chart Spanish attempts to assess the nature of the landscape they encountered in a particular area and its suitability for exploitation. Some of these documents can be employed to elicit information on the condition of the environment in Michoacán at the time of contact.

The purpose of this chapter is to employ such archival and documentary sources and references to reconstruct the way in which the landscape in Michoacán was perceived during the contact period and the first century of Spanish colonialism (1522-1620). The degree of variance between indigenous and Spanish environmental perspectives will also be highlighted. In this way it will be possible to elicit the degree to which changes in land use and tenure in the wake of Spanish Conquest were to have an immediate and perceptible impact on the landscape. Attention focuses mainly on the three lake areas highlighted in this investigation. Other sites and locations will also be referred to throughout the text for comparative purposes.

## **7.2 Capital considerations: Pátzcuaro, Tzintzuntzan and Valladolid**

Establishing an administrative base from which to rule the newly acquired province presented Cortés with a problem. There was a good deal of deliberation and contention, for example, when it came to determining the most appropriate location for the Spanish capital in Michoacán. Cortés ultimately chose to keep Tzintzuntzan as the Episcopal seat of power, maintaining also the existing indigenous infrastructure of the basin area, given that this provided the economic well-being of the first Spanish colonists who settled here (Paredes, 1991). His description of the location itself, however, although based on information obtained in a reconnaissance trip to Michoacán in which Cortés himself was not involved, was far from favourable. In his third letter to Charles V, he described the location of the Basin of Pátzcuaro as “*not very satisfying for them for colonising*” (Cortés, 1522). Writing in 1534, Don Vasco de Quiroga, Bishop of Michoacán, in apparent accord with Cortés’ initial perceptions, provided a slightly more detailed description of the area which was said to be located:

*“in a deep valley full of barrancas between two hills and closed in on all sides by the lake of badly conserved water, where blows an unpleasant air, bad and unhealthy which blows across from the lake onto the said*

*site and the valley where there is the church, due to this many have been struck down with illnesses of the head*".

Even the two *barrios* or subject *pueblos* of the former Purépecha seat of power were described as being located on the "*rough slopes of the valley*" (Lemoine, 1993), and were thought to possess:

*"no water and there is discontent among the Indios as among the Españoles, and they drink from very bad wells, with contaminated water, detrimental to the health"*.

These early descriptions leave no doubt that Tzintzuntzan held little appeal for the Spanish, and there is evidence to suggest that access to water was indeed a problem for the inhabitants of Tzintzuntzan in the mid-16th century. One early *merced* document, for example, dated to 1550, deals with the transportation of water via canoe from the source known as Guani, or San Gregorio, an *arroyo* leading up to the town of Pátzcuaro, to Tzintzuntzan<sup>1</sup>.

The very negative way in which Tzintzuntzan was perceived contrasts with the early descriptions of Pátzcuaro - Don Vasco de Quiroga's choice for the location of the new Spanish capital, and former Purépecha seat of power until the 15th century (Pollard, 1993) - which was said to possess:

*"..all the good qualities required for a population and capital city of a bishopric and for a cathedral church, as there are many good waters and sources of water that can run through the roads and walkways of the city and can be used in mills.....and there are many beautiful and fertile garden plots, wooded areas, fish and good qualities, and plains and much white stone with which to build"* (cited in Martinez, 1989).

There may well have been some degree of bias in Quiroga's descriptions of both locations given his preference for establishing the Spanish capital in Pátzcuaro as opposed to Tzintzuntzan. Nevertheless, the Episcopal seat of power was to be transferred to Pátzcuaro in 1536 (Plate 7.1).

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<sup>1</sup> AGNM 3, exp. 495, fs. 204.

The Basin of Pátzcuaro does, however, appear to have undergone some degree of deterioration shortly after the Spanish arrived in the area. A *pintura* included in the *Relación de Michoacán* (1541), for example, depicts the landscape of Tzintzuntzan as deforested and shrub-covered, while according to documents dating back to the later 16th century, the landscape in the immediate vicinity of the town of Pátzcuaro similarly appears to have witnessed a good deal of environmental degradation, although the nature of the cause is not stated. In 1581, for example, the location of Pátzcuaro itself was described as:

*“a rough stony/rocky place and between broken terrain and gullies and there is little flat land”*,

while the surrounding slopes were considered:

*“high and of stony, uneven terrain”*<sup>2</sup>. With only *“rough and thin stretches of land”*<sup>3</sup>.

References to *barrancas* and broken terrain<sup>4</sup>, and to the growth of mesic plant species representative of a regenerative sub-climax vegetation such as nopal, tunal and mesquite<sup>5</sup> in the vicinity of Sanabria, on the south-east shore of the lake, in the 1580s and 1590s similarly suggest some degree of environmental disturbance. Such conditions perhaps reflect the impacts of grazing activity, especially when one considers the propensity for indiscriminate predatory cattle grazing in this location (see Chapter Six, Section 6.5). Given the long-standing settlement history of the area, however, combined with Purépecha demands for wood and timber, for domestic and construction purposes and to maintain the celestial fires, the lack of forests in the area could very likely be assigned a pre-Hispanic cause. Certainly, there is support for this assertion in the form of an intense period of soil erosion associated with Purépecha exploitation and deforestation of the basin in the immediate pre-Conquest period (O’Hara *et al.*, 1993).

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<sup>2</sup> Relación de Pátzcuaro, 1581. Source: Acuña, 1987.

<sup>3</sup> ACNC 127, fs. 25-27.

<sup>4</sup> AGNT 3448 (unico), fs. 38.

<sup>5</sup> AGNT 3448 (unico), fs. 43.

Away from the heartland of the Purépecha empire, there would appear to have been less perceptible evidence of deforestation. Fray Antonio de la Ciudad Real (otherwise known as Alonso Ponce), passing through Michoacán on his way to Guanajuato as part of a Franciscan mission, for example, noted the pine-covered hills that lay in the vicinity of Sevina to the west of the Basin. The town of Pichataro just to the south of Sevina was apparently similarly located “*among pine forests*” (Ciudad Real, 1585, cited in Quintana and Ferreras, 1976)<sup>6</sup> as it still is today (at least at higher elevations). Descriptions of the areas further west from the basin also indicate less degree of disturbance. Lands in the vicinity of Chilchota to the west of Michoacán were, for example, described as:

*“being fertile with many forests.....many pine trees and fully grown, mature evergreen oaks”.*

The 1579 *Relación* for the area, moreover, describes the woodlands as “*thick, dense and shady*”. Indeed, so much woodland was there that it was not thought possible to estimate its extent<sup>7</sup>. There were said to be a variety of grasses in the area, traditionally used for medicinal purposes. The lands were regarded as fertile, although some stretches of hills were described as “*badlands, stony and rocky*”.

Judging by late 16th century descriptions, landscapes were also apparently similarly densely forested to the east of the basin. According to the 1579 *Relación* for the area, for example, lands in the vicinity of Necotlán, to the east of the basin:

*“enjoyed many trees....like Castillian fruit trees...they (Indios) enjoy much maize, garlic, beans and squash which grows in abundance because of the good lands, irrigated and rain-fed, and there were forest stands close by..”*<sup>8</sup>.

Indeed, it was from this area that timber was cut for the construction of buildings in the new capital of Valladolid (Lemoine, 1993). The hills known as Chichimec, Cerro de la Señor and Cerro de la Cucha in the vicinity of Tiripetío were similarly said to be covered in pines, oaks evergreens, cedars, *madronos*, and other trees

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<sup>6</sup> AGNM 30, fs. 255-256v.

<sup>7</sup> *Relación de Chilchota, 1579*. Source: Acuña 1987.

<sup>8</sup> *Relación de Necotlán, 1579*. Source: Acuña, 1987.

shortly after the Spanish arrived, while the surrounding forests in the area were described as:

*“impossible to depict because there are so many and they are so thick”*<sup>9</sup>.

The indigenous practice of wood cutting to maintain the celestial fires and for carpentry purposes, was apparently still taking place in this area in the late 16th century to the extent that there was evident concern among the Spanish population over the level of deforestation. The *Indios* of a nearby settlement known as San Miguel were, for example, being accused of “*making holes*” in these woodlands<sup>10</sup>. There does, however, seem to have been some conservation effort, given that the *naturales* were said to “raise” many trees themselves including pines, cedars oaks, evergreen oaks and wild strawberry<sup>11</sup>. Whether this compensatory action was spurred on by indigenous concern, custom or Spanish conservation policies remains open to conjecture. That deforestation was attributed to continuing indigenous practices, however, as opposed to post-contact land use strategies should perhaps be highlighted.

Documentary descriptions imply that by the time the Spanish arrived in Michoacán, the Basin of Pátzcuaro had undergone considerable environmental degradation - a trend that is supported by palaeolimnological evidence of pre-Hispanic soil erosion in the area (O’Hara, 1991; O’Hara *et al.*, 1993). In contrast, disturbance appears to have been less severe, or at least less perceptible, in the more peripheral areas of the heartland, although deforestation was evidently an ongoing process in pre- as in post-Hispanic periods. It is clear from Chapter Six that the introduction of livestock to the area was not to pass off without event. The impacts of overgrazing and crop depredation, for example, had been or were being felt in most parts of the region towards the close of the 16th century. Even areas that had been delineated solely for grazing activity were feeling the effects. While *yerba* provided a source of fodder in the vicinity of Tiripetío, for example, it

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<sup>9</sup> Relación de Tiripetío, 1580. Source: Acuña, 1987.

<sup>10</sup> AGNI 2, exp. 329.

<sup>11</sup> Relación de Tiripetío, 1580. Source: Acuña, 1987.

was noticeably “grazed in a very short time”<sup>12</sup>, although no further indication is provided as how short this time period was. There is little unambiguous evidence, however, to suggest that the arrival of the Spanish was to have any immediate and detrimental environmental impacts on the basin or in the surrounding districts by the early 17th century.

### 7.2.1 Valladolid and *congregación* policy

Although Pátzcuaro was, to a certain extent, to remain the cultural capital of Michoacán throughout the Colonial period, the new Spanish regional capital city was to be established elsewhere. After a good deal of verbal and political wrangling, Viceroy Mendoza finally selected the Valle de Guayangareo, to the north-east of Lake Pátzcuaro as a suitable location in which to establish “*the capital of Mechuacan*” (Lemoine, 1993). The city came to be known as Valladolid after Christobal de Olid<sup>13</sup>, a Spanish captain who travelled through the valley on one of his first trips to the province, although this name was to later change to Morelia in the wake of Independence and in honour of Morelos - one of the founding fathers of the Independence movement.

The benefits of the location of the new planned capital apparently far outweighed those of the former seat of power, being “*a better site than Pátzcuaro and one with a better disposition*”<sup>14</sup>, and apparently possessing:

*“many good qualities, for there is there extensive and unoccupied flat land, with good fields for ejidos, farms and huertas, and for grazing cattle and sheep, and between two rivers there is much water where there are mills and estancias and many sources of chalk /lime and stone, which occur very nearby for the purposes of construction, and there are forests for wood and timber and other commodities for the residents”*<sup>15</sup>.

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<sup>12</sup> Relación de Tiripetío, 1580. Source: Acuña, 1987.

<sup>13</sup> Literally the Valle-de-Olid.

<sup>14</sup> AGNC 1276, fs. 25-27.

<sup>15</sup> AGNC 1276, fs. 25-27.

In sum, the designated area was said to possess: “*all the good things necessary for a town*”<sup>16</sup>, and for “*the perpetuation of the said city and livelihood of the residents, and lands to pass on to the heirs and successors, and to farm without causing any harm to the Indios*” (Martinez, 1989:111).

Further promising reports of the city were made in order to support its settlement and expansion, although it seems quite clear that the information provided was in some way to act as propaganda in order to justify indigenous relocation. One document from the turn of the 17th century, for example, suggested that the climate of Pátzcuaro was “*unhealthy*” and the location “*did not allow for the expansion of the city and the Spanish population*”, whereas the new capital was said to possess lands that were:

*“abundant and fertile, especially in the city of Valladolid, where the congregación of Indios is requested, for there is a healthy climate, there are waters and forests and the rest of the things necessary for a good population”*<sup>17</sup>.

This is not to suggest that there was no evidence of environmental disturbance in the vicinity of Valladolid by this time, for as one Spanish witness suggested:

*“The climate of the said city is good.....and it has good lands and water resources.....[but].. some of the forests are destroyed”*<sup>18</sup>.

As the witness goes on to imply, the degree of deforestation was, however, related to the rapid increase in construction that had taken place in the area during the foundation and establishment of the new planned city.

*Indio* subjects from indigenous towns in the vicinity of the new capital (see Fig. 7.1) were to be relocated in the new city according to *congregación* policy. The degree of upheaval for the indigenous communities, as would be expected, was to be considerable. Justifying these moves, however, the Spanish authorities suggested that the townships from where the *Indios* were to be moved were:

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<sup>16</sup> AGNM II, exp. 397, fs. 165.

<sup>17</sup> AGNC 1276, fs. 63-71.

<sup>18</sup> AGNC 1276, fs. 63-71.

*“areas of little importance, and places in bad locations, rough and some of them lacking water, so that they drink from wells, and with little or no farmland; they are poverty-stricken, hungry and ill.....”*

The solution could be found, it was suggested, through relocation:

*...all of this they can avoid by moving to the said city, where there are better stretches of land.....they will all have plots of fertile, useful and sufficient land and much woodland nearby and waters to drink and for other services and even for irrigating parts of the lands in which can be grown all kinds of seeds.....”*

According to such descriptions it was in the *Indios*' own interest to be relocated. Indigenous perspectives on the nature and productivity of landscapes in Valladolid, however, illustrate a greater degree of scepticism. Forced to move from the outlying townships to populate the new capital city and its surrounding *sujetos* according to *congregación* policy, for example, the *Indios* of Teremendo, voiced their dissent in 1601, claiming that:

*“there were insufficient lands in Valladolid and what there is covered in caliche<sup>19</sup> and is sterile”<sup>20</sup>.*

Indeed, as Lovell (1990) has recently highlighted for some of the *congregación* reports of early Colonial Guatemala there is a good deal of disparity in what was supposed to happen and what actually took place. Many of the *Indios* who were to be moved had apparently been dispossessed of their community territory, and thus no longer had access to sufficient lands and woodlands, from which they made their living as farmers, carpenters and shoe makers. It may well be the case that the *Indio* descriptions reflect the resentment at this blatant usurpation as well as a reluctance to be relocated. Indeed, for the want of such resources and due to the fear of trouble from neighbouring Spanish residents should they be relocated, the indigenous population suggested they be moved to Puruandiro, half a *legua* from Teremendo, as opposed to Valladolid<sup>21</sup>. The people

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<sup>19</sup> *Tepetate*: carbonate crust, thought to be evidence of extensive soil erosion (Williams, 1972).

<sup>20</sup> AGNC 1276, fs. 59.

<sup>21</sup> AGNC 1276, fs. 59.

of Chocandiro, in the Basin of Cuitzeo, also facing upheaval, suggested they would prefer to be relocated in the lands of the *sujeto* town known as San Sebastian, a quarter of a *legua* from the *cabecera* town of Chocandiro itself, where “*there were better lands, and water resources, and some salts*”<sup>22</sup>. Similar dissent was voiced by the people of Etuquaro who were more adamant about the proposed *congregación* in Valladolid, arguing that:

*“in Valladolid there are no lands, and those lands that are there, are unproductive and infertile, and there are no farms there like there are in the small townships, where there is much maize and fruits, and forests and woodlands nearby, and the water is better because it is from wells”*.

Moreover, in Valladolid:

*“the horses eat all the crops”*<sup>23</sup>.

Subsistence and the ability to survive, employing traditional indigenous practices and customs, was of clear concern to the *Indios* as was the very real threat of crop depredation, which, as has been discussed, was to become a problem in the middle of the 16th century (see Chapter Six), even if this fear was based more on hearsay of the damage that livestock could inflict on croplands rather than legitimate experience of crop and harvest loss.

Clearly, however, there was a good deal of cultural divergence with respect to the perception of the landscape in the vicinity of Valladolid. What the Spanish perceived or suggested to be productive, the indigenous populations considered infertile and useless. What is less clear is the degree to which the respective perceptions reflected reality. Dissent over upheaval and relocation, and the obligation in some cases to participate in agro-pastoral practices to which they were unaccustomed, will have influenced indigenous descriptions, whereas Spanish survey reports will, in contrast, have been coloured by the desire to create a New World “Utopia”, and the goals of the Spanish crown and church to centralise, control and then evangelise a subordinated indigenous populations. In

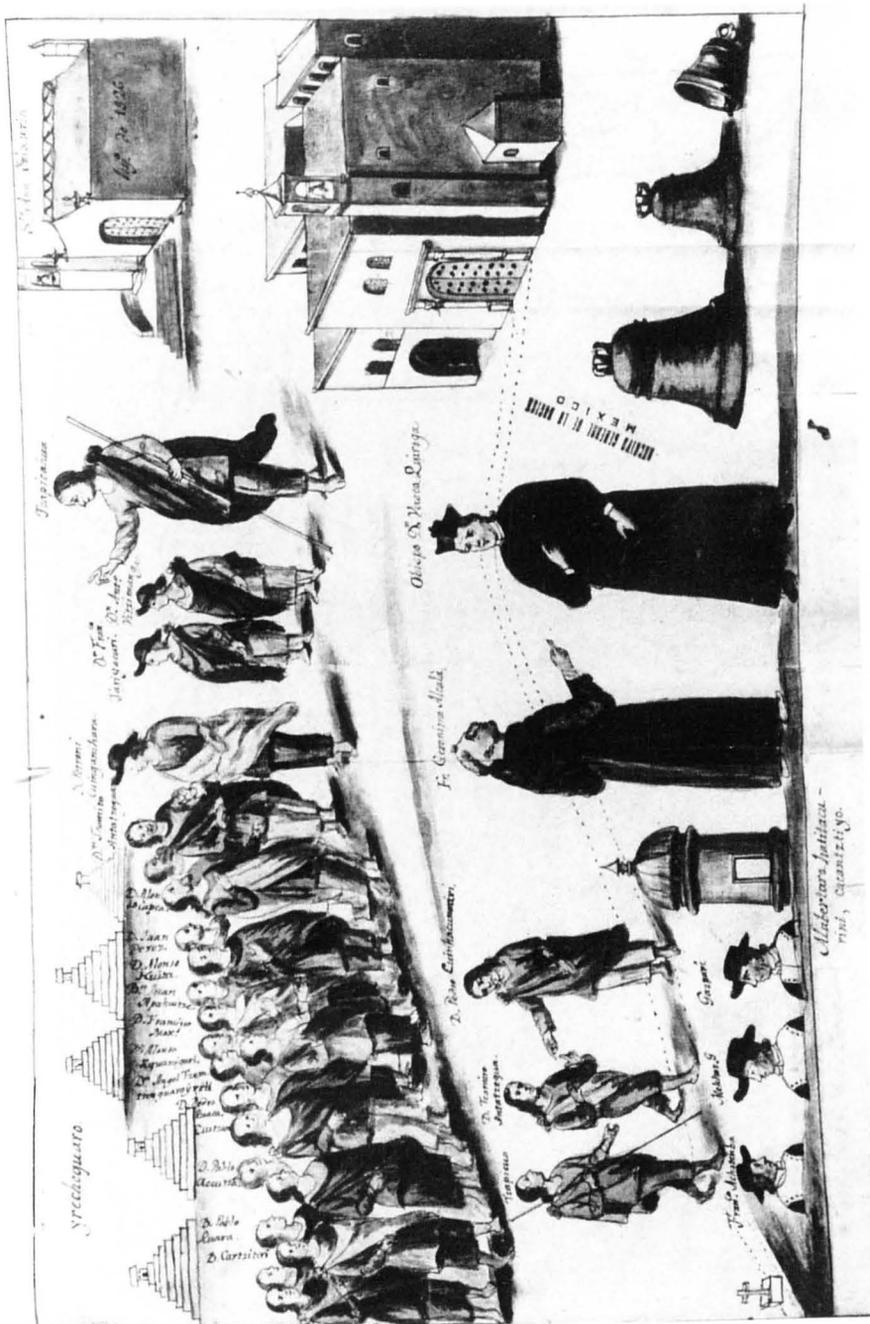
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<sup>22</sup> AGNC 1276, fs. 59.

<sup>23</sup> AGNC 1276, fs. 59.

this respect many of the early Spanish descriptions were used as a form of early Colonial propaganda. That there should be some cultural divergence in the way a particular landscape was perceived in the early Colonial period is, therefore, perhaps to be expected.

Plate 7.1 Bishop Don Vasco de Quiroga and Geronimo de Alcalá<sup>24</sup> dealing with the transfer of the Episcopal seat of power from the city of Tzintzuntzan to that of Pátzcuaro. Beaumont: *Crónica de Michoacán*, copy date 1792 (in *Historias*, 10. Capitulo 1, fs. 4-5.)



<sup>24</sup> Alcalá is thought to have been the translator and possible author of the *Relación de Michoacán* (Warren, 1971) (see Methodology, Chapter Three, Section 4.2.1).



### 7.3 Cuitzeo and the north

Judging by a rich oral (Acuña, 1987) and archaeological (Macias Goytia, 1988, 1989) legacy, Cuitzeo had acted as a key centre in the Purépecha agricultural and religious world long before the Conquest. The basin area provided lacustrine resources and conditions suitable for the cultivation of maize, but was also opportunistically located to function as a trading focus for commodities from the *tierra caliente*, *fria* and *templada* zones. In short, this area had a long history of pre-Hispanic settlement and exploitation. That the landscape in the vicinity should have undergone a good deal of disturbance by the time the Spanish came to colonise the area with livestock in the mid-16th century is indicated by some of the early descriptions, surveys and reports. Stony and rocky land surfaces were, for example, noted between Cuitzeo and Copándaro to the south of the lake in 1560<sup>25</sup>, while a little further west at Chocandiro, the stone-covered hillsides, perhaps reflecting the loss of soil mantle, were deemed suitable only for cattle grazing in 1576<sup>26</sup>. The 1579 *Relación* description of Cuitzeo de la Laguna, further pontificates on the negative aspects of the town which is described as:

*“dry and unhealthy; there is a lack of potable water, because there are no water sources and the naturales have to drink from wells...in the cabecera there is little maize grown because the land is ruined, of little use and is very near to the bedrock, which does not raise maize.....”*.

The lands in the immediate vicinity of the town were described as stony and covered in thicket<sup>27</sup> while descriptions from the 1590s provide a composite image of stone-covered hillocks stripped of vegetation<sup>28</sup>, wild tunal bushes<sup>29</sup>, and matorral-covered terrain<sup>30</sup> - all indicative of substantial degradation within a context of profoundly dry conditions. Moreover, although there were *“figs, peaches, plums and other small woodland trees....”*, there was *“a lack of wood*

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<sup>25</sup> AGNM 5-6 (1), fs. 306.

<sup>26</sup> AGNT 2721, exp. 21.

<sup>27</sup> AGNM 18, fs. 63-65.

<sup>28</sup> AGNT 2681, exp. 22; AGNM 22, fs. 96.

<sup>29</sup> AGNM 18, fs. 222v.

<sup>30</sup> AGNM 18, fs. 63f-65f.

*and trees in the district....and no trees with which to build houses*"<sup>31</sup>. Clearly there was evidence of deforestation and erosion in the area by the later 16th century, a factor further illustrated in some of the early *pinturas* of the area, dated 1590/91 which display deforested hillslopes (Plate 7.2), broken terrain (*tierra quebrada*) and "stripped" hills ("*cerro pelado*") (Plate 7.3). Indeed, the nearest forests for timber were thought to be five *leguas* away in Guango where, in contrast, there were said to be "*great quantities of pine*"<sup>32</sup>.

There were, however, other qualities that the Spanish colonists were to capitalise on:

*"flat lands .....and... pasturage all year round and especially on the shores of the lake where there is normally a vast amount of green grass..."*

all of which provided apparently ideal conditions for livestock grazing, as can be illustrated by the number of land grants awarded for grazing in this area during the first century of contact<sup>33</sup>, although transhumant herds could, it seems, also take advantage of the availability of seasonal pasture in Cuitzeo and its *sujeto* towns<sup>34</sup>.

That the surrounding areas of Cuitzeo did not appear to have undergone as severe deterioration as the *cabecera* town is indicated, not only by the presence of forests, but also by the fact that, unlike the *cabecera* town, maize could be seen to grow in the lands of the *sujetos* where:

*" in contrast there is much maize grown and it is the most common use of the land".*

Indeed, irrigated wheat of very good quality could apparently also grow in the *sujeto* towns of Guandacareo (Huandacareo) and Copándaro<sup>35</sup>. According to the *Relación* of 1579, lands in the vicinity of Taimeo to the east of Lake Cuitzeo were

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<sup>31</sup> *Relación de Cuitzeo de la Laguna*, 1579. Source: Acuña, 1987.

<sup>32</sup> *Relación de Cuitzeo de la Laguna*, 1579. Source: Acuña, 1987.

<sup>33</sup> AGNM 5-6(1), fs. 306; AGNM 9, fs. 12v; AGNT 2721, exp. 22; AGNT 2681, exp. 21; AGNT 268, exp. 22; AGNM 18, fs. 63; AGNM 18, fs. 63f-65f; AGNM 18, exp. 214; AGNM 18, fs. 222; AGNM 18, fs. 255; AGNT 2721, exp. 3; AGNM 20, fs. 115; AGNM 20, fs. 225; AGNM 22, fs. 96.

<sup>34</sup> AGNI 6 (2), exp. 461.

<sup>35</sup> *Relación de Cuitzeo de la Laguna*, 1579. Source: Acuña, 1987.

similarly regarded as fertile with plenty of running water from the sierras for irrigation purposes, while the town itself was said to be surrounded by “*forested cordilleras*”<sup>36</sup>. Thus while the immediate vicinity of the Basin of Cuitzeo would appear to have undergone considerable degradation by the mid- to late 16th century, there was seemingly less evidence of disturbance in the surrounding districts of the area. Travelogue descriptions of the later 16th century do, however, evoke an image of a degraded landscape. According to Ciudad Real, for example, reaching the *convento* at Zinapécuaro, to the south-east of the basin, involved passing through “*six or seven arroyos, some swamps, some rough hilltops and difficult terrain*” (Ciudad Real, in Quintana and Ferreras, 1976).

Other lake basins to the north of the province are similarly documented in the early Spanish records. The Spanish clearly considered lands in the vicinity of Yuririapúndaro, for example, to be fertile. According to the 1580 *Relación*, for example, the area:

“*had everything.....plains, forests, mountains covered thick with forests*”.

Descriptions also indicate the perceived value of the lake for irrigation purposes while mention is made of the great expanses of plainsland and the:

“*fertile, productive lands, abounding with fruits....like the lands in Spain, and there is much maize*”<sup>37</sup>.

Such reports stand in marked contrast to the local landscape characteristics discussed in some of the early land grant documentation of the area. Some of the *merced* surveys of the 1550s, for example, describe the hills in the vicinity of the basin as “*rocky and stony*” with “*big mesquite bushes*” and “*mesquite covered plains*”<sup>38</sup>. According to Melville in her work in the Valle del Mesquital (1990,1994), the presence of such secondary vegetation, especially where contiguous, would tend to support an argument for livestock induced degradation.

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<sup>36</sup> *Relación de Taimeo*, 1579. Source: Acuña, 1987.

<sup>37</sup> *Relación de Yuririapúndaro*, 1580. Source: Acuña, 1987.

<sup>38</sup> AGNM 22, fs. 72v; AGNM 22, fs. 157.

Several grants for livestock had indeed been awarded in this area in the 1550s<sup>39</sup> and the *pintura* that accompanies the *Relación* for Yuririapúndaro depicts cattle all over the lands surrounding the lake, although it is thought that local *Indios* may have been responsible for the construction of the maps either directly or as informants, and as such may have deliberately overestimated the quantity of livestock in the area to render their claims for depredation more valid (Butzer and Butzer, 1995).

Nevertheless, even if cattle grazing is responsible for the presence of such scrub vegetation, the speed with which any vegetation changes would have had to have taken place following the introduction of livestock warrants scrutiny. In addition, as Butzer (1992) has recently suggested, the central Mexican *mesquite* has mesic demands and is not necessarily an invader of disturbed areas. Furthermore, the Spanish soon recognised the value of *mesquite* as a source of winter fodder and its presence may well have influenced the granting of lands for cattle estates in the area in the first place. As such, the presence of *mesquite* in the area may be a cause rather than a consequence of substantial cattle grazing in this area.

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<sup>39</sup> Kraus Collection, Yuririapúndaro, 11th September, 1551; Ayer Collection, Yuririapúndaro, 20th May, 1552; 27th June, 1552;

Plate 7.2 The Basin of Cuitzeo, and Tarímbaro to the south, 1590 (AGNT 2682, exp. 19, fs. 23.)

The *pintura* shows the Basin of Cuitzeo and the surrounding area, including the former Lake Tarímbaro. Attention should be drawn to the low deforested hills surrounding Lake Cuitzeo.

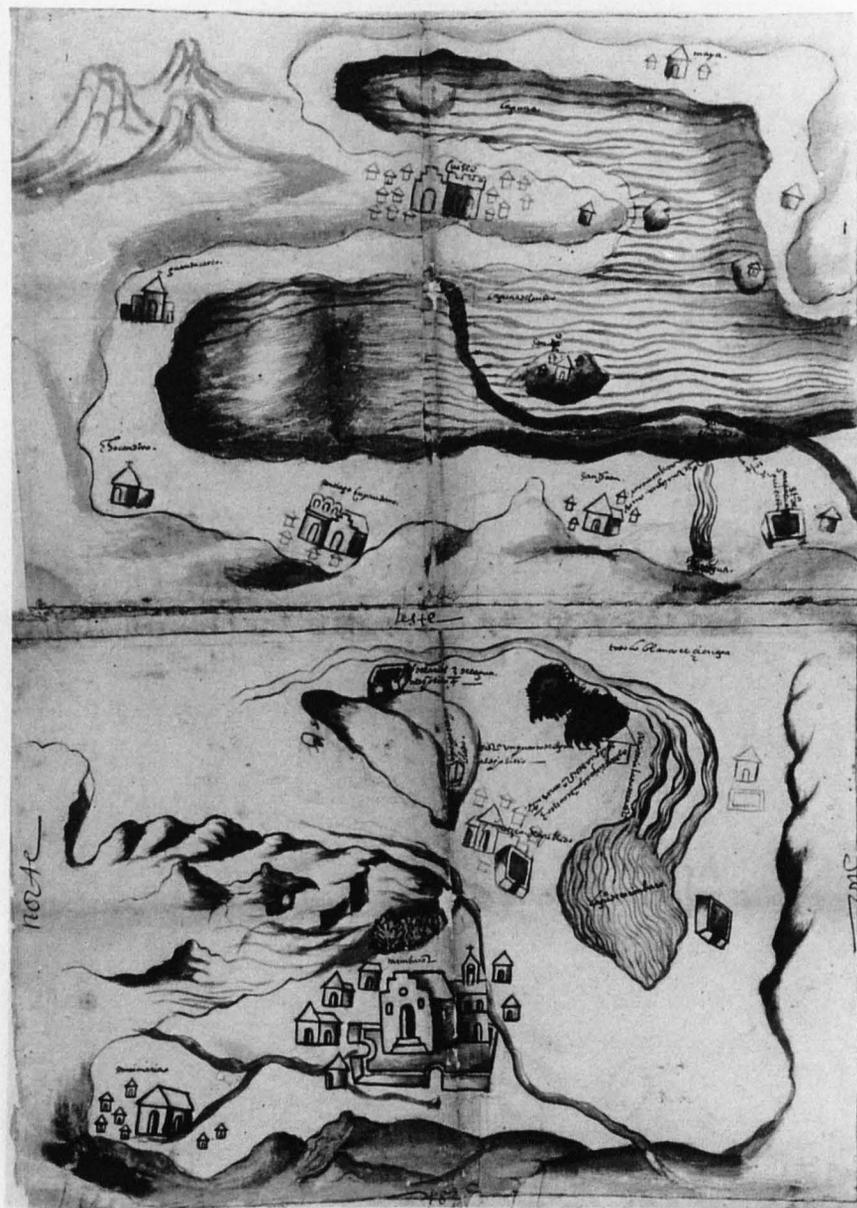
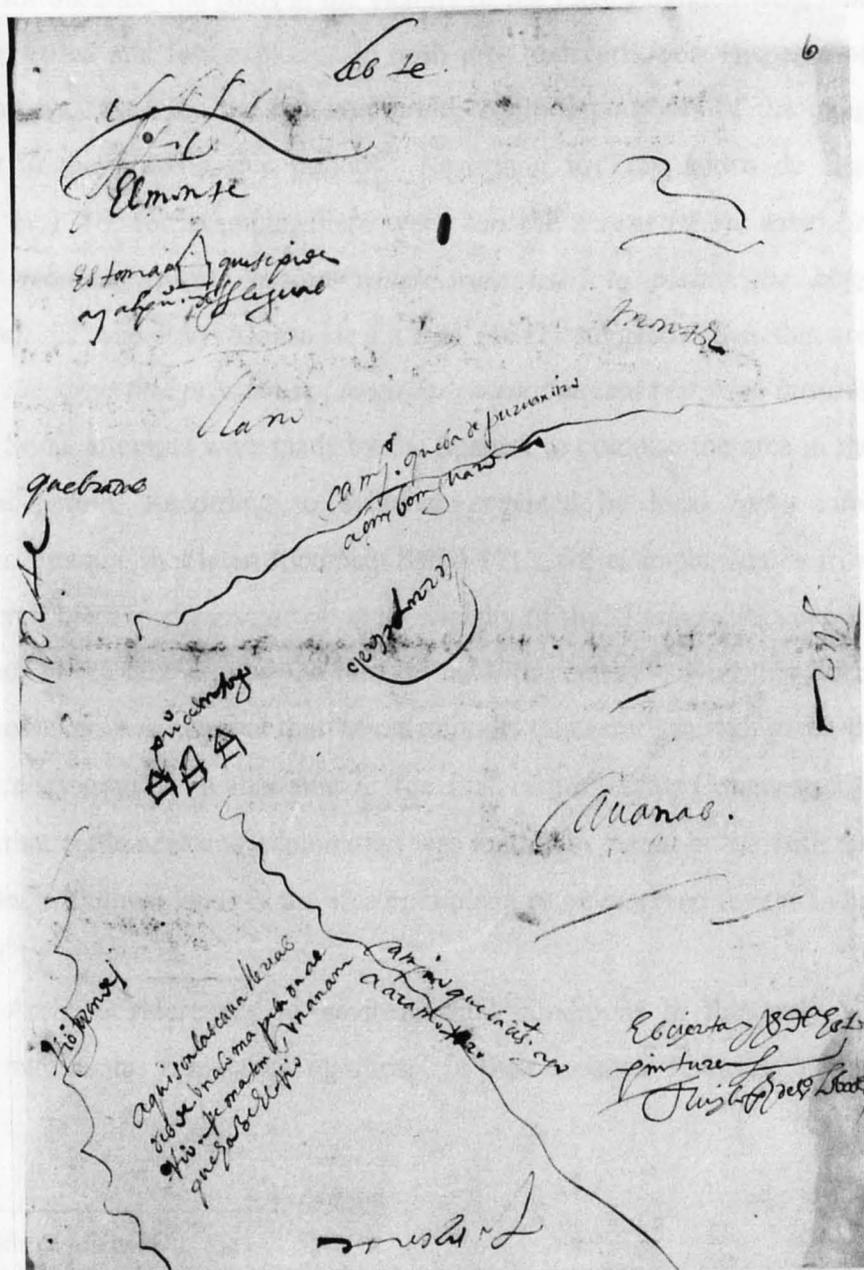


Plate 7.3 Cuitzeo and surrounding area 1590 / 91 (AGNT 2777, exp. 24, fs. 6).

The *pintura* is taken from a *pleito* dealing with possession of some *caballerias de tierra* in the Basin of Cuitzeo, in the vicinity of the *pueblo* of (Santa Ana) Maya to the north of the lake. The lands in question lie to the bottom left hand corner of the map. Note the “*montes*” to the top of the map, and the land described as “*quebrada*” or broken to the left hand side, close to the aforementioned town.



#### 7.4 Zirahuén and environs

There are few references made to the nature of the landscape around the Basin of Zirahuén in the archives dating back to the 16th century, which prevents a detailed landscape reconstruction of the area in the contact and early Colonial period. Anecdotal historical evidence has, however, provided some insight into the function of the area at this time. Unlike some of the other lake basin areas in the NVA, for instance, the lands in the vicinity of the Lake Zirahuén were much less densely settled and less exploited in both pre- and early post-Hispanic periods. The land was used for the recreation and religious purposes of the indigenous nobility in the pre-Hispanic period<sup>40</sup>. According to Fray Isidro de Espinoza, writing in 1716, for example, there were “*on the shores of the lake Zirahuén ancient monuments and houses which were used to please the kings and noblemen.....*” and Fray Alonso de La Rea (1643) suggested that this area was “*where the kings and priests used to go for recreation and rest from business*”.

Some attempts were made by the Spanish to colonise the area in the early Colonial period. According to evidence provided by local *Indio* informant, Santiago Pitaqua, in a later document dated 1713, for example, *Indios* from Ario had been subject to *congregación* in the vicinity of the “*Plain of Picuarembó*”, to the south of the lake around the turn of the 17th century<sup>41</sup>. No other documents were, however, encountered that would support this assertion and, given the lack of *mercedes* granted in this area in the first century after Conquest, it would appear that settlement and exploitation was limited in extent in the 16th and 17th centuries, with most lands in the area continuing to be reserved for the indigenous nobility<sup>42</sup>.

Archival references to environmental conditions in the early Colonial period may in this respect be significant in their absence, reflecting perhaps the

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<sup>40</sup> Relación de Michoacán, 1541.

<sup>41</sup> P.Caja 38c.

<sup>42</sup> AGNT 3127, exp. 1, fs 30 and 35.; AGNT 29, exp 2, fs. 6r -9v and 32r-23v. Annales Museo de Michoacán, 1968: 178-182. AGNT 851, exp. 2, fs. 51r-53v.; AGNT 402 , parte 2, fs. 101r-101v.

apparent lack of interest of the Spanish in this area, or a respect for its traditional function. Though based on conjecture alone, landscape disturbance in this area may well have been minimal. Indeed, there is evidence to suggest that lands in the surrounding area remained largely undisturbed into the early 17th century. Territory in vicinity of the towns of Santa Clara and Opopeo, east of the lake was, for example, still described as forested in 1619<sup>43</sup> - the close of the peak land granting era<sup>44</sup>, and Spanish activity in the area seems to have been minimal until the 18th century (see Part Three).

### 7.5 Discussion

From the archival references detailed above, it is admittedly difficult to ascertain any definitive characteristics of the state of the environment as it stood at the time of contact and the way it was to change during the first century of Spanish Colonialism. There are discrepancies between indigenous and Spanish perspectives of the potential of the same landscape - a distinction apparent in the respective Spanish and indigenous contributions in the *congregación* and relocation reports of the early Colonial period and a factor that serves to limit the value of any interpretation that can be made from the information provided. Without field corroboration these descriptions can, therefore, only realistically be employed to provide hypothetical environmental reconstructions. It is, however, possible to elicit some general *trends* from such sources which can in turn be used to support theories of environmental change based on more empirical lines of evidence, in this case, information derived from a series of palaeolimnological investigations in the basins of the NVA (Metcalf *et al.*, 1989; 1991; 1994; O'Hara *et al.*, 1993; 1994).

By the time the first detailed environmental information began to be accrued, either in the form of surveys or according to addenda descriptions in

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<sup>43</sup> AGNT 3695, exp. 7.

<sup>44</sup> Simpson (1952) would suggest that the period between 1560 and 1620 represents the peak land granting period, although land granting in Michoacán would appear to have accelerated between 1585 and 1595 (see Appendix C).

official documents of the close of the 16th century, some areas of the Purépecha state, notably the central heartland areas, would appear to have undergone significant levels of environmental deterioration and in some cases degradation. Palaeolimnological evidence from the Basin of Pátzcuaro (O'Hara, 1991; O'Hara *et al.*, 1993) and a series of other lake basins in the area (Metcalf *et al.*, 1994) would suggest much of this disturbance predates the arrival of the Spanish and can be attributed to several phases of cultural activity, culminating with that associated with the Purépecha. Palaeolimnological analysis of cores extracted from Lake Cuitzeo would suggest similar trends for that basin, although as yet a detailed chronology of erosion events is unavailable<sup>45</sup>. Given the scale and longevity of pre-Hispanic activity in both these basins, however, it is reasonable to suggest that the Spanish encountered severely degraded landscapes in these areas. This being the case, what was the nature of the impact in the immediate post-Conquest period?

Evidence of reduced rates of soil erosion in the Basin of Pátzcuaro in the immediate post-Conquest period indicates that impacts may well have been more benign than is traditionally assumed (O'Hara, 1991; O'Hara *et al.* 1993). In part, this trend could reflect the more conservative land use strategies implemented by the Spanish. Archival references to transhumance and seasonal mobility of livestock would suggest that the Spanish stockraisers were acutely aware of the dangers of overstocking, although admittedly transhumance practices may not have always ensured pasture conservation, especially when one remembers the propensity to keep stock in far greater numbers than is indicated in land grant and *estancia* award documents. Nevertheless, conservation strategies were clearly adopted in the region in the immediate post-Conquest period, a factor that has been cited as contributory to the apparent want of evidence for environmental

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<sup>45</sup> Sediments drawn from Lake Cuitzeo are currently undergoing analysis at the Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán. The magnetic susceptibility readings on the sediment cores extracted have been made (O'Hara pers.comm), and preliminary sediment chemistry analysis suggests a similar trend to that of the Basin of Pátzcuaro (Endfield and O'Hara, in prep).

degradation in this period (Butzer and Butzer, 1993). Indian demographic collapse in the immediate post-Conquest period will, however, have led to widespread land abandonment, especially in the first century after contact with the epidemics of 1545 and 1575 (Prem, 1992). There will in turn have been a good deal of de-intensification of land use. It follows that environmental impact in the immediate post-Conquest period may, in consequence, have appeared more negligible.

It is difficult to assess whether the introduction of livestock to the lands in the vicinity of the Basin of Cuitzeo was to have any immediate environmental impact, given that the surrounding landscape was deemed infertile and degraded by the time the Spanish began to survey and grant lands in the area. Certainly, descriptions included within the many *mercedes* that were awarded for keeping livestock in the area in the first 60 years after contact would provide evidence supportive of a degraded landscape. Inevitably, however, the state of the landscape at the close of the 16th century reflected the impacts of both pre- and early post-Conquest activity.

Descriptions of thick forests in the Basin of Yuririapúndaro in the 16th century seem almost paradoxical given the local scale descriptions of mesquite-covered terrain and palaeolimnological evidence for pre-Hispanic clearance and soil erosion in the area (Metcalf *et al.*, 1994). It may well be that the vegetation described in the documents and archives could represent a secondary regeneration of the forests, and the apparently fertile landscape they encountered could reflect one resulting from abandonment, undergoing recovery by the time the first Spanish surveys of the area were carried out. There is again little archival evidence to suggest that the introduction of livestock to this area was to result in any immediate landscape change. The vegetation characteristics that are discussed in the archives of the mid-16th century probably reflect more the dry climatic conditions that prevail in this more northerly part of the state and the impacts of pre-Hispanic land uses than they do changes associated with post-Conquest land uses.

There is a relative lack of archival information pertaining to the Basin of Zirahuén in the early Colonial period. Evidence may, however, be significant in its absence. The pre-Conquest function of the Basin of Zirahuén area could have served to limit environmental deterioration in the area to some extent. Indeed, it may well be that the area still remained in the control of the Purépecha nobility in the immediate post-Conquest period and continued to serve its recreational and religious function. That the area did not appeal to the Spanish should perhaps also be considered. The lack of archival information available for this lake basin in the early Colonial period, however, precludes the reconstruction of any hypothetical scenarios from being suggested.

There is similarly less evidence of environmental disturbance in the more peripheral areas away from the lake areas in the later 16th century. That such areas may have also escaped the degree of environmental change that traditional pre-Hispanic foci of settlement witnessed is perhaps to be expected. Lower levels of pre-Hispanic population and settlement will inevitably have meant there was less exploitation of the land and so less likelihood of there being any serious impact on the landscape. Some consideration must, however, be given to the nature of the documentary evidence at this early stage in the Spanish colonisation process. There is clearly a good deal more archival documentation available for the Basin of Pátzcuaro and the other areas which formed the heartland of the Purépecha empire, and on which any early Spanish Colonial interests were at first focused - a bias which will inevitably influence the amount of data available with which to reconstruct the nature of environmental change in this area in the early Colonial period. It follows that the relative want of evidence of environmental deterioration elsewhere, outside of this "heartland" area might be more apparent than real, reflecting the skewed nature of the documentary material available.

There are some clear cases where ecological change can be seen to have accompanied the arrival of the Spanish and can be associated with some of the settlement and land use changes that took place in the immediate post-Conquest period. Mineral exploitation, as some of the early missionary reports suggest, is

thought to have affected the appearance of the landscape almost as soon as it came into effect. Surprisingly little evidence emerges in the more official archives, however, to suggest that there were significant environmental impacts as a result. In contrast, there did take place an acceleration of deforestation associated with the founding of new towns, as was the case for Valladolid, and there is, as has here been acknowledged, substantial archival footage of livestock-induced deforestation and crop depredation in the first century after Conquest. For the most part, however, there is little direct evidence that would suggest that the imposition of Spanish land use systems and perhaps more significantly, the introduction of livestock stimulated anything more than a process of degradation that was already underway, if not advanced, in some locations, specifically the former Purépecha heartland areas by the time the Spanish arrived in the area.

As Butzer and Butzer (1993; in press) have suggested, however, it may well have been too soon after Colonial settlement and colonisation for any evidence of environmental change associated with Spanish Colonialism to become manifest, given the gap between impact and coherent successional response in some districts. Furthermore, scenarios of apparently negligible impact following the introduction of livestock may, for example, not necessarily pertain to the whole of central Mexico. The degree of deterioration and degradation will inevitably depend on the history and intensity of land use in pre- as in post-Hispanic periods, and the natural environmental context within which such land use took place. As has been discussed, both components were highly variable over time and space. Where Spanish settlement and exploitation overlaid long-term pre-Hispanic settlement and exploitation scenarios, the record of degradation is likely to be somewhat clouded. In such situations, pre- and post-Hispanic impacts will have inevitably combined within the natural environmental context to mould the landscape that is observable today. Other areas, where land use and exploitation were less intense or less prolonged during the pre-Hispanic period would be expected to have undergone less dramatic change by the time the Spanish arrived - the imprint left by Spanish intrusion being all the more marked as a result. In this

respect, Melville's (1990; 1994) assertion that the expansion of sheep herds in the Valle del Mesquital, Hidalgo State, in the late 16th century outstripped the capacity of the land to support them may well hold. Despite being settled for four centuries before the arrival of the Spanish<sup>46</sup>, the Valley de Mesquital did not witness the intense settlement and exploitation that many of the lake basins of the area. Livestock were, moreover, introduced on a far greater scale in this area than in the central heartland areas of Michoacán and it, therefore, seems feasible that the environmental impacts resulting from the introduction of livestock should be more discernible.

The desiccation of water sources noted for the area in the 1590s, however, and which Melville attributes to changes associated with catchment hydrology as a result of overgrazing and soil compaction through trampling could reflect more the impacts of the severe drought that affected central Mexico in the early 1590s (discussed in greater detail in Chapter Ten). There is, moreover, contradictory field evidence to suggest that the impacts of livestock overgrazing in this area has been overstated (Cook, 1949; Butzer, 1990; Mace, 1991), and archival reconstructions of environmental change in the Bajío region to the north of Michoacán, where livestock were similarly introduced to a hitherto little exploited landscape, have failed to provide any evidence of an immediate and destructive impact (Butzer and Butzer, 1993). In this respect, it is felt that traditional theories regarding the immediate and negative impacts resulting from the introduction of livestock to central Mexico are erroneous.

More definitive changes do, however, become apparent in the archival and documentary sources dealing with 17th and 18th century Michoacán. *Haciendas* and church institutions would begin to monopolise lands and natural resources therein and with the coincident gradual regeneration of the *Indio* population there would emerge considerable competition for land, water sources, pasture and

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<sup>46</sup> The bulk of the population comprised Otomi Indians, who had remained a dispersed and scattered population since the wars with the Mexica/ Azteca in the Valley of Mexico in the 14th century. There were in addition a few Chichimeca communities in the north and a few dispersed Nahuatl speakers (Gibson, 1964).

woodland. Property became the focus of competition between all sectors of society but especially between Spaniard and Indian. This competition was to be metered out in the many *pleitos*, or lawsuits, that pervade the litigation documents of the later 17th - and throughout the 18th century, while documentary environmental descriptions also chart a progressive increase in the number of references to degraded, infertile and unproductive territory over the course of this period.

### PART THREE

#### The age of inequality and dissent: Spanish Colonialism and its impacts 1620-1821

Certain of the land grant policies and land tenure systems that came into operation in the Spanish Colonial empire were to contribute to the progressive alienation of indigenous communities from their lands, resources and so, it follows, from their customary techniques of resource management. In the years leading up to 1591, the effects were not that appreciable. The Spanish attached little value to the land in the early Colonial period, preferring to exploit the mines of the area and, although many court cases dealing with crop depredation were filed at this time, *Indio* and Spanish population levels at this stage were such that competition for space and natural resources was not an issue.

With the increase in population, and as commerce, trade and market demands escalated in the later 17th and particularly throughout the 18th century, there took place an acceleration in the amount of land that came to be exploited for agricultural and pastoral purposes. Territorial acquisition thus became a key objective for those sectors of society whose incomes were derived from the land. Between 1640 and 1700 individual land owners managed to accrue vast tracts of land via official *merced* awards, direct purchase and usurpation, while most of the emergent agricultural *haciendas*, livestock *latifundias* and the great properties of the Church had been legalised and confirmed by *composición*. As territory became a more sought after commodity, the indigenous populations were to lose whatever “privileges” they initially held over access to and control of their lands and natural resources. The provision of an *ejido* and the 1100 *varas* buffer zone began to be ignored and only the 600 *varas* legal fund was to remain in force in the later 18th century.

The Spanish never succeeded, however, in completely alienating *Indio* communities from their lands or traditional systems of land use here or elsewhere in Spanish America (Osborn, 1973; Lovell, 1985; Zeitlin, 1989; Butzer, 1991).

Certain areas were to remain indigenous strongholds, the Basins of Cuitzeo and Pátzcuaro among them. Indeed, even today there is a good deal of continuity in terms of indigenous landholding and agricultural production in these areas (Mapes *et al.*, 1994). Nevertheless, the changes that did take place were to have some dramatic and pervasive impacts on the landscape and peoples of Michoacán. The most salient of these impacts were associated with modifications to the traditional distribution of territory and natural resources set within a context of demographic recovery and resource monopolisation. In this part of the thesis, I propose to deal with the mechanisms by which these phenomena operated and the nature of the resultant environmental and social impacts in Michoacán in the period post-dating the first century after Conquest. In so doing it will be possible to highlight the long-term impacts of Spanish colonialism in this region.

## Chapter Eight.

### Population regeneration, monopolies and resource stress

#### 8.1 Demographic recovery and social stratification in New Spain

The general trend in depopulation that had characterised the later 16th century and early 1600s, and facilitated the gradual usurpation of *Indio* lands by the Spanish (Prem, 1992), was to persist into the first half of the 17th century, reinforced by a series of epidemics at the national scale in the 1620s and 1630s. Having fallen to a level of between 1.5 and 2 million in 1607<sup>1</sup>, the *Indio* population of New Spain continued to decline until at least the middle of the century. By 1671, however, the administration of Mexico discovered from the slight but unmistakable lengthening of the tribute lists for the first time since the Conquest, that the indigenous population had ceased stagnating<sup>2</sup>. The last few decades of the 17th century, moreover, witnessed a recovery in the indigenous population, such that over the course of the 17th and 18th centuries, the total population of New Spain increased by 58% (Burkholder and Johnson, 1994). This demographic trend was to continue and the population of New Spain as a whole rose from 3.3 million in 1742, to 6.1 million in 1810 (Burkholder and Johnson, 1994).

The increase was not solely a response to *Indio* population recovery. During the peak migration period, for example, between the 1560s and 1640s, an average of 2,800 Spaniards took the voyage to New Spain annually (Mörner, 1976). By 1600, 175,000 Spanish settlers had established themselves in the new colony, while total net immigration by 1650 has been estimated at around 315,000 (Butzer, 1991). Between 1520 and 1540, however, only 6% of the immigrants from Spain had been women. There was, therefore, initially a high rate of miscegenation between *Indio* and Spaniard in the colony. The *Mestizo* population

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<sup>1</sup> AGI Indiferente de Nueva España 77: Landeras de Velasco to council, 10th January, 1607 (estimates 344,000 adult male tribute payers (cited in Israel, 1975); see also Borah (1951).

<sup>2</sup> AGI Mexico 45. Mancera to Council, 5th April, 1671 (cited in Israel, 1975).

increased rapidly as a consequence, although casual liaisons had already given rise to a large ethnically-mixed population that began to appear a long time before the Conquest process was complete. Indeed, the *Mestizo* population was undoubtedly the fastest growing element in Mexican society in the 17th century, expanding significantly throughout the course of the 18th century. Somewhat paradoxically, however, there is little reference to this sector of the population, or the role it played in Colonial society as a whole, within the available archival documentation - a factor perhaps reflective of the inferior status mixed race societies were assigned at the time (Israel, 1975; Ruiz, 1992; Burkholder and Johnson, 1994).

*Castas*<sup>3</sup> and *Mestizos* thus made up the bulk of the population expansion in the colony in the 1700s. The composition of Mexican society was to change as a result. Whereas in the mid-17th century, indigenous peoples constituted 86% of the total population of New Spain, by the 1740s the figure had dropped to 74%, and then to 55% by the close of the 18th century. The proportion of the population that consisted of *Mestizos* and *Castas*, in contrast, increased from 5% in the mid-17th century to 27% by the close of the 18th century, while whites, either *Criollos* or *Peninsulares*<sup>4</sup>, represented 18% of the total population by that time (Burkholder and Johnson, 1994).

The new Mexican society that developed as a result of this miscegenation was also distinctly hierarchical. Spanish immigrants and *Criollos* still dominated the upper classes, which included owners of large estates and some of the more productive mines, wholesale merchants and high ranking royal officials, clerics, professionals and large scale retailers. *Indios*, in contrast, made up what Burkholder and Johnson (1994:266) refer to as “a growing underclass” of migrant workers and labourers, peons tied to *hacienda* lands and those communities who maintained their traditional indigenous rural lifestyle. Between these two levels of society, there was a growing middle stratum, characterised by peoples of *Mestizo*

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<sup>3</sup> *Casta*: a person of mixed racial background, which included African ancestry. The term is often used in archival manuscripts when there was a suspicion of illegitimacy. The term *Pardo* is similarly employed in the archives.

<sup>4</sup> *Peninsulares*: Spanish immigrants.

origin. Inequality, social disparity and a widening of the gulf between rich and poor was the outcome of this social stratification.

### 8.1.1 Demographic change in Michoacán

The population of the former Purépecha state began to show signs of recovery in the second half of the 17th century (Pastor and Frizzi, 1989), and there is little doubt that there occurred something of a population “explosion” in Michoacán throughout the course of the 18th century. There was a spectacular increase in population in many of the towns, attributed in the archives of the period to a range of factors including the fertility of the lands<sup>5</sup>, the productive ranches and *haciendas* of the region<sup>6</sup>, the flourishing commerce that was in place<sup>7</sup>, and the efficient transfer of produce from surplus to deficit areas<sup>8</sup>. There was also a reduction in the number of disease epidemics, and the severity of their impacts, as the native populations built up more of a resistance to the various European pathogens.

Population estimates for the 1700s and 1800s, however, vary from source to source, according to the scale at which the survey, census or estimate was based. Jurisdictional boundaries were, moreover, dynamic throughout the course of the Colonial period. By the first half of the 18th century, the 49 *alcaldías mayores*, and *corregimientos* and 40 *encomiendas* that had been in existence at the close of the 16th century were reduced to only 27 jurisdictions, all of which (with the exception of Charo which remained a *corregimiento*) represented *alcaldías mayores* (see Appendix B, Table B4). Because of these jurisdictional realignments, *partido*<sup>9</sup> boundaries changed over time to include a greater or lesser number of *cabeceras*, *pueblos* and subject towns, and as such comparing population estimates for specific areas and the temporal variations therein is

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<sup>5</sup> Historia 72: Charo, Indaparapeo, Puruandiro, Taretán.

<sup>6</sup> Historia 72: Santa Clara, Urecho, Huetamo, Tiripetío.

<sup>7</sup> Historia 72: Tlapajuajua, Jarácuaro, Indaparapeo, Paracho.

<sup>8</sup> Historia 72: Charo, Xiquilpan, Huetamo, Zamora.

<sup>9</sup> see Chapter Five, Section 5.4.

problematic. Table 8.1, however, illustrates the general trends for resident populations (*Indio, Español, Mestizo* and *Mulatto*) by *pueblo* for the first half of the 18th century (no particular year is specified in the archival source: Historia 72) and for 1793, taken from a census - *el censo de Revillagigedo* - recorded in that year (Source: Historia 73). It is possible to gauge from the figures listed in Table 8.1, that there was a general trend of demographic expansion in the *pueblos* of Michoacán throughout the 18th century.

Yet this population growth was far from linear. The effects of the climatically-induced disease epidemic of 1737-1740 (*Matlazáhuatl*), for instance, were to offset the general population increase in Michoacán, and a quarter of the region's population is thought to have been lost over this period (Pastor and Frizzi, 1989). A number of towns in the jurisdiction of Cuitzeo de la Laguna were, for example, abandoned or "*destroyed*" following the epidemic, although the resident population of the town itself increased from an estimated 240 people in the mid-18th century to an estimated 979 by 1793 (Table 8.1) - a trend also apparent, albeit to a lesser extent, in other *pueblos* in the vicinity of the basin such as Santa Ana Maya, Huandacareo, Capamacutiro, Copándaro and Taraméo<sup>10</sup>. Some *pueblos* in the former jurisdiction of Cocupao (Quiroga), to the north-east of Lake Pátzcuaro, suffered a similar fate, with no less than 7 out of 18 being "*destroyed*" in the epidemic. All other *pueblos* in the area, however, had witnessed an increase in the resident population by 1793.

Further agricultural and epidemic crises which occurred throughout the Colonial period<sup>11</sup> were to similarly affect the population levels of the region<sup>12</sup>. The drought-induced national scale agricultural crisis of 1785-6, however, represents

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<sup>10</sup> Historia 72: Cuitzeo de la Laguna.

<sup>11</sup> A series of epidemics, for example, struck Michoacán in 1763, 1779, 1785-1786 and 1793 (Ugarte, 1992: 266).

<sup>12</sup> Demographic trends would be expected to have been offset in some areas by localised outbreaks of epidemics such as the so called epidemic of "blood flux" which struck Zamora in 1767. General population trends indicate, however, that demographic expansion in the area was apparently unaffected, largely a consequence of the "*fruits of the lands, which they enjoy with abundance freeing them from the problem of seed shortage.....*" but also attributed to the "*surviving commerce*". Historia 72.

one of the single biggest catastrophes of the late Colonial period. Although the crisis was to affect other areas of central Mexico, not least the Bajío, the impacts on society in Michoacán are thought to have been particularly severe (Florescano, 1980; Ruiz, 1992; see also Chapter Ten). Not all parts of the province were thought to have been equally affected by the shortages, however, and there is documentation to suggest that this period witnessed a good deal of migration to the areas where the impacts had apparently been less severe. There was, for example, notable influx of people to Valladolid:

*“because there had not been so much scarcity of seed there, as there was in neighbouring areas and in other places”<sup>13</sup>.*

The impacts of epidemics and agricultural crises notwithstanding, by the close of the Colonial period, the former Purépecha state is thought to have had one of the densest populations in the whole of New Spain (Pastor and Frizzi, 1989). Indeed, independent estimates based on the 1793 census<sup>14</sup> suggest that the total population of the region increased from approximately 150,000 at the turn of the 18th century to an estimated 160,000 by 1725, reaching close to 400,000 by the 1820s (Pastor and Frizzi, 1989; Ugarte, 1992).

As with the rest of New Spain, however, this period of population increase in Michoacán had been accompanied by a process of racial mixing. By the middle of the 18th century, the indigenous population of the region still constituted a little over half the total population, but by the close of the same century, this figure had dropped to 40%. The Purépecha continued to constitute the greatest portion of the population in the sierra lands, especially in the Basin of Pátzcuaro, in the Basin of Cuitzeo, the *barrios* of Valladolid, in the south-east and along the Rio Balsas. To the west and the north of the province and in most of the *tierra templada* zones to the north and south of the central plateau area, in contrast, the population

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<sup>13</sup> Historia 72: Valladolid.

<sup>14</sup> German academic, Baron Von Humboldt, (1803) suggested, for example, that the population of Michoacán increased 30 % between 1793 and 1803, while Navarro Norriega (1943) proposed a population increase of 45 % between 1793 and 1810.

had become markedly non-indigenous. A predominantly *Mulatto*<sup>15</sup> society had, moreover, come to occupy the *tierra caliente* zones of the coastal area where, as mentioned earlier, there had taken place a substitution of the native population by African slaves in the early Colonial period.

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<sup>15</sup> *Mulatto*: population born out of African /*Indio* liaisons.

**Table 8.1 : Population figures by *pueblo* : early century to the close of the 18th century (1793)**  
 (Adapted from AGN Historia 72, Historia 73).

Jurisdiction	<i>Pueblos</i> in early century	Population early century	<i>Pueblos</i> at close of century	Population close of century (1793)	<i>Pueblos</i> destroyed	New <i>pueblos</i> formed
Valladolid	2	1,495	2	3,921		
Caracuaro	4	576	4	777		
Cuitzeo de la Laguna	10	1,133	7	2,389	3	
Tlapajagua	5	899	5	1,808		
Zinapécuaro	15	446	14	1,261	1	
Santiago Ario	6	1,595	6	3,280	1	1
Coahuallana	14	827	10	780	5	1
Tlascalca	19	2,947	19	6,016		
Colima	15	1,092	14	3,836	2	1
Zinquaro	34	4,489	36	9,293		2
Xiquilpan	17	2,858	17	3,995		
Apatzingan	14	923	12	2,050	2	

Jurisdiction	<i>Pueblos</i> in early century	Population early century	<i>Pueblos</i> at close of century	Population close of century (1793)	<i>Pueblos</i> destroyed	New <i>pueblos</i> formed
Chucandiro	1	418	1	443		
Huango	1	301	1	837		
Puruandiro	1	236	1	1,829		
Angamacuti ro	10	758	7	2,784	3	
Huaniqueo	5	546	5	1,116		
Patzcauro	15	1,739	15	2,702		
Cocupeo	18	1,123	11	2,112	7	
Erongaríquaro	11	917	11	1,349		
Paracho	17	948	17	1,526		
Uruapan	12	4,232	12	2,243		
Taretan	4	636	4	1,017		
Urecho	1	236	1	544		
Santa Clara	2	96	1147			
Tacámbaro	1	832	1	1,025		
Tiripetíó	6	371	6	1,683		

Jurisdiction	<i>Pueblos</i> in early century	Population early century	<i>Pueblos</i> at close of century	Population at close of century (1793)	<i>Pueblos</i> destroyed	New <i>pueblos</i> formed
Huetamo	12	1,193	12	3,440		
Charo	3	4,37	3	537		
Indaparapeo	3	944	3	1,399		

### Summary:

Period	<i>Pueblos</i>	Population
Early to mid century	290	34,592
Close of the century (1793)	271	73,041

## 8.2 Monopolies and alienation

Concomitant with the increase and growing stratification of population throughout the course of the 18th century was the progressive concentration of lands in the hands of a few individuals, most notably the *Criollos*, *Peninsulares* and the church. Donation of lands and financial backing had effectively allowed the church, specifically the Jesuits, to become one of the most powerful of the land owners in Michoacán. In the words of Chevalier (1952):

*“through innumerable donations, purchases, or exchanges of lands, of both modest and lesser quality, were born vast rural agglomerations and wealthy haciendas...in some instances, the Indios managed to attain such magnificence, having started with nothing, but the Jesuits soon accrued huge flocks of sheep, the most productive of the sugar mills, the most efficiently administered haciendas.....this is not to mention the indisguisable superiority of their colleges and their missions”.*

Although, the number of the *haciendas* in Jesuit ownership is thought to have been exaggerated, it has been suggested that half of New Spain was under Jesuit control in 1599 (Ugarte, 1992: 231), and it was this religious order who came to represent one of the major land owners of the Colonial period (Ugarte, 1992). In Michoacán, for example, the Jesuits possessed some of the most productive of the *haciendas*, including that of Tareta to the south-east of Lake Pátzcuaro and the *hacienda* of Sinagua<sup>16</sup> in the lowlands to the south of the state. After their expulsion from New Spain in 1767<sup>17</sup>, property formerly subsumed under Jesuit monopoly was distributed as “*temporalidades*”, or divisions of territory which for the most part passed into private possession with relative ease (Mörner, 1973;

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<sup>16</sup> AGNT 636, exp. 4; AGNT 1091, exp. 1; AGNT 1098, exp. 5; AGNT 1349, exp. 6; AGNT 2787, exp. 21; AGNT 2953, exp. 13; AGNT 2692, exp. 105. Tierra y Aguas, Leg. 3, TI, exp. 21; Leg 4, TI, exp. 34; Leg 4, T2, exp. 93; Leg. 7, T2, exp. 42; Leg. 7, T2, exp. 43; Leg. 7, T2, exp. 47.

<sup>17</sup> Under the reign of Charles III, the Jesuits were to be expelled from the Spanish Americas as part of a new Crown initiative seeking to reduce ecclesiastical immunity and independent power. Previously, the Church and the Crown were equal and interdependent - a factor that had always contributed to a degree of competition and animosity between the two institutions.

Ruiz, 1992). Individual land owners were in this way to later benefit from the disintegration of many of the former Jesuit properties.

Other branches of the church similarly became dominant land owners in Michoacán, especially in the highland zones. Some of the most important *haciendas* in the Basin of Pátzcuaro were, for example, in religious possession at the beginning of the 18th century. The *hacienda* of Sanabria<sup>18</sup>, to the south-east of the lake (Fig. 6.1) was, for instance, developed under the ownership of the Augustinians largely by a series of land purchases, donations and through illegal usurpation that took place between 1597 and 1770, although the expansion of the territory of the *hacienda* did not proceed unimpeded<sup>19</sup> (see Chapter Nine). Lands in the area were originally transferred from *Indio* into Spanish hands via a series of sales that were made in the 1590s and early 1600s. Starting with the sale of two *citaquas*<sup>20</sup> of land in the vicinity of the island of Apupato made by *Indio* principal Francisco Tzitziqui to Don Diego de Castañeda for the sum of 20 gold pieces, more and more former *Indio* territory in the area began to exchange hands. A further six *citaquas* of land had, for example, passed into the possession of Don Diego by 1606. Meanwhile, in 1596, Hernando de Sanabria, another land owner in the area, had similarly purchased stretches of territory from local *Indio* communities, selling on six *citaquas* of lands in the area to the *convento* of San Augustin. In 1607, the widow of Don Diego sold all the lands that her spouse had left her in the area (seven *citaquas*) for the sum of 850 *pesos* to the same Augustinians, who by this time had also begun to accrue territory in the district of Tzurumútaro by similar mechanisms<sup>21</sup>. Moreover, by 1688, lands in the district of Ihuatzio had also been subsumed under Augustinian ownership. Collectively these stretches of land were to provide the foundation for what was to become one of the most significant *haciendas de temporal* in the Pátzcuaro Basin.

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<sup>18</sup> Known initially as San Christobal de Orillas de la Laguna, the *hacienda* later took the name of the one of the areas earliest Spanish landowners of the area, Hernando de Sanabria.

<sup>19</sup> AGNT 3448, unico contains the details of a series of land disputes that took place in the area over the course of two centuries.

<sup>20</sup> *Citaqua*: plot of land

<sup>21</sup> AGNT 3448, unico.

Individual *hacendados* also came to monopolise lands and resources in former *Indio* strongholds although more via official means of land granting than by donation, particular landed families often securing their possessions through a feudal device known as entail (*mayorazgo*). Following the owner's demonstration that an estate was valuable enough to justify entailment and when the required fees had been paid, the Crown approved the formation of such *mayorazgos*. This institution effectively prevented heirs from selling or dividing the entailed property, and thus it passed intact from generation to generation (Burkholder and Johnson, 1994). It is perhaps an indication of the market orientation and materialism of Colonial society that very few wealthy families sought to establish such *mayorazgos*. Among those to benefit, however, was Urrutia de Vegarra, who owned two *haciendas* in the *tierra caliente* lands to the south-west of Michoacán (that of Nuestra Señora de la Concepción, or de la Nueva, and the *hacienda* of Gracia) at the close of the 17th century. Title to the lands that fell within the respective *hacienda* boundaries was confirmed and ratified by *composición* in 1714 (Barrett, 1973).

With or without legal devices, however, property had a tendency to remain within the possession of a particular family over time (Lockhart, 1969). By passing on property from generation to generation, some families thus emerged as land owners of some standing throughout the course of the Colonial period. This is particularly true of the Vaca Coronel family who managed to consolidate a sizeable *hacienda* in the Basin of Tepalcatepec in the *tierra caliente* lands to the south of the state. In 1635, Alonso de Vaca Coronel had purchased three *caballerías* of land, for 2000 *pesos* from the *Indios* of Pinzandaro. In the succeeding years, the family purchased more sites for cattle grazing, which initially had been awarded as *mercedes* to different individuals, changing hands many times before finally ending up in the possession of the various members of the Vaca Coronel family. By the beginning of the 18th century, they were in possession of a territory that covered approximately 30,000 hectares and comprised 17 sites for

cattle grazing and 24 *caballerias* of agricultural land<sup>22</sup> (Barrett, 1973; Pastor and Frizzi, 1989:148).

By the close of the 18th century, there were an estimated 10,433 such *haciendas* and ranches in New Spain. In 1803, there were 311 *haciendas* and 708 ranches in the state of Michoacán alone (Ugarte, 1992), while by 1822, the figures had increased to 333 and 1356 respectively (Table 8.2). *Hacendados* often ruled their countryside domains from their city residences, in much the same way as former *encomenderos* had done in the early Colonial period. In this way country products were brought to the city and the culture and society from the city were brought to the country in exchange. Nevertheless, these land holdings incorporated vast tracts of former indigenous territory, including some of the more fertile lands of the province, and in many cases this restricted access to the most basic of natural resources for survival in this region: water, land and timber.

With the regeneration of the indigenous population in the later 17th and throughout the course of the 18th century, however, there was increasing discontent over what was seen as a decidedly unfair distribution of property. The *legal fund* to which the *Indio* populations were entitled was considered by the communities themselves to be insufficient. Indeed, many of the *pueblos* of Michoacán as they stood in 1793 were not even in possession of the legally allotted 600 *varas* in each wind direction. As Table 8.3 shows, for example, *Indio* communities in a series of towns in twelve jurisdictions in Michoacán lacked the official territorial allotments they were entitled to by law.

### Summary

Throughout the course of the colonial period, a series of social and economic developments were to affect the way in which the lands and resources of Michoacán, were managed and distributed. Firstly, there took place a demographic expansion, as *Indio* populations recovered and *Mestizo* populations expanded. Secondly there emerged a socio-economic hierarchy, the top of which

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<sup>22</sup> Tierras y Aguas, Leg. 7, TI, exp. 20; Leg. 6, TII, exp. 64; Leg. 7, TI, exp. 8.

represented the wealthy land owners, merchants and crown officials, a middle level which comprised *Mestizos*, and a lower stratum comprising *Indios*, *Mulattos* and *Castas*. Assisted by the land granting and tenure policies first issued in the early colonial period, some individual *hacendados* and religious institutions, notably the Jesuits and Augustinians, were able to amass vast tracts of land and to gain monopolies on access to the natural resources them and a series of *haciendas* began to emerge in the region. The expansion of these landed estates was, however, to be at the expense of *Indio* territory. Paradoxically, indigenous communities were left with less land with which to feed and support an increased population. The progressive rise in resentment and dissent that these coupled socio-economic mechanisms were to result in can be monitored through the litigation documents of the colonial period.

Disputes between indigenous communities and land holders, *hacendados* and the Church over access to lands and natural resources, start to dominate the litigation records for Michoacán in the later 17th century accelerating during the 1700s - a time when the impacts of demographic expansion were beginning to be realised, and indigenous populations were in numerically stronger position to raise issues of land loss and re-instatement to a judicial level. This trend seems to be especially true of the highland areas, where indigenous strongholds had, to a certain extent, managed to maintain their political and administrative power, at least relative to the areas, particularly the coastal *tierra caliente* lands, where depopulation had been more profound. In the next two chapters, I propose to discuss some of these litigation documents, highlighting disputes over land and space in Chapter Nine and water related issues in Chapter Ten, and illustrating how different cross-sections of society were affected by the social, economic and demographic changes that took place throughout the course of the colonial period.

Table 8.2 *Pueblos, haciendas, ranches and estancias* in Michoacán  
in 1822 by *Partido* (after Lejarza, 1974).

<i>Partido</i>	<i>haciendas</i>	<i>ranchos</i>	<i>estancias</i>
Valladolid	8	2	0
Charo	1	42	0
Zinapécuaro	29	64	9
Tlalpuxagua	6	1	5
Zitacuaro	60	302	23
Huetamo	18	56	7
Tiripetío	7	22	0
Tacámbaro	9	175	0
Ario	35	106	37

<i>Partido</i>	<i>haciendas</i>	<i>ranchos</i>	<i>estancias</i>
Apazingan	22	78	4
Coaguayana	0	5	0
Pátzcuaro	31	66	2
Taretan	6	21	1
Uruapan	1	20	0
Xiquilpan	20	70	6
Zamora	28	83	6
Tlasasalca	12	31	2
La Piedad	6	23	0
Huaniqueo	3	4	1
Puruandiro	21	130	4
Cuitzeo	10	55	3
<b>Total</b>	<b>333</b>	<b>1356</b>	<b>110</b>

**Table 8.3: illustrating the number of *pueblos* in 1793 with a shortfall in the stipulated 600 *varas* of communal land in each wind direction from the centre of town (an area of approximately 100 hectares), and the amount of land that each town was lacking (Source: *Historia* 72).**

<b>Jurisdiction</b>	<b><i>Barrio</i> or <i>pueblo</i></b>	<b>Shortfall in land (<i>varas</i>)</b>	<b>Total for each jurisdiction</b>
<b>Valladolid</b>	Concepción	828	
	San Pedro	811	
	San Juan	1,410. 5	
	Santa Anna	1,441	
	San Miguel	1,202. 5	
	Chicacuaro	0.589	
	Santa Catarina	1270	
	Santiago	400	7,952
<b>Cuitzeo</b>	Huandacareo	329	
	Capamacutiro	370	
	Copándaro	112	
	San Juan Taraméo	820	1,631
<b>Zinápecuaro</b>	Taimeo	198	
	Bocaneo	94	
	San Lucas Pio	870	
	San Bartolomé Coro	1,310	2,472
<b>Cocupao</b>	Cocupao	1,850	
	Comanja	400	

<b>Jurisdiction</b>	<b>Barrio or pueblo</b>	<b>Shortfall in land (varas)</b>	<b>Total for each jurisdiction</b>
	Tzirondaro	100	
	Naranja	100	
	Tarefero	650	
	Cueneo	650	3,750
<b>Taretán</b>	Taretán	327	327
<b>Tlazazalca</b>	Piedad	1,150	
	Urem	750	
	Tanaquillo	1,300	
	Acachuen	625	
	Santo Thomas	100	
	Sopoco	600	
	Guanzitto	600	
	Ichan	1,300	
	Tucuro	1,500	
	Corapan	1,500	
	Etuquaro	1,005	9,280
<b>Zitacuaro</b>	Chapuatto	500	500
<b>Xiquilpan</b>	Tacascuaro	200	
	San Gabriel	630	
	Los Reyes	1,040	1,890

<b>Jurisdiction</b>	<b><i>Barrio or pueblo</i></b>	<b>Shortfall in land (<i>varas</i>)</b>	<b>Total for each jurisdiction</b>
<b>Chocandiro</b>	Chocandiro	512	512
<b>Angamacutiro</b>	Angamacutiro	300	
	Puruiniquaro	1,800	2,100
<b>Pátzcuaro</b>	Huecorio	310	
	Tzentzenguaro	630	
	Tzurumútaró	974	
	Janitzio	2,400	
	San Pedro Pareo	475	
	San Bartolomé Pareo	50	
	Nocutzepo	180	
	San Andres Tocuaro	790	5,809
		<b>Total</b>	<b>36, 223</b>

## Chapter Nine

### Land, livestock and the law: competition for space throughout the Colonial period.

#### 9.1 The emergence of inequality

For the fifty years between 1620 and 1670, Mexico was in the grips of an economic depression. Several hypotheses have been forwarded to explain the nature and dynamics of this phenomenon (Van Young, 1983). Traditional perspectives have, for example, tended to equate the economic recession with the coincident forces of decelerating mining activity - which in turn is thought to have had repercussions on the rural economy (Chevalier, 1952) - and labour shortages engendered by the indigenous demographic collapse (Borah, 1951). Certainly, after an initial flurry of activity in the early Colonial period, silver mining activities, upon which the economy of New Spain had become overly dependent (Simpson, 1966), began to decelerate in the 1620s. Labour shortages in the mines, consequent upon indigenous depopulation, did indeed serve to increase production costs as did the exploitation of the deeper mineral veins when the near-surface resources were exhausted. In addition, by the 1630s - a time when the impacts of the economic recession began to be felt - the crown began to impose more restrictive legislation on the distribution of mercury - an essential commodity in the production of silver. Previously mercury had been distributed on a credit basis, leading to impressive production figures while at the same time hiding the indebtedness of the miners. The new tighter controls on distribution meant that many miners who had accumulated debts were ruined by rigorous demands for repayment. Consequently, by the middle of the century the industry was controlled by financiers in Mexico City (Brading, 1971). Credit for mercury became more shrewdly allotted, and marginal producers were forced out of business and had to abandon their mines (Boyer, 1977). Mine abandonment in the vicinity of the Basin Pátzcuaro was indeed recognisable around this time<sup>1</sup>.

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<sup>1</sup>see, for example, P.Caja 64a, folder 2; P.Caja 65b, folder 4.

To a certain extent this recessive trend is thought to have been exacerbated by the repercussions of a coincident economic crisis in Europe (Chaunu and Chaunu, 1955-1959; Stein and Stein, 1970). From the late 16th century, the Castillian lands, like much of western Europe, began to slide into an economic depression. Plague, epidemics, drought-induced harvest failures and other agrarian problems, not least the continued issue of pastoral grazing rights and the loss of peasant independence to urban capitalists, as well as wars had combined to affect primary and secondary sector production in Spain (Kamen, 1991). This established a trend of economic decline that would persist for another century and a half affecting Spain's trading position in the world. The empire whose voyages of discovery of the 15th and 16th century had set a precedent for European Colonial endeavours in the first place, began to be submersed by other western European trading nations. This in turn served to reduce Spanish investments in the colony as well as demands for the export commodities it produced (Israel, 1975; Kamen, 1991).

In the early 17th century, some parts of the colony itself fell victim to a series of harvest crises engendered by early frosts and late rains (Pastor and Frizzi, 1989). In Zamora, for example, to the north-west of Michoacán, there were plague epidemics in 1630, while in February 1635, heavy frosts and snows lasting eight days destroyed all the wheat crops of the area. Crop pests, rusts and blights destroyed all the maize crops in September of the same year, and only three years later, the whole area was affected by a plague of locusts. Such events were, moreover, to be repeated in the 1640s, 1650s and again in 1660 (Pastor and Frizzi, 1989). By stimulating local agricultural crises, problems in the rural sector may have thus contributed to the broader-scale economic crisis that materialised in the 17th century, not necessarily the corollary as was initially suggested by Chevalier (1952).

Given the extent of economic and agricultural upheaval over the course of the mid-17th century, archival documentation of land and water disputes in Michoacán is surprisingly limited over this time period (Fig 9.1). This paradox

may in part reflect the degree of administrative dislocation during what evolved into a national-scale economic crisis. Alternatively, access to territory and the natural resources within it may not have necessarily been a source of contention to what was still a much diminished indigenous - and a still small Spanish and *Criollo* population.

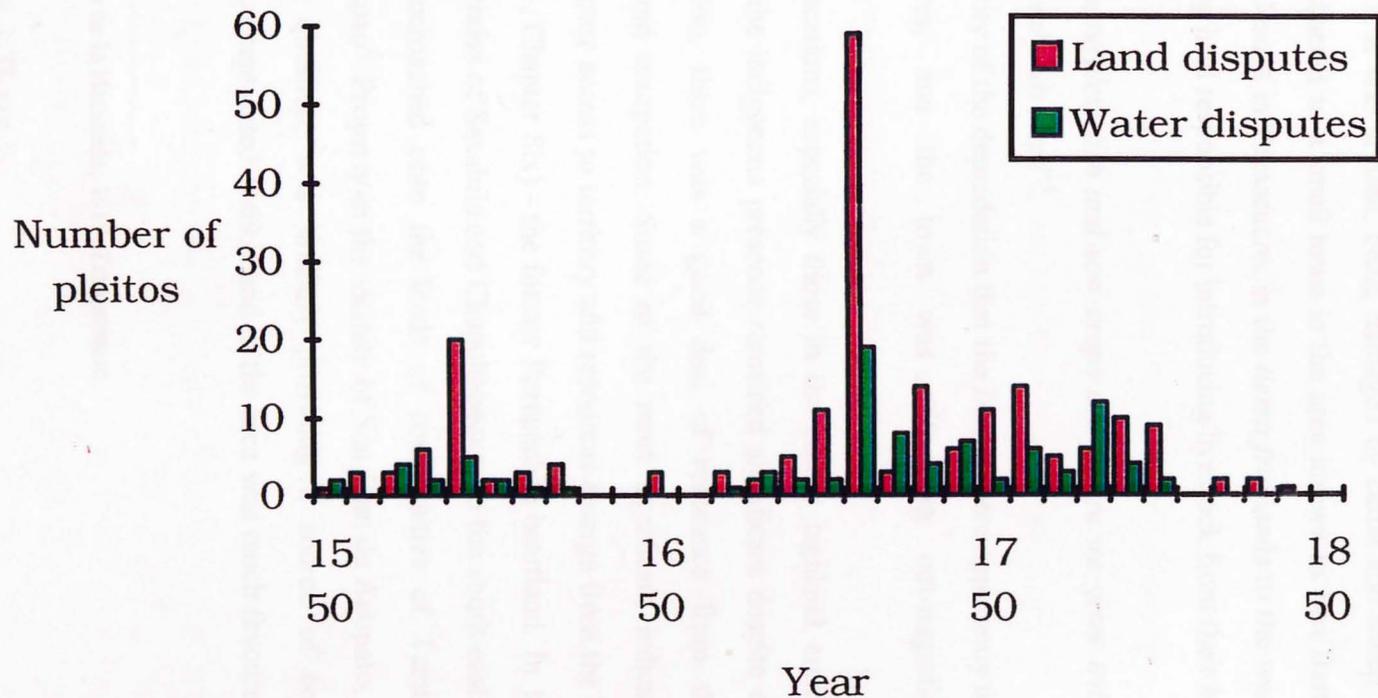
Towards 1670, however, the economy of New Spain showed the first signs of recuperation. There occurred a spectacular increase in the *Mestizo* population, providing a substantial labour force for both the rural and urban sectors, and the *Indio* population was beginning to stabilise. Furthermore, from the year 1660 onwards, there was a temporary cessation in epidemics<sup>2</sup>. The Colonial economic system gradually adapted itself to the depressed external market and the increasing domestic demand (Israel, 1975). The mines to the north of the province began to increase production once more, which in turn increased demands on the rural sector, so fostering an acceleration in agricultural production. Large estates began to emerge, and landowners - many of them descendants of former *encomenderos*, benefiting from the by now defunct *merced* system and that of its allied successor, *composición* policy - began to dominate some of the more fertile productive lands and resources of the region. Land became a key commodity.

It is at this time that some pronounced indications of unrest and dissent over land and resource distribution emerge within the litigation documentation. The following chapter will deal with some of the lawsuits that were filed over the course of the Colonial period and in so doing will illustrate how the various cross-sections of society in Michoacán were differentially affected by this competition for space over this time period.

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<sup>2</sup> At least until *Matlazáhuatl* - a starvation-induced epidemic, triggered by crop loss from early and excessive rains and which affected Michoacán between 1734 and 1737 (see Chapter Eight, Section 8.1.1).

Figure 9.1: Number of recorded land and water disputes in colonial Michoacan in fifty year intervals.



## 9.2 The *hacienda* and indigenous society

The first clear indications of the impacts of unrest between indigenous townships and expansion of the territory under *hacienda* control emerge during the early part of the 17th century, when there was concern over depredation of *Indio* crops by livestock held on local *haciendas* and *estancias*. In 1619, for example, the croplands of the community of Zinapécuaro, to the south-east of Lake Cuitzeo, were, it was argued, being damaged by cattle and sheep from an *estancia* located adjacent to a small town in the area known as San Bartolomé<sup>3</sup>, while in 1625, the Jesuits in Tacasquaro, in the *tierra fria* lands to the west of the province were being held responsible for introducing livestock from their *hacienda* onto *Indio* lands:

“where we (*naturales*) fish and sow crops and where we grow tribute commodities and fruit trees”<sup>4</sup>.

Such was the severity of the depredation that the *Indios* were apparently unable to support themselves, and the town was witnessing out-migration and depopulation<sup>5</sup>.

In some locations, especially those in the colder highland areas of the *tierra fria* where the indigenous presence remained significant despite epidemic related depopulation, there was a good deal of resistance from the local communities to land usurpation. Some of the most significant indications of mounting friction over access to territory and resources emerge from the Basin of Pátzcuaro (Fig 6.1, Chapter Six) - the former Purépechan heartland. In 1658, for example, the *haciendas* of Sanabria and Chapultepeque, to the south-east of Lake Pátzcuaro, had encroached onto the lands of communities of Tzintzuntzan, Ihuatzio and Cocupao<sup>6</sup>. Property in the vicinity of San Juan de Apupato, close to the *haciendas* in question, was similarly providing a source of contention according to a document dated 1669. Land in the area was much favoured for its

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<sup>3</sup> Archivo del Historia de la Hacienda, 1619. Zinapécuaro.

<sup>4</sup> AGNT 85, exp. 1.

<sup>5</sup> AGNT 85, exp. 1.

<sup>6</sup> Tierras y Aguas, Leg. 1, TI, exp. 9.

fertile alluvial soils and its proximity to lake water for irrigation, but also for its natural grazing potential. The lands had apparently been donated to the Jesuit *hacienda* of Tareta by the *naturales* of the area but according to the rector, Padre Don Geronimo de Lobera, the *Indios* of the neighbouring settlement of Tzurumútaró and its *barrio* of San Salvador were continuing to cultivate some stretches of land in the area:

*“and with little fear of our God and with grave damage to the consciences and with no respect to justice, [they] had been and were invading the lands that the said college possessed since time immemorial.....in a location called Apupato of this jurisdiction...on the shores of the lake in front of the houses and farms that the aforementioned college owns in the district of the said city.....”*<sup>7</sup>.

Moreover, according to the Rector, the *Indios* were responsible for:

*“introducing to the said farmlands new walkways and building bridges, which should not be allowed because there was an ongoing dispute between the townsfolk and the said college...”*<sup>8</sup>.

The *naturales*, in contrast, suggested that the lands belonged jointly to the town and hospital of Tzurumútaró and that of Santa Marta, although no titles to these lands could be produced, given that they were apparently held in Mexico City. The final judgement determined that the *naturales* themselves “*were in bad faith*” for the claims they were making - a verdict which was in turn to stimulate a violent confrontation:

*“arriving on the shore of the lake....there were more than 50 Indio men and women armed with stones, stakes, clubs and with many shouts and much confusion of voices, all saying that they had blocked the...bridge and there was no other way of passing through from there.....”*.

The Spanish authorities, whose passage had thus been blocked, in turn called for the imprisonment of the dissenters and “*the heads of the rebels*”<sup>9</sup>. Nevertheless,

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<sup>7</sup> AGNT 445, exp. 1, fs. 11.

<sup>8</sup> AGNT 445, exp. 1, fs. 11.

<sup>9</sup> AGNT 445, exp. 1, fs. 27.

the problems were to continue into the 1670s when the Jesuits were again confronted with an *Indio* “invasion” (Pauwells, 1992).

Friction over territory between the expanding *haciendas* and the rising *Indio* populations accelerates towards the turn of the 18th century. According to a *pleito* recorded in 1695, for example, there was again concern in the *barrio* of San Salvador, and among the people of an area known as Jamaquen in the jurisdiction of Pátzcuaro, over the lack of fertile lands and the number of individuals that such lands had to support. There was a need, the document suggested, “*for lands to sow and on which to graze livestock*”<sup>10</sup>. At the same time, the *naturales* of the town of San Buenaventura in the jurisdiction of Cuitzeo were involved in a dispute over lands with the Augustinian priests from the nearby *convento*. Sheep from the *hacienda* belonging to the *convento* had apparently been allowed to graze the *naturales*’ wheat crops, and were being held responsible for damaging a spring of water belonging to the town and which was used for irrigation purposes. Tribute crops as well as water used for irrigation purposes had, therefore, been adversely affected through the apparent negligence of the Augustinian priesthood<sup>11</sup>.

In 1706, complaints were being made by the indigenous populations in Uricho, on the south-western shore of Lake Pátzcuaro, regarding the “*violent usurpation*” of lands by the owner of the *hacienda* of San Julius de Uricho. Land in a series of locations in the area known as Etuquaro, Camistacuaro, Huacapo, Hechatenbaro, San Miguel, Canimbari, La Huerta:

*“and lands that are at present populated and those known to have been violently usurped by the owners of the hacienda of San Julius de Urecho, the location of Cancaguio, and various locations which similarly belonged to the aforementioned naturales, and those of La Zanja, in the area where was founded the ancient town of Urecho, and those of Ucuruato, Cuamitaquaro, Guacapo.....,”*<sup>12</sup>.

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<sup>10</sup> P.Caja 17, exp. 3, fs. 397-676.

<sup>11</sup> AGNT 159, exp. 10.

<sup>12</sup> AGNT 488, exp. 1.

According to a decree dated to 1692, the indigenous communities in the area had successfully petitioned for a protection order to be placed on the lands in question. By the turn of the 18th century, however, this mandate was clearly proving ineffective and traditional territorial boundaries were apparently being ignored.

The documentation dealing with law suits over territory and access to natural resources specifically woodlands for timber, increases significantly in the early 18th century. In the early part of the century, most of these disputes took place to the north of Michoacán. In 1713, for example, the *naturales* of Yuririapúndaro claimed that the Augustinian priests from the local *hacienda* known as San Nicolás de Yuririapúndaro had been gradually usurping land from old *Indio* towns in the area. Indeed, at the time when the case reached court, the Augustinians in the area were in the process of taking over even more *Indio* property<sup>13</sup>.

Disputes like this were to persist into the mid-century. In 1744, for instance, the *dueño* of the *hacienda* of Bellas Fuentes, to the north of Lake Pátzcuaro was being accused of taking over *Indio* territory in Cocupao, leaving the *naturales* with only 400 *varas* of land which itself was deemed insufficient due to the poor quality of the soil<sup>14</sup>. According to another document dated 1760, an apparently “*pointless and futile*” claim was forwarded by the *naturales* of the *barrio* of San Pedro Pareo for lands from the *hacienda* of Charagüen as restitution for territory apparently lost to rising lake waters over the course of a twenty year period<sup>15</sup> (see also Chapter Ten). In addition, a claim was made that the proprietor of the same *hacienda* had built a wall apparently “*within the territory*” of the *naturales*, thus being accused of the “*violent usurpation*” of their lands.

Other *pleitos* deal with the effects of monopolisation of lands and resources. In 1720, for instance, the *naturales* of Santiago Atapa, in the *tierra templada* lands to the far west of the province, were involved in a *pleito* with the local land owner, Don Domingo de Rebollar, over rights of access to lands and

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<sup>13</sup> AGNT 294, exp. 1.

<sup>14</sup> AGNT 1405, exp. 13.

<sup>15</sup> P.Caja 44a.

water sources in an area of the town known as Agua Blanca and Sirapo<sup>16</sup>. Apparently the *Indios* owned the lands but were paid a small amount of money by the owners of the *haciendas* of Salitre and Concepción in return for access to the water resources within the territory. Such organisation was, however, more the exception than the rule and seems not to have been adopted elsewhere. Six years later, in Zinapécuaro, for example, the Jesuits were being accused by the *naturales* of the town and those of neighbouring Queréndaro, of taking over lands in the area and for monopolising the waters of the Rio Parral (later renamed the Rio Queréndaro)<sup>17</sup>. Territory in the vicinity of Queréndaro was, moreover, again to provide the forum for a dispute in 1759, this time between the *naturales* of the area and Don Andres Lopez de Piña, owner of a local *hacienda* known as Santa Clara<sup>18</sup>. The *naturales* claimed that:

*“the woodlands had been taken by the said Don Andres, totally impeding our [the naturales’] extraction of timber and wood...”*

The forested lands apparently fell within the territory of the *hacienda*, leaving the *naturales* *“in a miserable state, for there is no other part from which it [wood] can be taken”*<sup>19</sup>. According to de Piña, however, it was the *naturales* who were acting in contravention of the law, by:

*“breaking and entering the hacienda through the hacienda walls by night in an attempt to access the wood”*.

This in turn was apparently causing:

*“grave harm and damage to grazing and agricultural land”*

The implication is for some degree of competition over and deprivation of formerly communal resources, which in turn was stimulating desperate and violent reactions.

In some cases, in contrast, special permission was granted for the *Indios* to access the timber supplies and forestry stands on *haciendas*. The lake shore

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<sup>16</sup> AGNT 389, exp. 1.

<sup>17</sup> AGNT 459, exp. 1.

<sup>18</sup> AGNT 852, exp. 2.

<sup>19</sup> AGNT 852, exp. 2, fs. 38.

communities of San Pedro Pareo, San Bartolomé Pareo and San Miguel Aramútaro, in the Basin of Pátzcuaro, for example, were all permitted access to cut wood from the stands in the territory of the *hacienda* of Comienbaro which lay to the south-west of Lake Zirahuén<sup>20</sup>.

Cases were made for protection of property and/or territorial reinstatement and there were incidences where the usurped lands were eventually restored to the *Indios* although the cases often lasted several years<sup>21</sup>. In 1706, for example, the community of Tzintzuntzan was reinstated with lands previously usurped by Don Diego de Vargas<sup>22</sup>. Similarly, in 1755, the *naturales* of the former *Indio* town of Rumarán, close to Pátzcuaro, were successfully reinstated with lands measuring two *caballerías* in a location known as Tapacurio, along with a plot of land for sheep grazing, usurped by Salvador Cervantes 13 years earlier<sup>23</sup>.

Restitution of land lost to *haciendas* continued to remain a primary issue for indigenous communities throughout the 18th century. This was especially true of communities based in the Basin of Pátzcuaro. Reinstatement of territory was, for example, being sought by the *naturales* of the town of Tzurumútaro in 1732. So apparently “negligible” were the lands to which the *naturales* held access, that the encroachment of the *hacienda* of San Nicolás de Ibarra, which had by this time also affected the population of the neighbouring *barrios* of San Bernadino and San Salvador (Pauwells, 1992), had left the town with “insufficient and infertile lands”<sup>24</sup>. The shortage of territory was in turn stimulating out migration and depopulation to various places, leaving the town in a state of “want and desolation”<sup>25</sup>.

Similar cases were raised in the later part of the century. The people of San Pedro Pareo, on the south shore of Lake Pátzcuaro, for instance, stated in a *pleito*

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<sup>20</sup> Historia 73. Various entries.

<sup>21</sup> P.Caja 30c; AGNT 868, exp. 1.

<sup>22</sup> Tierras y Aguas, Leg. 1, TI, exp. 45.

<sup>23</sup> AGNT 2940, exp. 6.

<sup>24</sup> P.Caja 30c.

<sup>25</sup> P.Caja 30c.

dated 1793, that 75 years earlier in 1718, their community had been in possession of five *caballerias* of agricultural land:

*“verified by his Majesty in the composición in the eighteenth year of this century, and the ancient possession continued unaffected without any contradiction.....protected according to the decree of composición ....”*

At the time of writing, however, their territory amounted to only one *caballeria*. Moreover, community access to woodlands had been severely restricted it was claimed, due to the take-over of territory by local *hacendado*, Don Gaspar:

*“now the neighbouring haciendas have entered into the lands so much so that they (the Indios) cannot enjoy even a small stretch of woodland.....and the five caballerias once verified in the composición had been reduced to one..”*<sup>26</sup>

In 1797 the people of Huecorio, a small *barrio* on the south shore of Lake Pátzcuaro were similarly concerned about the extent of land loss. As part of an ongoing *pleito* over land with the owner of the *hacienda* of San Nicolás de Ibarra, the community were requesting a protection order over an allocated 600 *varas* of territory, while at the same time in Cocupao, the *naturales* of the town were involved in a series of *pleitos* with surrounding *haciendas* “over lands, which they had a want for”<sup>27</sup>. A shortage of lands would also appear to have been causing problems for other communities in the basin. A document, dated 1783, for example, charts the problems faced by the *naturales* of Tzetzénguaró, whose lands were being reduced by the expansion and encroachment of the neighbouring *haciendas* of Aranjuez (formerly Tzintzio) and San Nicolás (de la Laguna) east of Lake Pátzcuaro<sup>28</sup>. Such was the nature of the problem that by the close of the 18th century:

*“the residency had been reduced to 40 tributary Indios....they cut wood and sow small amounts of maize and wheat because the stretches of land*

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<sup>26</sup> AGNT 1231, exp. 3.

<sup>27</sup> Historia 72. Various entries

<sup>28</sup> AGNT 1095, exp. 1.

*were limited and reduced by the haciendas of San Nicolás and Aranjuez, and they do not allow for the extension of agriculture....”.*

Moreover, the degree of land loss and encroachment was such that the *Indios* were apparently compelled:

*“to look in unhealthy lands for sustenance.....the population is decreasing visibly up to the point where total ruin is seen to descend”*

(cited in Ugarte, 1960).

Pressure on effectively limited lands had thus led to the exploitation of more marginal tracts of territory. Yet it was not only the people of Tzentzenguaro that were being affected by these *haciendas*. The expansion of the same *haciendas* was also causing problems for the neighbouring communities of San Josef Huecorio, Santa María Zinapécuaro and Santa Anna Chapatiro. Encroachment and expansion of the Jesuit *hacienda* of Tareta was similarly placing pressure on the community lands belonging to the *pueblo* of San Pedro Tzurumútar<sup>29</sup>. It was in the *Indios* own interest, however, to overplay the role of land usurpation given the financial compensation and/or territorial rewards such claims could yield for the victimised. It follows that if the *Indios* exaggerated the degree of usurpation and the poor quality of the lands remaining in their possession, they had more to gain should they emerge victors in the *pleito*. Nevertheless, increased *Indio* population combined with greater restrictions on the amount of land with which to support themselves was to result in depopulation and labour migration, especially from the highland areas where Spanish and indigenous activities were vying for space.

Dispossession was not, however, a solely Spanish or *Criollo* activity and it was not necessarily always the *hacendados* and wealthy land owners that represented the accused in disputes and court cases. In 1737, for example, the townsfolk of Zirahuén were being accused of taking over the land in a series of locations to the north-west of Lake Zirahuén known as Apuzio, Tiquichi, Paraquaro and Choro, which apparently all legally belonged to Don Francisco

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<sup>29</sup> AGNT 445, exp. 1, fs. 11; AGNT 1322, exp 2; exp. 3.

Llanes, dueño of the local *hacienda* known as Comienbaro<sup>30</sup>. Nor was it only for agricultural or pastoral activity, however, that there was competition for space. In 1734, for example, there was clear concern over the illegal closing of a well-used road in the district of Erongarícuaro by Joseph de Cazerres Castillje, owner of a local ranch known as Purumbo<sup>31</sup> which had expanded to incorporate this thoroughfare. Apparently, the road was customarily employed by the residents of the town to access the nearby mill, but given that no other route was available that “*did not cause delays*”, its closure had effectively curtailed their use of the mill. In 1829, the same rancher was being held responsible for “*causing enormous damage and harm*” to the community of Uricho by depriving them of land and timber resources. Moreover, it was claimed that because of the expansion of the ranchlands under his jurisdiction, the *naturales* were not able to put to pasture any of their livestock “*nor to extract wood and timber supplies*” for the most basic needs of the community<sup>32</sup>. Issues over land were, therefore, to continue to provide a source of contention after Independence in 1821.

The impacts of *hacienda* expansion and resource monopolisation were, however, to have more far reaching implications. Individual communities also began to vie for space as more and more of their territory and basic natural resources began to be incorporated into large agglomerations and land holdings.

### 9.3 Territorial turmoil: conflict between indigenous communities

The expansion of *haciendas* served to redefine, though often in a much diminished form, the extent of the lands to which each indigenous community had access. Territorial boundaries became moot points as the need for more land on which to support an expanding indigenous population was realised. Litigation documents from the 17th and 18th centuries can be used to trace the growing tension over lands and resources *between* indigenous communities over this time.

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<sup>30</sup> P. Caja 28a, exp. 5.

<sup>31</sup> P. Caja 28a, exp. 2.

<sup>32</sup> P. Caja 72d, folder 3.

Contention between communities appears to have been related to problems associated with conflicting land use and usurpation. According to one document dated 1676, for example, straying livestock from Tzintzuntzan had apparently damaged some of the *milpa* plots in the lands of Ihuatzio. The same document also suggests that land in the area known as Guenchequaro had been gradually taken over from the people of Ihuatzio over a period of 20 years, depriving the community of woodlands and pastures. Problems of crop loss through depredation had thus been exacerbated by land loss<sup>33</sup>.

Other cases deal with claims of land usurpation. Over a period of four and a half years, for example, the *naturales* of the town of San Sebastian Guanstao, to the north-west of the state, had taken possession of land and a mill belonging to the *naturales* of the neighbouring *cabecera* town of Chilchota, culminating with the filing of a law suit in 1700 in which the latter community claimed the rights to retrieve their lands<sup>34</sup>. Another document, lasting seven years between 1760 and 1767, charts a similar dispute over lands that took place between the *naturales* of Tacascuaro and those of Tingüindín in the far west of the *tierra fria* belt<sup>35</sup>. The *naturales* of the former town were being accused of taking over territory from those of Tingüindín, while the residents of Tacascuaro took to selling lands in their possession but which were considered useless, and out of necessity began exploiting lands outside of their community area<sup>36</sup>.

A similar case, aired in 1734, exemplifies the rising competition for land. In the document, the residents of the town of Cocupao express concern over lands affiliated to the town, which at the time were left unsown but which were, it was claimed, in danger of being taken over by the *naturales* of the town of Tzintzuntzan<sup>37</sup>. A pre-emptive request was made for the *naturales* of the latter town to:

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<sup>33</sup> P.Caja 60, folder 1, fs. 1-101.

<sup>34</sup> AGNT 180, exp. 4.

<sup>35</sup> AGNT 868, exp. 1.

<sup>36</sup> AGNT 916, exp. 5.

<sup>37</sup> P.Caja 42g, fs. 1-246.

“leave free and unsown the lands which lie adjacent to the town [Cocupao] and those in the other city that we [the *naturales* of Cocupao] have been in possession of since time immemorial”.

The communities of these two locations were, moreover, to carry their land dispute into the post-Independence period<sup>38</sup>. A *pleito* dated 1830, for example, suggests that the *naturales* of Tzinztuntzan were apparently in possession of only 380 *varas* of what were considered to be fertile lands, but within these lands, and in contravention of the law, the people of the town of Cocupao had sown their maize.

While some townships managed to acquire protection from further usurpation<sup>39</sup>, other communities were still involved in legal wranglings over territory in the late 18th and early 19th centuries<sup>40</sup> and similar disputes pervade the litigation documents of the post-Independence period, as the age of the *hacienda* and the great estate reach, and hence territorial competition reached its zenith<sup>41</sup>. It should be borne in mind, however, that success in cases such as these may in turn have precipitated a kind of “domino effect” among the local *Indio* populations, influencing more communities to raise and forward similar cases to a judicial level. Indeed, the time leading up to the Mexican Revolution if anything more of a turbulent one with respect to disputes over *Indio* land rights (Ruiz, 1992).

#### 9.4 Infractions, invasions and the individual

The competition over space and natural resources over the course of the 17th and 18th centuries can also be traced through some of the lawsuits dealing with cases against, or more infrequently, raised by individual land owners. Disputes over territory between *hacendados* were not uncommon, especially where *haciendas* lay adjacent to each other and territorial boundaries imposed

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<sup>38</sup> P.Caja 74a.

<sup>39</sup> Tierras y Aguas, Leg. 8, Libro IV, exp. 97.

<sup>40</sup> Tierras y Aguas, Leg. 10, TII, exp. 40.

<sup>41</sup> A series of over two hundred documents housed in the Archivo de la Ciudad de Pátzcuaro deal specifically with *pleitos* if the post -Independence period, although few were consulted in this investigation.

restrictions on the degree of expansion that could take place. The respective owners of the *haciendas* of Iztaro, Chuen, Apambo and Parahuen, to the south east of Lake Zirahuén, were, for example, involved in a long-running legal wrangle over territory spanning over three decades from the early to mid-18th century and incorporating several reconnaissance trips<sup>42</sup>. Maps were drawn up by impartial witnesses<sup>43</sup> and adjudicators were brought in to delimit the extent of the respective *haciendas*, which had apparently been subject to considerable variation over time.

The majority of the court cases between individuals, however, deal with the competition for space between ranchers and agriculturists and are for the most part concerned with claims of crop depredation. In 1696, for instance, there occurred a dispute over “*the lands and waters and everything else remaining mentioned in the official documents of possession*” between the indigenous community of the town of Cuitzeo and landowner Don Gaspar Salgado<sup>44</sup>. Such was the concern over the loss of access to these resources that the people of the town were petitioning for a set of “*new documents*” supporting their rights.

Similar territorial *pleitos* were in process elsewhere. In the early 18th century, for example, Christobal Truxillo, prior of the *convento* of San Augustin, was involved in a court case with the *naturales* of the town of Tzintzuntzan over property referred to as San Lorenzo and Santo Thomas Iguerra on the south-east shore of Lake Pátzcuaro in the vicinity of Apupato and the *hacienda* of Sanabria. According to the document, dated 1711, the *naturales* had apparently been granted permission to sow crops on these lands, which officially fell under *convento* possession, but in contravention of the legal agreement, grazing stock belonging to the *naturales* had been put to pasture on the lands, “*causing considerable damage and harm*” to the *convento*’s croplands as well as to “*the sown fields of the town, which they have destroyed*”<sup>45</sup>. That livestock depredation

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<sup>42</sup> P.Caja 38c; P.Caja 37b. AGNT 528, exp. 2; AGNT 385 (parte 1), exp. 5; Tierras y Aguas, Leg. 5, TI, exp. 38.

<sup>43</sup> A series of such maps and *pinturas*, many of which have ancillary colour and measure almost 60cm square, are now housed in the Archivo Municipal de la Ciudad de Pátzcuaro.

<sup>44</sup> Tierras y Aguas, Leg. 6, TI, exp. 39.

<sup>45</sup> P.Caja 19b, exp. 4, fs. 464-754.

had been a long-standing problem in the district of Tzintzuntzan is, moreover, indicated by a statement included in the document, in which it is suggested that:

*“in the past there were such a lot of grazing cattle and horses that they almost destroyed the water channels of the said town”*<sup>46</sup>.

The *naturales* of Tzintzuntzan were again involved in a legal wrangle four years later, having apparently been dispossessed of some of their lands at the hands of Bachiller Diego de Vargas, though the document itself details the restitution of the lands to the rightful owners<sup>47</sup>. Similar competition for space was evident to the south-west of the Basin of Pátzcuaro. The *naturales* of the town of Santa Anna Chapiro, located on the southern shore of Lake Pátzcuaro, and local landowner, Martin de Rios were, for instance, involved in a dispute over territory in 1730, the former claiming that the latter had completely taken over possession of all of the their property<sup>48</sup>. Evidently, there was a good deal of competition over land use in this area where, as would perhaps be expected, attempts to monopolise territory, on the part of individual land owners and, perhaps more significantly the Church had faced resistance from long-established and cohesive indigenous communities.

The juxtaposition of livestock and agriculture would also continue to cause problems throughout the 18th century. Over a four year period, from 1728 to 1732, for instance, maize and wheat crops belonging to the *naturales* of Taimeo, to the south-east of Lake Cuitzeo, had apparently been damaged by grazing stock straying from the adjacent ranch belonging to Gaspar de Montoya<sup>49</sup>. During the same period, cattle and horses from the *estancias* known as Tamuquaro and San Juan were said to have been grazed on a series of plots of sown land belonging to the people of Uricho. Moreover, livestock invasions took place on a number of separate occasions and unguarded grazing stock was held responsible for:

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<sup>46</sup> P.Caja 19b, exp. 4, fs. 464-754.

<sup>47</sup> Tierras y Aguas, Leg. 1, TI, exp. 45.

<sup>48</sup> AGNT 495, exp. 6.

<sup>49</sup> AGNT 475, exp. 5.

*“not only eating and destroying the sown fields and maize plots...but also the banana crops and the fruit trees that they have for subsistence and tribute purposes”*<sup>50</sup>.

Meanwhile, in 1737, Don Martin de Arizonena and Don Joseph de Abarca, both land owners in Ario, to the south of Lake Pátzcuaro, were suing Don Ximinex (Jiminez) for leasing lands as seasonal grazing pasture which were argued to be *“inadequate and too short”* for grazing purposes<sup>51</sup>.

Competition for space also seemed to be causing problems for the *haciendas* located on the south-east shore of Lake Pátzcuaro at this time. A document dated August 1763, for example, highlights a case made by Don Mathias de Robles, owner at that time of the *hacienda* of Chapultepeque, concerning depredation of lands in the vicinity of Santo Thomas de Iguerra - an area of land then in his possession - by livestock from the neighbouring *hacienda* of Sanabria<sup>52</sup>, although it was the *vaqueros* or cattle drivers themselves who were being held responsible *“for running and moving around all the grazing stock”*. In sum, all cross-sections of the community had, it seemed, been affected to some extent by the pressure placed on limited land resources.

Although there would appear to have been fewer cases reported in the second half of the century, the nature of the claims became more serious. Members of a religious order were, for instance, involved in the *“violent”* take over of lands on the ranch of Juan de Aguitar in the jurisdiction of Ario in 1769, and for also taking over possession of lands belonging to negro sheep herders in the area<sup>53</sup>, while according to a *pleito* dated to 1776, the Guzman brothers, headed by Salvador Guzman, had taken over *“by force of firearms”*, the lands in the site named Guanamo in the vicinity of the Basin of Cuitzeo seven years earlier. The same family was also accused of:

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<sup>50</sup> AGNT 488, exp. 4.

<sup>51</sup> AGNT 582, exp. 4.

<sup>52</sup> P.Caja 46c, folder 5.

<sup>53</sup> AGNT 939, exp. 3.

*“destroying the boundary posts and fences to graze their livestock.....destroying the house/walls that had been built in the fields...and carrying away all the sheep belonging to landowner Chavez using a net”*<sup>54</sup>.

By 1786, the competition for space in the vicinity of Tzintzuntzan reached a similarly critical level. According to Don Sebastian Medina, resident of the city and owner of a *hacienda* in the area known as San Bartolomé Achimbo, there was a wall that divided the lands in his possession from those of a neighbouring *hacienda* called Quenembo which belonged to Bachiller Don Antonio Borja, *“and that was guarding the sown plots from the damage that his animals cause”* and had provided this function for twelve years. In 1785, Medina, accompanied by his sons, sowed his lands with seven *cargas* of wheat. In the following year, however, Borja and Juan Padilla and the sons of Nicolas Arriola - another local land owner - destroyed the wall, so allowing the livestock from Quenembo to graze Medina’s crops:

*“destroying all the wheat that had been produced by the seven cargas that were sown”*<sup>55</sup>.

Crop depredation by grazing stock was still causing problems into the mid-1820s. In a law suit dated 1834, for example, Jose Gordillo, resident of the town of Erongaricuaró described the *“malicious”* actions of Don Juan Jose Mexia, following the introduction of four thousand head of sheep onto lands held by Gordillo on the hill of Guacapan in October 1822<sup>56</sup>. Mexia had apparently manually moved the cross that marked the boundary between his and Gordillo’s lands in order to increase the lands under his jurisdiction. According to Gordillo, the impacts of this *“violent act of dispossession”* had caused grave damage to his land<sup>57</sup>.

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<sup>54</sup> AGNT 1503, exp. 6.

<sup>55</sup> P.Caja 53c, folder 4, fs. 418-555.

<sup>56</sup> P.Caja 79f.

<sup>57</sup> P.Caja 79f.

Ever since the introduction of livestock to the region in the early 1540s, depredation had provided a source of contention and had formed the basis for many legal wranglings of the early Colonial period. From the evidence presented above, however, the juxtaposition of grazing animals and agriculture continued to provide a source of contention towards the close of the Colonial period and even after Independence. Indeed, by the close of the 18th century, problems of crop loss through depredation, which had hounded agriculturalists since the introduction of livestock to the area, along with the responses such losses stimulated, would appear to have been exacerbated by an acute competition for space. This competition in turn precipitated the development of an even more antagonistic relationship between agriculturalist and livestock owner.

### 9.5 Discussion: the legacy of land loss

An increased indigenous population combined with resource monopolisation was placing pressure on the limited resources in Michoacán in the later 18th century. Land became a sought-after commodity and at the same time a source of contention for all levels of society as the impacts of the coupled and coeval processes of resource monopolisation and population pressure came to be realised. Some locations were able to absorb the regeneration of the indigenous and the expansion of the *Mestizo* populations. This was particularly true of some locations in the *tierra caliente* lands to the south of the province. In Huetamo and its associated *barrios*, for example, the availability of “good commerce and productive hacienda lands” ensured that problems associated with space and subsistence were capable of being overcome<sup>58</sup>. Similarly, the good croplands, “abundant wheat and maize.... and.....water...” in Aramacutiro, also in the *tierra caliente* to the south, meant that an increased population could be accommodated<sup>59</sup>.

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<sup>58</sup> Historia 72.

<sup>59</sup> Historia 72.

Such cases appear, however, to be more the exception than the rule and seem to have only applied to locations lying in the *tierra caliente* lands where the population density was less and hence competition for space was less fierce. In the heartland of the province, by contrast, the problems engendered by population pressure and insufficient territory were to reach a crisis situation throughout the 1700s and into the early 19th century. In some locations, for instance, population had expanded to such an extent that resources were being stretched to the limit. Population levels in Chocandiro in the Basin of Cuitzeo had reached such levels as to be imposing unreasonable demands on limited land resources<sup>60</sup>, while in San Augustin Caracuaro, to the *tierra templada* lands of the north-west of the province, plagues and pestilence befell the beleaguered population between 1792 and 1793. Although all cross-sections of society were to be affected by the competition for space that emerged throughout the course of the Colonial period, however, it would appear that the indigenous sector of society had been more severely affected by the changes in land and resource distribution, having lost much of their former territory to expanding *haciendas*. The *barrios* of Pátzcuaro, for instance, were losing population to the *tierra caliente* lands at this time, while in Uricho, the *Indios* had apparently been unable to subsist since the year 1731, leading to depopulation and the abandonment of their residual tracts of territory which were rapidly designated “*realengas*”<sup>61</sup>.

Facing a shortage of lands, some *Indio* communities also began to rent property from local *hacendados*. *Indios* from Santiago Asajo, to the north of Lake Pátzcuaro, for example, rented out lands on the nearby *hacienda* of Bellas Fuentes to the north of Lake Pátzcuaro, on which to sow maize *de temporal*<sup>62</sup>. Rent payments like this, however, would often become debts to the landlords, and in this way, *Indios* would become tied to the land in a form of debt peonage (Mörner, 1973). Out of necessity more and more *Indio* communities began to disband and individuals began to work as labourers on the lands of local

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<sup>60</sup> Historia 72: Chucandiro/ Chocandiro.

<sup>61</sup> Historia 72.

<sup>62</sup> Historia 73.

*haciendas*. Individual residents from San Pedro Pareo and San Bartolomé Pareo, for example, were employed in wood cutting on the *hacienda* of Charagüen to the south-west of Lake Pátzcuaro. Others worked as wage labour on the *haciendas* on a temporary basis, while others still, from Ajuno migrated to the *tierra caliente* lands to work in the sugar mills as their lands, and hence their own independent means of survival, became insufficient for supporting an expanded population<sup>63</sup>. Residual communities began to sell off what small amounts of land did remain in their possession. In March 1783, for example, the community of Uricho, headed by Don Pedro Fernandez Pitzcua, had put a stretch of land on the market. The territory involved was described as “*measuring 700 varas long and 80 wide*” (586.3m x 67m) and covered an area agreed in the original land titles recorded in April 1707, when the *naturales* first officially purchased the lands<sup>64</sup>.

Some degree of economic diversification was also to take place. By the close of the 18th and early 19th century, for instance, indigenous communities in the Basin of Pátzcuaro were less involved in agricultural production and more involved in handicrafts and artisan pursuits - both traditional indigenous activities but previously of only secondary economic importance. In 1792, for example, the 140 tribute *Indios* of Ihuatzio were employed in the timber industry and in the manufacture of wooden boxes, while some of the 125 tribute-paying *Indios* of Santiago Asajo were employed in hide tanning and in making shoes<sup>65</sup>.

A *Real Cédula* issued in 1804<sup>66</sup> seeking to reduce Church land monopolisation (Ruiz, 1992), and representing an upshot of the Bourbon Reforms in Spain, served paradoxically to exacerbate the degree of economic disparity. The *cédula* effectively ordered the Church, which had by this time become one of the major land owners and creditors for local *hacendados*, to deposit in the royal treasury capital held in pious funds and *capellanias* (see Chapter Five, Section 5.6) (Ruiz, 1992). The decree was to undermine the economic power of the

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<sup>63</sup> Historia 73.

<sup>64</sup> P.Caja 57g, folder 1.

<sup>65</sup> Historia 73.

<sup>66</sup> The *Real Cédula* was not revoked until 1809.

Church, and hence also its political power, but was also to have differential social impacts. Colonials, principally *hacendados* and *rancheros* were, in effect, left without any resources from which to borrow funds. Rich *hacendados* could liquidate their loans whereas poorer landowners and *rancheros* could not. Indeed, many *haciendas* were at this time put up for sale and former ranches were simply deserted. In 1809, for example, the *hacienda* of Irámuco, in the district of Santa Clara in the Basin of Zirahuén, was described as being “*totally abandoned*”<sup>67</sup>, while the nearby *haciendas* of Arapariquaro, Chuen and Los Pareos, formerly used for the rearing of livestock and the growing of maize and wheat, were put on the market at the end of the first decade of the 19th century<sup>68</sup>.

Such abandonment scenarios did not, however, solely reflect Crown policy aimed at reducing Church power. Towards the close of the 18th century a severe drought period and a series of consequent localised<sup>69</sup> and national scale agricultural and economic crises swept the country (Florescano, 1972). Wheat harvests were lost in Michoacán as a result of such crises<sup>70</sup>, and some level of economic dislocation and retardation at a larger scale, resulted. Abandonment and out-migration around the early years of the 19th century could indeed be reflective of the agricultural crises that affected the entire country between 1801 and 1802, and again in 1809.

Problems of land distribution were to pervade the 19th century, the Independence movement doing little or nothing to mollify the hardships that accompanied agricultural crisis and social and economic inequality. Indeed, it was in the post-Independence period that the *hacienda* would become an even more dominant feature of the Mexican landscape (Chevalier, 1952; Lockhart, 1969). Furthermore, between 1810 and 1910, those community lands that did survive the expansion of private property during the Colonial period were lost, a result of several factors. Firstly, an invasion of lands during the fighting associated with the

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<sup>67</sup> P.Caja 64a, folder 1, fs. 1-164.

<sup>68</sup> P.Caja 64a, folder 1.

<sup>69</sup> P.Caja 65b, folder 4.

<sup>70</sup> P.Caja 65b, folder 4.

Independence movement; secondly, the institution of policies of the state governments, especially during the first thirty-five years after Independence when a general state of confusion over land tenure reigned; and thirdly, the laws of *desamortization*<sup>71</sup> emanating from the Reform period of the later 19th century, which attempted to expand individual ownership of land by denying ownership to corporate bodies, including Indian communities (Barrett, 1973). Contention over land loss, monopolisation and social inequality would, therefore, if anything gain even more momentum in the post-Independence era (Ruiz, 1992).

### 9.6 Summary

Indigenous population began to make a recovery in the later 1600s, and expanded along with that of the *Mestizo* population throughout the course of the 18th century. Concomitant with this demographic expansion, there was a progressive accumulation of territory by individuals and institutions, most notably the Church. Much of the more fertile and productive territory began to be subsumed by the expanding *haciendas* in the region, although a good deal of this territory was not being put to its most optimal use and some was actually left fallow or under pasture (Florescano, 1976). This was especially apparent towards the close of the 18th century and into the early 1800s (Ruiz, 1992). Indigenous communities of the heartland of Michoacán, whose lands had been lost to the encroaching *haciendas* found themselves unable to expand their territory to accommodate the increased population. The small stretches of land left in their possession were, as can be judged from the litigation documents, proving less than sufficient for supporting local communities by the close of the 18th century. Unable to subsist, *Indio* communities began to disband, abandoning or selling off what little land did remain in their possession.

The juxtaposition of livestock and agriculture was continuing to provide a source of contention, becoming an even greater problem as ever more extensive

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<sup>71</sup> Francisco Gonzalez de Cossio *et al.*, (1856) *Legislación Indigenista de Mexico*. Instituto Indigenista Interamericano, Ediciones Speciales No. 38. Mexico: 39-44.

stretches of land had to be converted to agricultural land use as population, and hence food demands, increased throughout the course of the 18th century. Former indigenous agricultural communities were resorting to economic diversification, but also began to take part in seasonal migrations to work on the sugar *haciendas* of the *tierra caliente* lands in order to support communities whose agricultural livelihoods had been diminished by usurpation and land exhaustion. Others rented tracts of land out from *hacendados*, sending themselves into an unending spiral of indebtedness in the process, or began working as wage labour on the estates and plantations of the *tierra caliente* lands. The combined impacts of land loss, resource stress and monopolisation and population pressure had thus resulted in considerable social and economic re-organisation.

The impacts of Spanish paternalism were, however, to stimulate more than competition for space. For both *Indio* and Spanish communities access to water resources was to become as important as access to land. Issues of water security provided the basis for a great many *pleitos* throughout the course of the 17th and 18th centuries. In the next chapter, I document the attrition that developed over water resources throughout the course of the Colonial period, highlighting the respective roles played by resource monopolisation and climatic drying in aggravating the stress over what can only be considered a most crucial resource in this drought-sensitive region.

## **Chapter Ten**

### **Water wars: problems of access and acquisition of water resources throughout the Colonial period**

#### **10.1 Water significance and symbolism**

Drought and the unpredictability of water supplies in Mexico provide a constant threat and source of concern to a society whose economic base is and has been for over 3000 years predominantly agrarian. That water should play a particularly significant and symbolic role in the lifeways of peoples accustomed to its scarcity, is perhaps to be expected. Indeed, of the many gods worshipped by pre-Hispanic cultures, those associated with water ranked amongst the most important. The Aztecs, for instance, made human sacrifices to the rain-god Tlaloc in order to make appeasement or to have requests of water granted (Caso, 1937). The profound significance of water as a key resource is also indicated by the many and various Purépecha myths relating to water origins, diminishing and vanishing sources, and localisation and discovery of new supplies (García, 1995). Access to water continued, moreover, to remain an issue into the post-Conquest period. Such preoccupation with water is perhaps to be expected given the extreme climatic sensitivity of this particular region of Mexico.

Significantly, however, changes in land tenure and resource administration associated with Spanish Colonial rule were to modify the distribution of and access to water sources. This chapter seeks to establish the impacts and responses engendered by changes in water security in Michoacán throughout the course of the Colonial period, highlighting the respective roles played by climatic fluctuations and changes in the control of water sources as media of social tension and dissent.

#### **10.2 Climatic change: the cultural record**

Some invaluable information on past climatic conditions and their impacts on society can be derived from archaeological and historical investigations.

Distinct phases of pre-Hispanic cultural activity and subsequent collapse have, for example, been correlated with climatic oscillations (Sears, 1952; Armillas, 1969; O'Shea, 1980; Sanders, 1981; Hodell *et al.*, 1991), although evidence of climatic change is often deduced from societal response to that change and as such interpretation can be subject to circularity (Paulsen, 1976; Seltzer and Hastorf, 1990). Less is understood, however, about the nature of climate change and the impacts and responses it engendered at the regional level in the post-Conquest period.

Instrumental records can go some way to inferring more recent climatic change but, as Metcalfe (1987) notes, the first scientific observations did not begin until the 18th century, and more official meteorological recordings were not made until 1826. The use of historical data to "fill the gap" between information on climatic change derived from geological and archaeological studies and that provided by meteorological records is, however, well established (Le Roy Ladurie, 1972; Lamb, 1982). Several investigations, for example, have focused on establishing the relationship between agricultural and economic crises and periods of drought (Gibson, 1964; Florescano, 1972; 1980), while Swan (1981) has employed archival correspondence between *hacienda* administrators in the Basin of Mexico to illustrate the marked changes in precipitation regimes that occurred between 1784 and 1812.

The relatively detailed climatic records derived from such archival sources indicate that annual rainfall has varied considerably over the course of the past 600 years (Florescano, 1972, 1980; O'Hara and Metcalfe, 1995) (Fig. 10.1). It is clear, for example, that the period prior to and following the arrival of the Spanish, ca. 1350-1590 was relatively wet, although central Mexico experienced a series of short-lived drought episodes, such as in the 1440s and 1550s. Beginning in the 1590s, however, the number and intensity of drought periods increased significantly and, by the latter part of the 1600s, the region suffered a series of dry years which had serious implications for its agricultural production (Florescano, 1972, 1976, 1980). With the exception of a generally wetter period around the

1730s and 1740s, drought is thought to have continued until at least the 1820s (O'Hara and Metcalfe, 1995), being most severe in the mid - to late 1700s. Within this general dry phase, however, certain years stand out as being particularly severe. Gibson (1964), for instance, considered the drought of 1624 to be the worst of the post-Conquest period, while the famine which resulted from the 1785-6 drought was to stimulate considerable economic and social distress throughout the country (Florescano, 1980).

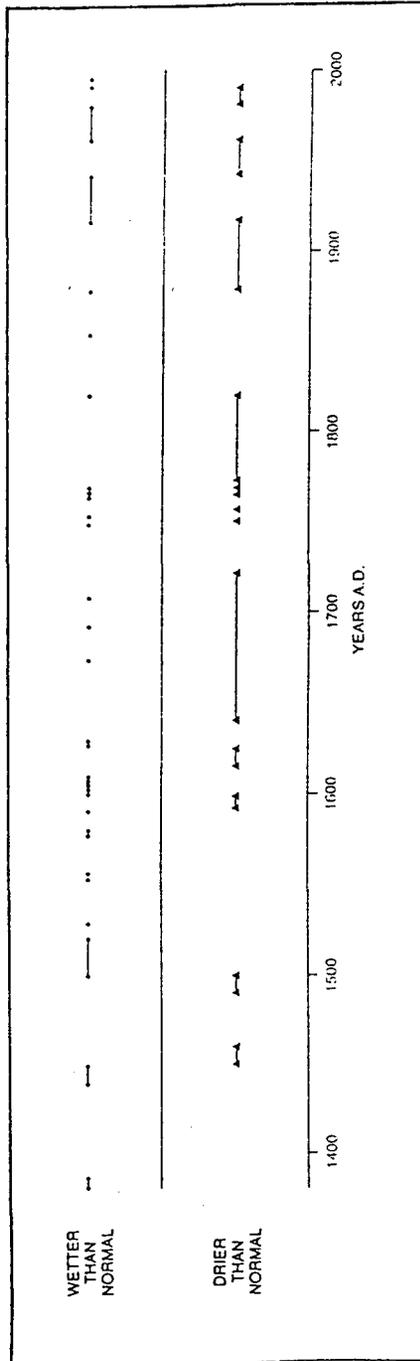
Although the availability of records from which to infer climatic characteristics becomes more limited during the 1800s, it would appear that the dry conditions characteristic of the early 19th century were superseded by generally wetter conditions. By the 1880s, however, the region was once again in the grips of severe and devastating drought and between 1875 and 1910, 29 cases of drought were recorded (Florescano, 1972). A shift to generally wetter conditions occurred at the beginning of the 1920s, and although the region continues to experience years of abnormally dry conditions, the number and intensity of these events has declined.

In sum, a general trend of climatic drying, punctuated by short-lived wetter periods, can be ascertained over the course of the Colonial period (O'Hara and Metcalfe, 1995), the severe droughts noted for the later 16th, 17th and 18th centuries perhaps reflecting the impacts in the tropics of the cooling associated with the Little Ice Age in Europe. According to archival sources, the variations in precipitation and hence also water availability were to have profound implications for a society which, although distinctly hierarchical in structure, was essentially dependent at all levels on water supply. Some insights as to the nature of human response to such changes can be gleaned from various archival and documentary resources. *Pleitos* over water, irrigation pledges and diversion programmes, for example, can all represent responses to variations in rainfall and water supply, while lawsuits over newly-emerged or submerged territory in the vicinity of lakes may be the result of climatically-driven lake level changes. Historical sources will, therefore, be used here to assess the impact of changing water supplies in

Michoacán and to address the question of climate change and water security since the Conquest. Some effort will be made to illustrate the general trends in archival references to water issues over time, and to highlight the nature of differential vulnerability to drought impact according to wealth and social status, political power and authority within the Colonial regime and within a context of demographic change, shifts in land tenure and resource administration.

**Figure 10.1 Periods of above and below average rainfall conditions in the Basin of Mexico as inferred from historical sources (from O'Hara and Metcalfe, 1995).**

(The symbols (triangular or circular) represent recorded droughts or wetter periods respectively).



### 10.3 Disputes over water bodies and sources

Litigation records indicate that access to water became a progressively contentious issue over the course of the Colonial period. Although this trend could reflect the dissent over social inequality stimulated by population pressure, coupled with the gradual monopolisation of lands and natural resources by individual land owners, and has been attributed as such in independent archival investigations of water disputes in the Colonial period in Puebla (Lipsett-Rivera, 1990) and in Guatemala (Webre, 1990), the correlation between contention and heightened concern over water supplies and increasingly dry climatic conditions demands attention.

The relatively few documents that do deal with problems associated with water during the 16th and 17th century do indeed seem to coincide with periods of drought. In 1550, for example there was evident concern over the permanent water body of San Gregorio (also known as Guani or Guipo), a major water source for the town of Pátzcuaro and Tzintzuntzan, which was apparently drying up at this time<sup>1</sup>. A year later a dispute over access to a water source occurred between the indigenous residents of Santa Fé de la Laguna to the north-east of Lake Pátzcuaro, and the Franciscan friars of the area who wanted to divert the waters to irrigate their sown fields<sup>2</sup>.

Surprisingly little evidence of actual water disputes has emerged from what was recognised to have been a particularly severe drought at the close of the 16th century, although Melville (1990; 1994) noted the drying up of springs at this time in the Valle del Mesquital<sup>3</sup>, and documents and accompanying maps (*pinturas*) detail the desiccation of Lake Cuitzeo at this time<sup>4</sup>. By the turn of the century, however, issues relating to water availability become more frequently referred to.

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<sup>1</sup> AGNM 3, exp. 495, fs. 204.

<sup>2</sup> Kraus Collection, 6th May 1551.

<sup>3</sup> Melville (1983; 1990; 1994) attributes the drying up of springs in the Valle del Mesquital at the close of the 16th century to a change in the vegetation cover and to a compaction of soils by trampling resulting from so called "irruptions" in the sheep population during the later 16th century.

<sup>4</sup> AGNM 13, fs. 242; AGNI 3, exp. 745; AGNI 5, exp. 192; exp. 522 all include references to the desiccation of Lake Cuitzeo at this time.

In 1607, for instance, a dispute took place between the residents of the *barrio* of San Salvador, in the Basin of Cuitzeo and the Jesuits, the latter having taken possession of the *naturales*' main source of water<sup>5</sup>, while there is evidence from the southern part of the state in the *tierra caliente*<sup>6</sup> to suggest that many *arroyos* (or ephemeral streams) in this area had dried up during the first decade of the 17th century. In 1605, moreover, one permanent river had ceased to flow "from the month of March onwards"<sup>7</sup>. That problems of water shortage continued into the second decade of the century is indicated by a document dating to 1612 which refers to the drying up of rivers close to the Jesuit run *hacienda* of Tareta, near to Sanabria on the eastern shore of the lower arc of Lake Pátzcuaro<sup>8</sup>.

No direct mention of water has been found in documents dating to the mid 1600s, perhaps reflecting the economic dislocation that characterised this period, and it is not until 1675 that water again emerges as a point of contention. In this year, Francisco Balas and Fabian Martinez were involved in lawsuit over land and the source of water called Viroto, located near to the former town of San Miguel, Pátzcuaro. Based on his survey of the lands in question Balas notes, however, that "where once I found water, now is dry"<sup>9</sup>. Around the same time, *arroyos* in the north and western part of the province also seemed to be suffering from desiccation. In Cuitzeo, for example, a small *arroyo* "of very little water" formed the basis of a *pleito* between the *naturales* of the town and Don Gaspar Salgado<sup>10</sup>, while a document dated 1691 mentions a stream in La Palma, Chilchota, to the west of the state whose water level varied, but which at this point in time was found to be dry<sup>11</sup>. Reports indicate that the drying up of water sources continued into the 1700s. One document dated 1706, for instance, describes the drying up of

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<sup>5</sup> AGNT 2953, exp. 6.

<sup>6</sup> Relación de La Guacana, 1605. Source: *Boletín del Archivo General de la Nación*. Tomo III, Número 4, 1962.

<sup>7</sup> Relación de La Guacana, 1605. Quiringuichuaguapo. Source: *Boletín del Archivo General de la Nación*. Tomo III, Número 4, 1962.

<sup>8</sup> AGNT 445, exp. 1.

<sup>9</sup> AGNT 189, exp. 2.

<sup>10</sup> AGNT 151, exp. 5.

<sup>11</sup> Tierras y Aguas, Leg. 6, TI, exp. 39.

an *arroyo* located in San Francisco Uricho, on the western shore of Lake Pátzcuaro, while a short time after this (1708), the source at San Gregorio, referred to earlier, was described as being no more than a bog or swamp<sup>12</sup>.

A shortage of water to the north of the province also seems to have stimulated a spate of disputes. In 1712, for example, a *pleito* was recorded between the *convento* of San Nicolás Yuririapúndaro and Joseph de Guzmán, within a document detailing a survey of the lands known as Las Carretas in the vicinity of the town of Yuririapúndaro, with references to dried up *arroyos*, *cañadas* and *cañadillas*<sup>13</sup>. At the same time in Chilchota, to the north-west of the province, Sebastian Paresco presented evidence on behalf of the *naturales* of San Francisco Acachuen in an ongoing court case to ensure rights of possession of the spring of water at San Juan Carapan<sup>14</sup>.

In the second decade of the century, the number of disputes between *naturales* and *hacendados* rose significantly, and with them references to water shortages and statements regarding the insufficiency of lands for the indigenous population. Between 1700 and 1730, for example, 36 *pleitos* over water were recorded in the Pátzcuaro and Cuitzeo basins alone. A *pleito* of 1718, for example, between the *naturales* of Indaparapeo and the *hacienda* of Los Naranjas, over the use of the waters of the River Canapetequaro, highlights the degree of tension over water at this time<sup>15</sup>. The document outlines the progressive moves by the *hacienda* to monopolise lands and resources since the 1650s, though the increasing lack of water had been causing concern to both landowners and the *naturales*. By 1718 the situation had reached a critical level and the *naturales* were left with no other option than to “travel a long way to access other water sources”. The *hacendado*, Don Nicolas de Villaseñor, was willing to reach a compromise and pay for temporal use of the river that the *naturales* traditionally used to irrigate their lands. The water shortage was a problem for the whole of the

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<sup>12</sup> AGNM 67, fs. 114f- 114v.

<sup>13</sup> AGNT 2987, exp. 3.

<sup>14</sup> AGNT 283, exp. 5.

<sup>15</sup> AGNT 354, exp. 6.

town, however, and supplies had become insufficient not only for the sowing of crops but also for more general, domestic purposes. Moreover, the document states that due to the lack of water “*there had been a deterioration*” in the town and its lands.

Similar disputes were taking place throughout the region at this time<sup>16</sup>. *Hacendados* were, for example, being held responsible for changing the natural courses of rivers in order to redirect waters to their lands<sup>17</sup>, but while the wealthy landowners were more often than not the accused in these cases, being more persuasive in terms of administrative and political power, they more frequently emerged as the victors.

Landscape descriptions also highlight the perceived lack of water during the second decade of the century. *Arroyos* in the region were, for example, described as having very little water or as being totally dried out, while there is mention of former shallow lakes becoming nothing more than “*big salt flats*”<sup>18</sup> at this time. The continuation of these dry conditions into the 1720s led to a series of requests to exploit water sources for irrigation purposes. In 1723, for example, a *pleito* between the Jesuits of Pátzcuaro, owners of the *convento* of San Augustin de Tiripetío, and Don Francisco Gallegas, a local land owner, dealt with the use of the waters of the River Necotlán. At the time, the *convento* held possession of the waters, though Don Francisco de Gallegas was petitioning for this monopoly to end, threatening to build a dam to divert the water for the benefit of his own lands<sup>19</sup>. A short time later in Zinapécuaro further north, a dispute between the Jesuits of Valladolid and the *naturales* of Queréndaro over the use of the River Parral again focused on the needs of both parties for irrigation water<sup>20</sup>.

In the fourth decade of the 18th century, the water source at San Gregorio was again the centre of concern according to a *pleito* dated to 1734. The

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<sup>16</sup> e.g. AGNT 389, exp. 1.

<sup>17</sup> AGNT 488, exp. 2.

<sup>18</sup> Tierras y Aguas, Leg. 5, TII, exp. 58; exp. 57.

<sup>19</sup> AGNT 417, exp. 2.

<sup>20</sup> AGNT 459, exp. 1.

communities of the nearby *barrios* of San Bernadino and San Salvador were apparently accustomed to exploiting the source and were dependent upon the use of the waters. Don Pedro Ibarra, the owner at that time of the *hacienda* of San Nicolás de la Laguna, had, it seemed, petitioned for a grant to divert the water course to “feed” his *hacienda*. Such was the nature of the case that a series of *testigos* (witnesses) were brought in to impartially adjudicate, reinforcing the *naturales*’ case, and adding that the nature of the soils in this area, being particularly porous, had exacerbated the problems of water shortage<sup>21</sup>. In this way, natural environmental factors had compounded the impact of water shortage. That water was a significantly valued commodity at this time is also suggested by a more domestic level dispute that took place three years later in June 1739 in Pátzcuaro town centre, between neighbours Don Pedro Zagredo and Don Andres Pimentel over a communal water supply and drainage system<sup>22</sup>.

There is an apparent decline in disputes over water in the 1740s and 1750s (see Fig. 9.1, Chapter Nine), with those that were documented occurring to the more northerly part of the region<sup>23</sup> - an area which, lying on the margin of the tropical summer rain belt, is more susceptible to drought. Towards the close of the 1760s, however, there is a resumption in *naturales*’ claims for land reinstatement and the need for irrigation water<sup>24</sup>. The townspeople of Queneo, for example, were claiming access to the waters at Cuencio, in the jurisdiction of Pátzcuaro, for irrigation purposes<sup>25</sup>, while the “baths” known as “Agua Calientes” in the district of Zinapécuaro formed the basis of a *pleito* between the owner of the Bartolilla Ranch and the *naturales* of the town<sup>26</sup>. The water was being used to run a mill and to irrigate croplands on the ranch, dispossessing the *naturales* of any water they had formerly held access to.

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<sup>21</sup> P.Caja 30c.

<sup>22</sup> P.Caja 29b.

<sup>23</sup> AGNT 1449, exp. 1; AGNT 824, exp. 3; AGNT 711, exp. 1.

<sup>24</sup> e.g. AGNT 916, exp. 5.

<sup>25</sup> Tierras y Aguas, Leg. 5, TII, exp. 59.

<sup>26</sup> AGNT 1177, exp. 1.

The impacts of the drought of the early 1780s, and which culminated in the so called “Year of Great Hunger” in 1785-6, have been well documented (Florescano, 1981). Drought induced crop failure<sup>27</sup> stimulated famine<sup>28</sup>, epidemic disease<sup>29</sup>, death<sup>30</sup>, and economic retardation<sup>31</sup>, and would appear to have even conditioned the later migrations of labour gangs to work in the sugar plantations of the *tierra caliente*<sup>32</sup>. That the severe drought conditions of this period should be reflected in water disputes is perhaps to be expected. A long-standing dispute, for example, between the Augustinians and the *naturales* of Taretán to the south-west of the Basin of Zirahuén over lands and access to water, came to a head in 1785. The two groups were fighting over the use of the river that ran through the town, the *naturales* of the town stating in no uncertain terms that their access to the water body should be protected<sup>33</sup>.

Although rainfall increased in the summer of 1786, general drought conditions prevailed. The lack of water still presented a problem for the growing “underclass society” (Burkholder and Johnson, 1992) - indigenous lands tended to lack irrigation, be covered by *tepetate* and were thus regarded as infertile<sup>34</sup>. Droughts of the previous years had, moreover, served to diminish the amount of seed stock available with which to sow when climatic conditions did ameliorate (Florescano, 1981) - a problem more apparent for indigenous populations whose levels of storage were much more limited than those of the landed classes and whose recovery was thus impeded. The impacts of drought were in this way far reaching and prolonged, but at the time socially differential.

At the close of the 18th century the number of recorded water disputes decreases once again (Fig 9.1, Chapter Nine) although archival references to

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<sup>27</sup> Alhondías 10: Yuririapúndaro.

<sup>28</sup> Alhondías 15, exp. 1; Alhondías 10; Tributos 20, exp. 15.

<sup>29</sup> Tributos 20, exp. 15, exp. 1; Reales Cédulas 134, exp. 179; Gazeta de Mexico TII, no. 13 and no 17.

<sup>30</sup> Tributos 2, exp. 5.

<sup>31</sup> Gazeta de Mexico, TII, no. 13.

<sup>32</sup> Historia 73: various entries.

<sup>33</sup> AGNT 1085, exp. 1; see also AGNT 1048, exp. 4.

<sup>34</sup> Alhondías 15, exp. 1.

climatically induced famine, plagues and pestilence<sup>35</sup>, desiccation<sup>36</sup> and heavy rains<sup>37</sup>, suggest that there was considerable regional climatic variability over this time. Drought conditions were to prevail into the 19th century, yet it was the social and political upheaval associated with this period of climatic perturbation, and which in part contributed to the Independence movement, that could well account for the scarce archival documentation of water disputes at this time. Clearly, other more national level issues had taken precedence.

#### **10.4 The impact of changing lake levels**

Many of the closed lake basins in the vicinity of the NVA have been classified as “amplifier lakes” (Harrison and Metcalfe, 1985) in that they have been found to be particularly sensitive to discrete variations in the precipitation regime. Slight changes in the ratio of rainfall to evaporation can lead to a rapid rise or fall of the level of the lake water, which can in turn lead to the submergence or emergence of vast land areas respectively depending on the depth of the lake basin. In shallow basins such as that of Cuitzeo or Pátzcuaro, only very small changes in the level of the water can lead to the emergence or submergence of quite sizeable tracts of land. Being derived from lacustrine sediments, these shore lands were often also the more fertile. Variations like this can, therefore, yield quite serious consequences for lake shore communities whose survival may depend on the sowing of such stretches of land. Many of the litigation documents dating back to the Colonial period chart the impacts that such climatically-driven lake level fluctuations have had on society in the past, and it is the purpose of this section to outline some of the disputes in question.

The majority of evidence comes from the Basin of Pátzcuaro which is to be expected given its role as the Purépecha and early Colonial capital. In common with evidence of water disputes, relatively little information is, however, available

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<sup>35</sup> Historia 72.

<sup>36</sup> Historia 9.

<sup>37</sup> Caminos y Calzadas 3, exp. 13, fs. 304-312.

for the 16th century. Snippets of useful information can, nevertheless, be gleaned from some of the deeds of sale and litigation documents dating back to the middle of the century. A drop in the level of Lake Pátzcuaro in the 1550s-1560s has, for example, been inferred from documents relating to a case against Don Pedro, Governor of Cirosto, 1560-1564 which states:

“...*the said lands were lake, and when it dried out he ploughed the land*”

(cited in O’Hara, 1993).

Further evidence of land conflict at this time is provided in documents relating to a dispute between the *naturales* of the Island of La Pacanda and the heirs of Juan Puruata and Beatrice de Castilleja (1609-1612) over the emergence of new lands as a result of falling lake levels which occurred after the death of Don Antonio Huitzimengari in 1562 (Alvarez y Gasca, 1952, cited in O’Hara, 1993). A decline in the level of Lake Pátzcuaro at the close of the 16th century similarly resulted in two *citaquas* of land being exposed in the vicinity of the former island of Apupato, on the south east shore of the lake in a location “*where the lake used to be but is now dry*”<sup>38</sup>. The lands were subsequently sold by Francisco Tzitziqui, resident of the island, to Diego de Castañeda for the sum of twenty pieces of gold in January, 1597. Indeed, even today, areas of land formerly representing lake bed is exploited for agricultural purposes (Plate 10.1).

Disputes over lake shore territories dominate the litigation documents for the former heartland of the Purépechan empire during the latter part of the Colonial period. In 1714, for example, the *naturales* of the towns of Jarácuaro, Tocuaro and Arocután fought over the newly emerged island of Copujo (at present connected to the mainland in the south-western part of the Basin of Pátzcuaro)<sup>39</sup>, finally settling on the division of the emerged territory into three uniform parcels. Of equal significance to lake-side communities, however, was the inundation of land by rising lake waters. In 1760, for example, the *naturales* of the town of San

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<sup>38</sup> AGNT 3448 (unico).

<sup>39</sup> Tierras y Aguas, Leg. 1, TI, exp. 48.

Pedro Pareo claimed the rights to five *caballerias* of land from the *hacienda* of Charagüen, but as the *hacendado* stated:

*“over the course of the past twenty years, the level of the lake water has increased so much that the water is now right next to the northern part of the city, and the ancient walls that the Indios had as a division of their territories are now a long way under the lake water”*<sup>40</sup>.

Because the *naturales* had effectively lost their territory to the rising lake waters, their claim could not really be justified. The *hacendado*'s case does seem credible given that the mid-century period is thought to have been one of generally wetter conditions, and could well have engendered an increase in the level of the lake waters, and a consequent loss of lake shore territory in the period immediately pre-dating the time the case was forwarded. Prior to the establishment of the *hacienda* in question, it must be remembered, the Purépechan population of this area will have been able to compensate for the land lost to rising water, by exploiting alternative lands, although this might have involved the use of potentially less fertile and more agriculturally marginal areas.

Definitive evidence of the impact of drought is provided by a document dated 1773 which suggests that lands near to Erongarícuaro were in a state of deterioration, having been “*brought from the lake*”<sup>41</sup>. This may well imply that the lake level had receded to reveal lands, here regarded as infertile, but whose ownership had, in consequence, come into question. Low lake levels were, moreover, to persist for a decade or more as suggested by a 1783 *pleito* dealing with the rights to access the additional lands that had emerged around the island of Copujo referred to above<sup>42</sup>.

That lake level changes were frequent phenomena is suggested by a *pleito* between the indigenous residents of Tzentzenguaro and the owners of the *haciendas* of Aranjuez and San Nicolás de la Laguna. Expansion of the *haciendas* had, it was argued, served to restrict the territory to which the indigenous

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<sup>40</sup> P.Caja 44a.

<sup>41</sup> P.Caja 49b, folder 3.

<sup>42</sup> Caja 56f, folder 1, fs. 1-206.

populations had access (see also Chapter Nine). Furthermore, the towns people stated that the lands that were in their possession were considered to be “*stony, covered in tepetate and infertile*”. To the west were lands presently “*left by the lake*”, but which during the rainy season “*became the lake*”. To the south, while lands were considered to be cultivable, they were “*salt encrusted*”, while to the north, lands were flat and cultivable but subject to flooding by lake waters during the rainy season<sup>43</sup>. As experience had obviously shown, the lands were wont to be submerged on occasions by rising lake levels, which is perhaps to be expected, given the annual lake level variations that will have inevitably taken place<sup>44</sup>. Those lands that emerged after lake waters had receded were regarded as inadequate for cultivation. Clearly, by this time the impacts of such fluctuations coupled with the monopolisation of territory in the area, and hence also the restriction of its access were quite significant from a social and economic sense, given that the lake-shore lands - necessary means of survival for the local indigenous land owners at least - could be unpredictably withdrawn.

Some longer term trends and impacts of climatic change also become identifiable from the archival records dealing with indigenous claims for land restitution. A document dated 1791 and dealing with a land dispute, for example, charts a drop in the level of the lake. According to the *pleito* between the people of the towns of San Pedro Bartolomé and San Pedro Pareo<sup>45</sup>, for example, falling lake levels had resulted in the emergence of a land area called Tinguintzequaro, to the north of the island of Jarácuaro, visible today (Plate 10.2), the possession of the lands consequently coming into question. Similarly, in 1793 there was a dispute between the townspeople of San Pedro Pareo on the southern shore of Lake Pátzcuaro and the residents of the Island of Jarácuaro over:

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<sup>43</sup> AGNT 1095, exp. 1.

<sup>44</sup> Annual water level variations in Lake Pátzcuaro have been estimated to be in the region of between 0.8 and 1m (Chacon-Torres, 1989).

<sup>45</sup> AGNT 1231, exp. 3.

“... a piece of land that has been uncovered by the lake called Pá(t)zcuaro as a result of the scarcity of rains in the last few years...”(cited in O’Hara, 1993).

In contrast, a case detailing the loss of lands to rising lake water levels was presented in 1793. The document charts the progressive diminution of the territory held by the *naturales* of San Pedro Pareo, which apparently covered five *caballerias* in 1718, but which, at the time of writing amounted to only one<sup>46</sup>. A case is made that all the rest of their former territory was then lying submerged beneath the lake. There may well have been a degree of observer bias and deliberate exaggeration on the part of the *naturales* regarding the loss of their territory, which may have also been diminished by monopolisation of lands by neighbouring *haciendas*. Nevertheless, an increase in the level of the lake from 1718, and hence the submergence of a vast swathe of lake shore land may have taken place, given that the water level was probably very low during the drought period that characterised the first two decades of the century, when the five *caballerias* were apparently still accessible.

The relative lack of documentation detailing potential impacts of climatic change during the 19th century stands in marked contrast to the previous 150 years. That indigenous communities and individuals continued to make claims for land restitution in a context of rising population and climatic deterioration, however, is exemplified by a document dating back to 1802/3 in which the residents of San Pedro Tzurumútaró claim to have insufficient lands of good quality with which to support themselves. To the north, they claim that, although they were in possession of the stipulated 600 *varas*, the territory was regarded as:

“sandy, lacking in trees and vegetation, because the lands represent former lake bed that has been revealed by receding lake waters”<sup>47</sup>.

Though it is not possible to identify exactly when this lake level change occurred, nor is it possible to assess whether the changes were gradual, the case made by the

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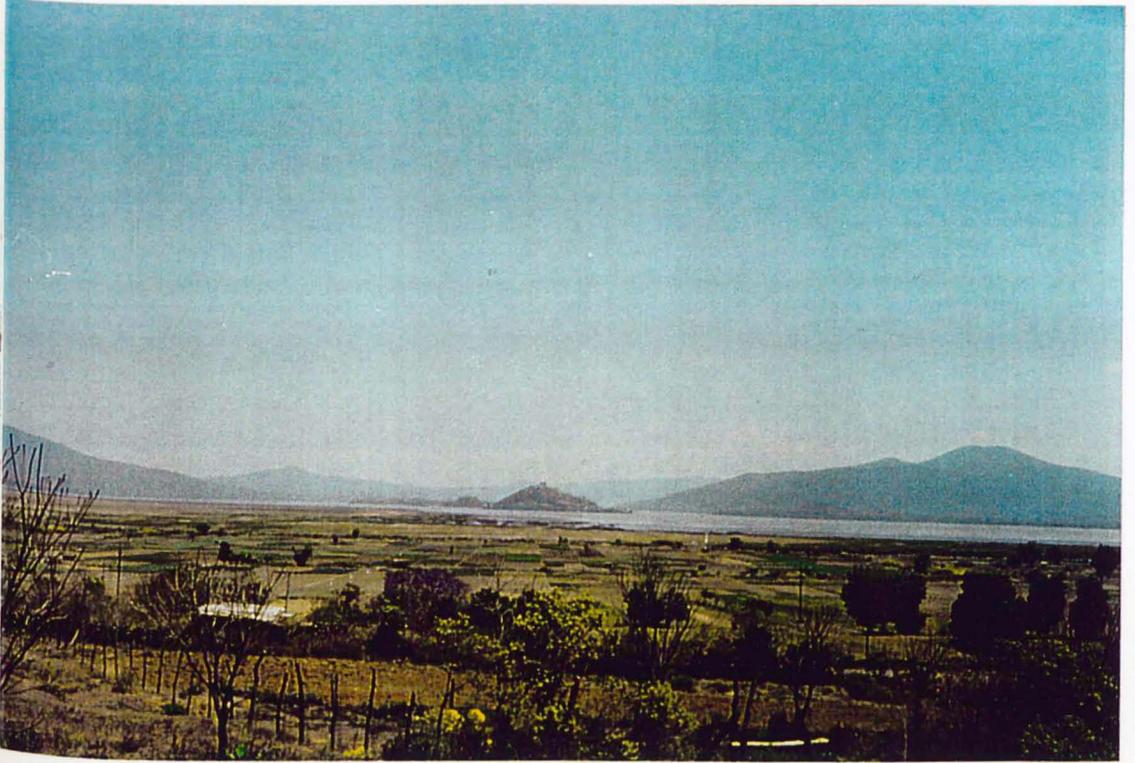
<sup>46</sup> P.Caja 58a, folder 3, fs. 454-674.

<sup>47</sup> AGNT 1322, exp. 2.

*naturales* leaves little doubt as to the detrimental impacts of such changes on the lake shore communities.

It is clear, therefore, that both long- and short-term lake level fluctuations have impacted on the lake shore communities. Annual lake level fluctuations would appear to have been superimposed on the longer term changes associated with trends in climatic drying. Traditionally, these fluctuations will have influenced the amount of cultivable land available, rendering their territories more or less extensive during periods of low or high water levels respectively. Low water levels would have allowed the exploitation of the lands that represented the former lake bed, although as archival descriptions indicate, these lands were not always considered to be the most productive. During times of high water levels, in contrast, alternative lands within the community territory would have been brought into use. The land tenure changes associated with the emergence of *haciendas* in such basins would appear to have disrupted this coping strategy, the *Indio* communities being unable to expand onto territory that had been usurped by neighbouring *hacienda* lands. It is perhaps because of the trends in climatic drying and progressive monopolisation of lake shore lands in the area that land disputes between the *barrio* communities and *hacendados* of the Basin of Pátzcuaro (see Chapter Nine) accelerate throughout the course of the 18th century.

**Plate 10.1 Agricultural exploitation of the former lake bed, March, 1996,  
looking eastwards across the lake from San Pedro Pareo.**



**Plate 10.2 Emerged land in the vicinity of the former Island of Jarácuaro,  
looking south-west from Erongarícuaro.**

The elevated road shown in the photograph was constructed as a causeway when the level of the lake water was higher.



## 10.5 Water as a key resource: social reaction, economic response and adaptation to climatic vagary

Variations in annual precipitation would appear to have been important stimuli of land and water disputes in Michoacán over the course of the Colonial period. The severity of such changes in rainfall does, however, appear to be variable, with northerly regions being more susceptible to drought, lying as they do on the arid northern margin of the climatic gradient. Dry conditions in the 1550s, for example, had significant social and economic consequences (Florescano, 1972) and there is evidence of civil unrest in the northern *Chichimeca* borderlands at this time<sup>48</sup>, accompanied by southward migrations to better watered central regions (Querétaro, Yuririapúndaro and Cuitzeo). Admittedly, this upheaval could also reflect the expansion northwards of the Spanish frontier of settlement, associated with the mining industry and the spread of livestock ranching in this area in the mid-16th century (Israel, 1975). There was, however, concern over the number of people leaving the towns of Huango and Yuririapúndaro and moving south to settle around the Basin of Cuitzeo at this time<sup>49</sup>.

As already noted, relatively few disputes occur during the early to mid 1600s a period of apparently dry conditions. This may reflect a number of factors. Firstly, that the severity of drought might have been regionally variable, the north being more likely to be affected. Secondly, although drought-induced crop losses may have been apparent at the local scale, the impacts of the drought periods may not necessarily have been sufficiently intense to have inflicted a widespread impact on water resources *per se*; and thirdly, given the poverty of many of the *naturales* it is perhaps to be expected that some incidences will have been settled without recourse to adjudication, or may have been disregarded. Few individual *naturales* will after all have been able to support the costs that court cases incurred, and

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<sup>48</sup> Ayer Collection, nos. 196 and 198, fs. 213 r.

<sup>49</sup> Ayer Collection, fs. 352v-353r. 1553.

unless voiced from a community stance, such cases may have thus never been aired.

It must also be remembered that the indigenous population did not start to show any signs of recovery until the late 17th century and it may well be the case that access to water had not become an issue while population levels and hence demands on water sources were met by the available water supplies. In the 1700s, however, there is a marked increase in the number of lawsuits dealing with water access and acquisition, reflecting perhaps the impacts of changed water supplies in a context of increasingly severe drought conditions, but perhaps also the rising indigenous population levels and progressive land and resource usurpation from indigenous hands. Indigenous communities were by the mid- to late 18th century in a numerically stronger position to voice their dissent at the judicial level.

Butzer and Butzer (1993) suggest that the level of Lake Cuitzeo was higher or at least as high as the present day level during the late 1570s and 1580s, judging by the *Tierras* documents and accompanying maps (*pinturas*). The *Relación de Cuitzeo de la Laguna* makes no specific reference to dry conditions and, although the salinity of the water is commented on, implying some degree of desiccation, that fish still provided the mainstay of the economy at this time is an indication that there was water in the lake, or at least some parts of the lake (Acuña, 1987). There are, moreover, other references that would tend to support the view that this period was not one of drought. There are, for example, references to plentiful waters and “*water overflowing in the roads during the summer months*” in Chocandiro<sup>50</sup>, and the swamps and *arroyos* in Zinapécuaro are at this time described as “*impossible to pass*” (Ciudad Real, 1585, in Quintana and Ferreras, 1976). This period seems to have been one of wetter climatic conditions.

The situation becomes very different in the late 16th century, however, and especially during the first few years of the final decade of that century, for as documents and accompanying *pinturas* illustrate, there was a distinct drying

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<sup>50</sup> Relación de Chocandiro, 1579. Source: Acuña, 1987.

tendency at this time as illustrated by the desiccation of Lake Cuitzeo to a “*big swamp*”<sup>51</sup> and depicted as such<sup>52</sup>. Moreover, there was evident concern for the livelihood of the townships surrounding the lake who were dependent on the lake for its now depleted fishing resources. Indeed, such was the level of administrative concern, that local government orders were given to divert the waters of the Rivers Guayangareo<sup>53</sup> and Indaparapeo<sup>54</sup> to Lake Cuitzeo in order to raise the level of the lake water. As was common practice in such public works, however, the local *Indio* populations were to provide the labour for such a task - a tendency illustrated by mandates issued by the early Colonial administration to this end (Paredes, 1995).

Dramatic and detrimental as the impacts of climatic change could be, the adaptations and strategies that such perturbations were to stimulate often resulted in the exploitation of a bad situation. The description of a clearly desiccated Cuitzeo Basin by Fray Diego de Basalenque in 1644 leaves little doubt as to the degree of impact that climatic drying tendencies had on the area (cited in Moreno, 1985). But the fact that the “*lake did not cover the land*” was not perceived to be an altogether negative phenomenon. As Basalenque went on to notice, for instance, on the desiccated lake floor grew a very useful source of fuel (Nuñez, 1982), a grass:

“*that they call barilla.....and while this grows in other lake bed areas, it is of better quality from here*” (Basalenque, 1644 cited in Moreno, 1985:130).

The general drying tendency characteristic of the early 1700s was to yield similarly good and bad impacts. While there was desiccation of former swamps and wells in an area of Tiripetío, to the south-east of Valladolid, east of Lake Pátzcuaro, called Oporo, the impact of the drying up of the water source by 1741 appears to have

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<sup>51</sup> AGNT 2375, exp. 11; AGNT 2721, fs. 326.

<sup>52</sup> AGNT 2682, exp. 19-23.

<sup>53</sup> AGNI 3, exp. 745, fs. 174v; AGNI 5, exp. 192, fs. 53v-r.

<sup>54</sup> AGNI 5 exp. 522, fs. 144v-r

been capitalised on, given its conversion to a wheat field<sup>55</sup>. Similarly, during the agricultural crisis of 1785-6, the growth of a grass species in the district of Zamora, north-west Michoacán, capable of surviving drought, provided cattle fodder where all other plant species failed. In consequence, there was said to be “*more milk than water*” in this location<sup>56</sup>. Moreover, it was the impacts of this latter drought period that were to stimulate the development of more extensive irrigation systems in the *tierra fria* and *caliente* lands<sup>57</sup>, although doubt has been expressed as to the effectiveness of irrigation in averting the severe impacts of drought for contemporary agro-pastoral communities (Yates, 1981; Liverman, 1990). It seems feasible to assume, moreover, that irrigation schemes were again to favour only the more wealthy land owners of the region - the *haciendas* and church-run estates again deriving any apparent benefits. A certain level of adaptation to changing environmental circumstances seems, therefore, to have taken place throughout the Colonial period, even if such adaptations were driven for the most part by necessity.

The problems engendered by water shortages did not go unrecognised by the local Spanish administration. Amongst the policies implemented throughout the course of the Colonial period which sought to control the distribution of and access to water sources (Musset, 1992) was the legislation issued in 1761 under the *Reglamento General de las Medidas del Agua*. Water was theoretically to be distributed according to the nature and significance of its use (Musset, 1992), with different allowances being made for permanent and temporally irrigated lands, for domestic use and for the running of mills. In practice, however, there was to be a good deal of disparity between the legislation imposed and the degree to which measures were actually adopted and adhered to. In actual fact, the distribution of water sources was far from egalitarian and it is clear from many of the archives dealing with water-related issues and water security that the perceived degree of impact resulting from climatically-induced changes in the water supply was

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<sup>55</sup> AGNT 621, exp. 3.

<sup>56</sup> Alhondígas 15, exp. 1.

<sup>57</sup> Alhondígas 15, exp. 1.

dependent as much on social status and the ability to adapt to change as the meteorological event itself, with members of the lower classes nearly always suffering more as a result of a particular climatic induced calamity. In this respect, Colonial rule can be seen to have exacerbated the problems of living in a climatically-sensitive area at least for certain sectors of society.

This trend is illustrated by the number of claims raised by *Indio* populations and communities over the course of the Colonial period but also by more indirect sources. Tribute loadings were, for example, apparently maintained even when there was drought-induced crop failure and lake and river desiccation had reduced the ability of the tribute populations to satisfy demands. With the almost complete desiccation of Lake Cuitzeo in 1543, following a move to drier conditions (Butzer and Butzer, 1993), for instance, there were pleas from the *Indios* of Zinapécuaro, a *barrio* to the south of the lake, for the tribute loadings to be reduced (Escobar-Olmedo, 1986). This reaction is perhaps to be expected given that fish, unavailable following the desiccation of the lake, formed the principal tribute commodity of this community. The situation seems to have changed little during later severe drought periods, such as that of 1785-6, when tribute demands were again proving impossible to fulfil<sup>58</sup>. From archival descriptions it seems that indigenous territory, relative to that of *haciendas*, also suffered more from the impacts of drought<sup>59</sup>, though often descriptions of deteriorating and degraded landscapes in *Indio* territory date from the latter half of the 18th century - a time, as discussed, when the indigenous population had recovered to such an extent as to be in a position to petition for land and resource reinstatement. The expansion in population was, however, placing pressure on the limited water resources by the close of the 18th century. The city of Pátzcuaro itself, for example, experienced an expansion of population from 1739 people to 2702 between the early 18th century and 1793 (Chapter Eight, Table 8.1), but

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<sup>58</sup> Tributos 20, exp. 15.

<sup>59</sup> AGNT 867, exp. 8; AGNT 1095, exp. 1; AGNT 916, exp. 5; Alhondígas 15, exp. 1.

population levels in the district of Pátzcuaro and environs had increased to such an extent that by 1789, the:

*“clear thin waters of the lake were poorly administered between the uses of the population of the area”*<sup>60</sup>

It must be considered that a far greater population will have imposed more of a strain on the distribution and quality of the lake water in the immediate pre-Conquest period. Evidence of pre-Hispanic eutrophication would indeed suggest this had been the case (O’Hara, 1991). Nevertheless, the problems associated with adequate lake water distribution in the later colonial period were still substantial enough to have caused concern.

Clearly, European contact was to have profound repercussions at all socio-economic and political levels of New Spain. As land was gradually usurped from indigenous hands - a practice facilitated by the native depopulation of the 16th and early 17th centuries - the natural resources within that land also fell into private possession. With the rise of the church and powerful *haciendas* during the course of the 17th and 18th centuries, many of the water sources traditionally used by indigenous communities and families thus became inaccessible. Water became a contentious issue, and ultimately a saleable commodity (Musset, 1992).

It would be a little too presumptuous, therefore, to assume that the increase in the number of documents dealing with water disputes during the course of the 18th century reflects anything other than a rise in the *Indio* population, and a consequent increase in claims for land restitution and access to water in a context of resource monopolisation and diminishing water supplies. This assertion could then explain the apparent lack of water related disputes that took place in west central Mexico in the 1590s - a period recognised, as discussed, to have been one of extreme drought. Unlike later drought periods such as that of the first two decades of the 1700s and early 1780s, the later 16th century population was

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<sup>60</sup> Historia 73: Pátzcuaro. Note, however, that indigenous population levels were to never match their pre-contact proportions. Even by 1959, for example, the *Indio* population in Michoacán amounted to 96,913 (Cook and Borah, 1960), representing a reduction of 92% from its pre-Conquest level.

numerically much diminished and the monopolisation of resources by land owners was only just beginning to become apparent. Desiccation at that time might have been less of a dramatically detrimental issue, there being sufficient supplies for a relatively limited demand. The same scenario could be postulated for the apparent lack of archival references to water issues over the course of the turbulent 1620s, 1630s and 1640s, when there were recognised climatic and agricultural crises (Pastor and Frizzi, 1989). Either dissent was not expressed or was simply not heard during these periods. Inferences of climatic change and consequent impacts and responses stimulated therein must, therefore, be set within the general demographic, and socio-political context if they are to be ascribed any meaningful significance. In this way, it could be that climatic vagary, demographic and social trends had co-evolved to render the impacts of drought episodes apparently more severe in the later Colonial era than those of earlier periods.

Admittedly, it follows that there are clearly cases where repercussions of climatic fluctuation go unrecognised in the archival and documentary evidence, given that, more often than not, only those events resulting in more negative impacts would be recorded. The perceived severity of the impact, therefore, determines the likelihood of its inclusion in the records. On these grounds, it should be appreciated that the archival documents available for investigation represent at best only an incomplete record of the changes taking place in climate and water supply, the impacts that this had on society and the responses thus stimulated.

### **10.6 Summary**

From the evidence presented here it is suggested that a general trend of climatic drying can be ascertained from the late 16th century through to the 18th, and it is tempting to interpret the increased body of land and water disputes as a reaction to the changes wrought by the climatic perturbations of this era. There are clear peaks, for example, in water related issues in the early 1700s and 1780s - two periods when the region is known to have been affected by drought. In this

respect, stress over water sources would appear to have been climatically-driven. We could thus be dealing with the impacts of a “Little Drought Age”, a tropical manifestation of the “Little Ice Age” in Europe.

Trends in water disputes do, however, correlate with those over land, emerging as they do in the later 17th century and accelerating in the 1700s. This similarity perhaps indicates that the impacts of resource monopolisation and population expansion may have contributed to stress on what has always been a limited supply of water in this climatically-sensitive area. There is in addition evidence to suggest that the impacts of drought or changes in water security may well have been more severe for the poorer classes which, in Colonial Michoacán, comprised largely indigenous and *Mestizo* populations. Territorial usurpation, a lack of fertile land with which to support a rising population, and a limited range of “options” had in effect served to render the impacts of climatic drying more severe for those sectors of society.

In the following chapter, I propose to investigate the degree to which the same changes in land use, tenure and administration of natural resources associated with Spanish Colonialism affected the way in which the landscape in Michoacán came to be perceived and described. Efforts will be made to highlight the degree to which descriptions of the environment reflect background, purpose and intent of the informant, and were employed as a medium through which to voice dissent over social and economic inequality, or reflect evidence of environmental deterioration and degradation in real terms as a function of changed land use and tenure and population pressure in this environmentally-sensitive region.

## Chapter Eleven

### Post-Conquest perceptions of the landscape in Michoacán: environmental change and the impacts of Colonialism.

#### 11.1 Introduction

By the close of the 18th century, almost three hundred years of Spanish Colonial rule in Mexico had elapsed. In this time there had been a number of significant changes in the way lands and resources of the colony came to be exploited and managed. The cultural integration of new foods and technologies was, for example, well underway by the early 17th century, and the Spanish and the indigenous economies were to some extent interdigitated by the close of the 18th century (Wolf and Mintz, 1957; Sanders, 1992). There were, however, a series of more fundamental changes in land use that had taken place in central Mexico over the course of the Colonial period and which Butzer (1991) has discussed in terms of a cycle. The initial de-emphasis of cultivation and the remarkable expansion of livestock, especially along the northern periphery of the populous Indian settlement frontier, for example, are thought to identify a process of de-intensification consequent upon labour shortage, the low price of land and agricultural products, and the adaptive difficulties of recreating a dual pastoral and agricultural economy in what can be considered an “alien” environment to the colonists. Re-intensification can be shown to be incremental, and ultimately dependent upon the rapid population growth experienced by the Spanish, the indigenous and *Mestizo* populations during the 1700s (Butzer, 1991).

Throughout the course of the Colonial period the rural and urban economies also became more tightly coupled. The expanding cities demanded agricultural products and the great estate came to rule the country in the city's name (Lockhart, 1969). There began to emerge a competition for space and natural resources - a reflection of the combined impacts of resource monopolisation by the emergent *haciendas*, demographic expansion and the progressive climatic drying that had characterised the 17th and 18th centuries. By

the close of the Colonial era there were signs that the demographic and agricultural expansion in the heartland of Mexico had reached a critical threshold, given the constraints of the available technology and infrastructure - a scenario reminiscent of central Mexico in the immediate pre-Conquest period (Williams, 1972; 1989). Sharecroppers and tenant farmers were being squeezed by excessive work demands, while periodic climatically-driven harvest crises - always a problem in central Mexico since the advent of sedentary agriculture - were continuing to wreak social and demographic havoc.

Traditional theories regarding population expansion and land use strategies would suggest a range of hypothetical responses to this untenable situation. Out-migration and economic diversification have already been referred to in Chapter Nine. It seems reasonable to assume, however, that there may have also taken place something of an intensification of land use in areas already being exploited, and an acceleration in the colonisation of hitherto little exploited areas of land over this time period (Boserup, 1965). Some of the more marginal territory may have thus been brought into use. That there should have been some degree of environmental impact as a result of these exploitative dynamics and land tenure changes is perhaps to be expected. In this chapter, I aim to employ archival landscape descriptions to investigate the extent and timing of this impact.

Attention focuses primarily on the period post-dating the first century after contact - as discussed in Part Two, a time of transition and experimentation - and addresses changes recognised throughout the remainder of the Colonial period up to Mexican Independence in 1821. Some discussion of the way in which landscapes were perceived after Independence is, however, also essential. After all, Spanish rule may have ended, but in much the same way as the Colonial administration was to leave its legacy on society in Michoacán, so too may its environmental repercussions have continued to model the landscape of the region.

General macro-scale environmental descriptions derived from travel reports and accounts are first discussed in order to provide an impression of the landscape of the region as a whole as it was perceived by “visitors” to the area

throughout the course of the Colonial and Independence periods. More detailed local landscape descriptions derived from litigation records and location-specific surveys dealing with lands in the vicinity of the three lake areas of concern in this project will then be discussed in order to assess the degree of environmental change that had taken place in these locations over the same time period. In this way it will be possible to illustrate macro-, meso- and in some cases even micro-scale evidence of environmental change over the course of the Colonial and Independence periods, and from this to glean some insight into the nature and scale of the longer term impacts of Spanish Colonialism on the appearance and condition of the landscape in Michoacán.

### **11.2 Views from the “visitors”: general perceptions of the landscape in post-Conquest Michoacán**

In the 18th century, European philosophy was seized by the Enlightenment movement. A series of developments and a new way of thinking about the order of the world had stimulated what Pratt (1995) has termed the era of “planetary consciousness”. So emerged a thirst for comprehension of what lay *within* the “new” continents and beyond the coastlines. It was around this time that some of the first environmental descriptions of Michoacán, geared specifically towards the accrual of geographical and historical information, began to be published (Diaz, 1991). Throughout the course of the 19th and 20th centuries, Mexico also acted as a potential outlet for European expansion and ambition, with apparent untold, if unknown, opportunities for overseas investment and commercial enterprise. It is thanks to what can be considered to be a second phase of European preoccupation with the New World that there is a body of documentation with which to reconstruct the later Colonial and Independence landscapes of Mexico as they were perceived through the eyes of a series of travellers to the area.

Many of these documents discuss the landscape, resources and societies of Michoacán. Some of the accounts of the 17th and 18th centuries can, for example, be used to elicit basic macro-environmental perceptions of the region as a whole

for a time when more official sources of archival material are relatively limited. According to Juan de Torquemada, for example, writing in his *“Monarquía Indiana”* (1610), which he is thought to have begun in 1586:

*“there are many very good forests of good wood and many cedars and cypress trees. There are abundant salts and there is found there good black stone (soil).....All the land in Michoacán is fertile and there is abundant produce derived from it, especially that produced by the Indios.....such as maize, chile, beans, squashes and many fruits”.*

In accordance with the opinion first expressed by Fray Toribio de Benavente de Motolinía some years earlier in 1541, our informant suggests that there had been a good deal of landscape disturbance in the first decades of Colonial rule, albeit attributed at the time to Spanish mining activities rather than agricultural practices. That degradation in the region was, however, recognised to be a post-contact phenomenon is perhaps significant.

Similarly favourable reports of the state were provided by Dutch academic, Joannes de Laet (1625), who commented on the:

*“clement climate, great fertility in the land.....attractive plains and extensive grazing pastures.....rising hills and tree-covered mountains”*  
(de Laet, 1625)

More astute accounts, however, detailing vital information on the way in which the land was perceived at this time, and regarding the natural resources within the region began to be compiled in the early 17th century. Fray Alonso de La Rea, for example - a native Mexican, born in Querétaro, central Mexico - commented on the vegetation, lakes, settlement characteristics and cultural traits of the area. Nevertheless, he too concluded the region to be:

*“very fertile...a paradise in which the irrigation waters are the most copious in the whole kingdom”* and where *“in some parts there are many oak trees that adorn the mountains”* (La Rea, 1643),

while Thomas Gage, an English traveller who visited Michoacán in 1643 was similarly impressed by this *“extremely rich and abounding province”* (Gage,

1643). In sum, the broad scale general descriptions of the landscape of Michoacán provided by commentators of the 17th- and early 18th century indicate little evidence of environmental disturbance.

The exclusion of the rest of the world from the Spanish Americas until Independence was to act as a source of fascination sufficient to initiate all manner of fantastic and mythical imagery, in a process curiously reminiscent of the European cosmogenies of the 15th and early 16th centuries which pervaded the early Spanish Colonial landscape descriptions and surveys. Subsumed under the paradigm of Enlightenment and the so-called “new way of thinking”, the Americas became first subject to the contemporary European debate over the apparent superiority of the Old World plant and animal species over the New. More than this, however, the narratives and travelogue reports of the former Spanish territory that followed in the wake of Independence attempted to “recreate” the landscape according to the “Eden” like qualities accorded it by the promulgators of the debate.

Perhaps one of the most useful travel reports of the mid-19th century reflecting this tendency was that provided by travel writer Madame Frances Calderon de la Barca. “*Take a map of Mexico*” she implored in her 1844 publication “*and you will see that Michoacán (is) one of the most beautiful and fertile territories of the world....*”. Of the landscape in the Basin of Pátzcuaro, she suggests “*it was impossible to conceive a greater variety of beautiful scenery, a greater waste of beauty...*” Even the more rugged volcanic surfaces she described as being “*horribly beautiful*” and “*wild*”, while landscapes in the tropically vegetated Uruapan are compared to “*the garden of Eden*” (de la Barca, 1944).

The general appearance of landscape in the region would seem to have changed little by the time Belgian academic Jules Leclerque came to the area in the 1880s. He too commented on:

*“the green mountains forested right up to the peaks...the colours soothe the eyes, it is a landscape of natural beauty”* (Leclerque, 1885).

In a similar vein Adalberto Cardona - an American born of Spanish ancestry - travelled through Michoacán on the National Mexican Railway in the 1890s describing, like others before him:

*“the hills covered in green mantle and modest houses, lost amongst the fresh and dense foliage of a savage or wild vegetation”* (Cardona, 1893).

It may be significant that many of the aforementioned authors were struck by the sharp contrasts in the appearance of the landscape *en route* from north to south along the climatic gradient of the central Mexican highlands. Such was the disparity between the desiccated landscapes of the northern lands, which lay at the drier end of the climatic gradient, and the more central, wetter areas which included the former Purépecha heartland of Michoacán, that the scenery they were confronted with at least in the more central highland area of Michoacán did indeed represent something of a relative “paradise”. This factor is admirably illustrated by Eduardo Mühlenpfordt, German geographer and disciple of eminent academic Baron Von Humboldt, who discusses the *tierra fria* landscape of Michoacán in his 1844 report:

*“the territory is marked by hills and “furrowed” with pleasant valleys. One is frequently confronted with extensive plains irrigated by arroyos: a sight to which the traveller proceeding from the hotter drier lands is unaccustomed”* (Mühlenpfordt, 1844).

With all these descriptions, however, observation would appear to have been limited to the more salient macro-scale landscape characteristics as they appeared to the “visitor”. Descriptions seem to have been in some way influenced by the desire to inspire the aesthetic-seeking minds of a largely European target audience in the throws of the Romantic movement. Furthermore, the narratives resulting from this new-found, or renewed, interest in the former colony tend to reflect what Pratt (1995) has termed a deliberate or unintentional “anti-Conquest” theme, whereby the drives toward increased awareness and comprehension of the “rediscovered” lands tended to mask a hidden commercial or distinctly Colonial agenda. In this way there was a tendency reminiscent of the *Relaciones* and other

early Spanish surveys to describe the landscape and environment of the New World solely in terms of its economic potential and macro-scale landscape characteristics. In this respect some of the more localised evidence of environmental disturbance may have been overlooked.

Inevitably such reports thus reflect what can only be considered an unsubstantiated and almost “blanket” perception of what was and clearly is a vast and diversified territory, one that possesses regionally varied environmental characteristics and which had witnessed a composite array of very different settlement and exploitation histories. It is to be expected that the environment represented not one of uniform fertility and productivity, as the above descriptions would perhaps imply, but rather one of great complexity, variability and diversity, and more pertinent to the present discussion, one displaying different levels of disturbance.

More detailed meso- and in some cases micro-environmental information can, in contrast, be gleaned from some of the official litigation and *composición* documents and local surveys dealing with specific locations in Michoacán. It is only really in the later 17th century and throughout the course of the 1700s, however, that such material becomes available, as population expanded in a context of climatic drying, competition over space and natural resources mounted, landed monopolies began to emerge, and indigenous complaints over insufficient access to resources and claims for land restitution began to be more frequently aired at the judicial level. The purpose of the following section is to employ some of these documents to reconstruct the way in which the perception of a particular landscape changed over time and in so doing to assess the degree to which these changes reflect *actual* environmental changes in that area. Attention again mostly focuses on the lands in the vicinity of the three lake basins: Pátzcuaro, Cuitzeo and Zirahuén in order to illustrate the ways in which the appearance of the landscapes in these areas had changed since the early Colonial period. The degree to which any “change” in this respect is a result of activities associated with Spanish Colonialism will also be assessed.

## 11.3 Description, degradation and dissent: local landscape change and the Colonial environmental impact

### 11.3.1 Pátzcuaro

Essentially two categories of environmental data can be identified as being significant in the 17th and 18th century documents dealing with the landscape of the Basin of Pátzcuaro. The first is concerned with vegetation change and deforestation, and the second deals with land quality, perceived potential and infertility. References to these environmental phenomena start to become apparent in the 1700s. Descriptions of “*views of withered mesquite bushes on the surrounding hillsides*”, in the vicinity of the *hacienda* or ranch of Sinagua, close to Pátzcuaro, during the second decade of the 18th century<sup>1</sup>, for instance, along with frequent references to gullies and *barrancas*, and broken terrain in the vicinity of the basin around the same time<sup>2</sup>, are suggestive of some degree of environmental deterioration in this location. No information is, however, provided from which to ascertain the timing or the cause of this degradation. Other locations in the vicinity of the basin would, however, appear to have similarly undergone degradation by this time. Lands in the vicinity of Erongarícuaro, for example, on the western shore of Lake Pátzcuaro were considered to have been:

*“stony.....infertile and totally without water, the only water being that from the lake”<sup>3</sup>.*

while the lands around San Pedro Pareo, on the southern shore of the lake were described in 1714 as:

*“mountainous, stony, rocky, infertile with only four caballerias of land that are of any use as seasonally irrigated agricultural land”<sup>4</sup>.*

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<sup>1</sup> AGNT 333, exp. 1.

<sup>2</sup> AGNT 333, exp. 1; Tierras y Aguas, Leg. 4, T II, exp. 56; Tierras y Aguas, Leg. 5, TI, exp. 31; Tierras y Aguas, Leg. 4, TII, exp. 56.

<sup>3</sup> Tierras y Aguas, Leg. 4, TII, exp. 56.

<sup>4</sup> Tierras y Aguas, Leg. 5, TII, exp. 67.

Another document dealing with *composición* of the lands in the area, refers to “*some magueyes (agaves)*” and “*infertile lands and fallow lands*”<sup>5</sup> implying that the area was not perceived of favourably. The very presence of maguey plants, unless being cultivated by local indigenous communities, would tend to support the idea that the area had indeed undergone some degree of environmental deterioration with subsequent regeneration of a vegetation characteristic of a disturbed landscape (Butzer and Butzer, 1993). Some degree of land abandonment in this area as a result of apparent infertility is perhaps also suggested. That the landscape had been moulded solely by human action should not, however, necessarily be assumed. Ultimately we may be dealing with a landscape in its natural state or which has been affected by the dry climatic conditions of the early 18th century.

Another manuscript dated 1745, and dealing with lands to the north-west of the basin, around the *haciendas* of Bellas Fuentes to the north of Lake Pátzcuaro, and Oponguío on the north-eastern shore of the lake, in contrast, makes reference to high mountains and rough lands covered thick with trees<sup>6</sup>. Although this description would indicate limited disturbance, the lands in question had for some time been considered unsuitable for exploitation. As *Indio* informants from the area suggested:

*“there had been founded in the past a town that they used to call San Marcos Matteredges which, due to a lack of water and very sterile soils, was depopulated...”*

Unfortunately, no indication is provided to assess the period in which this settlement existed, nor is any indication given as to the timing of its abandonment. That the thick forests in the area could, however, represent a secondary regeneration is not out of the question, particularly given that there were other signs of environmental degradation in the area, as can be inferred from isolated references to *barrancas* and broken and rough terrain. The area was, furthermore,

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<sup>5</sup> Tierras y Aguas, Leg. 1, TI, exp. 7.

<sup>6</sup> Tierras y Aguas, Leg. 8, Lib. 4.

described as a “*badlands*” environment in a document dated May 1714<sup>7</sup>, and a later document, compiled in 1762, but dealing with the same area, discusses the “*high maguery covered ridge*” at Oponguío<sup>8</sup>, perhaps suggesting again that the area had undergone some disturbance.

In some locations, the state of the landscape was such that any form of exploitative land use was regarded as impossible. Lands in the vicinity of Las Millipas, Pátzcuaro were, for example, regarded as so unproductive that they were perceived as being unsuitable for either cultivation or pastoral purposes. According to a document detailing a case of land usurpation, for example, the area was considered to be:

*“infertile, and impenetrable even for animals.....hilly and mountainous”*<sup>9</sup>.

Similar references were made in a document dealing with the *composición* of the *hacienda* of Charagüen, to the south-west corner of the basin, in which the lands of the area were described as “*rough uplands....completely useless*”<sup>10</sup>, while other plots of land in the area belonging to the *naturales* of Ajuno were described as “*infertile..... arid and dry, and others rough and mountainous*”<sup>11</sup> according to a *pleito* filed in 1762. Territory in the vicinity of the town of Ihuatzio was similarly described as “*infertile and useless*” according to a manuscript dated December, 1714<sup>12</sup>, although there are isolated references made in a later document (1740) to the presence of drought-resistant vegetation (yucca plants and cacti) in the area<sup>13</sup>. That climatic drying, in conjunction with human disturbance, may have thus influenced to some extent the nature of the predominant vegetation and the condition of the landscape in this particular area should be considered. No evidence is, however, provided in any of these cases from which to estimate the

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<sup>7</sup> Tierras y Aguas, Leg. 4, TII, exp. 56.

<sup>8</sup> Tierras y Aguas, Leg. 5, TI, exp. 24.

<sup>9</sup> Tierras y Aguas, Leg. 5, TII, exp. 58.

<sup>10</sup> Tierras y Aguas, Leg. 10, exp. 24.

<sup>11</sup> Tierras y Aguas, Leg. 1, TI, exp. 17.

<sup>12</sup> Tierras y Aguas, Leg. 1, TII, exp. 56.

<sup>13</sup> Tierras y Aguas Leg. 1, TI, exp. 12.

extent of the area to which such descriptions apply thus limiting any interpretation that could potentially be made. It could well have been in the interest of the respective land owners to understate the quality of the lands in question, in order to depreciate the value of the land, thus preventing usurpation, but it seems that a case for environmental degradation can be forwarded.

Towards the close of the 18th century, problems associated with access to cultivable land had apparently reached critical proportions for some communities. In one document dated March 1783<sup>14</sup>, for example, a particularly detailed survey of the lands belonging to the *Indios* of the town of Tzentsénguaro, on the southern shore of Lake Pátzcuaro, to the west of the city of Pátzcuaro itself, was carried out by an impartial adjudicator as part of court proceedings dealing with the usurpation of *Indio* territory in the area by the neighbouring *hacendados* of Aranjuez and San Nicolás. To the east, adjacent to the boundary with the *hacienda* of San Nicolás de la Laguna, for example, the lands were regarded as useless. Of 610 *varas*, for example, 350 were described as:

*“stony and covered in tepetate and are unserviceable, and infertile and only 260 (varas) are cultivable”.*

To the west, there were said to be

*“410 varas up to the lake shore, 260 of which are covered in stones, and 150 covered in tepetate.....and 260 varas are stony”*

To the south there were apparently:

*“370 varas.....of which 100 varas are poor, stony rough lands, and 270 are cultivable, although not of the best quality because they are salt encrusted.....”.*

To the north, there were said to be:

*“500 varas up to the shore of the same lake.....in which there are stones.”.*

Clearly, the territory in this area to which the *Indios* still held access was regarded as less than ideal for agricultural purposes. Climatic changes as well as human

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<sup>14</sup> AGNT 1095, exp. 1.

exploitation and land use in the area will, however, have served to modify the appearance of the lands, given that this area had been subject to periodic inundation by the waters of Lake Pátzcuaro during wetter periods (see Chapter Ten, Section 10.4).

References within the documents of the 18th century also provide some insight into the vegetation changes that took place in the basin area throughout the course of the Colonial period. Ever since their introduction soon after contact, for instance, livestock had been the cause of many agriculturalists' grievances. Crop depredation by straying livestock was, however, to provide a source of contention throughout the course of the Colonial period. By the early 18th century, however, the impacts of browsing and grazing stock were seen to extend much further than crop depredation alone. Deforestation of lands in the vicinity of the *hacienda* of Rincon was, for example, attributed to animal pasturage and overgrazing<sup>15</sup>, while grazing cattle, mares and horses near Uricho had not only led to depredation of croplands in 1729, but were also blamed for the deforestation of the area to the extent that there was a need to search for wood for tribute purposes near to a location referred to as Azaquecuera, which was apparently a considerable distance away from the town. The former forested lands had, as an additional but direct result, been left in a rugged and rough state<sup>16</sup>. Given the nature of the claim it is tempting to suggest that the description is somewhat biased in favour of the *naturales* whose croplands and forest stands had been adversely affected, and in some cases, destroyed by grazing stock. Moreover, given the long-standing presence of *Indios* in this area, as illustrated by the presence of ruins and former towns recognised to be pre-Hispanic<sup>17</sup>, it is possible that deforestation may well have pre-dated, or may at least have been initiated, by pre-Hispanic land use activities.

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<sup>15</sup> AGNT 3695, exp. 7.

<sup>16</sup> AGNT 488, exp. 1.

<sup>17</sup> AGNT 488, exp. 1.

A series of documents<sup>18</sup> chart the degree of deforestation elsewhere in the basin by the close of the 18th century. The lands in the vicinity of Santiago Asajo, to the north-west of the basin, were, for example, described as being “*cleared of vegetation*”<sup>19</sup>, while territory in the vicinity of Aramútaró, to the west of Lake Pátzcuaro was considered rough, impassable, uneven and infertile, with only a small strip of land considered useful for the growing of maize and wheat<sup>20</sup>. In a similar vein, processes of deforestation in the vicinity of Uricho - triggered off by cattle grazing in the early 1700s (see above, this section) - would appear to have escalated towards the close of the century. In the early 1790s, for example, the lands in the area were described as being completely deforested<sup>21</sup> to the extent that the community had by this time apparently become reliant on cutting wood from the nearby *hacienda* of Oponguío<sup>22</sup>.

Some archives indicate that deforestation could be differentiated as a product of the Colonial period. One *pleito* dated 1793, including a detailed a survey of the lands in the vicinity of San Pedro Pareo, for example, suggests that significant deforestation took place sometime in the period after Spanish contact. The densely forested landscape through which local land owner and accused in this case, Cortés, is said to have once passed some years earlier was described as “*decimontado*” or deforested by 1793, and there are references to a hill described as a “*cerro pelon*” or “bald” and stripped of vegetation<sup>23</sup>. The *pintura* accompanying the document, however, provides somewhat ambiguous evidence for this supposed deforestation. The summits of the hills are clearly depicted as shrub-covered, and described in a key as “*monte*” - disturbed woodland according to Butzer and Butzer (1993), although there would appear to be woodland stands covering the foothills (Plate 11.1). Given the changed land uses in the area, however, it seems conceptually feasible that there had indeed occurred a good

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<sup>18</sup> Historia 73: various entries, see below.

<sup>19</sup> Historia 73: Santiago Asajo.

<sup>20</sup> Historia 73: San Miguel Aramútaró.

<sup>21</sup> Historia 73: Uricho.

<sup>22</sup> Historia 73: San Francisco de Laguna

<sup>23</sup> AGNT 1231, exp. 3.

deal of post-Conquest forest clearance in this area by the close of the 18th century.

Deforestation also appears to have taken place elsewhere in the jurisdiction of Pátzcuaro by this time. References to “*stony deforested hills*” near to the *hacienda* of Cortiro in San Luis Nahuatzen, to the west of the basin, may also similarly reflect the impact of post-Conquest land use. References to a former *Indio* town in the area, apparently known as Zinacato, however, testifies to pre-Hispanic presence in the area which may in turn have contributed to the recognised landscape changes. Reference is made within the same document, however, to a land grant awarded in 1565 discussing a forest of pine trees, not mentioned in later documents and, therefore, suggesting that the changes perhaps post-date the early Colonial period<sup>24</sup>.

Vegetation changes were not, however, uniform across the entire basin area. Despite being the location for no less than eight cattle grazing sites, for example, territory in the vicinity of Cuanajo, to the south-east of the Basin of Pátzcuaro, was described in 1714 as:

*“totally populated with pine trees.....with so many trees and forests, their extent cannot be estimated”.*

Nevertheless, the terrain itself was described as “*rough and infertile*”<sup>25</sup>, and as such was deemed unsuitable for cultivation.

Other more general descriptions of the mid- to late 18th century do, however, suggest that the basin was densely forested. One report of the mid-18th century, for example, describes the landscape surrounding Lake Pátzcuaro as:

*“surrounded by large and closely growing trees.....and trees of great height”* (Villaseñor y Sanchez, 1748),

and the 1754 *Relación de Pátzcuaro* similarly discusses the hills around the city of Tzintzuntzan as being “*densely forested*” with fruit trees and vegetation (Lemoine,

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<sup>24</sup> AGNT 1275, exp. 6.

<sup>25</sup> Tierras y Aguas, Leg. 1, TI, exp. 40.

1963). Little would appear to have changed in the 1780s. According to a description dated 1788, for example, Pátzcuaro was located:

*“in a ‘delicious’ locality, closed in by mountains, covered in tall trees, and in the garden plots there are fruits and flowers of different types”<sup>26</sup>.*

The “*high mountains of pines*” close to Cocupao would also suggest that there was a good deal of forested land remaining in the basin area. The “island” of Uranden (as it was during the 18th century, now connected by bogs and mires to the mainland), on the south shore of the lake was, for example, described as an “*an island of trees*” in 1759<sup>27</sup>, while Fray Alonso de Ajofrin, a Franciscan missionary who travelled through the area in 1764, talked of Pátzcuaro as being surrounded by “*high forested mountains....*” (Ajofrin, 1764, cited in Moreno, 1986). A series of documents dated 1775, moreover, describe the surrounding hills of Pátzcuaro as “*wooded with pines and some oaks*”<sup>28</sup>, while Zupiago to the north-east of the basin area was apparently similarly set “*in total woodland*”<sup>29</sup>. Land in the vicinity of San Francisco Pichataro to the west of the lake was described as “*fertile and forested*” at this time, while the town of Santa María Comachuen, in the jurisdiction of Paracho was said to be surrounded by pine forests, as were the towns of Sevina, Urapicho<sup>30</sup>, San Pedro Cucuchuchu and Ajuno<sup>31</sup>. These descriptions could imply that some parts of the basin had even by this time undergone little disturbance, although one should also consider that the descriptions may have misjudged the more finer scale evidence of disturbance even in these areas, although there is little evidence to suggest that that there had been any major post-Conquest land use or impact in these areas (see Chapter Seven).

By the mid-19th century, however, even the traveller’s perception of the Basin of Pátzcuaro seem to corroborate the images of a deteriorated landscape as evoked by descriptions in some of the more official documentation. In his 1866

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<sup>26</sup> From *Diccionario Geografico-Historico de Alcede y Bexerano*, 1788.

<sup>27</sup> AGNT 851, exp. 2.

<sup>28</sup> Historia 73: Pátzcuaro.

<sup>29</sup> Historia 73: San Miguel Zupiago.

<sup>30</sup> Historia 73: Sevina and Urapicho.

<sup>31</sup> Historia 73: San Pedro Cucuchuchu; Santa María Ajuno.

publication, for example, English travel writer William Henry Bullock describes the route from Morelia to Pátzcuaro as:

*“Totally devoid of interest...there were boring places, with mountains and undulating lands completely uncovered of vegetation or rarely covered with cacti”.*

Clearly, Bullock’s description of the condition of the landscape, captures some of the evidence indicative of landscape degradation - the deforested hillslopes and shrub and cacti-covered landscapes reflecting the level of environmental disturbance apparent in the basin by this time.

Yet it was not only the landscape that would appear to have undergone deterioration by this time. Writing in 1893, for example, Adalberto Cardona described the former city of Pátzcuaro as *“lying in dust and in ruins”* (Cardona, 1893) - a characteristic that the Russian immigrant and writer, Victor Serge was to also comment on following his visit to the area almost sixty years later in 1944. Indeed, the same author was to comment on the *“calcified dryness of the high meseta, and the uncultivated cactus-covered slopes”*, while the terrain itself was described as *“covered in barrancas and caliche”*. Some clues are, moreover, provided as to the cause of this degradation:

*“Grazing had reduced the ground coverage to the final yellow herb grasses. The land was dry, abandoned and took on the colour of the sun”* (Serge, 1944).

It seems unlikely that the grazing of cattle alone could have stimulated such degradation, for their introduction would appear to have had little impact in the area in the early Colonial period. Rather the cumulative impacts of pre- and post-Hispanic land use systems operating in a context of climatic sensitivity, perhaps provides a more realistic explanation of the observed landscape changes. Given the period that these descriptions were compiled it must also be borne in mind that the landscapes may have also been affected by post colonial impacts. Whatever the nature of the cause(s), however, environmental deterioration and abandonment

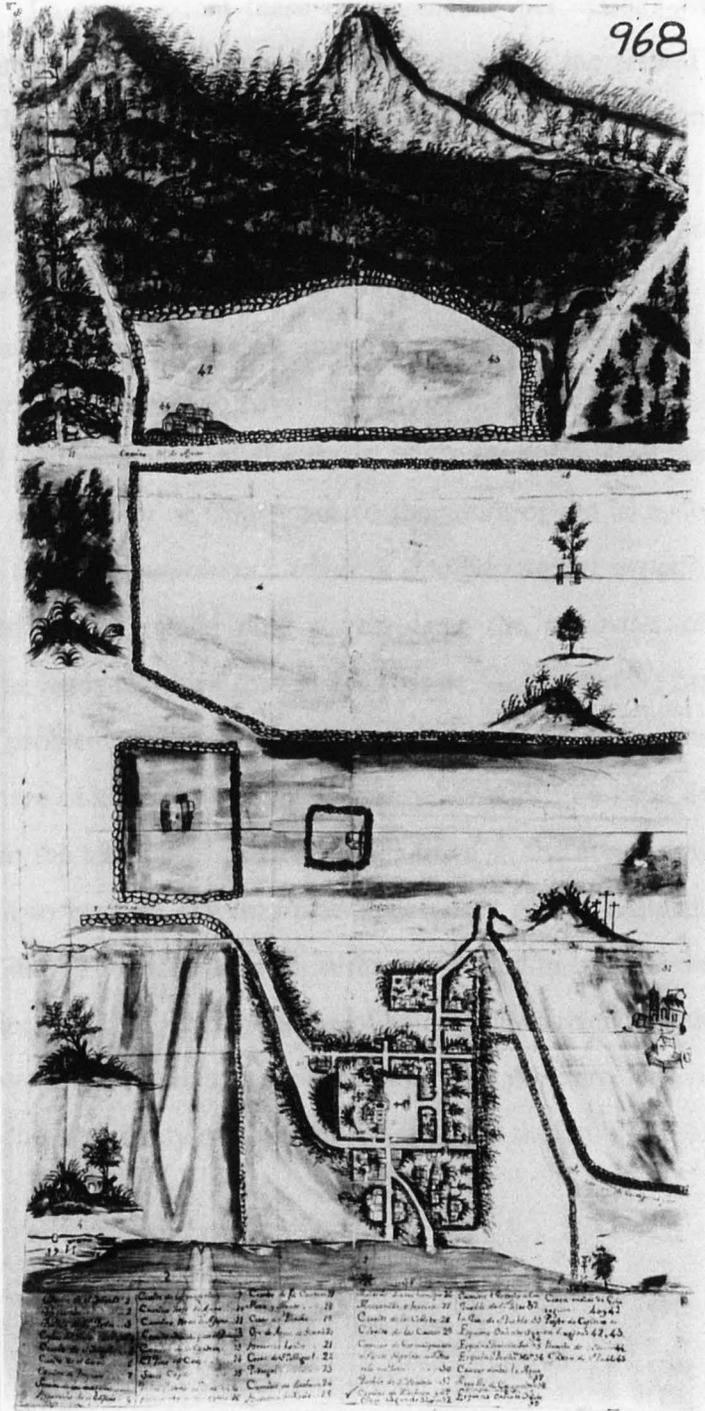
in the Basin of Pátzcuaro were evident even to the 19th and 20th century “visitors” to Michoacán.

### Summary

There is a shortage of archival material with which to reconstruct the appearance of the landscape in the vicinity of the Basin of Pátzcuaro in the 17th century. Archival references to degraded and infertile territory in the vicinity of the Basin of Pátzcuaro, however, increase throughout the course of the Colonial period, escalating particularly in the 18th century. If real, and not merely a reflection of the increased dissent at land loss to expanding *haciendas* in the area (as discussed in Chapter Nine), combined with the increased availability of documentation for this period, this trend would imply that the area had undergone a good deal of degradation in the 18th century, although more general descriptions of the area make little reference to any signs of disturbance until the 19th and early 20th centuries. Given that the basin represented a focus for settlement for both pre- and post-Hispanic society, however, and that there was already a good deal of evidence for accelerated environmental degradation by the time the Spanish came to exploit the area (see Chapter Seven, Section 7.2), it seems reasonable to assume that the landscape of the area has been moulded by the cumulative impacts of *both* pre- and post-Conquest settlement and land use in a context of climatic drying. Nevertheless, with population expansion and a consequent increase in pressure on land resources which took place throughout the 18th century, there may have been something of an intensification of colonisation and a consequent exploitation of more marginal landscapes, which could explain the apparent acceleration in environmental disturbance in the area around this time.

Plate 11.1 San Pedro Pareo, 1793 (AGNT 1231, exp. 1).

The *pintura* shows territory in the vicinity of the *barrio* of San Pedro Pareo, which is depicted at the bottom of the map. Note the slopes at the top of the *pintura* which according to the key represents the “*mesa y monte*” (tablelands and disturbed woodland) of the “*cerro de San Miguel*” (Hill of San Miguel), and the various “*cerritos*” (small hills/ foothills) in the vicinity. Note also the low, tree-covered hills, close to the “*camino de Zirahuén*” (the road from Zirahuén) in the top right hand corner of the map, and the use of individual trees as boundary markers.



### 11.3.2 Cuitzeo and the North

In contrast to the early Colonial period, archival references to Cuitzeo and the more northerly parts of the province become less numerous throughout the course of the 17th and 18th centuries, suggesting something of a deceleration in interest in the area. From the archival material that is available, however, it is clear that, in accord with the early Colonial reports, the area was described in less than favourable terms and as having undergone a good deal of environmental disturbance. To some extent these environmental perceptions would appear to have been influenced by the dry climatic conditions of the area. The Augustinian friar, Fray Diego Basalenque, for instance, writing in 1644 commented on the state of the landscape surrounding Lake Cuitzeo, describing it as:

*“unattractive...because it is dry, it has no water, and the water that is drunk is derived from wells that are very deep and it is not very good, because it is greasy”*. (Basalenque, 1644, cited in Moreno, 1985:130).

There also appears to have been a growing dissatisfaction with the quality of the land in the vicinity of the Basin of Cuitzeo. Land in the jurisdiction of Cuitzeo, in the vicinity of Copándaro to the south of the lake, for example, was considered to be *“mountainous, infertile and lacking in water”* according to a *pleito* dated 1709<sup>32</sup>, while only a year later the *naturales* of Cuitzeo itself described the lands to which they had access as *“deforested”*<sup>33</sup>. Soil infertility was presenting problems for the *naturales* of the town of Santa Ana Maya, on the northern shore of Lake Cuitzeo, in 1741<sup>34</sup>, while Ajofrin’s 1764 description of the landscape in the vicinity of a small *Indio* town in the area known as Arharhon, suggested it to be a *“a dry, sad and melancholy place”* (Ajofrin, 1764, cited in Moreno, 1986). The evidence of disturbance alluded to in these descriptions could equally reflect the combined influence of anthropogenic and climatic parameters of change. Dry climatic conditions in this more arid northern zone will have always influenced the availability of water in the area and the problems of water shortage

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<sup>32</sup> Tierras y Aguas, Leg. 3, TI, exp. 64

<sup>33</sup> Tierras y Aguas, Leg. 3, TI, exp. 7.

<sup>34</sup> AGNM 74, fs. 97v.

would indeed appear to have been exacerbated by the progressive climatic drying that affected the whole region throughout the course of the Colonial period (see Chapter Ten). That deforestation might have had a role to play in making the local temperatures more erratic, the soils drier and the drainage patterns less constant should, however, also be considered.

Significantly, and in contrast to earlier descriptions of the lake area, there seem to have been some quite dramatic changes in the perceived potential of the lands in the area and so, it follows, in the way in which they were used by this time. For in addition to the “*many cattle and sheep and goats and pigs*” that grazed the lands of the basin, the area was now thought to be suitable for irrigated crops, and as such was said to possess “*much maize, in a manner competitive with that of Yuririapúndaro*” (Basalenque, 1644, cited in Moreno, 1985: 132).

By the late 17th century, plans were issued for a new “*Spanish-only*” town on the shores of Lake Cuitzeo on the basis of this land use potential, providing the surrounding lands were partitioned off into equal land holdings and irrigation systems were established<sup>35</sup>. Furthermore, the surrounding area was considered to be “*too mountainous to be suitable for grazing livestock*” when previously in the 16th century, these lands were considered useful *only* for grazing. Clearly the exploitability of the basin area was being perceived in a totally different manner, even if there was a consensus over the infertility and degraded nature of the land itself. Indeed, given the overall negative perception of the area at this time, it seems somewhat surprising that the Spanish should want to found a new town here at all. The desire to colonise the basin with a Spanish only population may, however, have been an early manifestation of the territorial avarice that came to characterise the 18th century (as discussed in Chapter Nine).

Documents from the first part of the 18th century provide evidence to suggest that there had been some changes in vegetation in the basin area. Evidence for the expansion of mesquite-covered plains, in the vicinity of San Buenavista

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<sup>35</sup> AGNM 60-61 (61), fs. 27v-28v.

Guacao in the jurisdiction of Cuitzeo in a document dated 1746<sup>36</sup>, for example, highlights the degree of landscape degradation evident in the area by this time, although there is some doubt as to the potential causes. The presence of this vegetation could, for example, reflect the longevity of grazing activity in the area, although as mentioned earlier in Chapter Seven, Section 7.3, mesquite had mesic requirements and was a natural coloniser in these drier more northerly lands. Its prevalence and use as a fodder crop might have thus provided an attractive lure for locating stock in such areas in the first place. According to a document dated to 1712, similar vegetation characterised the landscape in the vicinity of Yuririapúndaro<sup>37</sup>. Reference is, however, made to some very high hills in the area which was characterised by a rough landscape covered in stony soil and “*impenetrable*” vegetation, along with patches of thickets and brambles. It could well be that in both Cuitzeo and Yuririapúndaro, the vegetation represented to some extent a regenerative secondary vegetation growth characteristic of a disturbed landscape in the context of a climatically vulnerable environment.

Judging by descriptions included in documents and travelogues of the mid-1700s, there was seemingly less evidence of a human impact to the south of Lake Cuitzeo. Lands in the vicinity of Zinapécuaro, for example, were described by Francisco de Ajofrin in 1764 as covered in “*thick forests of cedars, pines and oaks*”, and there is evidence to suggest that wood cutting was still one of the main indigenous activities in this area even into the later part of the century<sup>38</sup>. Furthermore, the trees are described as having thick trunks, perhaps implying their maturity. In the vicinity of the *hacienda* of Queréndaro on the outskirts of the town of Zinapécuaro, there were similarly said to be “*hills covered in very thick woods*” (Ajofrin, 1764, cited in Moreno, 1986). Such descriptions are somewhat surprising given the longevity of pre-Hispanic settlement in such areas (Macías Goytia, 1988; 1989) and may reflect the observer bias and general broad scale statements based on what can perhaps be described as “snapshot” perceptions.

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<sup>36</sup> AGNT 824, exp. 3.

<sup>37</sup> AGNT 2987, exp. 3.

<sup>38</sup> Historia 73: Zinapécuaro.

Nevertheless, even in the early 20th century, there is evidence to suggest that the appearance of the vegetation in this district had remained unchanged. The Italian travel writer Adolfo Dollero, for example, visiting this area in 1911, suggested that there were:

*“very many forests of conifers, some virgin evergreens; in the hacienda of Cahapparo.....there exist trees whose diameters are greater than two meters”*.

Even on the outskirts of Zinapécuaro, in the district of Zitacuaro there were said to be:

*“great forests, some of which are exploited abounding with timber resources, highly valued in the tierra caliente lands”*.

The flora was also *“very rich and there were many medicinal plants”*. The situation was apparently little different in the area known as Anganguero, close to Zitacuaro which Dollero described as:

*“surrounded by picturesque mountains, covered for the most part in woodlands”* (Dollero, 1911).

According to Ajofrin, even the land in the vicinity of the highly exploited mines at Ozumatlán to the east of the basin was considered *“pristine”*. As he suggests:

*“There are mountains of incredible beauty, everywhere looks like it is covered in green delight, with lush vegetation, unlike all the other mining districts of the kingdom which are normally barren and arid”*.

Some idea of the extent of the woodland is also hinted at :

*“with very dense forestry, high pine trees, cedars.....oaks, palms..... from the highest to the lowest parts of the terrain”*  
(Ajofrin, 1764, cited in Moreno, 1986).

As Ajofrin indicated, however, *“in the past the mine was opulent, but today it provides little silver”*, and it may well be that the landscape illustrated by Ajofrin’s 1764 description may have been undergoing recovery in the wake of abandonment.

Later descriptions of the area seem to conform to those forwarded by Ajofrin. Henry George Ward, an English politician, and one of the first post-Independence European visitors to the state, commented on the area in 1825, describing the hills surrounding the mines as being:

*“covered in magnificent forests of oaks and pines”.*

Nevertheless, it was noted that the terrain in the vicinity of the mines was littered with *“immense barrancas and gullies”* suggesting, perhaps, that there had been some localised environmental degradation by this time - something that Ajofrin’s broad-scale observations may well have inadvertently overlooked.

### Summary

In contrast to the earlier Colonial period, there is less archival documentation available for the Basin of Cuitzeo and Yuririapúndaro in the 17th and 18th centuries - a trend perhaps reflective of a deceleration of economic interest in these areas throughout the course of the Colonial period. From the evidence that is available, however, lands in the immediate vicinity of the Basin of Cuitzeo would appear to have suffered considerable levels of environmental disturbance, lesser degrees of change being recognised in the more outlying districts. This trend, may, however, be more apparent than real given that the archival evidence that is available in the later Colonial period pertains more to the central basin areas rather than the more peripheral districts.

Some areas would appear to have been undergoing recovery and regeneration in the wake of abandonment, although to some extent the vegetation characteristics described in the documentation that might be associated with sub-climax species may actually be representative of the natural vegetation of this drought - sensitive area.

Given that the area had been recognised as one having undergone considerable environmental degradation even in the early Colonial period, some almost paradoxical changes do seem to have taken place in the way the potential of the land in the area was perceived and hence it follows in the way it came to be

used. In part, however, the increase in colonisation of this area in the later 17th century could reflect the quest for territorial control as population expansion became apparent and land became a valuable commodity (Butzer and Butzer, 1995).

### 11.3.3 Zirahuén, Santa Clara and Opopeo

Settlement and exploitation in the district of Lake Zirahuén, as discussed in Chapters Six and Seven, had apparently been negligible up until the turn of the 17th century. By the mid-1700s, however, there emerge some lines of archival evidence that would suggest something of an increase in the amount of land that came to be exploited in this area. Several *haciendas* were operating in the vicinity of the lake itself by the early to mid-18th century<sup>39</sup>, while there were nine *haciendas*, one for sugar and the rest for maize and wheat and for grazing, in the vicinity of Santa Clara del Cobre in 1789<sup>40</sup>. The area had by this time been converted from one specialising in recreational and religious pursuits to one characterised by agricultural and pastoral land use, although copper activities at Santa Clara del Cobre were to provide an alternative economic thrust in this area. That there should be some degree of environmental or landscape change in the locations where such activities were taking place is perhaps then to be expected.

Archival evidence would indeed indicate that this had been the case in the first part of the 18th century. All the lands in the vicinity of the *hacienda* of Comienbaro to the south-west of Lake Zirahuén were, for example, described as having “*very thin soils*” in 1715, and the remaining lands in the area were regarded as “*useful only for grazing pasture*”<sup>41</sup>. The landscape in the area was similarly perceived according to a document compiled one year later in 1716 in which it is stated that lands in the area consisted of:

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<sup>39</sup> AGNT 369, exp. 5; AGNT 385 parte (1), exp. 5; AGNT 528, exp. 2.

<sup>40</sup> Historia 73: Santa Clara del Cobre

<sup>41</sup> Tierras y Aguas, Leg. 1, TI, exp. 42.

*“low hills....with broken terrain.....with distinct land parcels and to one side two caballerias of thin lands”*<sup>42</sup>.

It is uncertain whether “*thin*” in this context again refers to the condition of the soil or the amount of land available to the plaintiffs. Another description contained within a *composición* document dated December, 1715, however, does make reference to the “*infertile....rough and stony*” soil which the *naturales* of the area had access to<sup>43</sup>, while a later document dealing with the same area and dated April 1786, describes the landscape close to the territorial boundary with that of the town of Zirahuén as “*broken, rugged and intransitable*”<sup>44</sup>. Archival evidence would thus suggest that the soils of this area were characteristic of those of a degraded landscape, and rendered some locations impassable.

A similar scenario would appear to pertain in the lands in the vicinity of Santa Clara del Cobre in the 1760s. According to a document dated 1767<sup>45</sup>, for example, the *naturales* of the town itself describe the lands in the vicinity of the area as “*infertile, dry and without having any moisture/water*” and as suitable only for grazing pasture. Indeed, the porous nature of the soils was apparently serving to exacerbate problems associated with water shortage in this area, constituting a hazard during the dry season, with an increased likelihood of local dust storms, and causing there to be boggy surfaces during the rainy season<sup>46</sup>. Moreover, it was because of the apparent aridity and infertility in this area that the *naturales* had been forced to sow their maize plots elsewhere, in other locations including Cutzizan (Cuitzeo) and Guaniqueo (Huaniqueo) amongst other places<sup>47</sup>, which as discussed earlier were locations considered far from fertile or productive even in the early Colonial period (see Chapter Seven, Section 7.3).

Many of the accounts and surveys towards the middle of the 18th century chart the degree of deforestation that had taken place in the area. Uplands close to

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<sup>42</sup> Tierras y Aguas, Leg. 5, TI, exp. 7.

<sup>43</sup> Tierras y Aguas, Leg. 1, TI, exp. 44.

<sup>44</sup> P.Caja 51a, folder 6.

<sup>45</sup> AGNT 916, exp. 5.

<sup>46</sup> Historia 73: Santa Clara del Cobre.

<sup>47</sup> AGNT 916, exp. 5.

San Juan Tumbio to the south of Lake Zirahuén were, for example, described as being “*stripped of vegetation*” in 1733<sup>48</sup>. There is evidence to suggest that there had been seasonal grazing of specially designated “*rastrojo*” (harvest stubble, usually maize) plots in this area<sup>49</sup> so the presence of livestock may well have contributed to this deforestation. A similar scenario is thought to have pertained in Taran, a location lying adjacent to the *hacienda* of Comienbaro referred to above. Lands in the vicinity were, for example, described as “*barren and stripped of vegetation*”- a result, it is claimed, of land use activities in the *hacienda* itself<sup>50</sup>. Indeed, it was suggested that the *hacienda* was responsible for deforesting a hill in lands belonging to the *naturales* of the area “*right down to the spring which was now just a deep gully*”<sup>51</sup>. It may well be the case that the scale of the deforestation was sufficient to have modified the natural hydrological balance of the ecosystem in this area, contributing to the desiccation of the spring although the document does not directly imply this. An area of upland known as Miraflores to the south of the basin was at this time similarly described as “*deforested*”, while other ridges and hills in the area were referred to as “*deforested in parts, forested in others*”<sup>52</sup>, although there are no indications within the document from which to ascertain the cause(s) of this deforestation.

Whether deforestation took place elsewhere in the vicinity of the area in question is difficult to assess. A map accompanying a document dated 1719<sup>53</sup>, for example, dealing with the territorial boundaries of the *haciendas* of Parahuen, Apambo, Chuen and Iztaro, to the south-east of Lake Zirahuén, clearly illustrates green shaded hillsides, although it is impossible to elicit from this depiction alone the actual composition of the vegetation. Slightly later documents (1732) do indeed indicate that there were only isolated patches of forested lands remaining in

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<sup>48</sup> AGNT 514, exp. 3.

<sup>49</sup> AGNT 514, exp. 3.

<sup>50</sup> AGNT 617, exp. 2.

<sup>51</sup> AGNT 617, exp. 2.

<sup>52</sup> AGNT 385 (1), exp. 5.

<sup>53</sup> P.Caja 38c.

the area, such as those close to the *hacienda* of Chuen<sup>54</sup>, while descriptions of flat-topped hills (“*mogotes*”) of “*rocky, stone covered terrain*”<sup>55</sup> and *barrancas* or gullies in the area, and of “*stony, limited, mountainous.....broken terrain*”<sup>56</sup> dating back to 1713, could be indicative of some level of environmental degradation and soil erosion. A map of the *hacienda* of Iztaro dated to 1773<sup>57</sup> showing hillslopes devoid of vegetation (Plate 11.2) would tend to support this assertion. The presence of a *yácata* close to “Plain of Picuarembó”<sup>58</sup> (referred to in Chapter Seven, Section 7.4) is, however, indicative of former indigenous presence in the area. Evidence of environmental disturbance in this area may thus be related to pre-Hispanic activities, specifically the deforestation of the area to provide timber to burn in ceremonial bonfires, rather than any post-Conquest impact.

Environmental deterioration was also apparent in the more peripheral areas away from the basin itself. Although an area of land known as Cherataro, in the vicinity of San Geronimo Tacámbaro to the south-east of Zirahuén was, for example, described as “pine-covered” in 1715, the area was considered to represent a “*badlands*” landscape<sup>59</sup>. Furthermore, a separate document dated 1715, makes reference to the “*infertility*” and “*sterility*” of most of the area, there being apparently only four *caballerias* of flat land and one *caballeria* of cultivable land out of a total of twelve in the entire district “*and the rest is infertile upland terrain*”<sup>60</sup>. Livestock grazing might have contributed to this environmental degradation given that there were no less than nine cattle ranches and one sheep station in the area<sup>61</sup>. References to the area being “*largely deforested*”<sup>62</sup> at the

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<sup>54</sup> AGNT 528, exp. 2.

<sup>55</sup> P.Caja 38c.

<sup>56</sup> Tierras y Aguas, Leg. 9, TI, exp. 10.

<sup>57</sup> *Pintura* taken from AGNT 868, exp. 1, fs. 55.

<sup>58</sup> P. Caja 38c; P. Caja 44a, folder 3; P.Caja 37b.

<sup>59</sup> Tierras y Aguas, Leg. 5, TI, exp. 45.

<sup>60</sup> Tierras y Aguas, Leg. 10, TII, fs. 432.

<sup>61</sup> Tierras y Aguas, Leg. 10, TII, fs. 432.

<sup>62</sup> Historia 73: Tacámbaro

close of the 1700s indicate that disturbance was, moreover, to persist into the later part of the century.

According to one document dated 1715, lands in the *pueblo* of Taretán to the south-west of the Basin of Zirahuén were also regarded as “*infertile and of no use*”<sup>63</sup>. Another document of April 1715, similarly suggests that the lands in the location known as Tziranguarito in the same area were “*useless*” and the actual measures of apparently cultivable terrain were described as being “*very limited.....partly swampy and all of it infertile*”<sup>64</sup>. Access to wood had, moreover, clearly become a problem for the indigenous communities in the area in the 1770s, and there was an apparent need for the community to access forest stands in the lands of the local *hacienda* of San Idelphonso de Taretán, referred to above, given the lack of other timber sources in the community lands<sup>65</sup>. Whether this shortage of wood reflects the impacts of resource monopolisation on the part of the local *hacienda* or a decrease in the availability of timber sources in response to excessive deforestation is difficult to assess. Judging by the previous descriptions of the area, however, it seems reasonable to conclude that considerable environmental degradation had taken place in this area sometime in the 18th century, at least contributing to the problems of resource stress at this time.

Not all lands in the area had undergone equal levels of disturbance. In one document, for example, dealing with an area to the west of Zirahuén, close to the spring of water known as Pungan, reference is made to “*pine covered hills*” and “*a leafy woodland*”<sup>66</sup>. Moreover, manuscripts compiled in the 1770s and 1780s would suggest that there was a good deal of woodland remaining in the area. Hills in the vicinity of Ajuno, for instance, were described as “*covered with pine forests*”, while in contrast to earlier descriptions of the 1730s, lands further south in San Juan Tumbio were said to be “*populated by pine trees*”<sup>67</sup> and the town

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<sup>63</sup> Tierras y Aguas, Leg. 1, TI, exp. 28.

<sup>64</sup> Tierras y Aguas, Leg 1, TI, exp. 47.

<sup>65</sup> AGNT 1048, exp. 4.

<sup>66</sup> AGNT 514, exp. 3.

<sup>67</sup> Historia 73: Ajuno; San Juan Tumbio.

itself was described as being “*surrounded by woodland and very tall pine trees*”. Indeed, Ajofrin (1764) suggested that there was “*much greenery of all types*” in the vicinity of Santa Clara del Cobre, while the lands in the vicinity of the *hacienda* of Los Tepetates just outside Santa Clara, “*although having some rough terrain*” as its name would indeed imply<sup>68</sup>, was considered to be “*pretty, leafy and green*” (cited in Moreno, 1986).

Lands around the town of Zirahuén itself were similarly considered to be fertile with references to the “*very good soil*” - a situation that had apparently remained unchanged at the turn of the 20th century, when American travel writer William Seymour Edwards noted the land in the vicinity of the Ario and Santa Clara to be:

“... *good, rich and undulating with a black, fertile soil*” (Seymour Edwards, 1906).

It is, therefore, somewhat surprising that the only crop to be produced in this area in the early 19th century was seasonally irrigated maize (*maize de temporal*) (Lejarza, 1974). Clearly, the more general landscape descriptions provided in travelogue reports fail to exact the true potential of the lands in the area. Even today, for example, parts of the basin appear to be densely forested (Plate 11.3). Indeed, the appearance of the landscape does not guarantee its fertility or productivity and may mask the local scale evidence for disturbance that the official location specific *pleitos* and surveys of the 18th century make reference to.

### Summary

It seems clear that there had been a good deal of environmental disturbance in the vicinity of the Basin of Zirahuén by the 18th century, although establishing the exact cause and timing of this degradation remains problematic. It is difficult to ascertain, for example, the respective impacts of anthropogenic and climatic parameters of environmental disturbance, or to differentiate between the

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<sup>68</sup> According to Williams (1972) *tepetate* (caliche, or carbonate crust) is indicative of lands that have undergone considerable soil erosion.

respective impacts of pre- and post-Conquest land use on the appearance of the local landscape. The archives would suggest little pre-Hispanic exploitation of this area for purposes other than recreation, and that there is little evidence of environmental disturbance in this area prior to its settlement and exploitation in the later 17th and 18th centuries, despite evidence for significant climatic fluctuations in the pre-Hispanic period (see Chapter Ten). It seems reasonable to assume, therefore, that the degradation noted in the area in the later 18th century reflects anthropogenic more than climatic impacts and, moreover, post-Conquest as opposed to pre-Hispanic land use activities.

Plate 11.2 Lands in vicinity of the *hacienda* of Iztaro, Santa Clara 1773

(AGNT 868, exp. 1, fs. 55).

The map, whose key could unfortunately not be located in the archives consulted, shows the lands in the vicinity of the *hacienda* of Iztaro, to the south-east of Lake Zirahuén. Note the shaded hillsides, and absence of woodland.

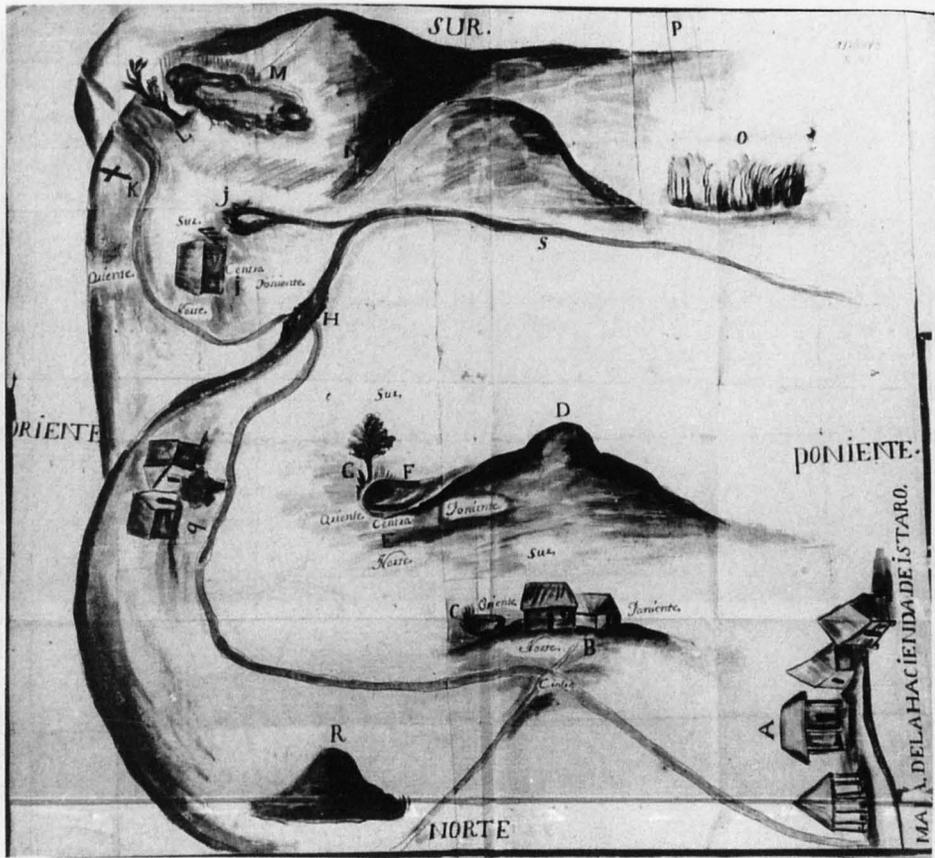


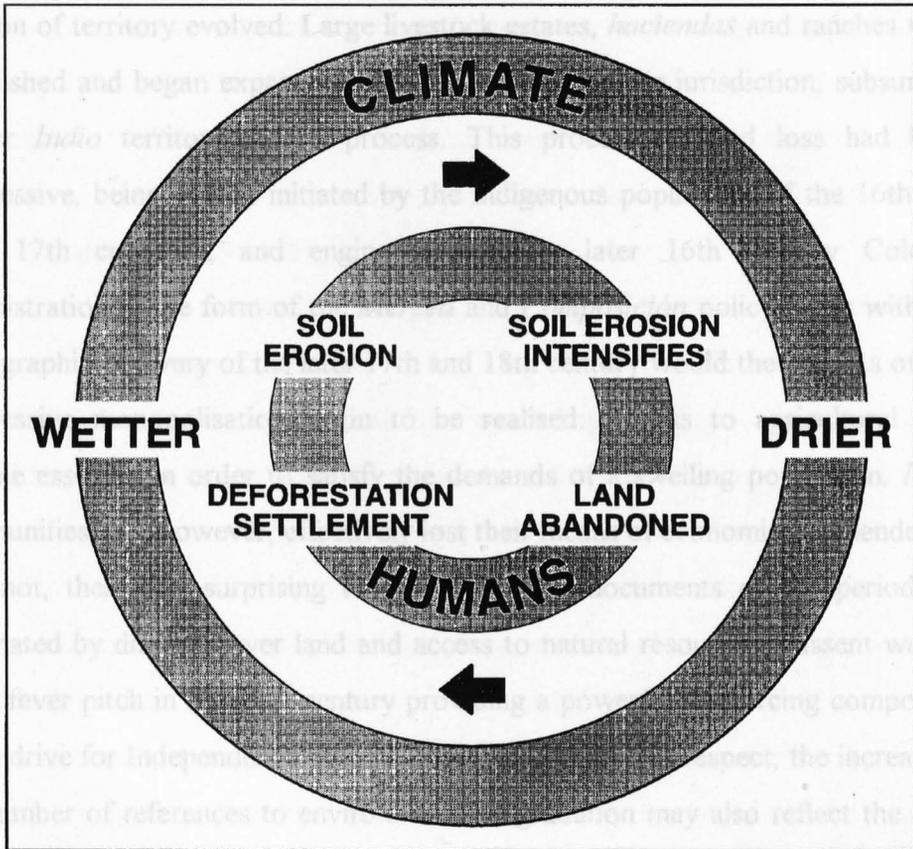
Plate 11.3 Forested hills surrounding Lake Zirahuén, November, 1995.



#### 11.4 Discussion

Archival references to degraded and infertile territory become more numerous in the later 17th and 18th centuries. If real, this trend would suggest an acceleration in environmental degradation towards the close of the Colonial period. Establishing the cause and timing of this potential degradation is, however, problematic. Landscapes will have been moulded by the combined forces of climatic change and pre- and post-Conquest land use systems. A conceptual model based on a series of multi-disciplinary investigations of some of the closed lake basins in the NVA has, however, sought to clarify the complex inter-relationship that exists between climatic change, human occupancy and degradation in the region (O'Hara, *et al.*, 1994). The model (Fig. 11.1) based on pre-Hispanic investigations of human and climatic interactions, suggests that climatic amelioration allowed for settlement which in turn triggered landscape instability and soil erosion. Climatic drying, in contrast, is thought to have lead to intensified degradation, which in turn is thought to have stimulated land abandonment. In this respect, humans can be seen to act as mediators between climatic change and environmental degradation.

**Figure 11.1. Conceptual model of the interaction between climate, human occupancy and land degradation on the arid margin of central Mexico (from O'Hara *et al.*, 1994).**



This model would indeed provide a plausible explanation for the degradation that characterised the immediate pre-Conquest period in this region (O'Hara, 1991; O'Hara *et al.*, 1993; Metcalfe *et al.*, 1994) - a time of wetter climatic conditions dense populations and intensive exploitation. It is, however, less able to explain the changes that took place in the post-Conquest period. The progressive drying that characterised the post-Conquest period would contrary to expectations, appear to have if anything exacerbated sooner than mollified anthropogenic processes of environmental degradation in this area. Given the demographic expansion of the period, it seems more plausible to assert that the apparent degradation noted for the 17th and 18th centuries is less climatically- and

more anthropogenically-driven, although both parameters of change will have inevitably been influential in modelling the landscape in this area. Certain lines of evidence drawn from earlier chapters would tend to support this theory.

Throughout the course of the Colonial period, a distinctly hierarchical division of territory evolved. Large livestock estates, *haciendas* and ranches were established and began expanding the territory under their jurisdiction, subsuming former *Indio* territory in the process. This process of land loss had been progressive, being at first initiated by the indigenous population of the 16th and early 17th centuries, and engineered by the later 16th century Colonial administration in the form of the *Merced* and *Composición* policy. Only with the demographic recovery of the later 17th and 18th century would the impacts of this progressive monopolisation begin to be realised. Access to agricultural land became essential in order to satisfy the demands of a swelling population. *Indio* communities had, however, effectively lost their means of economic independence. It is not, therefore, surprising that the litigation documents of the period are dominated by disputes over land and access to natural resources. Dissent was to reach fever pitch in the 18th century providing a powerful reinforcing component in the drive for Independence (see Chapter Twelve). In this respect, the increase in the number of references to environmental degradation may also reflect the level of indigenous dissent and civil unrest that characterised the final years of Spanish Colonial rule. That the increase could also be illustrative of the increased availability of documentation, available for the later Colonial period and not necessarily a true reflection of environmental degradation, should perhaps also be considered. General broad scale landscape descriptions of Michoacán do, after all, illustrate little evidence of landscape deterioration or degradation until the mid-19th century.

The combined impacts of population expansion and resource monopolisation that characterised the later part of the 17th century and throughout the 1700s will, however, have almost certainly contributed to an acceleration in the demand for cultivable territory - a trend discussed in greater

detail in Chapter Nine. Hitherto little exploited and more marginal tracts of land may have thus been brought into use. The apparent increase in environmental degradation in the 1700s ascertained through archival references may, therefore, be real and in part a response to these developments. As was illustrated in Chapter Seven, for example, in many locations, specifically those in the vicinity of the Basins of Pátzcuaro and Cuitzeo, Spanish colonisation and land use was to be superimposed on an already degraded landscape. That post-Conquest land use might have *exacerbated*, not initiated landscape degradation in such areas as conventional theory would suggest, seems feasible.

The Zirahuén Basin, in contrast, is thought to have undergone little perceptible environmental degradation up until the early 17th century - its pre-Hispanic predominantly recreational function perhaps serving to limit the degree of landscape deterioration that had taken place in the area prior to the arrival of the Spanish and in the early Colonial period. It is evident that the lands in the vicinity of the Basin had, however, been colonised by the middle of the 18th century and were being exploited by the many *haciendas* and ranches that had developed in the area by that time (Lejarza, 1974; Sanchez, 1985). Archival references indicate that the landscape of the area had been much modified by the close of the 18th century - a process perhaps representative of this gradual “infilling” process. Any change in the nature of the landscape in this location throughout the course of the Colonial period could, therefore, be equated with post-Conquest land use in the context of progressive climatic drying.

More peripheral regions which had similarly experienced apparently little settlement and exploitation in the early Colonial period also seem to have undergone some degree of disturbance in the 1700s - again a potential impact of the colonisation of hitherto little exploited lands and accelerated land use that characterised the later 17th and 18th centuries. An intensification of land use, and acceleration in the amount of land that had to be brought into use, and perhaps also the exploitation of some of what were perceived to have been more marginal tracts of land, would thus appear to have been responsible for the environmental

degradation recognised in the archives of the later Colonial period. There is little firm evidence, in contrast, to suggest that this phase of instability relates in any way to changes in the *nature* of the land use associated with the post-Conquest period.

To some extent, these archival trends would tend to support the findings of a series of geomorphological and palaeolimnological investigations carried out in the NVA of central Mexico which have provided evidence of a period of landscape instability in the second half of the 18th century. Magnetic susceptibility measurements in a sediment core extracted from the basin known as San Nicolás de Parangueo in modern day Guanajuato, for example, provide evidence of an increase in soil erosion after an extrapolated date of 1788 (Metcalf *et al.*, 1989), while there is similarly thought to have been a change in hydrology in the Laja drainage in the Bajío region to the north of Michoacán some time after 1750. Floodplain sediments have, for example, been discovered in the area, close to San Miguel and are thought to have been deposited as a result of degradation of vegetation and consequent soil erosion which in turn led to alluviation by higher peak floods<sup>69</sup> (Frederick, 1995). This area did function as a livestock area - a reflection of the livestock marginalisation policies of the early Colonial period. That this period of instability may in part be related to grazing pressure should, therefore, be considered. Although, livestock had been present in this area since the mid-16th century, it could well be that an erosional “threshold” had been transgressed at this time - grazing pressures only then reaching sufficiently critical conditions to precipitate a period of landscape instability.

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<sup>69</sup> The Rio Laja has deposited two sheets of flood sediments across the floodplain of San Miguel, as a result of “catastrophic” floods and the transport of soil across the watershed (Butzer and Butzer, 1993). The older flood deposit contains Indian potsherds which have been radiocarbon dated to the pre-Hispanic period (Frederick, 1995). The younger flood silts are terminal and are thought to have accumulated after the construction of a chapel in the mid-1700s. Disequilibrium is thought to have been “triggered” by overgrazing during the later 18th or even early 19th century. The record does not allow for soil erosion or hydrological change between AD 1500 and 1750, implying landscape instability to be a later Colonial phenomenon, apparently little impact taking place in the immediate post-Conquest period.

Both archival and sedimentological evidence available to date would, therefore, support a case for environmental degradation in Michoacán in the second half of the 18th century - a time when population was expanding, pressure on land was mounting and the impacts of climatic drying were being realised. Significantly, therefore, environmental degradation would appear to have been a later Colonial phenomenon, impacts in the immediate post-Conquest period, contrary to conventional theory, apparently being negligible. Further regionally-based investigations may go some way to establishing a more definitive argument in this respect, although it should more generally be appreciated that the degree of environmental change will have varied according to land use history and intensity, as well as the local natural environmental parameters within which the investigation is set.

## Chapter Twelve

### Discussion

#### 12.1 Introduction: European colonialism and Eurocentrism

By the early 19th century, the European empires in the Americas were in retreat. Partly as a response to the “cannibalistic redivision” of existing European dominions among the imperial powers (Fieldhouse, 1966), but more a result of the growing dissatisfaction among the colonists with total European authority, the former colonies were striving to gain independence. Over three centuries of Colonial rule in the American New World had, however, already passed in which time European assumptions regarding geography, theology, history and the nature of human society had been challenged by the encounter with the “new” lands and peoples. A series of ecological exchanges had taken place, leading to the near annihilation of indigenous populations in some parts of the Americas, but providing at the same time a catalyst for global cultural assimilation (Crosby, 1986). Trading relationships with the rest of the world had been affected by the products exchanged with - and derived from the colonies, and a process of economic syncretism and global unification had been initiated.

As one period of European Colonial enterprise came to a close, however, a second began. Three hundred years of exclusion from Spanish America had provided sufficient stimulus for other European nations to invest in different parts of the New World (Pratt, 1995). Attention began to be directed towards the expansion of existing Colonial nuclei in Africa, Asia and Australasia, and as the “Golden Age” of maritime exploration came to a close, activities shifted away from the coasts and towards the interior of these New World continents. Following a precedent set by the Spanish experience in the Americas, wealth was now seen to lie less in the exploitation of minerals, spices, slavery and any other instant sources of profit, and more in an investment in the land. So began a competition between the nations for territorial acquisition, expansion and control, typified by the so called “scramble” for - and division of territory in Africa

between the major European powers in the 1880s. The Iberian discovery and Conquest of the Americas had thus provided a “testing ground” for colonial activity, exploration and exploitation, while Spanish colonisation, settlement and cultural integration with indigenous lands and peoples had provided a template with which to construct a European empire overseas. Thus was born the “Age of European Imperialism” (Ferro, 1997). For these reasons the European encounter with the Americas had served to establish a watershed in World history.

## **12.2 Colonialism and regionalism**

The events of 1492 were, however, to simultaneously provide a pivot from which “European diffusionism” (Blaut, 1993) could operate. Essentially, from the time of the first encounters with the New World lands and peoples there began a process whereby Europeans would be responsible for the construction and dissemination of images, myths and stereotypes (Bowden 1992; Harris, 1995). It is this Eurocentric “creation” of history, or what Martin (1987) has termed “historiographical Colonialism”, that has until recently influenced investigations seeking to elicit the nature of the social and environmental change wrought by the various European Colonial endeavours.

It is now appreciated that the impacts of Colonialism in the New World were, however, regionally varied, dependent to a large extent upon the intent, purpose and practices of the particular colonising power, as well as the nature of the environment and the cultures which that power encountered. Indeed, the imposition of different Colonial regimes in regionally disparate pre-contact cultural contexts and environmental settings wielded very different consequences for both colonist (Cronon, 1983; Codignola, 1994; Blaut, 1993) and colonised (Brown, 1971; Miller and Hamell, 1986-7; Trigger, 1991; Murray, 1994; Marshall and Mass, 1997; Head and Fullagar, 1997).

The degree of variation can best be exemplified through one of the more salient impacts of European contact - that of indigenous depopulation. Although it

is assumed, for example, that European contact in most cases precipitated demographic collapse within the respective indigenous culture groups encountered in the various regions of the Americas, and other parts of the world that were regarded a “new” to the Europeans of the 16th, 17th and 18th centuries, there is a good deal of variation in terms of the dynamics and processes of this depopulation. Thus, while Old World diseases are thought to have spread along trade routes causing depopulation among the Inca populations ahead of the arrival of Spanish captain Pizarro and his troops to Peru in the 1530s (Gerhard, 1982), the Arawak and Carib populations of the West Indies were practically wiped out in the late 15th and early 16th centuries as a result of over work in the mines, slavery and the dislocation of traditional *conuco* systems of shifting cultivation following Spanish contact (Watts, 1987)<sup>1</sup>. Moreover, indigenous populations were not always the ones to suffer as a result of cultural interaction. It was the Europeans, in this case the Portuguese, French, English and Dutch, for example, not the indigenes, who died of disease as a result of Colonial endeavours in southern Madagascar between the 16th and 19th centuries (Parker Pearson, 1997).

The impacts and adaptive processes of the various Colonial regimes were similarly varied. Where the French irreversibly disrupted the traditional Iroquois and Huron fur-trading systems, (Condignola, 1994), or the English settlement and exploitation strategies along the North Atlantic seaboard were to contribute to a massive and rapid deforestation and consequent loss of wildlife from the area (Cronon, 1983), the Portuguese were to establish pioneering sugar plantations in Brazil, thereby setting a precedent for later Dutch and British slave-based investments in the West Indies (Blaut, 1993). In short, Colonial regimes, along with the changes they gave rise to, varied according to the motives and adaptability of the colonising nation, the sources available for capital accumulation in the Colonial territory, and the ability to exploit these sources.

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<sup>1</sup> It is suggested that the indigenous populations had been decimated by slavery and the disruption of food production systems before the introduction of the first Old World killer disease, smallpox, in 1518 (Watts, 1987).

Yet there was to be further variation in terms of Colonial impact *within* the domains of the respective Colonial powers according to *local* environmental and cultural parameters. Licate (1981) has suggested, for example, that a series of “hybrid” societies were to develop in Spanish America, representing a unique adaptation of both indigenous and Spanish cultures and customs. Antecedent Spanish social and agricultural characteristics may have displayed regional disparity in the Old World, but ideals were to be modified and concepts adapted according to the regionally-varied cultural and environmental settings in which the Spanish found themselves. There took place a gradual socio-cultural alienation of Spanish society with respect to Spain, and “widely separated in space and marked by divergent socio-economic trajectories in response to different environments and varying intensities of indigenous contact, a suite of new regional societies emerged in Spanish America” (Butzer, 1991) - a process that Harris (1977) has referred to as the “simplification of Europe overseas”. It follows that any investigation seeking to establish the impacts of Spanish Colonialism should first consider the nature of change at the regional level.

The main objectives of this investigation were to assess the social and environmental impacts conditioned by Spanish Colonialism in one such “region” of the Spanish empire: central Mexico - the first area in mainland America to be subsumed under Spanish Colonial rule, but also one of the most environmentally-sensitive areas of the world. The intention was to employ archival sources dealing with Michoacán, in the highlands of west central Mexico - a region that represented the heartland of the pre- and post-Hispanic activity - in order to address a series of issues that have emerged with respect to post-Conquest social and environmental change in the region. It is the purpose of this final section to discuss some of the findings that have emerged from the study, and in so doing to highlight the potential of archival sources for the reconstruction of past human-landscape interfaces. The limitations of the research undertaken in the investigation will be discussed, and areas where future research should perhaps be directed will be indicated.

### 12.3 “History in the making”: writing and re-writing the past

In as much as they provide a record of contemporary observation and perception, and eye witness testimony, the Colonial Mexican archives and historical documents and accounts dealing with the region can go some way to improving our appreciation of former cultural and environmental scenarios and events *as they took place*. Within any form of historical manuscript, however, there is ample opportunity for distortion of the truth, given that the information provided reflects the purpose, perceptive bias and positionality of the author and / or the informant. Attempting to reconstruct a definitive historical scenario from archival and documentary sources is, therefore, unrealistic unless attempts are first directed towards understanding the degree to which subjectivity will have coloured and conditioned the author’s own perception (or that of the informant).

While acknowledging the role that observer bias can and has played in limiting the value of any archival interpretation, research to date seeking to reconstruct landscape and environmental change in Colonial Mexico from documentary sources has tended to employ historical media as an empirical tool, in an almost scientific sense, without recourse to assessing at a more detailed level the validity of the information provided. Realistically, however, a hypothetical scenario of the true course of events is all that can be hoped for, in much the same way as palynological or sedimentological investigations, as single lines of scientific inquiry, can provide only a partial “story” of environmental change in a particular location.

Nevertheless, the value of historical documentary evidence for the identification of past events that would otherwise go unrecorded, for the verification of suggested historical *trends* or for the contradiction of traditionally accepted theories, should not be underestimated. The various fiscal and judicial documentary sources, less official missionary reports and travelogues exploited in this investigation have, for example, highlighted a series of historical trends regarding dynamics of land use and tenure, environmental change and issues of

water security in Michoacán over the course of the Colonial period, and have thus addressed the three main objectives outlined in Chapter Two. These trends form the basis of the following discussion.

#### **12.4 Acculturation, alienation and acquisition: social stratification and the concept of “differential vulnerability”**

The formation and evolution of Colonial society in Michoacán took place within a context of rapid and profound demographic and economic change. The initial simplicity of the society sought by the Spanish and at first created by Conquest through the imposition of *encomiendas*, processes of evangelisation and the Utopian settlement and relocation policies implemented through early Crown and ecclesiastical legislation, could not be sustained, despite the efforts of both conquerors and churchmen. The unprecedented indigenous depopulation, and consequent decline in the *Indio* labour force, the number of tribute payers and thus the main food suppliers, was among the most disruptive of the forces to affect both traditional indigenous and idealised Spanish systems of exploitation and production. At first, for example, the Spanish sought to exploit the traditional systems of food production. Depopulation, however, rendered residual *Indio* communities, some subject to *congregación* and relocation, unable to maintain their traditional territories, and it became essential for the Spanish to become producers as well as consumers. Vast tracts of former *Indio* land had, however, been simultaneously made available and were effectively open to Spanish appropriation to meet this challenge.

Operating through the many land granting and colonisation policies instituted in the early Colonial period, Spanish territorial acquisition thus became one of the prime objectives of the early Colonial administration. There was an acceleration in the amount of land transferred into Spanish possession in the 16th century and there began a process of agrosystem syncretism as facets of both *Indio* and Spanish land use were gradually interwoven in a regionally varied

pattern according to the environmental constraints of specific locations and the respective concentrations of Spanish or indigenous population.

There was, for example, a good deal of indigenous agricultural continuity in the cooler and more temperate highlands of the *tierra fria* and *templada* zones - a zone that represented the hub of pre- and post-Hispanic activity in this region and the area of primary concern in this project. Here, higher pre-contact populations and a slower transmission of disease pathogens favoured the survival of a substantial indigenous population. Any degree of change that was wrought by Spanish contact was, therefore, to be tempered by a strong *Indio* presence. Here indigenous and Castillian systems of food production would co-evolve over the course of the Colonial period (Sanders, 1992).

In contrast, more significant and dramatic land use changes were to take place in those areas which witnessed a greater degree of depopulation, which had undergone less pre-Hispanic settlement and exploitation, or which were considered agriculturally more marginal and so provided an essentially virgin territory or “*carte blanche*” for Spanish activities. Massive depopulation, a consequent availability of land, and a hot and humid climate, for example, rendered the *tierra caliente* zones of Michoacán, specifically the coastal lowlands, ideal for the development of Spanish sugar and banana plantations.

Lying at the more arid margin of the climatic gradient, and being subject to periodic drought, the more northern parts of the state were less favoured for any form of agricultural land use. Traditionally avoided by pre-Hispanic populations because of these environmental constraints to traditional systems of agriculture, but also for fear of Chichimec invasions, this area had, moreover, remained sparsely settled and little exploited prior to European contact. Capitalising on the availability of land and the limited settlement, however, this area became a livestock ranching and grazing belt - a function enhanced to some extent by the marginalisation policies issued in the second half of the 16th century and designed to minimize crop depredation in the more central, densely populated areas of the

state. There was, therefore, a good deal of spatial variation in the degree of agrosystem change following Conquest *within* this region of Spanish America.

The same policies and procedures that facilitated Spanish colonisation, settlement and land use change, however, were to also act as the mechanisms through which individuals were able to amass and thence monopolise territory and access to natural resources, including water and timber. Both the *Merced* and its counterpart, *Composición*, contributed to the creation of the large estate or *hacienda*, and were thus indirectly instrumental in the progressive alienation of *Indio* communities from their former territories. The consequences only became appreciable with the recovery of the *Indio* population and the expansion of the *Mestizo* sector of society during the later 17th and 18th centuries. Territorial monopolisation by *haciendas* was to render the expanded populations of the later 17th and 18th centuries without a means of independent economic support. There had by this time, moreover, emerged a distinct socio-economic hierarchy: the *Criollos* or *Peninsulares* came to represent the monopolistic merchants, the administrators, politicians, governors and land-owning classes, while the lower echelons became dominated by an increasingly landless *Indio* and *Mestizo* “underclass”.

In as much as it conditioned access to and provision of the most basic of resources necessary for survival, status in this socio-economic hierarchy would appear to have rendered some sectors of society, notably the *Indio* and *Mestizo* populations, effectively more vulnerable to problems of space, drought or environmental deterioration and degradation - an issue Liverman (1990) has discussed with respect to the drought-sensitivity of the modern-day rural populations in Puebla and Sonora, north Mexico. Dissent associated with this “differential vulnerability” in Michoacán was to manifest itself through the litigation documentation dealing with disputes over lands and waters in the later 17th and 18th centuries.

## 12.5 Resource stress: land and water

Concern over land first emerges in the litigation documents of the late 16th century. The majority of the cases, however, deal with depredation and crop loss, and reflect the problems of introducing an agro-pastoral economy to what had formerly been a solely agricultural landscape. Contention surrounding *access* to lands and natural resources in Michoacán and dealing with issues of adequate cultivable territory, however, noticeably accelerates throughout the course of the 17th and 18th centuries, concomitant it seems, with demographic expansion and a progressive amalgamation of lands and resources into *haciendas* and large estates. Disputes over territory would, for instance, appear to have increased over the course of the Colonial period, and stress on lands and effectively finite resources reach apparently critical proportions in the early to mid-18th century, judging by the increase in the number of *pleitos* in this period. The same trends can be elicited from *pleitos* dealing with access to and acquisition of water and other water-related issues (Fig 9.1, Chapter Nine). It seems reasonable to assume that evidence of competition and contention over these most vital of resources stemmed largely from the combined impacts of resource monopolisation and population expansion - a scenario that has been postulated for the heartland of central Mexico as a whole (Butzer, 1991).

Yet this period is also thought to have witnessed a progressive climatic drying (O'Hara and Metcalfe, 1995; Jauregui, in press), the impacts of which would appear to have been *exacerbated* by the monopolisation of water resources and the increased demands on effectively limited supplies as a result of the demographic expansion of the 17th and 18th centuries. The Colonial administration may in this way have rendered the impacts of periodic drought - always a problem in this climatically-sensitive region - apparently more severe, at least for those sectors of society whose access to water resources had been restricted.

Establishing the degree of *environmental impact* resulting from the imposition of Spanish Colonialism is, however, more problematic. The landscape of the region has been modelled by both climatic and anthropogenic parameters of change. Assessments of the nature and scale of the human impact, let alone the respective impacts of pre- and post-Conquest agrosystems, can, therefore, only be ambiguous at best. In this investigation, descriptions included in land grant and litigation documents and in some of the missionary and travel accounts of the post-Conquest period have been used to monitor the way in which perceptions of the landscape in specific locations changed over time. Combined with existing data on the timing and extent of environmental change derived from some of the multi-disciplinary investigations already carried out in the region, this information was employed to identify some basic historical environmental trends which are discussed below.

## **12.6 Perceptions of environmental change and the question of post-Conquest impact**

By the time the Spanish arrived in Michoacán some locations, notably those most densely settled in pre-Hispanic times, had undergone a good deal of environmental disturbance. Palaeolimnological evidence of pre-Hispanic soil erosion from some of the many closed lake basins of the area would suggest that there had indeed occurred several phases of ecological instability prior to Spanish contact, the most intense period of erosion taking place in the immediate pre-Conquest period (O'Hara, 1991; O'Hara *et al.*, 1993; 1994). Given the long-standing settlement and exploitation histories of many of the lake basin areas, such trends are perhaps to be expected.

Archival evidence presented here would indeed indicate that there had been a good deal of perceptible environmental disturbance in the Basins of Pátzcuaro and Cuitzeo, and also that of Yuririapúndaro, by the time the first Spanish land surveys were compiled. There is less evidence of disturbance in the more outlying areas of the former Purépecha realm. Colonial documentation is,

however, necessarily skewed in favour of the administrative and political polities that formed the pre- and early post-Hispanic heartland, focusing less on the apparently peripheral areas of Michoacán. In this respect, the lack of evidence of perceptible environmental disturbance in such outlying areas in the early Colonial period may, because of this tendency, be more apparent than real. Exploration of some of the early Colonial surveys and documentary sources dealing with such locations and held in the *Archivo General de Indias* in Seville (see, for example, the *Ramo* entitled *Escribanía de Cámara*) might go some way to establishing whether this is indeed the case.

Little evidence emerges from the archives consulted in this project to suggest that there occurred an immediate and deleterious environmental impact on the landscape in Michoacán following the introduction of livestock. Evidence of reduced rates of soil erosion in the Basin of Pátzcuaro in the immediate post-Conquest period would, moreover, indicate that the impacts may well have been more benign than is traditionally assumed (O'Hara, 1991; O'Hara *et al.*, 1993) - a reflection perhaps of a de-intensification of land use, consequent upon the indigenous depopulation of the early Colonial period (Butzer, 1991; 1996), or the loss of some of the more erodible mantle as a result of pre-Hispanic land use and associated periods of landscape instability (O'Hara *et al.*, 1993; Metcalfe *et al.*, 1994). The apparent negligible impact may, however, also be reflective of the successful imposition of conservative land use strategies in the wake of Spanish colonisation, including the practice of long and short distance transhumance and the implementation of crown policies seeking to marginalise livestock to the more northerly, sparsely settled areas of the province.

The introduction of livestock to the area did not, however, pass off without event. Claims of depredation and crop loss due to straying cattle and sheep attest to the impacts that unrestrained grazing could have in an area where land use was predominantly agricultural, and the majority of land was under crop, but also to the negligence of individual stockraisers. Traditional research would tend to employ this evidence of depredation to infer environmental change,

considering the impacts in an entirely negative sense (Klein, 1920). Rearing livestock would, however, have provided an element of economic security for a society whose agricultural livelihoods were constantly under threat from climatically-induced crises (Halstead and O'Shea, 1989). Lewthwaite (1986) has, moreover, highlighted the potential economic benefits of maintaining livestock and agricultural production as a coupled exploitative system. It is assumed that manuring was common where grazing and agriculture co-operated, given that transhumant livestock were often exploited for this very purpose in Castile (Vassberg, 1996), and the benefits of the availability of animal fertilisers are indeed thought to have far outweighed any agricultural losses through depredation (Butzer and Butzer, 1995). There would appear, therefore, to have been little immediate ecological or environmental impact resulting from the introduction of livestock to this region of Spanish America.

There is a distinct lack of archival material dealing with landscape and land use issues for the 17th century and as such it has proved difficult to assess any potential change in the way the landscape was perceived. Competition for space at this point in time may not have been problematic, given that this period, although one of emergent resource monopolisation, was still characterised by a much-diminished population. That environmental degradation may, in consequence, have not been an issue at this time should be borne in mind and, for this reason, references to environmental characteristics at this time may be significant in their absence.

There is, however, a marked increase in the number of archival references to deforestation, soil infertility and degradation throughout the course of the 18th century - a trend that could reflect several factors. By this time, the coupled impacts of the progressive usurpation of former community lands by large estate owners and *hacendados*, and the concomitant resurgence in *Indio* and the expansion in *Mestizo* populations were being realised. Communities belonging to the so called "underclass society", had been deprived of their land, but were in a numerically-stronger position to petition for reinstatement or compensation. It is

questionable, therefore, whether the evidence presented within the documents reflects anything other than rising dissent, and hence a consequent increase in the number of law suits that were filed, combined with a tendency for victimised communities to overlay the poor state of the land to which they had access and with which they had to sustain themselves. One must also consider that there is, in addition, more archival documentation available for the later Colonial period, and hence this apparent trend could merely be a manifestation of the skewed availability of archival sources.

Nevertheless, it seems feasible that the population expansion of the later 17th and 18th centuries may have contributed to increased pressure on resources and colonisation of hitherto little used territory and the exploitation of some of the more marginal tracts of land. It follows that population expansion and consequent land use pressures in a context of climatic drying and resource stress may well have reached such levels in the second half of the 18th century so as to precipitate a period of environmental instability in some locations and exacerbate processes of environmental degradation already underway elsewhere.

Research in other areas of central Mexico has provided definitive sedimentological evidence suggestive of environmental degradation in the late Colonial period (Metcalf *et al.*, 1989; Frederick, 1995; Butzer, 1996; Davies, pers. comm). In this respect, the increase in the number of archival references to degraded and infertile landscapes in the second half of the 18th century could be used to support a case for a period of landscape instability sometime in the 1700s.

### **12.7 “Crisis” and the need for change: the multiple stimuli of Independence**

By the close of the 18th century, there had in effect taken place “an impoverishment of the poor and an enrichment of the rich” (Morin, 1979) - a factor which Van Young (1981) has partly attributed to rising urban demand, a more oppressive labour regime, and the “ever increasing impoverishment of the mass of rural inhabitants during the last century of Spanish domination” (Van Young, 1981: 268). Similar conclusions have been reached by Brading (1978) in

an historical investigation of the land holdings and economy of the 18th and 19th century Bajío. The problems associated with social inequality, resource monopolisation, drought and environmental degradation in Michoacán were to reach critical levels towards the close of the 18th century, providing in effect the necessary catalysts for intervention and change. Writing a critical assessment of the land tenure system in the area as it stood in 1799, for example, Manuel Abad Queipo, Bishop of Michoacán at the time highlighted some of the problems faced, stating that:

*“The Spanish comprise a tenth of the total population, and yet they alone hold almost all the land, and resources/ riches of the kingdom”*  
(Queipo, 1799).

Several measures were suggested to overcome the problems of social inequality, involving the termination of the tribute system and a re-assessment of the rights of the *Casta*, *Mestizo* and *Indio* populations. There were, moreover, calls for a redistribution of land and property in order to reduce the gulf that had developed between the rich, landed classes and the poverty-stricken underclasses, although Abad Queipo himself, along with other critics of the contemporary administration, refrained from an attack on *haciendas* themselves. Rather the problem was thought to lie with the apparent “ward” status of the *Indios*, coupled with the need for greater agricultural efficiency (Ruiz, 1992). *“An equal, free division of all royal lands among the Indios and the castas”* was, therefore, suggested, and there was a drive to sub-divide communal lands into private property.

In 1804, the next Bishop, Antonio de San Miguel, in a document that was left unresolved until his death towards the close of the 19th century, similarly forwarded a set of *“laws sufficient to remove the American town from its miserable state of inertia”*. The legislation essentially emulated that of his predecessor, similarly suggesting that:

*“lands be divided among the Indio communities, leaving only ejidos and woodlands in common usage, as are needed by the towns.... and an*

*equal division of royal property among the Indios, castas and poor Españoles*" (cited in Florescano, 1976).

The need for such measures of property and territorial redistribution provided a sector of *Criollo* insurgents, inspired by the European Enlightenment movement and the underlying principles of the French Revolution, and incited by the Napoleonic capture of the Spanish monarchy in 1808, with the necessary motivation to strive for independence. In this respect it is probably no coincidence that Michoacán - one of the regions of the Spanish colony most severely affected by drought, harvest crises and environmental degradation, and the location for considerable indigenous and *Mestizo* dissent over resource monopolisation and land loss at the close of the 18th century - provided the birthplace of the Mexican Independence movement as well as one of its leading insurgents, José María Morelos y Pavón (Ruiz, 1992).

Few changes were, however, to be made in terms of land distribution until the later part of the 19th century, and even then there was little in the way of an equalising effect. Access to land and resources continued to provide a forum for debate into the post-Independence era. Agricultural production declined (Morin, 1979), and problems of land loss were compounded by political disharmony. As Mühlenpfordt noted in the mid-19th century:

*"the soil is very fertile and adequate for the cultivation of plants from all zones; nevertheless, agricultural production has been limited up to now to cover only the most basic of needs of the population. There has been a lack of political peace and public security and capital for the exploitation of natural resources and the construction of communication routes to the neighbouring states"* (Mühlenpfordt, 1844).

The agrarian reforms stimulated by the Revolutionary movement of the early 20th century did little to improve the efficiency of land use or to offset the disparity that had emerged between rich and poor. Indeed, although the reforms served to empower something of a return to traditional forms of land holding in the form of communally-operated *ejidos* (Liverman, 1990), and in this respect enacted the pre-

Independence policies seeking to redistribute lands, problems of socio-economic inequality were to prevail. Indeed, there is still a problem of agrarian justice and inefficient use of the land even today. Huge agglomerations and monopolies dominate the rural sector and most of the country's irrigated lands are in private hands, yielding over 70% of the national harvest. The rest of the lands are for the most part devoted to subsistence production of corn and beans. *Campeños* (peasant farmers) possess for the most part the more marginal and unproductive lands available, lacking irrigation and in need of fertilisation. Most of Mexico's rural dwellers, in consequence, live in abject poverty, with only 3% of the land barons owning upwards of 84% of all rural property - land safe, in effect, from expropriation (1987 figures, cited in Ruiz, 1992). In this respect much of the social and economic inequality that pervades Mexican society today can be considered to be a legacy of Spanish Colonialism.

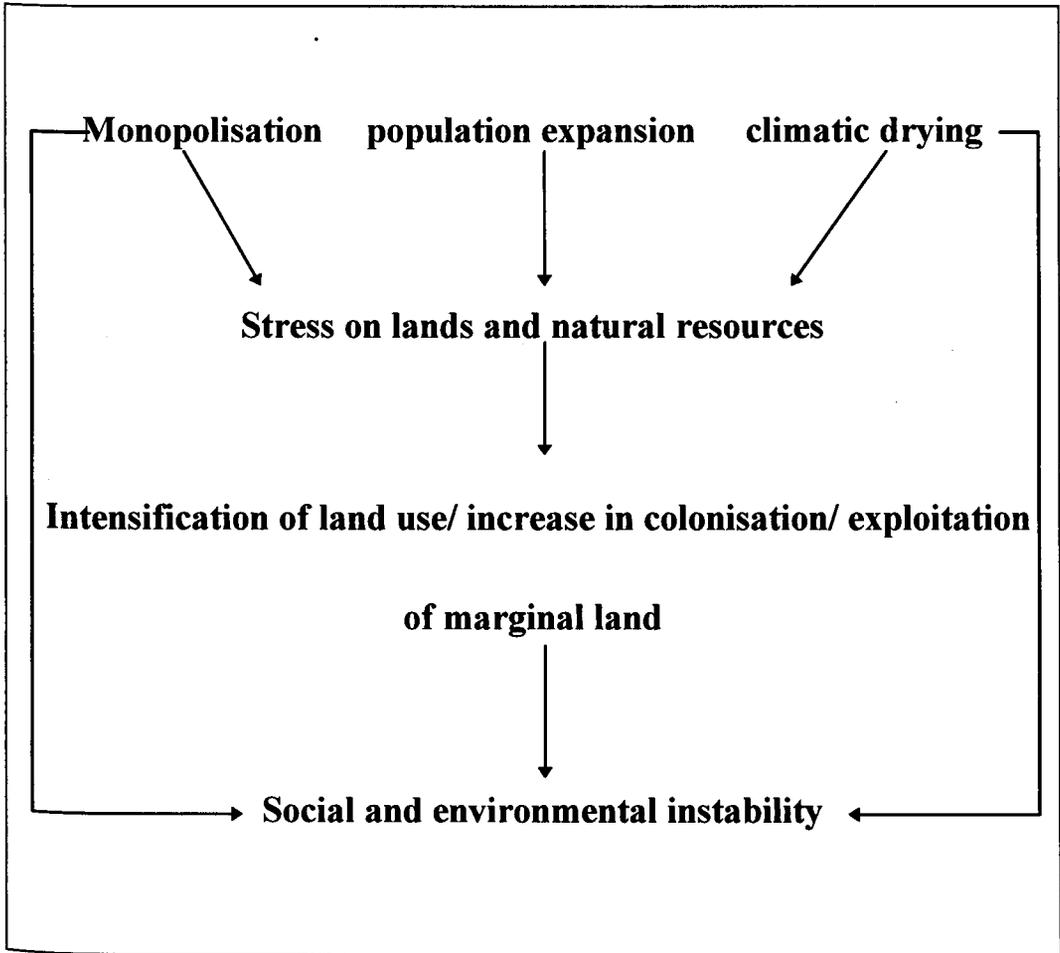
### 12.8 Conclusions

This investigation has provided a template of "change" in the traditional heartland of Michoacán over the course of the Colonial period. A series of hypothetical trends, some of which can be corroborated by field evidence already available, have been identified. Contrary to conventional wisdom there is little evidence to suggest that the arrival of the Spanish, or more pertinently the introduction of Mediterranean agrosystems, was to have an immediate and negative impact on the nature of the environment and landscape in Michoacán. In contrast, the *social and economic impacts* resulting from *changes in land tenure and resource administration* in the early Colonial period would appear to have been more profound and pervasive, affecting the way in which resources were administered and managed and determining the livelihood of different sectors of society as a result.

A case for environmental degradation in the 18th century, does, however, seem plausible, although the nature of the causal factor/s, in a context of pre- and post-Hispanic land use and climatic change, remain ambiguous and open to

conjecture. From the evidence presented here, however, it seems that a range of social and environmental forces had combined to provoke a potential crisis situation. The basic means of survival - land and water - aggravated by severe climatic drying and a monopolisation of some of the more fertile tracts of territory, had become incapable of supporting the swelling population by the close of the 18th century. Tension over access and provision of natural resources reinforced a rising tide of dissent and civil unrest over social inequality and Spanish absolutism, while an intensification of land use in some locations, and an increase in the colonisation of hitherto little exploited and more marginal tracts of land, seems to have been precipitated. This in turn may have contributed to an acceleration or an initiation of landscape degradation (Fig. 12.1) (Blaikie, 1981; Blaikie and Brookfield, 1987; Posner and Macpherson, 1982). This would imply that the intensity of land use in this environmentally-sensitive area was a more significant stimulus of landscape instability in the post-Conquest period than was any change in the nature of land use *per se*.

**Figure 12.1 Hypothetical trends in resource exploitation and impacts in late 18th century Michoacán as ascertained through archival sources**



It remains to be tested whether the trends identified in this investigation can be supported, or indeed contradicted by empirical evidence. In this respect, attention should perhaps now be directed towards the accumulation and comparison of regionally specific palynological, palaeolimnological, sedimentological data. An assessment of productivity levels from crop records and trading accounts for Michoacán around the turn of the 19th century might also provide some insights into the severity and impact of the land and resource stress at this time. If real, however, this scenario would seem reminiscent of those hypothesised for some parts of central Mexico in the later 15th and early 16th century (Williams, 1972; 1989; Pollard and Gorenstein, 1980; Butzer, 1992) but may also pertain to some of the earlier pre-Hispanic cultural collapse scenarios referred to in Chapter Two (Section 2.1). In each case, a unique configuration of environmental, social and political parameters combined at a particular point in time to render the respective populations sensitive to collapse or “ripe” for change. This assertion would in turn perhaps question the long-term sustainability of dense and predominantly agricultural populations within an environmental context that can at best be described as “fragile” or “sensitive” - an issue that has to date only been addressed for pre-Hispanic society in this region (Gorenstein and Pollard, 1994; Butzer, 1996). That Spanish Colonialism served to exacerbate or “trigger” a latent but pervasive problem should, therefore, perhaps now be considered.

Other regionally-based investigations, most preferably of a multi-disciplinary nature, in central Mexico and elsewhere will be essential if this hypothesis is to be tested, although it must be borne in mind that scenarios are likely to vary considerably according to the history of land use in a particular location, and the nature of the environmental parameters prevalent in that locality. The Americas do after all constitute a land area of immense diversity - geographically and historically - a factor which, in essence, precludes an all-encompassing and definitive reconstruction of historical events, processes and impacts. Historical investigation has traditionally focused on the Basin of Mexico,

given the rich archival and documentary record available for this hub of pre-and post-Hispanic society. Yet the archive collections dealing with the so called “peripheries” of the Spanish and other European colonies in the Americas are now beginning to receive attention (Cline, 1992). With a series of regionally-based investigations in these peripheral areas, including in each case an archival survey to assess the most salient historical trends, it may be possible to piece together a composite impression of the variable impact wrought by European contact and Colonialism in this part of the New World. Only then can the Eurocentric construction of the colonial past begin to be dismantled.

## References

- Acuña, R. de (ed) (1987) *Relaciones Geográficas del siglo XVI*. Serie Antropología, Universidad Nacional Autónoma de México. Mexico City, 10 volumes.
- Ajofrin, Francisco de (1764) *Diario del viaje a la Nueva España*. Reproduced in Moreno, H. (1986). Secretaría de Educación Pública. Cien de México, México.
- Alcedo y Bexerano, A. (1786-1789) *Diccionario geográfico histórico de las Indias Occidentales o América*. Madrid, 5 volumes.
- Anderson, A.J.O. and Dibble, C.E (1963) (trans) *Florentine Codex: general history of the things of New Spain by Fray Bernardino de Sahagún Book 11. Earthly Things*. University of Utah and School of American Research, Salt Lake City.
- Armillas, P. (1969) The arid frontier of Mexican civilization. *Transactions of the New York Academy of Sciences*, Section of Anthropology: 697-704.
- Arnauld, M.C. (1987) *Asentamientos lacustres prehispánicos en la cienega de Zacapu: problemas arqueológicos y sedimentológicos*. Paper presented at El hombre y los lagos en el cerro y occidente de México. Centre d'études Mexicaines et Centraméricaines, México.
- Axtell, J. (1992) Columbian encounters: beyond 1992. *William and Mary Quarterly*, 49: 335- 360.
- Bacigalupo, M.H. (1981) *A changing perspective: attitudes toward Creole society in New Spain (1521- 1610)*. Thames Books Limited, London.
- Barrett, E.M. (1973) Encomiendas, mercedes, and haciendas in the tierra caliente of Michoacán. *Latinamerikas*, Band 10: 71-111.
- Basalenque, Fray Diego de (1644) *Historia de la provincia de San Nicolás de Tolentino de Michoacán del orden de San Agustín*. Reproduced in Moreno, H. (1985) Secretaría de Educación Pública. Cien de México, México.
- Bassolls-Barrera, N. (1986) *La sistema geográfica de la cuenca de Pátzcuaro, Michoacán*. Tesis Profesional, Instituto de Geografía, Universidad Nacional Autónoma de México, México City.
- Beaumont, Fray Pablo de Purísima Concepción (1776-1780) *Crónica de la provincia de los Santos Apóstles San Pedro y San Pablo de Michoacán*. Archivo General de la Nación, México City.

- Beltran, U. (1982) Tarascan state and society in pre-Hispanic times, an anthropological enquiry. Ph.D thesis. Department of History, The University of Chicago, Illinois.
- Bentura Belena, E. (1787) *Recopilación sumaria de todos los autos acordados de la Real Audiencia de Nueva España*. Zuñiga y Ontiveros, Mexico City.
- Berdan, F.F. and Durant, F. J.de (eds) (1980) *Matricula de tributos (código de Moctezuma)*. Akademische Druk und Verlagsanstalt, Graz. Austria.
- Bernal, R.G. Manuel (1919) *Universidad Michoacana de San Nicolás de Hidalgo. Datos historicós de su fundación*. Morelia, Michoacán.
- Bintliff, J.L. and Snodgrass, A.M. (1985) The Cambridge/Bradford Boetian expedition. The first four years. *Journal of Field Archaeology*, 12: 125-161.
- Bintliff, J.L. (1992) Erosion in the Mediterranean lands: a reconsideration of pattern, process and methodology. In Bell, M. and Boardman, J. (eds) *Past and present soil erosion*. Oxbow Books, Oxford:125-131.
- Blaikie, P.M. (1981) Land, class and soil erosion. *ODI Review*, volume 2: 5-77.
- Blaikie, P.M. and Brookfield, H.C. (1987) *Land degradation and society*. Methuen, London.
- Blaut, J.M. (1993) *The colonizers's model of the world. Geographical diffusionism and Eurocentric history*. The Guildford Press, London.
- Bochon de Lamerias, B. (1994) *El Michoacán antiguo. Estado y sociedad Tarascos en la época prehispanica*. El Colegio de Michoacán. Gobierno del estado de Michoacán, Morelia. Michoacán.
- Bodmer, B.P. (1992) *The armature of Conquest. Spanish accounts of the discovery of America, 1492-1589*. Translated by Lydia Longstreth Hunt. Stanford University Press, California.
- Boissonas, A.B. (1990) *La formación de la estructura agraria en el Bajío Colonial*. Centro de Investigaciones y Estudios Superiores en Antropología Social. Cuadernos de la Casa Chata, Mexico.
- Borah, W. (1951) *New Spain's century of depression*. University of California Press, Berkeley.
- Borah, W. (1992) Introduction: 1992: In Cook, N.D and Lovell, W.G. (eds) *"Secret judgements of God". Old World disease in Colonial Spanish America*. University of Oklahoma Press, Norman: 3-19.

- Borah, W. and Cook, S.F. (1960) The population of central Mexico in 1548. *Iberoamericana* 44. University of California Press, Berkeley.
- Borah, W. and Cook, S.F. (1963) The aboriginal population of central Mexico on the eve of Spanish Conquest. *Iberoamericana* 45. University of California Press, Berkeley.
- Boserup, E. (1965) *The conditions of agricultural growth*. Allen and Unwin, London.
- Bowden, M.J. (1992) The invention of the American tradition. *Journal of Historical Geography*, 18: 3-26.
- Boyer, R. (1977) Mexico in the seventeenth century: transition of a Colonial society. *Hispanic American Historical Review*, volume 37, no.3: 455-478.
- Bradbury, J.P. (1989) Late Quaternary lacustrine palaeoenvironments in the Cuenca de Mexico. *Quaternary Science Reviews*, 8: 75-100.
- Brading, D.A. (1971) *Miners and merchants in Bourbon Mexico, 1763- 1810*. Cambridge University Press, Cambridge.
- Brading, D.A. (1978) *Haciendas and ranchos in the Mexican Bajío León, 1700-1860*. Cambridge University Press, Cambridge.
- Broda, J. (1979) Las comunidades indígenas y las formas de extracción del excedente: época pre-Hispánica y Colonial. In Florescano, E. (Comp). *Ensayos sobre el desarrollo economico de Mexico y América Latina 1500-1975*. Fondo de Cultura Economica, Mexico.
- Brown, D. (1971) *Bury my heart at Wounded Knee: an Indian history of the American West*. Holt, Reinhart and Winston, New York.
- Bryson, R.A. (1988) Civilizations and rapid climatic change. *Environmental Conservation*, 15: 7-15.
- Bullock, W.S.H. (1866) *Across Mexico in 1864-5*. Macmillan and Co, London and Cambridge.
- Burford, A. (1993) *Land and labour in the Greek world*. Johns Hopkins Press, Baltimore.
- Burkholder, M.A. and Johnson, L.L. (1994) *Colonial Latin America*. Oxford University Press, Oxford.
- Butzer, K.W. (1988) Cattle and sheep from Old to New Spain: historical antecedents. *Annals of the Association of American Geographers*, 78 (1), 1988: 29-56.

- Butzer, K.W. (1990) Ethno-agriculture and cultural ecology in Mexico: historical vistas and modern implications. *Benchmark 1990, Conference of Latin Americanist Geographers*, volume 17/18: 139-153.
- Butzer, K.W. (1991) Spanish colonisation of the New World: cultural continuity and change in Mexico. *Erdkunde*, Band 45: 205-219.
- Butzer, K.W. (1992) The Americas before and after 1492: an introduction to current geography research. *Annals of the Association of American Geographers*, 82 (3): 345-368.
- Butzer, K.W. (1993) The classical tradition of agronomic science: perspectives on Carolingian agriculture and agronomy. In Butzer, P.L. and Lohrmann, D. (eds) *Science in western and eastern civilisation*. Birkhäuser, Basel: 539- 596.
- Butzer, K.W. (1996) Ecology in the long view: settlement histories, agrosystemic strategies and ecological performance. *Journal of Field Archaeology*, volume, 23: 141-150.
- Butzer, K.W. and Butzer, E.K. (1993) The sixteenth-century environment of the central Mexican Bajío: archival reconstruction from Colonial land grants and the question of the ecological impact. In Matthewson, K. (ed) *Culture, form and place*. Baton Rouge, Louisiana State University, LA.
- Butzer, K.W. and Butzer, E.K. (1995) Transfer of the Mediterranean livestock economy to New Spain: adaptation and ecological consequences. In Turner, B.L. and Gomez Sal, A. (eds) *Global land use change*. Consejo Superior de Investigaciones Científicas, Mexico: 151-193.
- Butzer, K.W. and Butzer, E.K.(in press) Archival documentation of a sixteenth century savanna environment re-opening the issue of "natural" vegetation in the Mexican Bajío. Draft paper prepared for the *International Conference on Climatic Change in Mexico, Taxco, Mexico, July 1993*.
- Butzer, K.W. and Williams, B.J. (1992) Addendum: three indigenous maps from New Spain dated ca. 1580. *Annals of the Association of American Geographers*, 82 (3): 536-542.
- Caballero, J., Barrera, N., Lot, A. and Mapes, C. (1981) Excursion a la cuenca de Pátzcuaro. In: *Guías botánicas de excursiones en México V*. Congreso Mexicano de Botánica. Sociedad Botánica de México, Morelia.
- Calderon de la Barca, F. (1844) *Life in Mexico during a residence of two years in that country*. Hutchinson, London. (1987 reprint).
- Carbajal, M.G.C. (1992) La población negra en el obispado de Michoacán siglos XVI y XVII. *Universidad Michoacana: revista trimestral de ciencia, arte y cultura*. No. 5:196-202.

- Cardona, A. (1893) *De Mexico a Chicago y Nueva York. Guía para el viajero en la que se describen la principales ciudades y ferrocarriles y los Estados Unidos del Norte*. Moss Engraving Company, New York.
- Carranza, B.D. (1605) Relación de La Guacana. *Boletín del Archivo General de la Nación*. Tomo III, Número 4, 1962: 669-702.
- Caso, F. (1937) *The religion of the Aztecs*. Popular Library of Mexican Culture, Mexico City.
- Castro, J. de (1975) *The geopolitics of hunger*. Monthly Review Press, New York.
- Ceballos Corona, J.G., Ortega-Murillo, M., De Rosario, N., M.M., Trujillo, M.M., Jiminez, L de S, R. and Santoyo, S.G. (1994) *Análisis limnológico del lago de Cuitzeo, Michoacán, Mexico*. Secretaria de Diffusion Cultural Editorial Universitaria, Mexico.
- Chacon-Torres, A. (1989) *A limnological study of Lake Pátzcuaro, Michoacán, Mexico*. Unpublished PhD Thesis. University of Stirling.
- Chadwick, R. (1971) Archaeological synthesis of Michoacán and adjacent regions. In Wauchope, R. (Ed) *Handbook of Middle American Indians* 11 (2). University of Texas Press, Austin: 657-693.
- Chaunu, H. and Chaunu, P. (1955- 1959) *Seville et l' Atlantique, 1504-1650*. A. Colin. Paris. 8 volumes.
- Cheetham, N. (1974) *New Spain. The birth of modern Mexico*. Victor Gollancz, London.
- Chevalier, F. (1952) *La formación des grandes domaines au Mexique: terre et société aux XVI-XVII siècles*. Paris Institut d'Ethnologie, Paris.
- Chevalier, F. (1966) *Land and Society in Colonial Mexico. The great hacienda*. University of California Press, Berkeley.
- Ciudad Real, A. (1764) *Tratado curioso y docto de las grandezas de la Nueva España*. Reprinted in Quintana, J.G and Farreras, C.M. (eds). Instituto de Investigaciones Historicas. Serie de Historiadores y Cronistas de Indias. 8. Universidad Autónoma de Mexico. Instituto Investigaciones Historicas, Mexico City.
- Cline, S. (1992) Conquest and aftermath. Centre and periphery in Colonial Mexico. *Latin American Research Review*, volume 27, no. 3: 244- 253.

- Codignola, L. (1994) The French in early America: religion and reality. In: Madsen, D. (1994) (ed) *Visions of America since 1492*. Leicester University Press, London: 35-56.
- Coe, M.D. (1994) *Mexico: from the Olmecs to the Aztecs*. Thames and Hudson, London.
- Cook, S.F. (1949) Soil erosion and population in central Mexico. *Iberoamericana*, 34. University of California Press, Berkeley.
- Cook, S.F and Borah, W. (1957) The rate of population change in central Mexico. *Hispanic American Historical Review*, 37: 463-70.
- Cook, S. and Borah, W. (1960) The Indian population of central Mexico, 1531-1610. *Iberoamericana*, 44. University of California Press, Berkeley.
- Cook, S. and Borah, W. (1968) The population of the Mixteca Alta *Iberoamericana*, 50. University of California Press, Berkeley.
- Cook, S. and Borah, W. (1971, 1974, 1979) *Essays in population history*. University of California Press, Berkeley, 3 volumes.
- Cook, S.F. and Simpson, C.B. (1948) The population of central Mexico in the sixteenth century. *Iberoamericana*, 31, Berkeley and Los Angeles.
- Corominas, J. (1954) *Diccionario critico-etimológico de la lengua Castellana*. Editorial Gredos, Madrid, 4 volumes.
- Cortés, H. (1522) Third letter to Charles V. In Cortés, H. *Cartas de Relación*. Editores Mexicanos Unidos, Mexico City (1985 reprint).
- de Cossio, Francisco de Gonzales *et al.*, (1856) *Legislación indigenista de Mexico*. Instituto Indigenista Interamericano, Ediciones Speciales, no. 38. Mexico: 39-44.
- Cowgill, G. L. (1964) The end of the Classic Maya culture: a review of recent evidence. *Southwest Journal of Anthropology*, 20: 145-159
- Cronon, W. (1983) *Changes in the land: Indian, colonists and the ecology of New England*. Hill and Wang, New York.
- Crosby, A. (1986) *Ecological imperialism. The biological expansion of Europe, 900 - 1900*. New York.
- Dahlin, B.H. (1983) Climate and prehistory on the Yucatan Peninsula. *Climatic Change*, 5: 245-263.
- Dando, W.A. (1980) *The geography of famine*. Wiley, New York.

- Delaigue, M.C. (1988) *Capileira, village Andolous: un habitat montagnard a toits plats*. BAR International Series 466, Oxford.
- Denevan, W.M. (1992) The pristine myth: the landscape of the Americas in 1492. In Butzer, K. (ed) (1992) *The Americas before and after 1492: current geographical research. Annals of the Association of American Geographers*, 82: 369-385.
- Diaz, G. S. (1991) Exploraciones científicas del territorio Michoacano en el siglo XIX. *Tzintzun*, 14: 43-71.
- Dieman, M. and Friedl, E. (eds) (1976) Regional variation in modern Greece and Cyprus: toward a perspective on the ethnography of Greece. *Annals of the New York Academy of Sciences*, 268. New York.
- Dollero, A. (1911) *Mexico al día (impresiones y notas de viaje)*. Libreria de Vda de C. Bouret, Paris and Mexico.
- Donkin, R.A. (1979) *Agricultural terracing in the New World*. Viking Fund Publications in Anthropology 56. University of Arizona Press, Tuscon.
- Doolittle, W.E. (1984) Agricultural change as an incremental process. *Annals of the Association of American Geographers*, 74:12 -137.
- Duncan, J. (1994) entry in Johnston, R.J., Gregory, D. and Smith, D. (eds) *Dictionary of human geography*. Blackwell Reference Books, Oxford.
- Dusenberry, W.H. (1963) *The Mexican Mesta: the administration of ranching in Colonial Mexico*. University of Illinois Press, Urbana, Illinois
- Elliot, J.H. (1992) *The Old World and the New, 1492-1650*. Cambridge University Press, Cambridge.
- Endfield, G.E. and O'Hara, S.L. (1997) Conflicts over water in "The Little Drought Age" in central Mexico. *Environment and History* (forthcoming).
- Endfield, G.H and O'Hara, S.L (in prep) Palaeolimnological and historical analysis of environmental change in the vicinity of Lake Cuitzeo.
- Escobar, A. M. (1984) Las encomiendas en la cuenca lacustre de Cuitzeo. In Paredes, C.S (ed) *Michoacán en el siglo XVI*. FIMAX, Morelia.
- Escobar, Fray Matias de (1729) *Americana thebaida vitas patrum de los hermanitos de N.P.S Augustin de la Provincia de San Nicolás Tolentino de Mechoacan, Michoacán* (1924 reprint).

- Escobar-Olmedo, R.M. (1986) La encomienda y el encomendero de Cuitzeo: siglo XVI. In *Boletín*, no. 10. Coordinación de la Investigación Científica. Universidad Michoacana, Morelia: 32-40.
- R.P. Fray. Isidro Felix de Espinoza O.F.M. (1899) *Cronica de la Provincia Franciscana de los Apostles San Pedro y San Pablo de Michoacán*. Mexico.
- Esteva, C. (1983) *The struggle for rural Mexico*. Bergi and Garvey, South Hadley, MA.
- Fabila, M. (1941) *Cinco siglos de legislación agraria (1493-1940)*. Mexico.
- Fagan, B.M. (1984) *Clash of cultures*. W.H. Freeman Company, New York.
- Fanon, F. (1952) *Peau noire, masques blancs*. Editions de Seuil, Paris.
- Ferro, M. (1997) *Colonization: a global history*. Routledge, London.
- Fieldhouse, D.K. (1966) *The Colonial empires. A comparative survey from the eighteenth century*. Weidenfeld and Nicolson, London.
- Florescano, E. (1969) *Precios de maíz y crisis agrícolas en Mexico, 1708-1810*. Colegio de Mexico, Mexico.
- Florescano, E. (ed) (1972) *Analysis historico de las sequías en Mexico*. Comision del Plan Nacional Hidraulico, Mexico.
- Florescano, E. (1976) *Origen y desarrollo de los problemas agrarios de Mexico (1500-1821)*. Colección Problemas de Mexico. Ediciones Era, Mexico.
- Florescano, E. (1980) Una historia olvidada: le sequía en Mexico. *Nexos* 32: 9-18.
- Florescano, E. (coord) (1981) *Fuentes para la historia de la crisis agrícola de 1785-1786*. Archivo General de la Nación, Mexico City.
- Florescano, E. (coord) (1989) *Historia general de Michoacán. Volumen II. La Colonia*. Gobierno del Estado de Michoacán. Instituto Michoacano de Cultura, Morelia, Michoacán.
- Frank, A.G. (1979) *Mexican Agriculture, 1521- 1630. Transformation of the mode of production*. Cambridge University Press, New York.
- Franke, R.W. and Chasin, B.H (1980) *Seeds of famine, ecological destruction and the development dilemma in the West African Sahel*. Montclair, Allenheld: Osmun. NJ.
- Frederick, C. (1995) *Fluvial responses to Late Quaternary climate change and land use in central Mexico*. Unpublished Ph.D Thesis. The University of Texas, Austin.

Frost, E.C. (1993) Indians and theologians: sixteenth century Spanish theologians and their concepts of the indigenous soul. In Gossen, G.H. (ed) *South and Meso-American spirituality: from the cult of the serpent to the theology of liberation*. SCM Press, London.

Gage, T. (1643) *Viajes en al Nueva España*. Introducción por Salvador Bueno. La Habana. Casa de las Americas, Mexico (1980 reprint).

García, E. (1974) Situaciones climaticos durante el auge y la caída de la cultura Teotihuacana. *Boletín del Instituto de Geografía*, 5. Universidad Nacional Autónoma de Mexico, Mexico City: 35-69.

García, R.V. (1981) *Nature pleads not guilty*. Pergammon Press, Oxford.

García, P.A. and Escudero, J.C. (1982) *The constant catastrophe: malnutrition, famine and drought*. Pergammon Press, Oxford.

García, P.A. (1995) La mitología Purépecha y la estrategia sociocultural de uso y manejo ecológico del agua. El caso de la Meseta Purépecha. *Estudios Michoacanos VI*, El Colegio de Michoacán, Morelia, Michoacán: 41-83.

García-Cook, A. (1986) El control de la erosión en la Tlaxcala: un problema secular. *Erdkunde*, Band 40: 251-262.

Gerhard, P. (1982) *The north frontier of New Spain*. Princeton University Press, Guildford.

Gibson, C. (1964) *The Aztecs under Spanish rule. A history of the Indians of the Valley of Mexico*. Stanford University Press, California and London.

Gilberti, M (1983) *Diccionario de la lengua Tarasca*. Balsas Editorial, Morelia. Mexico.

Glick, T.F. (1979) *Islamic and Christian Spain in the Early Middle Ages*. Princeton University Press, Guildford.

Gorenstein, S. and Pollard, H.P. (1983) *The Tarascan civilization: a late pre-Hispanic cultural system*. Vanderbilt University. Publications in Anthropology. No.28. Nashville, Tennessee.

Goresnstein, S. and Pollard, H.P. (1994) Prehistoric archaeology, ethnohistory and soil erosion: a debate over modern agricultural sustainability. *Bulletin of Culture and Agriculture Group*, no. 49: 16-20.

Greenleaf, R.E and Meyer, M.C. (1973) *Research in Mexican history: topics, methodology, sources and a practical guide to field research*. For the Committee on Mexican Studies Conference on Latin American History. University of Nebraska Press, Lincoln.

- Guzman Avila, J. N. (1982) *Michoacán y la inversion extranjera 1880-1911*, Universidad de Michoacán, Morelia.
- Halstead, P. (1989) The economy has a natural surplus: economic stability and social change among early farming communities of Thessaly, Greece. In: Halstead, P. and O'Shea (eds) *Bad year economics: cultural responses to risk and uncertainty*. New Directions in archaeology. Cambridge University Press, Cambridge: 68-80.
- Halstead, P. and O'Shea (eds) *Bad year economics: cultural responses to risk and uncertainty*. New Directions in archaeology. Cambridge University Press, Cambridge.
- Hamblin, R.L. and Pitcher, B.L (1980) The Classic Maya collapse: testing class conflict hypotheses. *American Antiquity*, 45, no.2: 246-269.
- Harley, B. (1992) Rereading the maps of the Columbian encounter. *Annals of the Association of American Geographers*, 82(3): 522-542.
- Harris, R.C. (1977) The simplification of Europe overseas. *Annals of the Association of American Geographers*, 67: 469- 83.
- Harris, O. (1995) "The coming of the white people". Reflections on the mythologisation of history in Latin America. *Bulletin of Latin American Research*, 14: 9-24.
- Harrison, P. (1987) *Inside the Third World*. Pelican, London.
- Harrison, S.P. and Metcalfe, S.E. (1985) Variations in lake levels during the Holocene in North America: indication of changes in atmospheric circulation patterns. *Geographie Physique et Quaternaire*, 39: 141-150.
- Head, L. and Fullagar, R. (1997) Hunter-gatherer archaeology and pastoral contact: perspectives from the northwest Northern Territory, Australia. *World Archaeology*, volume 28 (3): 418-428.
- Heine, K. (1988) Late Quaternary glacial chronology of the Mexican volcanoes, *Die Geowissenschaften*, 6 :197-205.
- Hewitt, K. (ed) (1984) *Interpretations of calamity*. Allen and Unwin, Boston.
- Highfield, R. (1989) Christians, Jews and Muslims in the same society: the fall of convivencia in Medieval Spain. In Baker, D.(ed) Religious motivation: biographical and sociological problems for the Church historian. *Studies in Church History*, volume.15. Oxford: 121-123

- Hodell, D.H., Curtis, J.H., Jones, G.A., Higuera-Grundy, A., Brenner, M, Binford, M.W. and Dorsey, K.T. (1991) Reconstruction of Caribbean climate change over the past 10,500 Years. *Nature*, 352: 790-793.
- Humboldt, Alejandro de (1803) *Ensayo político sobre el reyno de Nueva España*. Traducción de Vicente Gonzales Arnao. Edición Facsimile de 1822. Instituto Cultura Hélienico, A.C. Miguel Angel Porrúa, Mexico. 4 volumes (1822 reprint).
- Hutchinson, G.E., Patrick, R., and Deevey, E.S. (1956) Sediments of Lake Pátzcuaro, Michoacán, Mexico. *Bulletin of the Geological Society of America*, 67:1491-1504.
- INEGI (1985) *Síntesis geográfica del estado de Michoacán*. Instituto Nacional de Estadística, Geografía e Informática, Secretaría de Programación y Presupuesto, Mexico.
- Israel, J. I. (1975) *Race, class and politics in Colonial Mexico, 1610-1670*. Oxford University Press, Oxford.
- Jauregui, E. (1979) Algunos aspectos de las fluctuaciones pluviométricas en Mexico en los últimos cien años. *Boletín del Instituto de Geografía*, 9: 39-64.
- Jauregui, E. (forthcoming) *Changes in Mexico during the historical and instrumented period*. Draft manuscript.
- Jauregui, E. and Kraus, D. (1976) Some aspects of climate fluctuations in Mexico in relation to drought. *Geofísica Internacional*, 16: 45-61.
- Kamen, H. (1991) *Spain 1469-1714: a society of conflict*. Longman, London.
- Klein, J. (1920) *The Mesta: a study of Spanish economic history, 1273- 1836*. Harvard University Press, Cambridge MA.
- Kutzbach, J.E. and Street-Perrott, F.A. (1985) Milankovitch forcing of fluctuations in the level of Tropical lakes from 18 to 0 kyr BP. *Nature*, 317: 130-134.
- Laet, J. de (1625) *Mundo Nuevo o descripción de las Indias Occidentales: introducción, traducción y notas de Marisa Vannini de Gerulewicz*. Caracas. Universidad Simón Bolívar, Instituto de Altos Estudios de América Latina (1988 reprint).
- Lamb, H.H. (1982) *Climate history and the modern world*. Methuen, London.
- La Puente, Fray J. G de (1624) *Primera parte de la cronica Augustinia de Mechuacan*. Mexico.

- La Rea, Fray Alonso de (1643) *Chronica de la Orden de N. Seraphico P.S. Francisco Provincia de San Pedro and San Pablo de Mechoacan*. Mexico.
- Le Flem J.P. (1972) Las cuentas de la Mesta (1520-1709). *Moneda y Credito*, 121: 23-104.
- Le Flem, J.P. (1982) Los aspectos económicos del España moderna. In Tuñón de Lara, M (ed) *La frustración de la Imperio (1476 -1714)*. Historia de España. Labor, Barcelona: volume 5.
- Le Roy Ladurie, E. (1972) *Times of feasts, times of famine - a history of climates since the year 1000*. George, Allen and Unwin, London.
- Lejarza, J.J. de Martinez. (1974) (Edición segundo 1974) *Analisis estadístico de la provincia de Michoacán en 1822*. FIMAX. Publicitas, Michoacán, Morelia.
- Lemoine, E. (1963) Relación de Pátzcuaro y su Distrito, por Ernesto Lemoine Villacana. *Boletín del Archivo General de la Nación*. Numero 1; Tomo. IV. Mexico.
- Lemoine, E. (1993) *Valladolid-Morelia 450 años documentos para su historia (1537-1828)*. Editorial Morevallado. Morelia, Michoacán.
- Leon, N. (1888) Calendrio de Tarascos y las yacatas de Tintzuntzan (65-70) *Anales del Museo Michoacano*, vol. 1: 33-42.
- Lewthwaite, J. (1986) The transition to food production: a Mediterranean perspective . In Zvelebil, M (ed) *Hunters in Transition*. Cambridge University Press, Cambridge: 53-66.
- Leyden, B.W. (1987) Man and climate in the Maya lowlands. *Quaternary Research*, 28: 407-414.
- Leclerque, J. (1885) Voyage au Mexicque de New York à Veracruz. En suivant des rutes de terre. Librairie Hachette et Cie, Paris.
- Licate, J.A. (1981) *Creation of a Mexican landscape: territorial organisation and settlement in the Eastern Puebla Basin, 1520-1605*. University of Chicago, Department of Geography, Research paper number 201, Chicago.
- Lindley, R.B. (1983) *Haciendas and economic development, Guadalajara, Mexico, at the independence*. University of Texas Press, Austin.
- Lipsett-Rivera, S. (1990) Puebla's eighteenth century agrarian decline: a new perspective. *Hispanic American Historical Review*, 70: 3: 463-481.

- Liverman, D. (1990) Drought impacts in Mexico: climate, agriculture, technology, and land tenure in Sonora and Puebla. *Annals of the Association of American Geographers*, 80 (1): 49-72.
- Liverman, D.M. (1993) The regional impact of global warming in Mexico: uncertainty, vulnerability and response. In Schmandt, J. and Clarkson, J. (eds) *The regions and global warming*. Oxford University Press, Oxford.
- Lockhart, J. (1969) *Encomienda and hacienda*: the evolution of the great estates in the Spanish Indies. *Hispanic American Historical Review* 49, no. 3: 411-29.
- Lopez-Lara, R. (1973) El obispado de Michoacán en el siglo XVII. *Estudios Michoacanos*, 3. Fimax Colección. Morelia, Michoacán.
- Lozano-Garcia, M.S., Ortega-Guerrero, B., Caballero-Miranda, M. and Urrutia-Fucuguachi, J (1993) Late Pleistocene and Holocene palaeoenvironments of Chalco Lake, central Mexico, *Quaternary Research*, 40: 332-342.
- Lovell, G. (1985) Conquest and survival in Colonial Guatemala: a historical geography of the Cuchumatán highlands 1500-1821. Kingston.
- Lovell, G. (1990) Mayans, missionaries, evidence and truth: the polemics of native resettlement in sixteenth-century Guatemala. *Journal of Historical Geography*, 16 no. 3: 277-294.
- MacArthur, N. (1970) The demography of primitive populations. *Science*, 167: 1097-1101.
- Mace, R. (1991) Overgrazing overstated. *Nature*, 349: 280-281.
- Macías Goytia, A. (1988) *La arqueología en Michoacán*. In Sanchez, M.M (ed) *La antropología en México: Panorama histórico*. Volume 13. Colección Biblioteca. Instituto Nacional de Antropología e Historia, México: 89-132.
- Macías Goytia, A. (1989) Los entierros de un centro cremonial Tarasco. *Estudios de Antropología Biología* 100. Universidad Nacional Autónoma de México, México City: 531-559.
- Mapes, C., Toledo, V.M., Barrera, N. and Caballero, J. (1994) La agricultura en una region indígena: la cuenca del lago de Pátzcuaro. In Rojas-Rabiela, T. (coord). *Agricultura indígena: pasado y presente*. Centro de Investigaciones y Estudios Superiores en Antropología Social. Ediciones de la Casa Chata, México: 275-342.
- Marshall, Y. and Maas, A. (1997) Dashing dishes. *World Archaeology*, volume 28 (3): 275-290.

- Martin, C. (ed) (1987) *The American Indian and the problem of history*. Oxford University Press, Oxford and New York.
- Matesanz, J. (1965) Introducción de la ganadería en Nueva España, 1521-1535. *Historia Mexicana*, 14: 533-566.
- Martinez, R. (1989) Los inicios de la colonización. In Florescano (ed) (1989) *Historia General de Michoacan*. Gobierno del Estado de Michoacan. Instituto Michoacano de Cultura: 37-71.
- McEvedy, C. and Jones, R. (1978) *Atlas of world population history*. Penguin Books, London.
- Melville, E.G.K. (1983) *The pastoral economy and environmental degradation in highland central Mexico, 1530-1600*. Unpublished Ph.D dissertation. The University of Michigan.
- Melville, E.G.K.(1990) Environmental and social change in the Valle del Mezquital, Mexico, 1521-1600. *Comparative Studies in Society and History*, 32: 24-53.
- Melville, E.G.K.(ed) (1994) *A plague of sheep: environmental consequences of the Conquest of Mexico*. Cambridge University Press, Cambridge.
- Metcalf, S.E. (1987) Historical data and climatic change in Mexico - a review. *Geographical Journal*, 153: 211-222.
- Metcalf, S.E., Street-Perrott, F.A., Brown, R.B., Hales, P.E., Perrott, R.A., and Steinger, F.M. (1989) Late Holocene human impact on lake basins in central Mexico. *Geoarchaeology*, 4: 119-141.
- Metcalf, S.E., Street-Perrott, F.A., Perrott, R.A. and Harkness, D.D. (1991) Palaeolimnology of the Upper Lerma Basin, central Mexico: a record of climatic change and anthropogenic disturbance since 11,600 years BP. *Journal of Palaeolimnology*, 5: 197-218.
- Metcalf, S.E., Street-Perrott, F.A., O'Hara, S.L., Hales, P.E. and Perrott, R.A. (1994) The palaeolimnological record of environmental change: examples from the arid frontier of Mesoamerica. In Millington, A.C. and Pye, K. (eds.) *Environmental change in drylands: biogeographical and geomorphological perspectives*. John Wiley and Sons Ltd, London: 131-147.
- Michelet, D. (1986) *Informe preliminar general del proyecto arqueológico, Michoacán, Mexico*. Centre d'études Mexicanes et Centroaméricaines, Mexico.
- Miller, C.L. and Hamell, G.R. (1986-1987) A new perspective on Indian-white contact: cultural symbols and Colonial trade. *Journal of American History*, 73: 326.

- Moreno, H. (1985) *Los Augustinos, aquellos misionarios hacendados. Diego de Basalenque*. Secretaria de Educación Publica (SEP). Cien de Mexico, Mexico.
- Moreno, H. (1986) *Diario del viaje de la Nueva España. Francisco de Ajofrin*. SEP. Cien de Mexico, Mexico.
- Morin, C. (1979) *Michoacán en la Nueva España del siglo XVIII: crecimiento y desigualdad en una economía Colonial*. Fondo de Cultural Económica, Mexico City.
- Morse, R.M. (1962) Some characteristics of Latin American urban history. *American Historical Review*, 67: 317- 338.
- Mörner, M. (1973) The Spanish American *hacienda*: a survey of recent research and debate. *Hispanic American Historical Review*, 53(2): 183-216.
- Mörner, M. (1976) Spanish migration to the New World prior to 1810. In Chiapelli, F (ed) *First images of the New World*, volume 2. Berkeley: 737-787.
- Motolonia or Fray Toribio de Benavenete (1541) *Historia de los Indios de La Nueva España*. Translated by O'Gorman, E. (1979). Mexico City.
- Mühlenpfordt, E. (1844) *Ensayo de una fiel descripción de la república de Mexico*. Traducción y nota preliminar de Enrique Covarrubias. T II (1993). Banco de Mexico, Mexico.
- Murray, D. (1994) Through native eyes? Indian history/ American history. In Masden, D (ed). *Visions of America since 1492*. Leicester University Press, London: 57-71.
- Musset, A. (1992) *El agua en al Valle del Mexico: siglos XVI-XVIII*. Mexico: Portico de la Ciudad de Mexico/ Centre d'études Mexicanes et Centraméricanes, Mexico City.
- Navarro Norriega, F. (1943) *Catálogo de los curatos y misiones de la Nueva España y memoria sobre la población del Reino de la Nueva España*. Mexico.
- Niederberger, C. (1979) Early sedentary economy in the Basin of Mexico. *Science*, 203: 131-142.
- Newson, L.A. (1985) Indian population patterns in Colonial Spanish America. *Latin American Research Review*, 20, no. 3: 41-74.
- Nickel, H. (1968) *Morfología social de la hacienda Mexicana*. Fondo de Cultura Economica, Mexico.

- Núñez, J.C. (1982) Cronistas novohispanicos de Michoacan. *Humanistas Novohispanos de Michoacán*, Universidad Michoacana, Morelia, Michoacán: 29-36.
- Nuttal, Z. (1921) Royal ordinances concerning the laying out of new towns. *Hispanic American Historical Review*, 4 : 743-753; 5 (1922): 249-254.
- O'Gorman, E. (1976) *La invención de América*. Fondo de Cultura Economica, Mexico.
- O'Hara, S.L. (1991) *Late Holocene environmental change in the Basin of Pátzcuaro, Michoacán, Mexico*. Unpublished D.Phil Thesis. The University of Oxford.
- O'Hara, S.L. (1993) Historical evidence of fluctuations in the level of Lake Pátzcuaro, Michoacán, Mexico over the last 600 years. *The Geographical Journal*, 159: 51-62.
- O'Hara, S.L., Street-Perrott, F.A. and Burt, T.P. (1993) Accelerated soil erosion around a Mexican highland lake caused by pre-Hispanic agriculture. *Nature*, 362: 48-51.
- O'Hara, S.L., Metcalfe, S.E. and Street-Perrott, F.A. (1994) On the arid margin: the relationship between climate, humans and the environment. A review of evidence from the highlands of central Mexico. *Chemosphere*, 29, no.5: 965-981.
- O'Hara, S.L. and Metcalfe, S.E. (1995) Reconstructing the climate of Mexico from historical records. *The Holocene*, 5(4): 485-490.
- Oliveros, J.A. (1975) Arqueología del estado de Michoacán. In *Los pueblos y señoríos teocráticos, vol. 7. Mexico: Panorama histórico y cultural*. Instituto Nacional de Antropología e Historia, Mexico: 207-214.
- Orozco, F. de Gomez (1940) *Cronicas de Michoacán. Selección, introducción y notas*. Biblioteca del Estudiante Universitario. Ediciones de la Universidad Nacional Autónoma de Mexico, Mexico City.
- Orozco and Berrera, M (1859) (ed) *De las actas de cabildo de la gran ciudad de Temuxtitlan. Mexico*. Ignacio Bejardo: vols: 1-3. (1523-1535), Mexico.
- Osborn, W.S. (1973) Indian land retention in Colonial Metzitan. *Hispanic American Historical Review*, 53: 217-238.
- O'Shea, J. (1980) Mesoamerica from village to empire. In Sherratt, A. (ed) *The Cambridge encyclopaedia of archaeology*. Cambridge University Press, Cambridge: 382-390.

- Pagden, A. (1993) *European encounters with the New World*. Yale University Press, New Haven and London.
- Pagden, A. (1994) Shifting antinomies: European representation of the American Indian since Columbus. In Madsen, D.L. (ed) *Visions of America since 1492*. Leicester University Press, London: 23-34.
- Paredes, C.M. (1979) *El sistema tributario prehispánico entre los Tarascos*. Manuscript.
- Paredes, C.M. (1981) El establecimiento Español en al region lacustre. In Paredes, C. (ed) *Michoacán en el época Colonial*. FIMAX, Morelia, Michoacán.
- Paredes, C. and Piñon, M. (1984) *Michoacán en el siglo XVII*. FIMAX, Morelia, Michoacán.
- Paredes, C.M. (1991) Circulación e intercambio en Pátzcuaro y Guayangareo; le etapa del contacto con los Europeos y los cambios iniciales. *Tzintzun*, 14: 7-18.
- Paredes, C.M. (ed) (1995) *Y por mi visto: mandamientos, ordenanzas, licencias y otras disposiciones virreinales sobre Michoacán en el siglo XVI*. Centro de Investigaciones y Estudios Superiores en Antropología Social, Mexico.
- Parker Pearson, M. (1997) Close encounters of the worst kind: Malagasy resistance and Colonial disasters in Southern Madagascar. *World Archaeology*, 28 (3): 393-417.
- Paso y Troncoso, Francisco de (1905-48) *Papeles de Nueva España*. Madrid, 9 volumes.
- Paso y Troncoso, Francisco de (1905) *Suma de visitas de pueblos (1547- 1560)* (1905) *Papeles de Nueva España*. Tomo I, Madrid.
- Pastor, R. and Frizzi, R.M. (1989) Expansión económica e integración cultural. In Florescano, E. (coord) *Historia General de Michoacán: VOL II Colonia*. Gobierno del Estado de Michoacán. Instituto Michoacano de Cultura, Morelia, Michoacán: 161-191.
- Pastor, R. and Frizzi, R.M (1989) El crecimiento del sigloXVIII. In Florescano, E. (coord) *Historia General de Michoacán: VOL II Colonia*. Gobierno del Estado de Michoacán. Instituto Michoacano de Cultura, Morelia, Michoacán: 193-216.
- Paulsen, A.C. (1976) Environment and empire: climatic factors in prehistoric Andean culture change. *World Archaeology*, 8 : 121-132.
- Pauwells, L.M.E. (1992) El conflicto por la tierra en dos pueblos de la ribera del lago de Pátzcuaro: San PedroTzurúmutaro y Santa María Tzentsénguaru; siglos

XVII-XVIII. *Estudios Michoacanos*, IV. El Colegio de Michoacán, Morelia, Michoacán: 181-204.

Pellicer, S.N. (1994) Las transformaciones de la economía indígena en Michoacán: siglo XVI. In Rojas-Rabiela, T. (ed) *Agricultura indígena pasado y presente*. Ediciones de la casa chata. Centro de Investigaciones y Estudios Superiores en Antropología Social, Mexico: 109-128.

Petrequin, P., Carot, P., Arnauld, C., Fauvet-Berthelot., Lamy au Rousseau, R., Magny, M., Metcalfe, S.E., Polaco, O. J., Richard, H., de los Rios., Paredes, M.M and Xelhuantzi-Lopez, M.S. (1994) *8000 años de la Cuenca de Zacapu. Evolución de los paisajes y primeros desmontes*. Centre d'études Mexicanes et Centraméricanes, Mexico.

Phillips, S. (1994) The outer world of the European Middle Ages. In Schwartz, S.B. (ed) *Implicit understandings. Observing, reporting and reflecting on the encounters between Europeans and other peoples in the Early Modern Era*. Cambridge University Press, Cambridge: 23-63.

Piñon-Flores, M.I. (1984) La tenencia de la tierra en la region de Tlaxcala-Zacapu- Huaniqueo. In Martinez, C.S (ed) *Michoacán en el siglo XVI*. FIMAX, Morelia: 105-190.

Pollard, H.P. (1980) Central places and cities: a consideration of the protohistoric Tarascan state. *American Antiquity*, 45, no.4: 677-696.

Pollard, H.P (1993) *Tariacuri's legacy. The prehispanic Tarascan state*. University of Oklahoma Press, Norman and London.

Pollard, H.P. and Gorenstein, S. (1980) Agrarian potential, population and the Tarascan state. *Science*, 209 (4453): 274-277.

Pope, K.O. and van Andel, T.H. (1984) Late Quaternary alluviation and soil formation in the southern Argolid: its history, causes and archaeological implications. *Journal of Archaeological Science*, 11: 81-306.

Porter-Weaver, M. (1981) *The Aztecs, Maya and their predecessors: archaeology of Mesoamerica*. Academic Press, New York.

Posner, J.L. and MacPherson, M.F. (1982) Agriculture in the steep slopes of Tropical America. *World Development*, volume 10: 341-354.

Pratt, M.L. (1995) *Imperial eyes: travel writing and transculturation*. Routledge, London.

Prem, H.J. (1978) *Milpa y hacienda: tenencia de la tierra Indígena y Español en la cuenca del Alto Atoyac, Puebla, Mexico (1520- 1650)*. F. Steiner, Wiesbaden

- Prem, H.J. (1984) Early Spanish colonisation and Indians in the Valley del Atlixo, Puebla. In Harvey, H.R. and Prem, H.J. (eds) *Explorations in ethnohistory: Indians in central Mexico in the sixteenth century*. University of New Mexico Press. Albuquerque, New Mexico: 205-228.
- Prem, H.J. (1992) Spanish colonisation and Indian property in central Mexico, 1521-1620. *Annals of the Association of American Geographers*, 82 (3): 444-461.
- Puga, Vasco de (compilador) (1563) *Provisiones cédulas instrucciones para el gobierno de la Nueva España*. Cultura España, Madrid (1945 reprint).
- Queipo, Abad (1799) *Colección de los escritos más importantes que indiferentes épocas dirigió al gobierno*. Mexico.
- Quesada, M.A.L. (1994) Spain, circa 1492: social values and structures. In Schwartz S.B. (ed) *Implicit understandings. Observing, reporting and reflecting on the Encounters between Europeans and other peoples in the Early Modern Era*. Cambridge University Press, Cambridge: 96-133.
- Quinn, D.B. (1994) European perceptions of American ecology, 1492-1612. In Madsen, D.L.(ed) *Visions of America since 1492*. Leicester University Press: 3-22.
- Quintana J.G. and Farreras, V.M.C. (1976) *Tratado curiosos y docto de las grandezas de la Nueva España*. Instituto de Investigaciones Historicas. Serie de Historiadores y Cronistas de Indias. 8. Universidad Nacional Autónoma de Mexico, Mexico City.
- Rathje, W.L. (1973) Classic Maya development and denouement: a research design. In Culbert, T.P. (ed) *The Classic Maya collapse*. University of New Mexico Press, Albuquerque: 405-454.
- Recopilación (1987) *Recopilación de leyes de los Reynos de las Indias* (1681). Porrúa (facsimile edition), Mexico City.
- Roberts, L. (1989) Disease and death in the New World. *Science*, 246: 1245-1247.
- Rojas-Rabiela, T. (1985) La tecnología agrícola mesoamericana en el siglo XVI. In Rojas-Rabiela and Sanders, W.T (eds) *Historia de la agricultura: época prehistorica Siglo XVI*. Seria Historia 1. Instituto Nacional de Antropología e Historia, Mexico City: 120-132.
- Rojas-Rabiela, T. (1988) *Las siembras de ayer: la agricultura indígena del siglo XVI* Secretaría de Educación Publica, Mexico City.

- Rojas-Rabiela, T. (1994) *Agricultura indígena: pasado y presente*. Centro de Investigaciones y Estudios Superiores en Antropología Social. Ediciones de La Casa Chata, Mexico.
- Rosenblat, A. (1954) *La población y el Mestizaje en América*. Editorial Nova, Buenos Aires.
- Rosenblat, A. (1976) The population of Hispaniola at the time of Columbus. In Denevan, W.M. (ed) *The native population of the Americas in 1492*. University of Wisconsin Press, Madison.
- Ruiz, R.E. (1992) *Triumphs and tragedy. A history of the Mexican people*. W.W Norton and Company, New York and London.
- Ruvalcaba, M.J. (1985) *Agricultura india en Cempoala, Tepeapulcoy Tulancingo, siglo XVI*. Departamento de Distrito Federal, Mexico City.
- Sabloff, J.A. and Lamberg-Karlovsky, C.C. (1974) *The rise and fall of civilizations: modern archaeological approaches to ancient cultures*. Cummings Publishing Company, Menlo Park, California.
- Sahagún, Bernadino de (1569) *Florentine Codex: general history of the things of New Spain*. Translated by Anderson, A. and Dibble C. (1950-1969) University of Utah and School of American Research, Santa Fé and Salt Lake City.
- Sahlins, M. (1972) *Stone Age Economics*. Chicago and New York.
- Sale, K. (1990) *The Conquest of paradise: Christopher Columbus and the Columbian legacy*. Alfred. A. Knopf, New York.
- Sanchez, I.G. (1985) *El Obispado de Michoacán en 1765*. Investigaciones Historicas. Comité Editorial del Gobierno de Michoacán, Morelia, Michoacán.
- Sanders, W.T. (1970) The population of the Teotihuacán Valley, the Basin of Mexico and the central Mexican symbiotic region in the sixteenth century. In *Teotihuacán Valley project final report*. Occasional Papers in Anthropology 3: 385- 457. Pennsylvania State University, University Park.
- Sanders, W.T. (1976) The population of the central Mexican symbiotic region, the Basin of Mexico and the Teotihuacán Valley in the sixteenth century. In Denevan, W.M. (ed) *The native population of the Americas in 1492*. University of Wisconsin Press, Madison: 85-150.
- Sanders, W.T. (1981) Ecological adaptation in the Basin of Mexico: 23, 000 B.C to the present. In Sabloff, J. A.(ed) *Archaeology: supplement to the handbook of middle American Indians*. University of Texas Press, Austin: 147-197.

- Sanders, W.T. (1992) Ecology and cultural syncretism in sixteenth century Mesoamerica. *Antiquity*, 66: 172-190.
- Sarrelangue, L. (1965) *La nobleza indígena de Pátzcuaro en la época Virreinal*. Instituto de Investigaciones Historicas. Serie de Novo Hispana, 20, Universidad Nacional Autónoma de Mexico, Mexico City: 123-126.
- Sauer, C.O. (1966) *The early Spanish main*. University of California Press, Berkeley and Los Angeles.
- Schwartz, S.B. (ed) (1994) *Implicit understandings. Observing, reporting and reflecting on the encounters between Europeans and other peoples in the early modern era*. Cambridge University Press, Cambridge.
- Sears, P.B. (1952) Palynology in southern North America. Archaeological horizons in the Basin of Mexico. *Bulletin of the Geological Society of America*, 63: 241-254.
- Seltzer, G.O. and Hastorf, C.A. (1990) Climatic change and its effect on pre-Hispanic agriculture in the central Peruvian Andes. *Journal of Field Archaeology*, 17: 397-414.
- Serge, V. (1944) San Juan Parangaricutiro. Reprinted in *El Buscón*. número 3. Marzo - Abril, 1983: 117-152.
- Seymour Edwards, W. (1906) *On the Mexican highlands with a passing glimpse of Cuba*. Jennings and Graham, Cincinnati Press, Cincinnati.
- Shelter, S. (1991) Three faces of Eden. In Viola, H.J. and Margolis, C. (eds) *Seeds of change: a quincentennial commemoration*. Smithsonian Institute, Washington: 225-247.
- Shimkin, D.B. (1973) Models of the downfall: some ecological and culture-historical considerations. In Culbert, T.P. (ed) *The Classic Maya Collapse*. University of New Mexico Press, Albuquerque, New Mexico: 269-300.
- Simpson, L.B. (1952) *Exploitation of land in central Mexico in the sixteenth century*. University of California Press, Berkeley.
- Simpson, L.B. (1966) *The encomienda in New Spain*. University of California Press, Berkeley and Los Angeles.
- Slicher van Bath, B.H. (1978) The calculation of the population of New Spain, especially for the period before 1570. *Boletín de Estudios Latinoamerica y del Caribe*, 24: 67-95.

- Solano, F. De (1991) *Cedulario de tierras (1497-1820): compilación de legislación agraria Colonial*. Mexico City. Instituto de Investigaciones Jurídicas. Universidad Nacional Autónoma de México, Mexico City.
- Solórzano y Pereyra, Juan de (Compilador) (1776) *Política Indiana*. Real de la Gazeta, Madrid.
- Spurr, M.S. (1986) *Arable cultivation in Roman Italy c.200 BC - c.AD 100*. Society for the Promotion of Roman Studies, London.
- Stein, S.J. and Stein, B.H. (1970) *The Colonial heritage of Latin America: essays on economic dependence in historical perspective*. Oxford University Press, New York.
- Swan, S.C. (1981) Mexico in the Little Ice-Age. *Journal of Interdisciplinary History*, XIV (4): 633-648.
- Taylor, W.B. (1972) *Landlord and peasant in Colonial Oaxaca*. Stanford University Press, California.
- Thomas, H. (1994) *The Conquest of Mexico*. Pimlico Press, London.
- Toledo, V. M., Caballero, J., Mapes, C., Barrera, N., Argueta, A. and Nuñez, M.A (1980) Los Purépechas de Pátzcuaro: una aproximación ecológica. *América Indígena*, volume 40, no. 1.
- Toledo, V.M. and Bassols-Barrera, N. (1984) *Ecología y desarrollo rural en Pátzcuaro*. Instituto de Biología. Universidad Nacional Autónoma de México, Mexico City.
- Torquemada, Juan. De (1610) *Monarquía Indiana*. 3 volumes. Biblioteca del Estudiante Universitario. Universidad Nacional Autónoma de México, Mexico City (1978 reprint).
- Trigger, B. (1991) Early native North American responses to European contact: Romantic versus rationalistic interpretations. *Journal of American History*. March, 1991: 1211.
- Ugarte, B.S.J.J. (1992) *Historia sucinta de Michoacán*. Morevallado Editores, Morelia, Michoacán.
- Vaillant, G.C. (1944) *The Aztecs of Mexico*. Richard Clay and Company Limited. Bungay, Suffolk.
- van Andel, T.H., Runnels, C.N. and Pope, K.O. (1986) 5000 years of use and abuse in the southern Argolid, Greece. *Hesperia*, 55: 103-128.

van Andel, T.H. and Zangger, E. (1990) Landscape and stabilisation in the prehistory of Greece. In Bottema, S. and Entjes-Nieborg, and van Zeist, W. (eds) *Man's role in the shaping of the eastern Mediterranean landscape*. Balkema, Amsterdam: 139-157.

van Andel, T.H. and Zangger, E. and Demitrack, S. (1990a) Land use and soil erosion in prehistoric Greece. *Journal of Field Archaeology*, 17: 379-396.

van Andel, T.H., Zangger, E. and Perissoratis, C. (1990b) Quaternary transgressive cycles in the Gulf of Argos, Greece. *Quaternary Research*, 34: 317-329.

Van Young, E. (1981) *Hacienda and market in eighteenth-century Mexico: the rural economy of the Guadalajara Region, 1675-1820*. Berkeley: University of California Press, Berkeley.

Van Young, E. (1983) Mexican rural history since Chevalier: the historiography of the Colonial hacienda. *Latin American Research Review*, 18:3: 50-61.

Van Young, E. (1986) The age of paradox: Mexican agriculture at the end of the Colonial period, 1750-1810. In: Jacobsen, N. and Puhle, H.J. (eds) *The economies of Mexico and Peru during the late Colonial period: 1760-1810*. Berlin.

Vassberg, D.E. (1996) *The village and the outside world in Golden Age Castile. mobility and migration in every rural life*. Cambridge University Press, Cambridge.

Villaseñor y Sanchez, J.A. (1748) *Theatro Americano. Descripción general de los reinos y provincias de la Neuva España y sus jurisdicciones*. Mexico. 2 volumes.

Wallen, C.C. (1955) Some characteristics of precipitation in Mexico. *Geofisika Annaler*, 37: 51-85.

Ward, H. G. (1981) *Mexico en 1827*. Estudio preliminar de Maty. F. De Somme. Fondo de Cultura Económica, Mexico.

Warren, J.B. (1963) Vasco de Quiroga and his pueblos-hospitales of Santa Fé. *Academy of America Franciscan History*, Monograph Series, No. 7. Academy of American Fransiscan History, Washington.

Warren, B.J. (1971) Fray Jeronimo de Alcála: author of the Relación de Michoacán? *The Americas*, 27 (3): 307-326.

Warren, B.J. (1984) *La administración de los negociós de un encomendero en Michoacán*. SEP, Mexico.

- Warren, B.J. (1985) *The Conquest of Michoacán*. University of Oklahoma Press, Norman. Oklahoma.
- Waslekov, G.A. (1989) *Powhatan's mantle: Indians in the Colonial Southeast*. University of Nebraska Press, Lincoln.
- Watts, D. (1987) *The West Indies: patterns of development, culture and environmental change since 1492*. Cambridge Studies in Historical Geography, 8. Cambridge University Press, Cambridge.
- Watts, M. (1983) *Silent violence: food famine and the peasantry in northern Nigeria*. University of California Press, Berkeley.
- Watts, W.A. and Bradbury, J.P. (1982) Paleocological studies at Lake Pátzcuaro on the west central Mexican plateau and at Chalco in the Basin of Mexico. *Quaternary Research*, 17: 56-70
- Wauchope, R. (Ed) (1975) Historical notes on the evolution of minor political jurisdictions. In: *Handbook of Middle American Indians. Guide to ethnohistorical sources*. University of Texas Press, Austin: part 1
- Webre, S. (1990) Water and society in a Spanish American city: Santiago de Guatemala. *Hispanic American Historical Review*, 70:1: 57-84.
- Wells, B. (ed) (1992) *Agriculture in ancient Greece*. Stockholm: Skrifter Utgivna av Svenka Institutet I Athen, 4 series 42.
- Werner, G. (1986) Landschaftsumgestaltungs folge von Besiedlung, vegetationsänderung und landnutzung durch die altindianische bevölkerung im staat Tlaxcala, Mexiko. *Erdkunde*, 40: 262-270.
- West, R.C. (1948) *Cultural geography of the modern Tarascan area*. Smithsonian Institution. Institution of social Anthropology, Publication No.7. Greenwood Press Publications, Westport, Connecticut.
- White, K.D. (1970) *Roman farming*. Cornell University Press, Ithaca. New York.
- Whitmore, T. M. (1991) A simulation of the sixteenth century population collapse in the Basin of Mexico. *Annals of the Association of American Geographers*, 81: 464-487.
- Whitmore, T.M. and Turner, B.T. (1992) Landscapes of cultivation in Mesoamerica on the eve of Conquest. *Annals of the Association of American Geographers*, 82 (3): 402-425.
- Williams, B.J. (1972) Tepetate in the Valley of Mexico. *Annals of the Association of American Geographers*, 62: 618-626.

- Williams, B.J. (1982) Aztec soil glyphs and contemporary Nahua soil classification. In Jansen, M.E, and Layenaar, T.J. (eds) *The Indians of Mexico in pre-Columbian and modern times*. Rijksmuseum voor Volkenkunde, Leiden: 206-222.
- Williams, B.J. (1989) Contact period rural overpopulation in the Basin of Mexico: carrying capacity models tested with documentary data. *American Antiquity*, 54 (4): 715-73.
- Willey, G.R. and Shimkin, D.B. (1974) The collapse of the Classic Mayan civilization in the southern lowlands: a symposium summary statement. In Sabloff, J.A. and Lamberg-Karlovsky, C.C. *The rise and fall of civilizations: modern archaeological approaches to ancient cultures*. Cummings Publishing Company, California: 104-119.
- Wilson, R. (1995) Shifting frontiers: historical transformations of identities in Latin America. *Bulletin of Latin American Research*, 14:1-7.
- Wisner, B. (1976) *Man-made famine in eastern Kenya: the interrelationship of environment and development*. Institute of Development Studies, Brighton, U.K.
- Wolf, E.R. (1959) *Sons of the shaking earth*. University of Chicago Press, Chicago.
- Wolf, E.R. (1969) *Peasant wars of the twentieth Century*. Harper and Rowe, New York.
- Wolf, E. and Mintz, S.W. (1957) Haciendas and plantations in Middle America and the Antilles. *Social and Economic Studies*, 6: 380-412.
- Yasamura, N. (1995) Justicia y sociedad rural en Michoacán durante la época Colonial. *Estudios Michoacanos*, VI. El Colegio de Michoacán.
- Yates, P.L. (1981) *Mexico's agricultural dilemma*. University of Arizona Press, Tuscon.
- Zangger, E. (1990) Prehistoric and historic soils in Greece: assessing the natural resources for agriculture. In Wells, B. (ed) *Agriculture in Ancient Greece. Proceedings of the eleventh international symposium of the Swedish Institute at Athens, 6th-17th May, 1990*. Stockholm.
- Zangger, E. (1992) Neolithic to present soil erosion in Greece. In Bell, M. and Boardman, J. (eds). *Past and present soil erosion*. Oxbow Books, Oxford: 133-147.
- Zangger, E. (1993) *Geoarchaeology of the Argolid*. Deutsches Archäologisches Institut, Athens.

Zangger, E. (1994) Landscape changes around Tyrins during the Bronze Age. *American Journal of Archaeology*, 98: 189-212.

Zavala, S. (1982) *Ensayos sobre la colonización Española en América*. Secretaría de Educación, Mexico City.

Zeitlin, J.F. (1989) Ranchers and Indians on the southern Isthmus of Tehuantepec: economic change and indigenous survival in Colonial Mexico. *Hispanic American Historical Review*, 69: 23-61.

Zubillaga, F. (1959) *Monumenta Mexicana*. Rome, 2 vols.

## Appendix A

### Examples of original manuscripts housed in the Archivo General de la Nación

#### A1. Tierras 1095, exp. 1, fs. 30f- 31f. 1784.

Extract from a *pleito* over lands between the *naturales* of Tzetzénguaro and the *haciendas* of Aranjuez and San Nicolás. The section represents an impartial "measure" or assessment of the quantity and quality of the lands available to the *naturales* of the town and was carried out by the local lieutenant of Pátzcuaro. (The despatch referred to in the text relates to the instructions that were given to the lieutenant and is not included in this extract).

Medidas }  
Tierras }  
Omníe }  
Poniente }

En el Pueblo de Tzetzénguaro à nueve diez y Nueve  
de Mayo de 1784. El Sr. Don Juan de Arana Alcalde General  
de la Ciudad de Pátzcuaro, ay supradichos de la  
viendo venido a este Pueblo a efecto de luz me  
didaz q. se mandan hacer en el Superior des-  
pacho q. era por principio hallandole pre-  
sente Don Manuel Martinez como actual Po-  
seeedor de la Hacienda de Aranjuez una de  
las colindantes a las tierras deste Pueblo  
se procedio a la medida de las q. se comprehen-  
den q. la parte de Oriente de dicha tier-  
ra a la Iglesia a linea Recta para el orien-  
te. hasta una Sexia q. divide las tierras de la  
Hacienda de San Nicolás en donde se allote-  
ren Seiscientas diez Varas las trecientas sin-  
cuenta de Piedra, ay Tepetate, incensible, cin-  
fructifera, y las doscientas Setenta a pan de  
azúcar. Por la parte de Poniente hasta la oxilla  
de la Laguna semidichas quatrocientas y  
diez Varas. las doscientas y setenta de Pie-  
dra, y las ciento y cincuenta de Tepetate

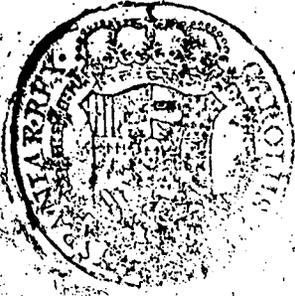
Como especie a Tierra Nueva q. queda al  
baja la Laguna q. este tiempo, y en el d. de  
aguas se percibe surir la Laguna hasta donde  
terminaron las docientas, y sesenta a Piedra  
Por el Sur Semidieron trescientas y sesenta  
Varas q. terminaron en una Boca de palos  
q. divide unas tierras q. se asienta por pertenecer  
ala Cofradia de San Animas. a la Ciudad de Pa  
quaro. y en el dia. voce la hacienda de San Juan  
de San Juan. las ciento son pedregosaz, y las  
doscientas y sesenta a Pan llevar. Aunque no  
se asienta Calidad por ser Salitrosaz.  
Y por el Norte Semidieron quinientas varas  
hasta la Orilla de su misma Laguna en las q.  
se encuentran. sesenta y cinco a Piedra como sesenta  
Varas, y las quatrocientas quarenta a Pan  
llevar. Aunque parte de ellas se percibe q.  
en el tiempo de las aguas. con el motivo  
de crecer la Laguna. las arriega, y inun  
da. Con lo qual se concluyo. la medida  
que se manda executar. por su Altera  
doz Señores Presidente. Rexentes y Oidores  
de la Real Audiencia de Vera Nueva  
España en su Superior Despacho. que da  
motivo a ellas. Y para su constancia se man  
da lo mandado asentado q. diligencia q. fuese

Sur

Norte



El quaretillo.



SELLO CUARTO, VINDICAR  
FELLO, AÑOS DE MEL SEVE-  
CIENTOS OCHENTA Y QUAT-  
RO, Y OCHENTA Y CINCO.

Concho D<sup>n</sup> Manuel Martinez siendo testigo  
ante acto en Bachiller Don Mateo &  
Revisor: D<sup>n</sup> Vicente Bustamante, y Jph Herrero  
Botello Vecino, de la Ciudad de Pasquero.

*[Handwritten signature]*  
Juan, Ananias

Manuel Martinez  
*[Handwritten signature]*

*[Handwritten signature]*  
Amor

Voracio Jph Camacho  
no 6  
Jerr. R.  
*[Handwritten signature]*

In the town of Tzetzénguaró, on the ninth day of the month of March of the year 1784, Señor Don Francisco Arana, *theniente* (lieutenant) *general* of the city of Pátzcuaro and its jurisdiction, having come to this town to undertake the measurements that are demanded in the above despatch, I now begin: also present is Don Manuel Martínez as the actual owner of the *hacienda* of Aranjuez one of the land owning neighbours of this town.....proceeding to the measurements which include to the part to the east from the door of the Church in a straight line to the east to a wall which divides the lands of the *hacienda* of San Nicolás in which are found 610 *varas*, three hundred and fifty of which are stony and covered in *tepetate*, are unserviceable and are infertile, and two hundred and sixty are flat and cultivable. To the west up to the shore of the lake (Pátzcuaro) are measured 410 *varas*, 260 of which are stony and 150 are (covered) in *tepetate* and represents an area of land that is left from under the lake at the present time, and in the rainy season is perceived to become the lake up to where the 260 *varas* terminate.

To the south are measured 370 *varas* which terminate at a barrier made of wooden stakes which divides some lands which belong to the *cofradia* of the souls of the city of Pátzcuaro and which today is owned by the *hacienda* of Aranjuez, of which 100 (*varas*) are rough and stony and two hundred and seventy are cultivable (sown with wheat: "*pan llevar*"), although they are not of the best quality because they are salt-encrusted.

And to the north are measured 500 *varas* up to the shore of the same lake, of which 60 *varas* are found to be of stone, and the 440 *varas* are flat and cultivable, although part of these are susceptible to flooding and inundation and thus serve the lake. With this is concluded the measurements that were demanded to be executed by his highness, the noblemen, both present and recent, and the councillors of the *Real Audencia* of New Spain in the above despatch.....and it is for the constancy of this business which I am instructed to carry out, that I sign with the aforementioned Don Manuel Martínez, and acting as witnesses to this act, the Bachelor Don Matheo de Rendor: Don Vicente Bustamente and Joseph Hermerique Botillo, residents of the city of Pátzcuaro.

**A2. Extract from Tierras 2721, fs. 326. June, 1590.**

*Pleito* over two sites/ *estancias* for sheep grazing in the vicinity of Tarímbaro to which the *naturales* of the said town are objecting.

This extract includes a description of the land in question.

rao ny ce sac veas naturaece vng ueh m  
ca xamae p uo auer / acci n i n u a g e m e n t e r a  
v r i g n a n t e p e l i n s i t i s c e a m a d o e s e b a d e c t a i g l a  
Laguna de Cuitzeo (3) Usacittae frontera de  
de agua que esta acrimada a un cerro Sabia  
de medio de la montañas de carcabus y de las montañas  
metro de necesidad de la capuna de caprae  
ta de la y de la uana de en gany de esol trine  
p u e m d e r o e e t a d e g a r i a a m b e z p u i c e n  
p a p a r t e d e e p o n i e n t e d e p u e s a m p u  
e n f e t v e e p u i s e o q u e s t a d e e t e r g i o s i t i o v n a

One site is called "Chevas" and it is in the lake of Cuitzeo in a flat in front of a spring of water which leads up to a hill and towards the north ("medio dia": literally "middle of the day" i.e 12.00 pm - north) a distance of more or less "two shots of a rifle bullet" measured from the plain of the aforementioned lake which is now dry.....

A3. Mercedes 18, fs. 63f- 65. 1591.

Merced for Joan de Nareza for a site for sheep grazing in the vicinity of Cuitzeo.

Don Luis de Velasco, et al. Para Padres en nombre de su Mage-  
stad por Juicio de su d. m. del d. Ocho tercio. ha go m. d. a Joan de  
Nareza de un sitio de estancia para ganados menores. En terminos  
del Pu. de Cuiseo al Pie de Uncero Pedroso y monte de  
Arribuco junto a un arroyo. y una cañada que viene de Huana-  
maro al Pie de Huacaco que a la Parte del norte. es la serrania  
Pedroso. y al del sur. Otro cerro. bajo. montuoso. y piedras  
grandes. y al Levante. una cañada que haze la cañada que  
haze una serrania. alta. y al poniente. sale a la laguna de Cuiseo  
y el camino que va a Juanamaria lo qual Por mi m. d. y com. s. s.  
fue aver y Vido Ruy Lopez de Villalobos. con su p. del d. de Cuiseo.  
y averiendo hecho las diligencias y averiguaciones  
necesarias. confes. a lo que se le m. d. declaro y dio. Por Paracer esta

Don Luis de Velasco.....presents in the name of his Majesty and without any harm being inflicted on any one or third parties, the award of a grant to Joan de Nareza for a site / *estancia* for sheep grazing in the district of the town of Cuitzeo at the foot of a rocky/ stony shrub covered hill adjacent to a tunal next to a *cañada* which runs from Huanamaro (Guanamaro) to the town of Huacao(Guacao).....to the north is a rocky upland area and to the south is another lower hill covered in wood and great stones and to the east is a *cañada* which makes a low-lying wet area that stretches up to the high sierra area, and to the west....the lake of Cuitzeo and the road that goes to Juanamaria.... ..

A4. Mercedes 18, exp. 213. Cuitzeo. 1591.

Merced Acordado for a site for sheep grazing for Domingo Gonzales.

13  
El acordado para que se ha  
Un sitio de la pradera  
menor que pide Domingo Gon  
zales en el distrito de Vinadaquaro

En Mexico En el ynuene dia de nou de mill y quie y no venoz  
Un año sedio El acordado para que el corregidor de aqui de aqui  
Vca Un sitio de estancia para ganado menor que pide Domingo  
Gonzales en terminos del distrito de Vinadaquaro en la parte que  
se nombran quetzetzuyaro junto al camino a Chucandiro En un  
sitio de agua de un pozo yermo y herizae como se dize de quatro  
casas hechas de adobe y de cal y de yeso y de canchales

In Mexico on the 19th November, 1591 the *corregidor* of the town of Cuitzeo bestows a grant for a site/ *estancia* for sheep grazing which Domingo Gonzales requested in the district of the town of Vinadaquaro (Huandacareo?) in a location they call Tzetzuyaro next to the road [that goes] to Chucandiro and a spring of water.....in vacant / abandoned lands.. to be taken up within four months of the signing (confirmation).

A5. Mercedes 18, exp. 214. 1591.

Merced acordado for a site for sheep grazing for Juan Cevera.

La acordado para que  
se sea un sitio de estancia  
para ganado menor que pide  
Juan Cevera en términos  
de Cuitzeo en el lugar de  
Pandaquaro

En el día mes y año de dicho. Se dio la acordado para que se  
deje un sitio de estancia para ganado menor que  
pide Juan Cevera en términos de Cuitzeo en el  
lugar de Pandaquaro cum satisfacción de la  
estancia de Cuitzeo en el sitio que se llama Pandaquaro en  
vacantes y abandonados de cuatro meses para haber la diligencia

On the aforementioned day, in the same month and year a this grant is awarded by the *corregidor* of the town of Cuitzeo for a site/estancia for sheep grazing which is sought by Juan Cevera in the district of the town of Cuitzeo in a location that they call Cumpantaro adjacent to an estancia which belongs to the convent of the said town in the site that is named Pandaquaro in vacant/ abandoned lands to be taken up within four months of the signing.

## Appendix B

**Table B1. *Encomiendas primitivas* and *encomenderos* (Ugarte, 1992).**

The table illustrates the first *encomiendas* to be awarded in Michoacán in the 16th century, along with their *encomenderos*. (Most but not all former *encomienda* jurisdictions can be located on the map included with the thesis).

Acámbaro: Hernán Pérez de Bocanegra	Chocándiro: Alvaro Gallego	Pamacoran (or Pomacorán): Juan Infante	Tarecuato: Francisco de Chavez
Acareno: Cristobal de Valderrama	Erongarícuaro: Juan Infante	Peribán: Anton Caicedo	Tarímbaro: Crsitóbal de Valderrama
Araro: Riobó	Huaimeo: Alonso Davila Alvarado	Pochutla: Francisco Guitérrez	Taximaroa: Gonzalo de Salazar
Cacapixca: Anton Sánchez	Huango: Juan de Villaseñor	Pungarabato (C. Altamarino): Pedro Bazán	Tiripetío: Juan de Alvarado
Capula: Dr. Ojeda and Luis de Berrio	Indaparapeo: Francisco Morcillo	Purenchéquaro: Juan Infante	Turicato: Antonio de Oliver y Diego Hernández Nieto.
Comanja and Naranja: Juan Infante	Iztapa: Gonzalo Gomez	Sirándaro: Benavides.	Tuzantla: Br. Juan de Ortega.
Coyuca (de Catalán): Pedro de Meneses	Jacona: Peralminez	Tacámbaro: Cristóbal de Oñate.	Uruapan: Francisco de Villegas
Cuiseo de la Laguna: Gonzalo López.	La Huacana: Juan Pantoja	Taimeo: Francisco Rodriguez.	Xarácuaro (Jarácuaro): Juan Infante
Cutzamala: Francisco Vasquez de Coronado	Maravatio: Pedro Juárez	Tamalocan: Monzón	Zacapu: Hernando de Jerez
Cutzeo: Gonzalo Ruiz	Ocotlán: Alonso Martin	Tancítaro: Domingo Medina.	Zirosto: Francisco de Villegas

**Table B2. *Alcaldías Mayores* (provinces) and tributary *corregimientos* (administrative districts) in Michoacán in the 16th century (Ugarte, 1992).**

Acautlán	Chilchota	Necotlán	Tepitango
Acayaco	Chiquimitío	Nespa	Tequepa
Ajuchitlan	Huaniqueo	Pajacorán	Texupa and Topetina
Alima	Jaso and Teremendo	Pantla	Tingüindín
Aquila	Jilotán	Pusenquia (de Chichimecas)	Tlazazalca
Arimeo	Jiquilpan	Quicilapa	Ucareo
Coalcomán	Maquili and Tlatictla	Tamazula, Tuxpan, Zapotlán	Uchichila
Caucuatlán	Matalcingo (Charo)	Tecomán	Yuririapúndaro
Cuanajo	Mechia	Tecuxhuacán	Zinagua
Cuiseo (del Rio)	Motín and Pómaro	Teplacatepec	Zinapécuaro



**Table B3 Repúblicas de *Indios*, Michoacán (source: *Relación de Michoacán*).**

The table illustrates the *Indio* republics that were established in Michoacán in the 16th century as part of a Colonial administrative initiative designed to ensure the maintenance of indigenous culture and custom.

Acámbaro	Chamacuero	Ixtlahuacán	Peribán	San Miguel el Grande	Ucareo
Acuitzeo	Charo	Jacona	Pómaro	San Nicolás	Urireo
Apaseo	Chiamila	Jerécuaro	Pungarabato	San Sebastián	Uruapan
Ario (de Rosales)	Chilchota	Jilotlán	Purechucho	Santa Clara	Xolotlán
Celaya	Chucándiro	Jiquilpan	Rio Verde	Tacámbaro	Yuririapúndaro
Tzintzuntzan	Eménguaró	La Huacana-Churumuco	Salvatierra	Taximaroa	Zacapu
Coalcomán	Etúcuaro	Maquili	San Felipe	Tingüindín	Zacatula
Comala	Huetamo	Maravatio	San Juan de la Vega	Tiríndaro	Zinacamitlán
Coyuca	Indaparapeo	Naranja	San Luis de la Paz	Tiripetío	Zinapécuaro
Cuizteo de la Laguna	Irimbo	Pátzcuaro	San Mateo del Rincón	Tlazazalca	

**Table B4. *Alcaldías mayores* / provinces in Michoacán in the 18th century  
(from Villaseñor y Sanchez, 1748).**

The table shows the 27 *alcaldías mayores* which remained out of the 49 *alcaldías mayores*, and *corregimientos* and 40 *encomiendas* that had been in existence at the close of the 16th century (please refer to Table B2). Only Charo remained a *corregimiento*.

Celaya	Peribán
Colima	Salvatierra
Cuiseo de la Laguna	San Luis de la Paz
Charo: <i>corregimiento</i>	San Miguel el Grande
Chilchota	Tancítaro and Pinzándaro
Guadalcázar	Tingüindín
Guanajuato	Tlapajahua
Huimeo and Sirándaro	Tlazazalca
Jaso and Teremendo	Valladolid and Pátzcuaro
Jiquilpan	Zacatula
La Barca	Zapotlán and Tuxpan.
La Huacana and Zinagua	
León	
Maravatio	
Motines	

## Appendix C

### **Mercedes and other grants to individuals, communities and institutions throughout the Colonial period.**

(t- denotes *Tierras* documents. Kraus denotes Kraus collection, Ayer denotes Ayer collection).

Location	year	class	recipient	volume	expediente	page
Michoacán	1542	monastery	-	1	33	18
Michoacán	1542	cemetery		1	90	47
Michoacán	1542	<i>estancia</i>	Christobal Hidalgo	1	248	118v
Michoacán	1542	Design plan for city	Juan Ponce	1	319	147v
Michoacán	1542	Cathedral	-	1	374	174v
Apaseo	1542	water for monastery	-	1	381	177
Michoacán	1542	licence (to keep livestock)	Gabriella de Villaseñor	1	383	177
Michoacán	1542	<i>estancia</i>	Juan Tello	1	467	217
Pátzcuaro	1544	roadside inn	Francisco ( <i>Indio</i> )	2	327	-
Pátzcuaro	1550	water	Residents	3	204	-
Zacapo	1551	1.5 <i>caballerias</i>	Gonzales de Avalos	3	311	-
Tiripetío	1551	<i>estancia</i>	Hospital	Kraus	-	-
Pátzcuaro	1551	construction of a bridge and fountain	<i>Pueblo</i>	Kraus	-	-

Location	year	class	recipient	volume	expediente	page
Yuririapúnd aro	1551	<i>estancia</i>	Pedro Muñez Maestro de Roa	Kraus	-	-
Queréndaro	1551	1.5 caballerias	Miguel de Ribera	Kraus	-	-
Indaparapeo	1551	<i>estancia</i> for sheep and 1.5 <i>caballerias</i>	-	Kraus	-	-
Indaparapeo	1552	<i>estancia</i> for sheep	Alonso Rangel	Kraus	-	-
Huaniqueo	1552	<i>estancia</i> for cattle	-	Ayer	-	-
Yuririapúnd aro	1552	<i>estancia</i> for cattle	Miguel Hevera	Ayer	-	-
Yuririapúnd aro	1552	License to keep mares	<i>Indio</i> Caciques	Ayer	-	-
Taximaroa	1552	License to keep pigs, sheep and mares	Don Juan, <i>Indio</i> principal	Ayer	-	-
Yuririapúnd aro	1552	donation of sites and stock	College of Santa Cruz	Ayer	-	-
Michoacán	1552	<i>estancia</i> for cattle	Juan Rodriguez	Ayer	-	-
Michoacán	1553	<i>estancia</i> for cattle and 1 <i>caballeria</i>	-	Ayer	-	-

Location	year	class	recipient	volume	expediente	page
Michoacán	1553	<i>estancia</i> for cattle and 1 <i>caballeria</i>	Pedro Dias	Ayer	-	-
Michoacán	1553	<i>estancia</i> for cattle and 1 <i>caballeria</i>	Francisco de Nava	Ayer	-	-
Zinapécuaro	1553	1 <i>caballeria</i>	Juan Ponce	Ayer	-	-
Michoacán	1553	<i>estancia</i> for sheep and 1 <i>caballeria</i>	-	Ayer	-	-
Tlazazalca	1554	2 <i>estancias</i> and 3 <i>caballerias</i>	College of San Miguel	Ayer	-	-
Michoacán	1554	Lands (unspecified measure)	Francisco de Amaya	4	-	70
Michoacán	1554	license for a fountain	City	4	-	248
Erongarícu aro/Urecho	1560	plot of land	<i>Naturales</i>	5	-	260
Cuitzeo/ Copandaro	1560	4 <i>estancias</i>	Communit y and Hospital	5	-	306v
Michoacán	1560	<i>estancia</i>	Francisco Orosco	-	-	215
Michoacán	1560	1.5 <i>caballerias</i>	Juan Infante	-	-	216v
Michoacán	1560	plots of land	Españoles (various)	-	-	295

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Tarímbaro	1561	2 <i>estancias</i> for sheep	Community and Hospital	5	-	222
Zacapu	1563	1 <i>caballeria</i>	Gonzales Figuera	7	-	345
Michoacán	1565	an <i>estancia</i>	Miguel Vinader (?)	8	-	15v
Paranguero	1565	an <i>estancia</i>	Blas Garcia	8	-	25v
Michoacán	1565	an <i>estancia</i>	Anton Peres	8	-	157v
Cuitzeo	1567	an <i>estancia</i> and 1 <i>caballeria</i>	Anton Ximinez	9	-	12v
Cuitzeo	1576	2 <i>caballerias</i>	Luis Acuña	9	-	102
Santa Clara	1567	roadside inn	Alonso Velasquez	9	-	119
Uruapan	1567	2 <i>estancias</i>	Miguel Rivera	9	-	159
Uruapan	1567	2 <i>estancias</i>	Christobal Vargas	9	-	159
Uruapan	1567	<i>caballeria</i>	Alonso Fuentes	9	-	159v
Uruapan	1567	<i>caballeria</i>	Francisco Lopez	9	-	160
Chocandiro- Tacascuaro	1569	2 <i>estancias</i> and 2 <i>caballerias</i> (t)	Juan Valcedo	2721	22	-

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Tacascuaro	1576	<i>caballeria</i> and <i>estancia</i> for sheep (t)	-	2764	9	-
Tarímbaro	1578	<i>estancia</i> and 2 <i>caballerias</i> (t)	-	2721	36	-
Tarímbaro	1578	<i>estancia</i> and a plot of land	María la Fuente	2737	6	-
Zinapécuaro	1580	3 <i>caballerias</i> (t)	-	46	5	-
Valladolid	1581	<i>caballeria</i>	Christobal Fajardo	11	-	6
Michoacán	1581	<i>caballeria</i>	Christobal Fajardo	11	-	78
Santa Anna	1582	an <i>estancia</i>	-	11	-	86
Queréndaro	1582	4 <i>caballerias</i>	Juan Ochoa	11	-	207
Valladolid	1583	1.5 <i>caballerias</i>	Lucia Corda	13	-	184v
Tiripetio	1585	2 <i>caballerias</i> (t)	Doña Luisa de Estrada	2694	11	-
Tarímbaro	1585	an <i>estancia</i> 3 <i>caballerias</i>	<i>Naturales</i>	2721	-	-
Cuitzeo	1586	an <i>estancia</i>	<i>Pueblo</i> ( <i>cabacera</i> )	13	-	242v

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Zinapécuaro	1589	2 <i>estancias</i> for sheep and 4 <i>caballerias</i> (t)	-	2681	17	-
Tarímbaro, Puruandiro, Cuitzeo, Yuririapudaro	1590	2 <i>estancias</i> for sheep (t)	-	2682	19	-
Cuitzeo	1590	<i>estancia</i> for sheep (t)	-	2681	21	-
Indaparapeo and Zinapécuaro	1591	<i>estancia</i> for sheep	-	2777	25	-
Tiripetío de Cuitzeo	1591	<i>estancia</i> for sheep and 2 <i>caballerias</i> (t)	<i>Indio</i> principal	2372	-	-
Etucuario	1591	2 <i>caballerias</i> (t)	-	2682	24	-
Cuitzeo	1591	<i>estancia</i> for sheep	-	2681	22	-
Cuitzeo	1591	<i>estancia</i> for sheep	Juan Notera	18	-	63
Cuitzeo	1591	<i>estancia</i> for sheep	-	18	-	214

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Santiago Necotlán	1591	<i>estancia</i> for sheep grazing (t)	-	2719	-	29
Cuitzeo	1591	<i>estancia</i> for sheep	-	18	-	53-65f
Jacona	1591	<i>estancia</i> for sheep and 2 <i>caballerias</i>	-	18	-	212
Tancitaro	1591	<i>estancia</i> for cattle and 2 <i>caballerias</i> (t)	-	2721	-	-
Cuitzeo/ Puruandiro	1591	<i>estancia</i> for cattle and 2 <i>caballerias</i> of land	-	2777	-	24
Valladolid	1591	2 <i>caballerias</i>	Alonso Hernandez	17	-	71v
Cuitzeo	1591	<i>estancia</i> for sheep (t)	-	2681	-	22
Pátzcuaro	1591	reclamation of lands for grazing	Beatriz de Castilleja	<i>Indios</i> 3	-	415
Michoacán	1592	plot of land	Hernando Gomez	18	-	223
Cuitzeo	1592	<i>estancia</i> and 4 <i>caballerias</i>	-	18	-	246

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Cuitzeo	1592	<i>estancia</i> and 4 <i>caballerias</i>	Hospital	18	-	255
Zacapu	1592	2 <i>estancias</i>	Juan Vasquez	19	-	10
Taximaroa	1592	<i>estancia</i> for sheep and 4 <i>caballerias</i>	-	2737	4	-
Cuitzeo/ Maya	1592	<i>estancia</i> for sheep	Francisco de Verdugo	18	-	222
Cuitzeo	1593	<i>estancia</i> and 4 <i>caballerias</i>	Hospital	18	-	255
Cuitzeo	1595	an <i>estancia</i> and 2 <i>caballerias</i>	Diego Ruiz	21	-	115
Cuitzeo	1595	<i>estancia</i> and 2 <i>caballerias</i>	Rodrigo Vasquez	20	-	116
Valladolid	1595	2 <i>caballerias</i>	City	20	-	42v
Cuitzeo	1595	<i>estancia</i> for sheep (t)	-	2721	3	-
Cuitzeo	1595	<i>estancia</i> for sheep and 2 <i>caballerias</i>	-	20	-	115
Cuitzeo	1595	4 <i>estancias</i> for sheep	-	20	-	225

Location	year	class	recipient	volume	expediente	page
Cuitzeo	1597	2 <i>estancias</i> and 2 <i>caballerias</i>	Hospital	22	-	96v
Yuririapúnd aro	1597	2 <i>caballerias</i>	-	22	-	72f
Yuririapúnd aro	1597	2 <i>estancias</i> for cattle	-	22	-	72v
Uruapan	1597	2 <i>estancias</i> for sheep	-	22	-	99f
Tacascuaro	1597	<i>estancia</i> for cattle and 2 <i>caballerias</i>	-	22	-	116
Yuririapún daro	1597	<i>estancia</i> for cattle	-	22	-	157
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Valladolid	1598	2 plots of orchard/ irrigated land	Jesuits	22	-	184v
Pátzcuaro	1609	licence to move sugar mill	Bartolomé Averalo	26	-	220
Pátzcuaro	1612	Grazing land on <i>estancias</i>	Jesuits	27	-	56
Valladolid	1615	<i>estancia</i> and 2 <i>caballerias</i>	-	30	-	179

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Valladolid	1623	purchase of plots of land	Pablo Vargas	35	-	186
Michoacán	1627	an <i>estancia</i>	Tomas Comande	36	-	56v
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<i>Hacienda</i> of Charagüen	1675	presentation of titles	Fabian Martinez	58		63

<sup>1</sup> Presentation of titles according to *composición* policy.

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Cuitzeo	1687	protection of land rights	Augustines	59	-	438v
Cuitzeo	1682	founding of new town	-	60	-	27v
La Palma	1682	purchase of <i>hacienda</i>	Bernardo Quiros	60	-	36v
Valladolid	1684	lands (unspecified quantity)	Don Villalobos	60	-	73
Valladolid	1684	lands (unspecified quantity)	Juan Villaron	60	-	81v
Valladolid	1687	lands (unspecified quantity)	Geronimo Taavera	61	-	34v
Michoacán <i>Hacienda de San Antonio</i>	1688	mill	Bartolomé Ortis	62	-	7v
Pátzcuaro	1697	water	Jose Isaguirre	65	-	6
Pátzcuaro	1700	purchase of house	Francisco Villaseñor	65	-	64
Pátzcuaro	1708	water	Franciscans	67	-	114

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Cuitzeo	1741	end of lease of ranch	-	73	-	157
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Pátzcuaro	1755	parcel of land	Augustine <i>convento</i>	79	-	212
Tanganciqua-ro	1755	end of lease of a plot of land	Diego Jaso	80	-	73v
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Valladolid	1760	construction of "some houses"	-	80	-	6v
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 Ayer Collection, no. 120. (Tierras, volume 2737. Expediente 6.+ pintura). Tarímbaro and Indaparapeo. 1578.  
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- Indios, volume 4. Expediente 570. Yuririapúndaro. 1590.
- Indios, volume 4. Expediente 587. Indaparapeo. 1590.
- Tierras, volume 2737. Tiripetío de Cuitzeo. 1576-1591.
- Indios, volume 4. Expediente 661. Cuitzeo. 1591.
- Indios, volume 4. Expediente 724. Zinapécuaro. 1590.
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- Indios, volume 3. Expediente 703. Tarímbaro. 1591.
- Ayer Collection, no. 216. (Tierras, volume 2682. Expediente 24). Etuquaro/ Etucuaró. 1591.
- Tierras, volume 2681. Expediente 22. Cuitzeo. 1591.
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- Tierras, volume 2777. Expediente 24. Puruandaro/ Cuitzeo. 1591.
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- Tierras, volume 2719. Expediente 29. Santiago Necotlán, Michoacán. 1591.
- Mercedes, volume 18. Fojas. 63f-65f. Cuitzeo. 1591.
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- Indios, volume 6.2. Expediente. 461. Foja 103. Cuitzeo. 1592.
- Ayer Collection, no. 224. (Tierras, volume 2737. Expediente 4). Taximaroa + pintura. 1592.
- Mercedes, volume 17, Fojas 131-132, 164. Zinapécuaro. 1591-1592.
- Mercedes, volume 18. Foja. 222. Cuitzeo/ Maya. 1592.
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- Mercedes, volume 22. Foja. 96. Cuitzeo. 1597.
- Mercedes, volume 22. Foja. 157. Yuririapúndaro. 1597.
- Mercedes, volume 22. Foja. 149. Yuririapúndaro. 1597.
- Mercedes, volume 22. Foja. 183v. Yuririapúndaro. 1597.

Ayer Collection, no. 123 (Tierras, volume 2721. Expediente 32 + pintura). Tacámbaro. 23rd August, 1589.  
 Tierras, volume 69. Expediente 3. Tingambato. 1599.  
 Civil, volume 1276. Fojas (various). 1601.  
 General de Parte, volume 4. Expediente. 458. Fojas. 266. 1603  
 Libro de Congregaciones, 1603/4.  
 Tierras, volume 3448. Sanabria/ Apupato. 1604.  
 Relación de Guacana. Capiro. 1605.  
 Mercedes, volume 26. Fojas 220. Pátzcuaro . 160?  
 Tierras, volume 3669. Expediente 5. Pátzcuaro, Capotlán. 1608-1638  
 Reales Cédulas, volume 242. Expediente. 78. Foja. 392. Michoacán/ Valladolid 1610.  
 Mercedes, volume 27. Foja 56. Pátzcuaro. 1612.  
 Tierras, volume. 445. Expediente 1. Tareta, Apupato, Pátzcuaro and Sanabria. 1612.  
 Tierras, volume 79. Expediente 5. Foja. 35. Zinapécuaro. 1614.  
 Mercedes, volume 30. Foja 255. Pátzcuaro. 1615.  
 Mercedes, volume 30. Fojas. 255-256. Ajuno. 1615.  
 Tierras, volume 2717. Expediente 29. Tancitaro. 1615.  
 Archivo del Historia de la *Hacienda*. Zinapécuaro. 1619.  
 Indios, volume 9. Expediente. 357. Foja 177v. Zacapu. 1622.  
 Tierras, volume 85. Expediente 1. Tacascuaro. 1625.  
 Tierras, volume 85. Expediente 1. Tacascuaro. 1625  
 Tierras, volume 2682. Expediente 20. Valladolid-Etuquaro/ Etucuaru. 1626.  
 Indios, volume 13. Expediente. 134. Foja 116. January 26th 1641.  
 Tierras, volume 2979. Expediente 139. Yuririapúndaro. 1683.  
 Mercedes, volume 60-61 (61) Fojas. 27v-28v. Cuitzeo de la Laguna. 1684/1687.  
 Tierras, volume 151. Expediente 5. La Palma, Chilchota and Jacona. 1691.  
 Tierras, volume 159. Expediente 10. San Buenaventura, Guacao, Cuitzeo de la Laguna. 1695.  
 Tierras, volume 180. Expediente 4. Santiago Chilchota. 1700.  
 Tierras, volume 3695. Expediente 7. *Hacienda* de Rincon. Santa Clara. Maria del Opoeco. 1704-1784.  
 Tierras, volume 2885. Expediente 42. Foja 3. Michoacán (general). 1709.  
 Tierras, volume 333. Expediente 1. Pátzcuaro/ *Hacienda* and ranch of Sinagua / San Joseph / Tierra Blanca. 1710.  
 Tierras, volume 296. Expediente 4. *Hacienda* de Zinapécuaro, Pátzcuaro. 1712.  
 Tierras, volume 2987. Expediente 3. Yuririapúndaro. 1712.  
 Tierras, volume 294. Expediente 1. Yuririapúndaro. 1713.  
 Tierras, volume 396. Expediente 5. Santa Clara, Opoeco. 1716.  
 Tierras, volume 322. Expediente 1. Tinzitaro in the jurisdiction of Pátzcuaro. 1716.  
 Tierras, volume 322. Expediente 1. San Joseph Tintzio/ Pátzcuaro. 1716.  
 Tierras, volume 617. Expediente 2. Zirahuén. 1716-1723.  
 Tierras, volume 389. Expediente 1. Tingüindín./ Santiago Atapa. 1720.  
 Tierras, volume 459. Expediente 1. Zinapécuaro/ Queréndaro. 1726.  
 Archivo del Historia de la *Hacienda*. 974.2. Valladolid. Town and *Hacienda* of Queréndaro. 1727.  
 Tierras, volume 475. Expediente 5. Taimeo. 1728-1732  
 Tierras, volume 488. Expediente 4. Uricho. 1729.  
 Tierras, volume 495. Expediente 6. Santa Anna Chapiro, near Lake Pátzcuaro. 1730.  
 Tierras, volume 528. Expediente 2. Iztaro. 1732

- Tierras, volume 514. Expediente 3. Zirahuén. 1732-1733
- Tierras, volume 385 (parte.1). Expediente 5. Iztaro, Chuen, Apambo. Parahuen. 1733.
- Tierras, volume 582. Expediente 4. Ario. Uruapan. Pátzcuaro. 1737.
- Tierras, volume 2084. Expediente 3. *Hacienda* de Acámbaro. 1740.
- Tierras, volume 1405. Expediente 13. Ario. 1744.
- Tierras, volume 1449. Expediente 1. Valladolid/ Cuitzeo. 1746.
- Tierras, volume 824. Expediente 3. San Buenavista, Guacao, Cuitzeo. 1746.
- Relación de Pátzcuaro. Uricho. 1754.
- Relación de Pátzcuaro. Uruapan/ San Geronimo. 1754.
- Relación de Pátzcuaro. Nahuatzen. 1754.
- Relación de Pátzcuaro. Tzintzuntzan. 1754.
- Tierras, volume 2940. Expediente 6. Pátzcuaro. 1755.
- Tierras, volume 817. Expediente 4. Cuitzeo. 1756.
- Tierras, volume 852. Expediente 2. Santa Maria Queréndaro. 1759.
- Tierras, volume 867. Expediente 8. San Pedro Paracho/ Laracho, near Pátzcuaro/ Chilchota. 1760.
- Tierras, volume 868. Expediente 1. Tingüindin. 1760- 1767.
- Tierras, volume 916. Expediente 5. Santa Clara. 1767.
- Tierras, volume 939. Expediente 3. Ario. 1769.
- Tierras, volume 964. Expediente 1. Pátzcuaro/ Uricho. 1772.
- Tierras, volume 2786. Expediente 23. Tacámbaro. 1772-1777.
- Tierras, volume 1503. Expediente 6. Cuitzeo de la Laguna. 1776.
- Tierras, volume 1048. Expediente 4. Taretán. 1779.
- Tierras, volume 1095. Expediente 1. Tzentzenguaro. 1783.
- Tierras, volume 1095. Expediente 1. Pátzcuaro, Tzentzenguaro/ *Haciendas* de San Nicolás y Aranjuez. 1783.
- Tributos, volume 2. Expediente 5. Fojas. 153-163. Michoacán (general). 1785.
- Tierras, volume 1085. Expediente 1. San Idelphonso Taretán, Ziraquaritaro, Pátzcuaro. 1785.
- Alhondígas, volume 15. Expediente 1. Michoacán (general). 1786.
- Tributos, volume 20. Expediente 15. Foja. 210. May, 1786.
- Tributos, volume 20. Expediente 15. Foja. 207. Pátzcuaro and *sujetos / pueblos*. May 1786.
- Historia, volume 73. Pátzcuaro. 1789.
- Historia, volume 73. Santiago Tupitaro. 1789.
- Historia, volume 73. San Pedro Tzurumútaro. 1789.
- Historia, volume 73. San Josef Guecorio. 1789.
- Historia, volume 73. San Geronimo Janicho (Janitzío). 1789.
- Historia, volume 73. Santa Maria Zinapécuaro. 1789.
- Historia, volume 73. Santa Ana Chapitiro. 1789.
- Historia, volume 73. San Pedro Pareo. 1789.
- Historia, volume 73. San Bartolomé Pareo. 1789.
- Historia, volume 73. San Miguel Aramútaro. 1789.
- Historia, volume 73. San Andres Toquaro. 1789.
- Historia, volume 73. San Francisco Tzintzuntzan 1789..
- Historia, volume 73. Cocupao and *pueblos* in its jurisdiction. 1789.
- Historia, volume 73. Santa Fé de la Laguna. 1789.
- Historia, volume 73. San Pedro Cucuchuchu. 1789.
- Historia, volume 73. San Francisco Ihuatzio. 1789.

- Historia, volume 73. San Miguel Zupiago. 1789.
- Historia, volume 73. Nuestro Señora de la Concepción Guereo. 1789.
- Historia, volume 73. San Francisco Tarefero. 1789.
- Historia, volume 73. Santa Ana Zacapo. 1789.
- Historia, volume 73. Santa Clara del Cobre. 1789.
- Historia, volume 73. Santa Maria Opopeo. 1789.
- Historia, volume 73. Santiago Ario. 1789.
- Historia, volume 73. San Geronimo de Tacámbaro. 1789.
- Historia, volume 73. Naranja. 1789.
- Historia, volume 73. Tirindaro. 1789.
- Historia, volume 73. San Juan Evangelista. 1789.
- Historia, volume 73. Santiago Asajo. 1789.
- Historia, volume 73. San Geronimo Purenchenquaro. 1789.
- Historia, volume 73. Erongarícuaru, San Andres Tzirondaro. 1789.
- Historia, volume 73. San Francisco Pátzcuaro. 1789.
- Historia, volume 73. Nuestra Senora de la Asunción Erongarícuaru. 1789.
- Historia, volume 73. San Francisco Uricho. 1789.
- Historia, volume 73. San Pedro Taraguao (Jarácuaro). 1789.
- Historia, volume 73. Santa Maria Arocutín. 1789.
- Historia, volume 73. Santa Maria Ajuno. 1789.
- Historia, volume 73. Santa Maria Siraguén (Zirahuén). 1789.
- Historia, volume 73. Santa Maria Huiramangaro. 1789.
- Historia, volume 73. San Francisco Pichataro. 1789.
- Historia, volume 73. Santa Maria Comachuen, Paracho. 1789.
- Historia, volume 73. San Andres Tocuaro. 1789.
- Historia, volume 73. San Francisco Capaguaro. 1789.
- Historia, volume 73. Santa Maria Magdalena Quinceo. 1789.
- Historia, volume 73. Santa Maria Arantepagua. 1789.
- Historia, volume 73. Santa Maria Sevina. 1789.
- Historia, volume 73. San Luis Nahuatzen. 1789.
- Historia, volume 73. San Francisco Cheran. 1789.
- Historia, volume 73. San Geronimo Avanza. 1789.
- Historia, volume 73. San Pedro Paracho. 1789.
- Historia, volume 73. San Matheo Aguiran. 1789.
- Historia, volume 73. Santa Maria Cherantzicurin. 1789.
- Historia, volume 73. Santa Cruz Tenaco. 1789.
- Historia, volume 73. San Bartolomé Cocucho. 1789.
- Historia, volume 73. Santa Maria Urapicho. 1789.
- Historia, volume 73. Santiago Nurio Tepacua. 1789.
- Historia, volume 73. San Miguel Pomacuan. 1789.
- Historia, volume 73. San Felipe de los Herreros, jurisdiction of Parangaricutiro. 1789.
- Historia, volume 73. San Francisco Corupo. 1789.
- Historia, volume 73. Santiago Anganguan. 1789.
- Historia, volume 73. San Juan Parangancitaro. 1789.
- Historia, volume 73. San Salvador Paracutín. 1789.
- Historia, volume 73. San Marcos Apo. 1789.
- Historia, volume 72. Valladolid. 1792/1793.
- Historia, volume 72. San Augustine Caracuaro. 1792/1793.
- Historia, volume 72. Cuitzeo de la Laguna. 1792/1793.

Historia, volume 72. Geracuaro. 1792/1793.  
Historia, volume 72. San Pedro Caro. 1792/1793.  
Historia, volume 72. Huetamo and *barrios*. 1792/1793.  
Historia, volume 72. Charo. 1792/ 1793.  
Historia, volume 72. Chocandiro. 1792/ 1793  
Historia, volume 72. Arcamacutiro. 1792/ 1793.  
Historia, volume 72. Pátzcuaro and *barrios*. 1792/ 1793.  
Historia, volume 72. Urecho. 1792/ 1793.  
Historia, volume 72. Santa Clara del Cobre. 1792/ 1793.  
Tierras, volume 1231. Expediente 3. San Pedro Pareo. 1793.  
Tierras, volume 1254. Expediente 4. Zitacuaro. 1794.  
Tierras, volume 1254. Expediente 4. San Andres Venta. 22nd November, 1794.  
Tierras, volume 1275. Expediente 6. Bellas Fuentes and Cotijo. 1796.  
Tierras, volume 1275. Expediente 6. Pátzcuaro. 1796.  
Tierras, volume 1322. Expediente 3. San PedroTzurúmataro/ *Hacienda* de Tareta.  
1800.  
Tierras, volume 2951. Expediente 46. Pátzcuaro/ Arocutín. 1802.  
Tierras, volume 1352. Expediente 7. Fojas 18. Morelia. 1803.  
Tierras, volume 1322. Expediente 2. San Pedro Tzurúmutaro. February, 1800 - May  
1803.  
Mercedes, volume 274. Foja. 97v. Santa Anna Maya. Year (unknown)

## General environmental change

- Ayer Collection, no 165. Mechoacan/Valladolid. 1552.
- Mercedes, volume 5-6. Fojas 306. Cuitzeo and Copandaro. 1560
- Tierras, volume 2721. Expediente 21. Tacascuaro and Chocandiro. 13th April, 1576
- Tierras, volume 2737. Tiripetío de Cuitzeo. 1576
- Kraus Collection, no. 106. Tierras, volume 2764. Expediente 9. Tacascuaro. 1576.
- Ayer Collection, no. 122. Tierras, volume. 2721. Expediente 36. Tarimbaro. 1578
- Ayer Collection, no.120. Tierras, volume 2373. Expediente 6. Tarimbaro and Indaparapeo. 1578.
- Tierras, volume 46. Expediente 5. Zinapécuaro. 1580.
- Indios, volume 2. Expediente 329. Tiripetío. 1583.
- Mercedes, volume 13. Foja 110v. Yuririapúndaro. 1584.
- Mercedes, volume 13. Foja 12-150v. Yuririapúndaro. 1585.
- Tierras, volume 2682. Expediente 19. Tarimbaro. 1590.
- Tierras, volume 2681. Expediente 21. Cuitzeo. 1590.
- Indios, volume 4. Expediente 246. Tingüindín. 1590.
- Tierras, volume 2681. Expediente 22. Cuitzeo. 1591.
- Tierras, volume 2719. Expediente 229. Santiago Necotlán. 1591.
- Mercedes, volume 18. Fojas 63-65. Cuitzeo. 1591.
- Mercedes, volume 18. Expediente 212, Fojas .64. Jacona. 1591.
- Mercedes, volume 18. Expediente 213. Vandaquaro/ Urandaquaro. 1591
- Mercedes, volume 18. Fojas 225. Cuitzeo. 1591.
- Tierras, volume 2681. Expediente 22. Cuitzeo. 1591.
- Tierras, volume 2777. Expediente 24. Puruandiro and Cuitzeo. 1591.
- Tierras, volume 2777. Expediente 17. Cualcua (?).1591.
- Tierras, volume 2682. Expediente 24. Zamora/Chilchota. 1591.
- Mercedes, volume 18. Fojas 18. Cuitzeo. 1591.
- Mercedes, volume 17. Fojas 131-132, 164. Zinapécuaro. 1591-1592.
- Mercedes, volume 18. Foja 222v. Cuitzeo/ Maya. 1592
- Tierras, volume 402 (2). Expediente 1. Pátzcuaro Exact year unspecified: mid-18th century.
- Ayer Collection, no 229. Tierras, volume 2737. Expediente 4. Taximaroa. 1592.
- Mercedes, volume 22. Foja 96. Cuitzeo. 1597.
- Mercedes, volume 22. Fojas. 11/12. Querétaro. 1597.
- Mercedes, volume 22. Foja 72v. Yuririapúndaro. 1597.
- Mercedes, volume 22. Foja 99. Uruapa. 1597.
- Mercedes, volume 22. Foja 116. Tacascauro. 1597
- Mercedes, volume 22. Foja 157. Yurirapundaro. 1597
- Mercedes, volume 22. Foja 179v. Yuririapúndaro. 1597
- Tierras, volume 3448. Foja 38. Sanabria/Pátzcuaro. 1602
- Relación de La Guacana. Pátzcuaro-Tzinapequaro. 1605
- Relación de La Guacana Etuquaro. 1605.
- Relación de La Guacana. Huririco. 1605.
- Relación de La Guacana. Capirio. 1605.
- Relación de La Guacana. Enguaran. 1605.
- Relación de La Guacana. Tessiquiranca. 1605.
- Relación de La Guacana. Quiringuichuyaguapo. 1605.
- Relación de La Guacana. Phumacopeo. 1605.
- Relación de La Guacana. Phumacopeo. 1605.

Relación de La Guacana. Santiago, *sujeto* of Churumuco. 1605.  
 Relación de La Guacana Churumuco. 1605.  
 Relación de la Guacana. 1605. Cutzaro Xalpa, *sujeto* de Churumuco. 1605.  
 Tierras, volume 3448. Sanabria, Pátzcuaro. 1606.  
 Tierras, volume 445. Expediente 1. Tareta, Sanabria Pátzcuaro. 1612.  
 Mercedes, volume 30. Fojas 255-256f. Ajuno. Pátzcuaro. 1615.  
 Tierras, volume 3695. Expediente 7. Opopeo. 1619.  
 Tierras, volume 85. Expediente 1. Tacascuaro. 1625.  
 Tierras, volume 85. Expediente 1. Tacascuaro. 1625.  
 Tierras, volume 85. Expediente 5. Morelia. 1626.  
 Tierras, volume 2979. Expediente 139. Yuririapúndaro. 1683.  
 Tierras, volume 151. Expediente 5. La Palma / Chilchota and Jacona. 1691.  
 Tierras, volume 202. Expediente 2. Taimeo. Zinapécuaro. 1702.  
 Tierras, volume 333. Expediente 1. Pátzcuaro. *Hacienda* and ranch of Sinagua. 1710.  
 Tierras, volume 2987. Expediente 3. Yuririapúndaro/ San Nicolas. 1712.  
 Tierras, volume 3695. Expediente 7. Santa Maria, lands of Yurego/Yurexo. 1714.  
 Tierras, volume 322. Expediente 1. Pátzcuaro/ *Hacienda* de labor de San Joseph Tzintzio. 1716.  
 Tierras, volume 396. Expediente 5. Opopeo/ Santa Clara. 1716.  
 Tierras, volume 617. Expediente 2. Zirahuén. 1716.  
 Tierras, Tierras volume 488. Expediente 2. San Antonio Uricho on the eastern shore of Lake Pátzcuaro. 1729.  
 Tierras, volume 490. Expediente 2 (part 2). Sanabria. Zitaro/ Zirahuén/ Santa Clara. 1730.  
 Tierras, volume 528. Expediente 2. Iztaro. 1732.  
 Tierras, volume 514. Expediente 3. Zirahuén. 1732/1733.  
 Tierras, volume 385 part 1. Expediente 5. Iztaro, Apamba, Chuen. 1733.  
 Mercedes, volume 74. Foja 97v. Santa Anna Maya. 1741.  
 Tierras, volume 621. Expediente 3. Cuengo. 1741.  
 Tierras, volume 404. Expediente 3. Pátzcuaro/ *hacienda* de Jenguangachuen. 1740.  
 Tierras, volume 3448. Unico. Pátzcuaro. 1740.  
 Relación de Pátzcuaro. Nahuatzen. 1754.  
 Relación de Pátzcuaro. Tzintzuntzan. 1754.  
 Tierras, volume 1231. Expediente 3. Charagüen/ Pátzcuaro. 1758.  
 Tierras, volume 3448. Unico. Sanabria/ Pátzcuaro. 1758.  
 Tierras, volume 851. Expediente 2. 1759. Tzentzenguaro, south shores of Lake Pátzcuaro.  
 Tierras, volume 852. Expediente 2. 1759. Queréndaro/ Santa Clara/ Santa Maria. 1759.  
 Tierras, volume 867. Expediente 8. 1760. San Pedro Paracho/ Pátzcuaro. 1760.  
 Tierras, volume 926. Expediente 5. Santa Clara. 1766/1767.  
 Tierras, volume 1177. Expediente 1. Zinapécuaro. 1787.  
 Tierras, volume 1048. Expediente 4. Taretán. 1779.  
 Tierras, volume 1095. Expediente 1. Tzentzenguaro, Pátzcuaro. 1783.  
 Historia, volume 73. Pátzcuaro. 1789.  
 Historia, volume 73. Santiago Tupitaro. 1789.  
 Historia, volume 73. San Pedro Tzurumútaro. 1789.  
 Historia, volume 73. San Joseph Huëcorio. 1789.  
 Historia, volume 73. San Geronimo Janicho (Janitzio). 1789.

Historia, volume 73. Santa Maria Zinapécuaro. 1789.  
Historia, volume 73. San Bartholomé Pareo. 1789.  
Historia, volume 73. San Miguel Aramutaro. 1789.  
Historia, volume 73. San Andres Tocuaro. 1789.  
Historia, volume 73. Cocupao. 1789.  
Historia, volume 73. San Francisco Ihuatzio. 1789.  
Historia, volume 73. San Miguel Zupiago. 1789.  
Historia, volume 73. Santa Ana Zacapo. 1789.  
Historia, volume 73. Santa Clara del Cobre. 1789.  
Historia, volume 73. San Geronimo Tacámbaro. 1789.  
Historia, volume 73. Naranjas. 1789.  
Historia, volume 73. Santiago Asajo. 1789.  
Historia, volume 73. San Geronimo Purenchequaro. 1789.  
Historia, volume 73. San Francisco Pátzcuaro. 1789.  
Historia, volume 73. Nuestra Señora de Asunción de Erongarícuaro. 1789.  
Historia, volume 73. San Francisco Uricho. 1789.  
Historia, volume 73. San Pedro Taraguao (Jarácuaro). 1789.  
Historia, volume 73. Santa Maria Ajuno. 1789.  
Historia, volume 73. Santa Maria Zirahuén. 1789.  
Historia, volume 73. San Juan Tumbio. 1789.  
Historia, volume 73. Santa Maria Huiramangaro. 1789.  
Historia, volume 73. San Francisco Pichataro. 1789.  
Historia, volume 73. Santa Maria Comachuen. 1789.  
Historia, volume 73. San Andres Turiquaro. 1789.  
Historia, volume 73. Santa Maria Magdalena Quinceo. 1789.  
Historia, volume 73. Santa Maria Sevina. 1789.  
Historia, volume 73. San Geronimo Aranza. 1789.  
Historia, volume 73. Santa Maria Cherantzicurin. 1789.  
Historia, volume 73. San Bartholome Cocucho. 1789.  
Historia, volume 73. Santa Maria Urapicho. 1789.  
Historia, volume 73. San Miguel Pomacuan. 1789.  
Historia, volume 73. San Felipe de Los Herreros. 1789.  
Historia, volume 73. Santiago Anganguan. 1789.  
Historia, volume 73. Santa Anna Zirosto. 1789.  
Historia, volume 9. Michoacán (general). 1789.  
Tierras, volume 1231. Expediente 3. San Pedro Pareo. 1793.  
Tierras, volume 1275. Expediente 6. Pátzcuaro. 1796.  
Tierras, volume 3695. Expediente 1. San Francisco, Pátzcuaro. 1831.

## Water disputes, lake level change and climate

- Mercedes, volume 3. Expediente. 495, Foja. 204. Pátzcuaro. 1550.  
Kraus Collection, no. 23. Santa Fé de la Laguna. 1551.  
Kraus Collection, no. 95. City of Mechoacan/ Valladolid. 1552.  
Ayer Collection, no 193. Mechoacan. 1553  
Ayer Collection, no. 194. Michoacán. 1553.  
Ayer Collection, no. 196. Michoacán. 1553.  
Ayer Collection, no. 197. Michoacán. 1553.  
Ayer Collection, nos. 206-208. San Miguel, Jacona and Indaparapeo. 1553.  
Ayer Collection, no. 235. Querétaro. 1553.  
Ayer Collection, no. 242. Cuitzeo. 1553.  
Mercedes, volume 5-6 (1) Fojas. 306. Cuitzeo and Copandaro. 1560,  
Kraus Collection, no. 106. (Tierras, volume 2764. Expediente 9) Tacascuaro. 8th December, 1576.  
Ayer Collection, no. 120. (Tierras, volume 2737. Expediente 6) Tarímbaro and Indaparapeo. 1578.  
Ayer Collection, no. 122. Tierras, volume 2721. Expediente 36. Tarímbaro. 1578.  
Tierras, volume 2721. Expediente. 21. Tacascuaro and Chocandiro. 13th April, 1579.  
Tierras, volume 2721. Tarímbaro. 1585.  
Mercedes, volume 13. Fojas 211. Yuririapúndaro. 1586.  
Mercedes, volume 13. Fojas. 242. Cuitzeo. 1586.  
Ayer Collection, no. 123. Tierras, volume 2721. Expediente 32. Tacámbaro. 1589.  
Tierras, volume 2375. Expediente 11 (part 2). Cuitzeo/Quinceo. 1591  
Indios, volume 3. Expediente 745. Cuitzeo. 1591.  
Indios, volume 5. Expediente 192. Cuitzeo. 1591.  
Indios, volume 5. Expediente 522. Cuitzeo. 1591.  
Indios, volume 5. Expediente 128. Indaparapeo. 1591.  
Mercedes, volume 18. Fojas. 63-65. Cuitzeo. 1591.  
Mercedes, volume 22. Fojas. 11/12. Querétaro. 1597.  
Tierras, volume 3448. unico. Foja 38. Pátzcuaro/ Sanabria. 1602.  
Relación de La Guacana. Capirio. 1605.  
Relación de La Guacana. Tessiquirancha. 1605.  
Relación de La Guacana. Quiringuichuaguapo. 1605.  
Tierras, volume 2953. Expediente 60. San Salvador, Cuitzeo. 1607.  
Tierras, volume 445, Expediente 1. Tareta, Sanabria, Pátzcuaro. 1612,  
Tierras, volume 85. Expediente 1. Tacascuaro. 1625.  
Tierras, volume 85. Expediente 1. Tacascuaro. 1625.  
Tierras, volume 189. Expediente 5. Ajuno and the *Hacienda* of Charagüen. 1670,  
Tierras, volume 2979. Expediente 139. Yuririapúndaro. 1683.  
Tierras, volume 2698. Expediente 142. Querétaro. 1683.  
Tierras, volume. 151. Expediente 5. La Palma, Chilchota and Jacona. 1691.  
Mercedes, volume 65. Foja 6.. Pátzcuaro. 1697.  
Tierras, volume 488. Expediente 2. San Antonio Urecho. 1706.  
Mercedes, volume 67. Fojas 114f-114v. Pátzcuaro. 1708.  
Tierras, volume 296. Expediente 4. Pátzcuaro, Hacienda of Zinapécuaro. 1712  
Tierras, volume 283. Expediente 5. Chilchota. 1712.  
Tierras, volume 2987. Expediente 3. San Nicolas Yuririapúndaro. 1712.  
Tierras, volume 322. Expediente 1, Pátzcuaro, *haciendas* of Tinzitaro and Punzandaro. 1716.

Tierras, volume 354. Expediente 6. Indaparapeo. 1718.  
 Tierras, volume 389. Expediente 1. Tinguindín/ Santiago Atapa. 1720.  
 Tierras, volume 488. Expediente 2, Pátzcuaro. 1720,  
 Tierras, volume 402 (2). Expediente 1. Pátzcuaro. 1722/1723.  
 Tierras, volume 964. Expediente 1. Pátzcuaro. 1722.  
 Tierras, volume 417. Expediente 2. Pátzcuaro, Tiripetío and the River Necotlán. 1723.  
 Tierras, volume 417. Expediente 2, Pátzcuaro. 1723.  
 Tierras, volume 617. Expediente 2. Zirahuén. 1716-1723  
 Tierras, volume 459. Expediente 1. Zinapécuaro, Querétaro. 1726.  
 Tierras, volume 514. Expediente 3, Zirahuén. 1732-1733  
 Tierras, volume 385, part one. Expediente 5, Iztaro, Pátzcuaro. 1733.  
 Tierras, volume 2804. Expediente 3. Hacienda of Acámbaro, Pátzcuaro. 1740.  
 Tierras, volume 621. Expediente. 3. Tiripetío. 1741.  
 Tierras, volume 1449. Expediente 1. Cuitzeo de la Laguna/ Guacao. 1746.  
 Tierras, volume 824. Expediente 3, Cuitzeo. 1746,  
 Tierras, volume 711. Expediente 1. Indaparapeo. 1749.  
 Relación de Pátzcuaro. Nahuatzen. 1754.  
 Relación de Pátzcuaro. Uruapan/San Gregorio. 1754.  
 Relación de Pátzcuaro. Tzintzuntán. 1754.  
 Tierras, volume 3448. Unico. Sanabria, Pátzcuaro. 1758,  
 Mercedes, volume 75. Fojas 225-226. Irapuato. 1750's/1760's.  
 Tierras, volume 851. Expediente. 2. Tzetzénguaró.  
 Tierras, volume 867. Expediente 8. San Pedro Paracho, Pátzcuaro. 1760.  
 Tierras, volume 1177. Expediente 1. Zinapécuaro. 1763.  
 Tierras, volume 916. Expediente 5. Santa Clara. 1767,  
 Tierras, volume 1322. Expediente 2. San Pedro Tzurúmutaro. 1802/3.  
 Tierras, volume 2786. Expediente. 23. Tacámbaro. 1772-1776.  
 Tierras, volume 1048. Expediente 4. Taretán. 1779.  
 Tierras, volume 1095. Expediente 1. Tzetzénguaró. 1783,  
 Tierras, volume 1095. Expediente 1. Tzetzénguaró. 1783,  
 Tierras, volume 1085. Expediente 1. San Idelphonso Taretán, Ziraquaratiro,  
 Pátzcuaro. 1785.  
 Tributos, volume 20. Expediente. 15. Foja. 706. Pátzcuaro/ jurisdiction general. May,  
 1786.  
 Tierras, volume 1177. Expediente 1. Zinapécuaro/ Aguascalientes. 1787.  
 Tierras, volume 3695. Expediente 7. Santa María Opopeo/Santa Clara/ Pátzcuaro.  
 1704-1784.  
 Alhondígas, volume 15. Expediente 1. Zamora. February, 1786  
 Alhondígas, volume 15. Expediente 1. Michoacán. April, 1786.  
 Alhondígas, volume 10. Yuririapúndaro. 1786.  
 Alhondígas, volume 15. Michoacán *tierra fría* lands. January, 1786.  
 Gazeta de Mexico Tomo II. no 13. Fojas 149-150. Valladolid. July, 1786.  
 Gazeta de Mexico, Tomo II. no 15. Michoacán. August, 1786.  
 Gazeta de Mexico, Tomo II. no. 17. Michoacán. 1786.  
 Gazeta de Mexico, Tomo II. no.21. Valladolid. November, 1786.  
 Reales Cédulas, volume 134. Expediente. 179. New Spain (general). 1786.  
 Alhondígas, volume 15. Expediente. 1. Cempoala. September, 1786  
 Historia, volume 73. Pátzcuaro. 1789.  
 Historia, volume 73. San Francisco Tarefero. 1789.

Historia, volume 73. Santa Ana Zacapo. 1789.  
Historia, volume 73. Santa Clara del Cobre. 1789.  
Historia, volume 73. Santiago Ario. 1789.  
Historia, volume 73. San Geronimo Purenchequaro. 1789.  
Historia, volume 73. Nuestra Senora de la Asunción Erongarícuaro. 1789.  
Historia, volume 73. San Pedro Taraguao/ Xaraquaro. (Jarácuaro). 1789.  
Historia, volume 73. Santa Maria Siraguén (Zirahuén). 1789.  
Historia, volume 73. San Juan Tumbio. 1789.  
Historia, volume 73. Santa Maria Huiramangaro. 1789.  
Historia, volume 73. San Francisco Pichataro. 1789.  
Historia, volume 73. Santa Maria Sebina (Sevina). 1789.  
Historia, volume 73. San Matheo Aguiran. 1789.  
Historia, volume 73. Santa Maria Cherantzicurin. 1789.  
Historia, volume 73. Santiago Nurio Tepacua. 1789.  
Historia, volume 73. San Pedro Cucuchuchu. 1789.  
Historia, volume 73. San Pedro Pareo. 1789.  
Tierras, volume 1231. Expediente. 3, San Pedro Pareo. 1793.  
Historia, volume 72. Charo. 1792/ 1793.  
Historia, volume 72. Santa Clara del Cobre/ Opopeo. 1792/ 1793.  
Tierras, volume 3448. Unico. Pátzcuaro, El Vado/Apupato. 1792.  
Historia, volume 9. Michoacán/province. 1792.  
Camino y Calzadas 3. Expediente 13. Fojas 304-312.

## Archivo de las Notorias, Morelia, Michoacán: Tierras y Aguas (de la Epoca Colonial)

### Land use and disputes

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- Legajo 5. Tomo I. Expediente 39. Pátzcuaro. 13th October, 1692.
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 12th May, 1762.  
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 12th August 1783.  
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## General environmental references

- Legajo 5. Tomo I. Expediente 44. 13th July, 1598
- Legajo 1. Tomo I. Expediente 45. Tzintzuntzan. 25th June, 1706.
- Legajo 3. Tomo I. Expediente 64. Santiago Copandiro. 1709.
- Legajo 4. Tomo II. Expediente 53. Pátzcuaro. August, 1709.
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- Legajo 5. Tomo I. Expediente 43. Pátzcuaro. 9th March, 1714.
- Legajo 9. Tomo I. Expediente 6. Pátzcuaro. 15th March, 1714.
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- Legajo 4. Tomo II. Expediente 56. Erongarícuaro. 12th May, 1714.
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- Legajo 9. Tomo I. Expediente 24. Charagüen. 16th October, 1714.
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- Legajo 5. Tomo I. Expediente 45. San Geronimo Tacámbaro. 11th February, 1715.
- Legajo 5. Tomo I. Expediente 16. San Geronimo Tacámbaro. 23rd February, 1715.
- Legajo 1. Tomo I. Expediente 43. San Gregorio de Pátzcuaro. Composition of lands. 15th June, 1715.
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- Legajo 5. Tomo I. Expediente 24. Erongarícuaro. 11th May, 1762.
- Legajo 8. Libro IV. Expediente 97. Urapicho. San Pedro Paracho. 1st April, 1786.

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- Legajo 6. Tomo I. Expediente 39. Cuitzeo. June 1696.
- Legajo 3.. Tomo I. Expediente 64. Santiago Copandiro. 1709
- Legajo 5. Tomo I. Expediente 43. Pátzcuaro. 9th March, 1714.
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- Legajo 8. Libro IV. Expediente 97. Urapicho/ San Pedro Paracho. 1st April, 1786.
- Legajo 10. Tomo I. Expediente 11. Erongarícuaro. 15th February, 1787.

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### Land disputes and other territory-related issues.

- Caja 9. Expediente 15. 1623.
- Caja 12. Expediente 4. Fojas 469-691. Puruandiro. 9th January, 1658.
- Caja 25b. Pátzcuaro. 14th December, 1671.
- Caja 60c. Folder 1. Fojas 1-101. Tzintzuntzan. 1676.
- Caja 16. Expediente 4. Fojas 564-744. *Hacienda* of San Antonio Chuen. April 28th, 1688.
- Caja 17. Expediente 3. Fojas 397-676. Pátzcuaro. 25th October, 1695.
- Caja 10a. Expediente 1. Fojas 1-536. 1696
- Caja 19b. Expediente 4. Fojas 464-754. Sanabria. 21st July, 1702.
- Caja 19b. Expediente 1. Fojas. 1-174. Pátzcuaro. *Hacienda* of Santiago Comienbaro. 25th October, 1708.
- Caja 19b. Expediente 1. Pátzcuaro. 4th September, 1713.
- Caja 38c. Pátzcuaro. *Haciendas* of Istaro, Parahuen, Chuen and Apambo. 6th October, 1713.
- Caja 30c. Pátzcuaro. San Bernadino. 1732.
- Caja 30. Expediente 1. Fojas 1-197. Pátzcuaro. August, 1733.
- Caja 42g. Fojas 1-246. Pátzcuaro. 1734
- Caja 28a. Expediente 2. Erongarícuaro. May, 1734.
- Caja 31d. Folder 1. Tzintzuntzan. 26th September, 1735.
- Caja 28a. Expediente 5. Zirahuén. 1737.
- Caja 37b. Pátzcuaro. 13th October, 1753.
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- Caja 43h. Fojas 260-366. Pátzcuaro. 1759.
- Caja 44a. Pátzcuaro. 4th September. 1760.
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- Caja 46c. Folder 5. Pátzcuaro. 25th August, 1763.
- Caja 49b. Folder 3. Erongarícuaro. 15th January, 1773.
- Caja 56f. Folder 1. Fojas 1-206. Erongarícuaro. 14th August, 1783.
- Caja 57g. Folder 1. Fojas 1-179. Pátzcuaro. 1st March, 1783.
- Caja 53c. Folder 4. Fojas. 418-555. Pátzcuaro. 1786
- Caja 59b. Folder 1. Fojas 1-116. Pátzcuaro. Cuanajo and Tupataro. 22nd August, 1791.
- Caja 58a. Folder 2. Fojas 235-453. *Hacienda* of Charagüen. 12th July, 1797.
- Caja 59b. Folder 2. Fojas 117-302. *Hacienda* of Tareta .1791
- Caja 65b. Folder 4. *Hacienda* de San Salvador Jujucato. July 9th, 1804.
- Caja 64a. Folder 2. *Hacienda* of Milpillas in the jurisdiction of Etucuaro and Tupitaro, 1808.
- Caja 64a. Folder 2. Pátzcuaro. 1808.
- Caja 64a. Folder 1. Fojas 1-164. Iramuco / Santa Clara. 1809.
- Caja 64a. Folder 1. 1809. Ario/ Pátzcuaro. Year unknown (182?).
- Caja 71c. Folder 1. Ranch of Turian, Pátzcuaro. 1823.
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- Caja 9. Expediente 15. Fojas 1623.
- Caja 12. Expediente 4. Fojas 469-691. Year unknown (163?).
- Caja 10a. Expediente 1. Fojas 1-536. 1696
- Caja 38c. Pátzcuaro. *Haciendas* of Istaro, Paramue, Chuen and Apambo. 6th October, 1713.
- Caja 30c. *Hacienda* de San Nicolás de la Laguna, Pátzcuaro. 21st January, 1734.
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- Caja 46c. Folder 1. 28th July, 1759.
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- Caja 52b. Folder 2. Pátzcuaro. 29th March, 1762.
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- Caja 56f. Folder 1. Fojas 1-206. Erongarícuaro. 14th August, 1783.
- Caja 58a. Folder 2. Fojas 235-453. *Hacienda* of Charagüen. 12th July, 1797.
- Caja 59b. Folder 1. Fojas 1-116. Cuanajo and Tupataro, Pátzcuaro. 22nd August, 1791.
- Caja 66c. Folder 5. 22nd December 1792. *Hacienda* of San Jose Purumbo. Erongarícuaro.
- Caja 59b. folder 1. Fojas 1-116. Pátzcuaro. 1794.
- Caja 65b. Folder 4. *Hacienda* de San Salvador Jujucato. July 9th, 1804.
- Caja 65b. Folder 4. March, 1803
- Caja 71c. Folder 1. Ranch called Turian. 1823.
- Caja 72d. Folder 3. San Francisco Uricho. 1828/9.
- Caja 74a. Tzintunztan and Cocupao. 1838.
- Caja 68. Folder 4. Pátzcuaro. 13th May, 1845.

## **Water disputes, lake level change and climatic references**

Caja 30 c. *Hacienda* de San Nicolás de la Laguna, Pátzcuaro. 21st January, 1734.

Caja 29b. Pátzcuaro. 6th June, 1739.

Caja 40e. Fojas 318-391. Pátzcuaro. 1750-1759.

Caja 44a. Folder 3. Pátzcuaro/ Istaro. 21st November, 1760.

Caja 44a. Folder 3. Pátzcuaro. 4th September, 1760.

Caja 49b. Folder 3. Erongarícuaro. 15th January, 1773.

Caja 51a. Folder 6. *Hacienda* of Comienbaro. 25th April, 1786

Caja 54d. Folder 1. Fojas 1-150. 25th October, 1785.

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Caja 56f. Folder 1. Fojas 1-206. Erongarícuaro. 14th August, 1783.

Caja 58a. Folder 3. Fojas 454-674. Jarácuaro. 4th June, 1791.

Caja 62e. Folder 3. Fojas 343-470. Pátzcuaro. 1791/2.

Caja 65b. Folder 4. *Hacienda* of San Salvador Jujucato. July 9th, 1804

**Archivo General de Indias, Seville, Spain**

Justicia, Legajo no. 259. Fojas 7r. Zinapécuaro, Tzintzuntzan. 1539.

Escribanía de Cámara, Legajo 159a. Fojas 5r-6r. Santa Fé de la Laguna. 1535.

