

## 7. THE COTTON TEXTILE INDUSTRY IN PUEBLA DURING THE EIGHTEENTH AND EARLY NINETEENTH CENTURIES

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From the mid-sixteenth century until quite recently textiles have been the main industry of Puebla. Very broadly, there have been three overlapping stages in the organizational development of the textile industry. The first, the manufacture of fine woolen broad-cloth, was established by immigrant Spanish weavers soon after the foundation of the city in 1532. This *obraje*-based industry, concentrating all the processes of manufacture under one roof, enjoyed a century of growth and prosperity but entered a decline from the 1630's in part due to the prohibition on inter-colonial trade - Peru had been the city's principal market -, but chiefly due to the northward movement of wool production giving a cost advantage to the *obrajeros* of Mexico City and the towns of the Bajío to the northwest. The Puebla and Tlaxcala *obraje* woolen industry did not disappear, surviving at a greatly diminished level into the age of the modern factory, producing rough and inferior cloth.

The second stage, which is the subject of this paper, was the growth of the home-based cotton textile industry, with spinning in the hand of Indian, often rural households, and weaving controlled by Spanish or occasionally mestizo weavers, backed by merchant capital, competing with and partially supplanting traditional Indian rural cotton weaving. This industry had its origin in Puebla during the late seventeenth century when the silk weavers' guild fostered a cohort of Spanish and mestizo cotton weavers under its jurisdiction. Over the eighteenth century the industry grew rapidly in size, extending to most of the towns and villages of the central region of the province and beyond to the cities of Antequera, Mexico, Valladolid and Guadalajara. By the time of the Napoleonic wars, which for several years blocked the supply of European textiles to the markets of Spanish America, Creole weavers were able to supply the Mexican market with plain unbleached cotton cloth (*manta*), ordinary to very fine silk cotton shawls (*rebozos*) and, as a result of the irregular supply of Catalan cotton prints, Mexican weavers had begun to produce these too.

The third stage in the industry's development arose from the crisis in cotton spinning and weaving brought about by the collapse of the Spanish mercantile system that had sustained the industry and by increasing competition from East Indian printed cloth and British factory yarn from the early 1800's. From the early 1830's, Mexican merchants chose to follow the British by introducing spinning machinery which by 1842 had largely replaced home spinning and yarn imports, giving the home weaver a reprieve until the 1890's when factory weaving replaced the home loom.

This paper examines the second stage in the organizational development of the industry. At first an explanation is offered for why the Puebla region provided a favourable context for the early development of the industry – it wasn't until the second half of the eighteenth century that creole cotton weaving grew significantly beyond the province. The second part of the paper examines in some detail the commercial and productive structure of the industry. Finally, home-based cotton weaving and spinning is seen within the broader context of the late colonial economy, the crisis it underwent after 1800 and the changes which followed Independence in 1821.

## I.

The Puebla region has an ancient history of cotton cloth manufacture; the Indian cities of Cholula, Huejotzingo and Tlaxcala, among others, possessed thriving cotton textile industries at the time of the conquest.<sup>1</sup> Spanish encouragement to the silk industry and cochineal production during the sixteenth century was therefore a response to an existing manufacturing tradition. Indian population collapse, however, undermined both the indigenous cotton and the Spanish silk weaving industries while uncontrolled sheep and cattle grazing destroyed the cacti upon which the cochineal industry depended. By the mid-seventeenth century Indian cotton weaving was confined to the regions where cotton was grown in the *tierra caliente* and to certain remote and mountainous areas where a weaving specialization had survived, such as the Misteca Alta of Oaxaca. There appears to have been no direct link between the indigenous, possibly extinct, cotton manufacture of the region and the Spanish-mestizo industry which emerged in the city of Puebla towards the end of the seventeenth century. The circumstances of the origin of "creole" cotton textiles in Puebla remain mysterious.

Jan Bazant, in "La evolución de la industria textil poblana," still the only study of Puebla's cotton industry, asks the question, "¿Como y por que se transformó un trabajo temporal de la mujer campesina e indígena en un trabajo permanente del hombre urbano y aparentemente mestizo?" drawing attention to what must be one of the most significant developments in colonial Mexican history:<sup>2</sup> the emergence of specialised, differentiated and commercialised cotton textile industry for mass consumption, in which the interests and activities of Spanish merchants, Spanish and mestizo weavers and Indian caners and spinners became closely intertwined. Why should this development have occurred in Puebla at least fifty years earlier than in other provincial capitals? How relevant to the case of Puebla are the demographic and economic arguments used to explain "proto-industrialisation" in parts of northern and central Europe? Does the Mexican pattern perhaps more resemble the growth over the same period of East Indian cotton textile production in response to the commercial stimulus of European trading companies? How important were ethnic and cultural factors in determining the hierarchy that emerged in the industry and in influencing its pattern of development? What direct influence, if any, existed between the new cotton industry and the decline of *obraje* woolen manufacture, or, between American cotton manufacture and its emerging Spanish peninsular counterpart?

Bazant offers four explanations for the early growth of the industry in Puebla, all of which are useful pointers but don't go far enough.<sup>3</sup> He argues that the decline of the woolen industry left a large, unemployed urban proletariat available for the labour intensive work of cotton manufacture. Little evidence has been found, however, of any direct link either commercially or in the labour force between the decline of woolens and the growth of cottons. By the early eighteenth century the *obraje* labour force in Puebla was composed almost entirely of free or enslaved negroes, *mulatos* or *pardos* who were prohibited by guild ordinance from cotton or silk weaving.<sup>4</sup> This, it appears, blocked their admission to the art, for in 1768, of the 184 cotton weavers serving in the urban militia, 155 were Spanish, twenty were mestizo and only nine were pardo, although they were well represented in other crafts, particularly wool weaving.<sup>5</sup> In any case, the decline of the woolen industry in itself would not have left a sufficiently numerous labour force for the far greater labour demands of the cotton industry. There were more compelling demographic reasons, shortly to be suggested, why Puebla offered a suitable environment for the growth of the cotton industry.

Bazant puts forward a second explanation for the growth of cotton weaving in Puebla which, while pointing at an important feature of the industry – the predominance of Spanish and mestizo weavers over Indians and other castes –, does not adequately explain why this was so. He observes that cotton weaving in Puebla originally fell under the jurisdiction of the silk weavers' guild, the *Gremio del Arte Mayor de la Seda*, arguing that this gave cotton weaving a respectability which it otherwise would have lacked, having hitherto been shunned for being an Indian art.

It seems, however, that as cotton weaving increased, very few weavers joined the silk weavers' guild which remained Puebla's most restrictive and exclusive guild over the eighteenth century, only admitting to its ranks silk – cotton shawl (*rebozo*) makers examined in the intricacies of silk spinning, dyeing and weaving.<sup>6</sup> The *rebozo* weavers grew to form a separate caste within the weaving artisanate as shall be shown later in the paper. The cotton weavers remained until the end of the eighteenth century marginal to the guild system. Only towards the end of the 1790's did they establish their own guild, independent of the silk weavers, when competition from other provinces of Mexico for the first time made it necessary to restrict production to those examined in the art.<sup>7</sup> Spanish and mestizo weavers were undoubtedly concerned for the respectability of the art, particularly with regard to the exclusion of African racial mixtures, but few weavers could harbour any illusions about the economic status of an art which was subject to such great instability and was so subordinate to merchant control and which, except during short periods of boom accompanying Atlantic war, barely kept a cotton weaving family at the level of subsistence. The disproportionate representation of weavers in the urban militia regiment and their massive participation in both the royalist and insurgent armies during the Wars of Independence seems to confirm this last point. During this period in Puebla being a soldier and a cotton weaver were almost synonymous. Notwithstanding their poverty, cotton weavers were nevertheless far freer than woolen workers within the *obraje* system, which, despite continuous regulation and inspection, continued to be regarded in the popular imagination as prisons. The cotton weaver owned his loom, bought his yarn – generally on credit – and employed his own apprentices. He was oppressed only by poverty and this fact perhaps more than any other explains both the origins and the growth of the industry in Puebla.

Bazant mentions two more reasons for the early development of Puebla's cottons. The first is Puebla's geographical location on the two principal trade axes of southeastern Mexico for access to the cotton growing areas of Veracruz and Oaxaca and to the markets of the interior. The other is that in Veracruz "the Spaniards of Puebla had good relations," pinpointing the commercial nexus which was so instrumental in establishing and sustaining the industry over the eighteenth century and eventually in transforming it during the nineteenth century.<sup>8</sup> Over the eighteenth century, for reasons which require closer examination, it suited merchants to have cloth production concentrated in a central place on the Altiplano rather than in the Indian settlements of the *tierra caliente* or in the inaccessible mountain districts of the Sierra Madre Oriental. There is a clear circumstantial relation between the decline of the cotton *manta* industry of the Misteca Alta, the only remaining area of pre-conquest volume cloth production for an external market, the general decline of *repartimiento* trade in that area, and the growth of mercantile involvement in cotton and other industries in the cities and towns of the Altiplano.<sup>9</sup>

What made the cities and towns of the Altiplano an attractive focus for investment and what drew artisans and merchants to Puebla considerably earlier than to the capitals of other provinces? Studies of proto-industrialisation in Europe have laid stress upon how demographic factors combined with the inadequacy of the agricultural subsistence base, compelled families to engage in domestic manufacturing for the market. Particular emphasis has been placed upon "the demographic peculiarity of manufacturing families: their high fertility, often in conditions of dire and unrelieved poverty, marking the end of the Malthusian balance, the collapse of the checks and preventions which had once maintained the traditional peasant village in a state of relative equilibrium and structural stability."<sup>10</sup> Regrettably there has been no work done on the history of the family in eighteenth century Mexico, although there exists a sufficient number of parish demographic studies for the valley of Puebla to suggest tentatively some relation between relative rates of population growth between ethnic groups, favouring Spaniards and mestizos over Indians, a numerical imbalance between Indian men and Indian women, and patterns of out-migration that would have been conducive to the development of domestic manufacturing.<sup>11</sup>

The cotton textile industry took root in the region over a period when both the Indian and non-Indian population of the city and province was growing rapidly after well over a century of the near demographic

collapse of Indian society. Between 1650 and 1735 Günter Vollmer has shown that, as result of declining mortality and fewer epidemics combined with accessibility to land and cheapness of food, the Indian population of the central region of the province increased steadily, doubling between 1700 and 1735.<sup>12</sup> The Spanish and mestizo population certainly matched, perhaps even exceeded this rate, the city of Puebla at the end of the seventeenth century having a population of between 70 and 100,000, rivalling Mexico in size.<sup>13</sup> The great epidemic of 1736 – 37 interrupted this pattern of Indian population recovery, demographers arguing that the impact of this epidemic could still be detected in the demographic structure at the end of the century, since, for reasons which are still not clear, adult Indian males suffered a disproportionately high mortality. The municipality of Puebla lost over half of its population over the decade of the 1730's not recovering to its former size until the late 1840's.<sup>14</sup> The neighbouring city of Cholula lost two thirds (16,926) of its population in 1737 while in the same year the parish of Santa Inés Zacatelco, thirty miles to the north, lost two fifths of its adult population.<sup>15</sup> Thereafter, between 1737 and 1810, the Indian population of the parishes studied remained stagnant or in decline as a result of the demographic imbalance left by the 1737 epidemic and the much more frequent occurrence of epidemic disease experienced between 1737 and 1850 than over the period 1650 to 1735. Demographic studies show that although the Indian population retained the higher level of fertility, which had been responsible for its recovery before 1735, high mortality in the frequent epidemics and high rates of male migration from villages and towns to haciendas and cities within and beyond the region, combined to keep the Indian population of Puebla's villages and towns, as well as that of the city itself, stagnant or in decline between 1737 and 1810.<sup>16</sup>

The picture for the non-Indian population was different. The Spanish and mestizo population grew steadily over the eighteenth century, most notably in Indian villages and towns where previously it had been only weakly represented. Santa Inés Zacatelco, a village in which cotton textiles became firmly implanted over the century as an *empresa española*, had in 1724 a non-Indian population of only 142 persons in twenty-one households, among a sea of Indians numbering 6,700 souls. Furthermore this non-Indian population was characterised by impermanence and great mobility, as though, as Claude Morin suggests, "se siente incómoda en una comunidad indígena demográficamente agresiva."

By 1795 however, the picture, although not reversed, was very different. Among a smaller number of Indians than there had been in 1724, the non-Indian population now stood at 569, occupying 100 households. The greater fertility of the non-Indian population is revealed in the parish records of Santa Inés between 1783 and 1821, when the relation of non-Indian births over deaths was 225:100 while for the Indians it was only 108:100. Non-Indian households were significantly larger than Indian households, and village households larger than hacienda households.<sup>17</sup> Finally, the 1790 census shows that villages with significant numbers of non-Indians employed in manufacturing and services, such as Santa Ana Chiautempan, Naticitas and Martin Texmelucan, had substantially positive rates of immigration in contrast to agricultural districts where rates of emigration for all ethnic categories were high.<sup>18</sup>

Why should these changing population patterns have proved so conducive to the growth of domestic manufactures, particularly cotton textiles, over the eighteenth century? To answer this question, more needs to be said about the wider economic circumstances confronting the city of Puebla and its surrounding agricultural regions. Over the second half of the seventeenth century and the first three decades of the eighteenth centuries, running against all the population trends was a marked decline in the traditional sources of Puebla's agricultural, commercial and industrial wealth. Puebla's cereal agriculture, the first in New Spain to become fully commercialised and geared to an extra-regional market, entered an eighteenth century of stagnation, punctuated by short periods of windfall demand from Crown purveyance orders of wheat flour for the Caribbean fleet and garrisons, alternating with periods of depression.<sup>19</sup> Moreover, the interior market for Puebla's wheat flour in Mexico City and the mining cities beyond had been lost to the Bajío by the early eighteenth century. Regional demand by itself was inadequate to maintain a large hacienda sector, Puebla's commercial agriculture becoming a byword for bankruptcy over the century. The decline of the other traditional export staple, woolen cloth, has already been mentioned and when placed alongside the commercial decline of the city as a result of the monopoly exercised by Mexico City merchants over the import-export trade, the closure of Puebla's silver mint and the transfer of the administration of the mercury monopoly to the viceregal capital, the desperation of Puebla's economic predicament by the 1740's can be appreciated.<sup>20</sup>

The Franciscan friar Juan Villa Sanchez observed and recorded with great accuracy the crisis that beset the city of Puebla in the 1740's. He

remarked that the city, now abandoned by its merchants and woolen clothiers, had become locked in the clutches of a body of *rentiers* who farmed the *alcabala*, Crown monopolies and revenues of the municipal government, noticing that the tax yield had risen in inverse proportion to the visible economic decline of the city: The collector of *alcabalas* was taxing all and sundry, even Indian dealers in palm mats and baskets, legally exempt from sales tax. Merchants and shopkeepers were leaving the city "to where the *alcabala* is more benign." He described a city of widows and of young girls, unable to find spouses, driven to the spinning wheel. The streets teemed with ragged beggars, women abandoned to their fate, artisans desperate to sell their wares and petty criminals everywhere so that "no estén seguras las tiendas de los mercaderes de que las quemén, que no estén libres las casas que las asalten, los conventos de las religiosas de que los escalen..." In 1744 a tax placed on spinning wheels so provoked the population of the *barrios* of the city that the spinners deposited their wheels in the security of the parish churches as the poor came by the thousands to the main square, the occasion perhaps indicating the limits of the "rentability" of the city.<sup>21</sup>

There were two principal responses to the region's economic decline. One was migration, all the parish studies confirming this pattern for Indian and non-Indian population alike. People migrated to Mexico City, where the *barrio de los poblanos* was well populated by the 1740's and brimming over by the end of the century, and to the economically more dynamic provinces to the northeast, particularly Guadalajara and Guanajuato.<sup>22</sup> The other response can be observed in the growth of the secondary and tertiary sectors, particularly in cotton textiles and mule transport. Here the Spanish and mestizo population succeeded in gaining a substantial advantage in terms of ownership, employment and income over the Indian population. This was a result of Indian demographic vulnerability from the 1730's onwards, the penetration of non-Indians into Indian towns and villages, the reorientation of local merchant capital from agriculture and foreign trade into domestic manufactures, transport and inter-regional exchange, the introduction of European technology, particularly the Castilian loom and the spinning wheel, and the occasional use of discriminatory guild legislation. The case of the Tlaxcala cotton weavers guild, which during the 1770's attempted quite illegally to stamp out Indian cotton weaving, illustrates this last point.<sup>23</sup> The 1791 census reveals the extent of Spanish and mestizo advance not only in the provincial capital and the larger towns of the province such as Tlaxcala, Huejotzingo, Tepeaca, San Andrés Chalchicomula, but in the smaller



villages as well. The census reveals a remarkably small percentage of the rural and small-town Spanish and mestizo population involved in agriculture and a high degree of occupational differentiation, with a concentration of employment in work related to transport and communications – blacksmiths, muleteers, carters, cart-makers, tanners and saddlers – and textiles, cotton weaving having become the chief occupation in many areas.<sup>24</sup>

A third response to economic crisis might have been expected: a drift into small-scale farming with the fragmentation of estates into smaller holdings, as a result of the commercial decline of hacienda agriculture. This did not happen. Instead, a rigid agrarian structure, based upon large estates occupying the best land, very few *ranchos* and the Indian and labouring population residing in Indian communities lacking adequate land, remained almost unchanged over the eighteenth century. Why the absence of significant agrarian change? It seems that the intermediate Spanish and mestizo population, which might have been expected to turn to small farming, were deterred from doing so firstly by the economic hazards which plagued commercial agriculture: low prices and the scarcity and elusiveness of the Indian labour force, and, secondly, by the inescapable fact that Indians despite their demographic instability, still made up by far the majority of the region's population, fully occupying the *pegujalero* (small-scale peasant producer for the market) category. There is little evidence of significant subdivision of great estates before the Wars of Independence although multiple rental agreements, largely among Indian resident peons, were not uncommon in Tlaxcala as the century came to a close.<sup>25</sup>

It seems therefore that the Spanish and mestizo population that stood between the small patrician class of hacienda owners, merchants, clergy and bureaucrats and the mass of impoverished Indians, if they chose to remain in the region, instead of bidding for land, settled in the capital and smaller towns as artisans, muleteers or petty merchants. The cotton textile industry therefore proved to be particularly well suited to the peculiarities of the region, merchant capital and enterprise linking an independent and culturally distinct creole artisanate to a dependent Indian labour force, providing a solution to the problem of subsistence of this growing Spanish and mestizo population and of the demographically fertile yet disease-ravaged Indian population. The structure of this industry must now be examined more closely.

## II.

There is no better description of the structure of the cotton industry, from the cotton field to the merchant's counter, than that of Juan Villa Sanchez in the early 1740's:

"A los tejidos de algodón ministra ingente porción de cargas de este fruto que viene a esta ciudad de la costa del Sur y jurisdicciones de Teutila, Cosamaloapan, Tuxtla y otras; sirve al comercio en greña, a los encomenderos que lo reciben, a los muchos tenderos que lo menudean, y de aquí pasa a las manos de la gente más miserable; es la última apelación de la pobreza el hilado de algodón; es el mesquino socorredor, especialmente de pobres doncellas y viudas, que puestas de sol a sol a la rueda de un torno, que es el de su corta fortuna en aquel diuturno trabajo, logran escasamente el estipendio, más para enfermar que para matar el hambre; es el signo evidente, es la demostración palpable de la mucha pobreza que hay en La Puebla, no se pasa por calle alguna donde no se oiga el repique general (no de fiesta, sino de gran trabajo) de los bastones o cañas con que azotan el algodón; y las onzas que hilará una pobre mujer en el día le vendrán a rendir el precio de un real de plata. De estas miserables manos pasa a la de los tejedores, o de mantas que suplen el lienzo para camisas, o de paños de reboso o del que llaman chapaneco para forros y otros semejantes: también es cortísimo y no correspondiente al trabajo la ganancia de este oficio. De estos pasan los géneros a los comerciantes, que remiten muchas porciones de ellos a tierra adentro y otras partes para provisión de varias ciudades, pueblos y haciendas."<sup>26</sup>

Since it was the greater degree of commercialization which distinguished the growing urban cotton industry from its Indian counterpart, it is appropriate that the role of merchants and merchant capital be examined first. The ladder of commercial activity between the cotton growing regions of Veracruz and Oaxaca and the market for Puebla's cloth in the *tierra adentro* was a complex and changing one but, for the sake of simplicity, it possessed, very broadly, the four levels which Villa Sanchez observed: 1) Cotton merchants in the growing districts, known as *aviadores de algodón*; 2) Raw and spun cotton dealers and regraters in the city of Puebla and the weaving districts of the central valley, known as *algodoneros* or *regatones de algodón*; 3) Wholesale dealers in finished cotton cloth, *mercaderes* or *almaceneros de ropa de tierra*, who dispatched it to the fourth stage; 4) the fairs, small retailers and hacienda and mine stores of the interior.

### A. *Aviadores de Algodón*

These were merchants in Puebla or in towns closer to the cotton growing areas who invested in cotton agriculture through *repartimientos* or more directly by advancing *avíos* in cash or manufactured goods to cotton growers at annual cotton fairs. Little money changed hands, as raw cotton was exchanged for soap, cocoa, wine, aguardiente, bread, biscuits, maize, finished cloth and, occasionally, silver reales.<sup>27</sup> Many of these products were manufactured in Puebla. The long-term effect of encouraging specialization in the *tierra caliente*, and of the mechanisms used to achieve it, was to render these sparse populations increasingly dependent upon manufactured goods from the Altiplano cities. Humboldt noted that the Indians of the vanilla and quinine producing districts of Veracruz received in exchange "con particularidad telas de algodón fabricadas en la Puebla..."<sup>28</sup> The *subdelegado* of Tlacotalpam noted at the same time that Indian women bought European or highland cloth having "olvidado la costumbre que tenían de aprender a tejer algodón para ... su antiguo traje ... y vestidos de sus maridos. Solo las viejas saben hacerlo, y hablar el Mexicano, que ignoran las otras y los hombres."<sup>29</sup>

*Aviadores* received commercial backing from and often were agents for the large import-export merchants of Puebla, Oaxaca and Veracruz. Veracruzano merchants in particular, over the second half of the eighteenth and first half of the nineteenth centuries, became a key factor in setting the pace of activity in Puebla's cotton textile industry. These merchants were geographically well placed to monitor and respond swiftly to the dramatic fluctuations effecting New Spain's external sector caused by Anglo-Spanish and Franco-Spanish wars and by changing commercial legislation with its generally unanticipated consequences (the *asientos*, the *flotas*, the *registros*, the exemptions from *alcabala* to encourage the importation of slaves and tropical agriculture, particularly cotton for Catalan manufacturers, etc.).

From the early 1740's, with foreign trade interrupted by the War of Austrian succession (1739-48), Veracruzano merchants became increasingly interested in fomenting cotton agriculture for the expanding Altiplano industry now protected from competition from European manufactures.<sup>30</sup> With peace restored, the demand from Spain's own expanding cotton industry made sustained investment in cotton agriculture profitable. During the 1790's merchants became involved more directly in cotton farming as the external sector became increasingly

unstable during the Napoleonic wars, as demand and cotton prices rose and as labour scarcity and the introduction of ginning machinery made it necessary to supervise production more closely.<sup>31</sup> Other Veracruzano merchants moved inland to settle in Puebla where wartime trade could be conducted to greater advantage. Tiburcio Uriarte, José Alday, Pablo Escandón, Manuel Olaguibel and Juan Luis Palacios became large dealers in raw cotton and local cotton manufactures while continuing to import goods when the opportunity arose.<sup>32</sup> During the Wars of Independence this migration of merchants inland continued, forging close commercial ties between Veracruz and Puebla which became crucial in underscoring the survival and revival of Puebla's cotton manufactures during the 1820's and 30's. The case of Estevan de Antuñano is the best known example of this pattern. He was the son of Spanish merchants of Veracruz and moved to Puebla to establish an imported cloth business in 1816. During the 1820's he reconstructed agriculture and trade in cotton while establishing his own gins at Tlacotalpam and a small spinning factory in the city of Puebla. In the early 1830's he borrowed money from the Veracruz merchant Paso y Troncoso to invest in Mexico's first operational modern cotton spinning factory.<sup>33</sup>

#### *B. Algodoneros and Regatones de Algodón*

These were dealers who bought raw cotton from the merchants and muleteers who transported the unstripped, seed-bearing fibre from the lowlands, selling it in turn to the spinners or to weavers who managed their own spinning. Spinners and caners paid cash for the raw cotton, generally in very small amounts sufficient for a day's work, selling it back to the *algodoneros*, to weavers or to cloth merchants. Spinning in Cholula during the 1790's earned less than the individual's subsistence. "Es tan poco lo que ganan, que no pueden alimentarse; tres cuartillas emplean en algodón y después de ocupar todo el día en preparando e hilarlo, no les queda mas utilidad que otras tres."<sup>34</sup> As mentioned, some weavers managed their own cotton preparation and spinning but most relied heavily on credit either from the *algodonero* or, more likely, from the retailer or wholesaler of the finished cloth. As the eighteenth century proceeded, *algodoneros* and regraters increased their control over the raw and spun cotton business much to the disgust of some of the more established Spanish and mestizo guild cotton weavers who hitherto had managed this stage of the business.<sup>35</sup>

However the once well established "patrician" guild weavers might have resented their loss of control over spinning and access to raw materials, the poorer unexamined weavers must generally have benefitted firstly as a result of the undermining of the authority of guild officers and masters and secondly as a result of the more regular employment which this concentration of mercantile wealth no doubt provided, particularly once the business had reached such a considerable size by the 1790's that monopoly would have been impossible.<sup>36</sup> An incident in 1795 reveals the close vigilance which *algodoneros* kept on each others activities. Don Rafael Parra and Doña Ignacia Alatraste purchased raw cotton from Don José Mones, *algodonero*, which they judged to be of inferior quality not commensurate with its price, therefore deducting 161 pesos from their account, a decision supported by *almaceneros*, witnesses to the case.<sup>37</sup> These were years of great prosperity as Estevan de Antuña later recorded. "For the war in 1797, the weavers were dressed in fine cloth and velvet, gold and silver buckles and buttons, and the spinning women with skirts of muselin at 5 pesos the yard..."<sup>38</sup> Records for cotton entering the city during the last three months of 1799 show that the *algodoneros* were joined in these years by some of the principal *almaceneros* of the city, who, turning away from the depressed import trade, invested in the flourishing cotton industry: Tiburcio Uriarte, Joaquin Haro y Portillo, Dionisio Fernandez Pérez etc.<sup>39</sup>

The role of the *algodonero* was a crucial, albeit disreputable one: linking the two principal agents of production - the weaver and the spinner -, and linking the capital of the province with the towns and villages where much of the weaving and most of the spinning was done. Competition from the turn of the nineteenth century brought *algodoneros*, hitherto confined to supplying the weaver with raw materials, into marketing their products. Manuel Flon, in his survey of the city's commerce in 1803, makes no distinction between the two functions in the twenty-eight *almacenes de ropa de tierra* he counted in the city that year.<sup>40</sup> The next logical stage in the commercial development of the industry would have been the mechanization of spinning, but there appears to have been no serious contemplation of this option with the renewed onslaught from imports after the Peace of Amiens, reducing the number of cotton dealers to eighteen by 1807, a reduction of ten from 1803.

Why was there apparently no consideration of the mechanization of spinning in Puebla when the technical know-how, the capital and even official encouragement were all in evidence? Merchants in Mexico and

Celaya had, after all, introduced mechanical deseeding and carding devices in the early 1770's.<sup>41</sup> Puebla's cotton guild, opposed to mechanical spinning, claimed that the great reputation of Puebla's *rebozos* and *manta* was in part due to the caning of the cotton by the spinners which these devices replaced.<sup>42</sup> Furthermore, when mechanically ginned cotton was sent up to Puebla from Veracruz in 1807, it proved to be unsuitable for the city's spinning wheels which responded better to caned cotton with its fibre more intact.<sup>43</sup> Had transformation of the preparing (ginning) stage of production not been interrupted by the Wars of Independence, then the mechanization of spinning would almost certainly have proceeded apace. But so unstable and unpredictable was the external sector over the first thirty years of the century that investment in the cotton growing regions remained sporadic. In these circumstances, the advantages of the traditional system of production, involving very limited fixed capital investment and the employment of a flexible and subsistence (largely female) labour force were obvious. So the unstable economic conditions and general poverty which had nurtured the early growth of the industry during the first half of the eighteenth century, also account for its survival in a traditional form over the first thirty years of the nineteenth century.

### C. Mercaderes and Almaceneros de Ropa de Tierra

Unlike the woolen clothiers of Puebla of the sixteenth and early seventeenth centuries who often managed both the wool supply and the marketing sides to their businesses to markets as far distant as Peru, few cotton weavers possessed the capital, enjoyed the contacts or could afford the delay in payment which long distance trade involved.<sup>44</sup> The marketing of Puebla's cottons in the more remote parts of the province and beyond was therefore managed by wholesale merchants.

Villa Sanchez in the 1740's records how the mercers of the city were almost all outsiders (*ultrones*), who did not know the city. "Se ven andar los oficiales rogando con ellas por todas las tiendas y por todos los mesones, porque no hay que esperar que se vengán a su casa a buscarlas."<sup>45</sup> Over the second half of the eighteenth century the trade in Puebla's *ropa de tierra* became a much less improvised affair than this statement suggests. The merchants who grew to specialise in *ropa criolla* settled in and around the *mesones* to the northeast of the *plaza mayor*, where the dealers and muleteers would stay en route to the *tierra adentro*, the Calle de Mesones itself becoming the centre of the trade, a

street dubbed the "Calle de la Bolsa de Londres" at the turn of the century when Puebla's cottons reached the peak of their colonial development.<sup>46</sup>

These merchants through their ability to advance credit to weavers, extended their influence beyond the weaving *barrios* of the city to the entire central region of the province over the middle and later decades of the eighteenth century. The pattern of growing merchant influence and declining independence of weavers is very similar to what occurred in India over the same period.<sup>47</sup> In neither India or Mexico were merchants interested in establishing a putting-out system and in Mexico, as in India, the weaver never entirely lost his independence. There was nothing legally to prevent him from receiving cash advances from several merchants or from selling to whom he pleased, since he continued to own his loom and his raw materials even if they were acquired on credit. In practice, however, as the forthcoming discussion of the inventory of Carlos Chavez's *almacén de ropa de tierra* reveals, cotton cloth paid for in advance of manufacture belonged to the merchant, not to the weaver. And, if the experience of the cotton weavers' guild of Tlaxcala is representative of the general plight of the more independent and "patrician" caste of creole weavers, then this group suffered a considerable loss of authority, since guild ordinances were everywhere being disregarded. At the same time its economic status declined, since merchants appropriated the economic control which the creole weavers once exercised over unexamined weavers and the cotton spinners. The records of the Tlaxcala guild's litigation between 1744 and 1790 reveal vividly the erosion of the guild officers' and cotton masters' legal authority and economic influence. They had once been able to live well from their own work and from marketing the finished goods of unexamined and Indian weavers from the outlying small towns. By the 1790's, however, wholesale merchants "from the cities of Mexico, Puebla, Huejotzingo, and other areas, (are buying) woven goods in such quantities that even individuals who have shops in these towns and have supplied the officials in [Tlaxcala] cannot find any."<sup>48</sup>

The chief market for Puebla's cloth was in the provinces north and west of the valley of Mexico, referred to in Puebla as the *tierra adentro*. Chihuahua and Coahuila consumed Puebla's *manta* and cotton shawls before the Wars of Independence shattered the commercial structure which had made such long-distance trade possible.<sup>49</sup> Guadalajara had developed its own *manta* production by this time, though it still imported

TABLE I: *The Impact of War Upon 'Exports' From Puebla and Imports From Spain, 1785 - 1812*

Periods of war and per-mission for 'neutrals' to trade	Year	Entry of Puebla cloth to Mexico City customs (tercios = 175 lbs.) (1)	Entry of European cloth to Mexico City customs (tercios) (2)	Puebla Flour from Veracruz to Antilles (tercios) (3)	Export of Mexican Ham, Lard, Soap and Tallow from Veracruz (pesos) (4)	Import of Spanish Soap, Ham, Lard and Tallow to Veracruz (pesos) (5)	
Peace	1785	4384	12800	-	-	-	
	1786	4013	8258	5286	-	-	
	1787	4732	6662	4861	-	-	
	1788	4811	7872	12714	-	-	
	1789	(no fig.)	6244	9635	-	-	
	1790	4879	8015	14616	-	-	
	1791	5206	8270	17787	-	-	
	1792	6158	7315	11610	-	-	
War with France	1793	6046	6420	29505	-	-	
	1794	6426	5477	19585	-	-	
	1795	6938	5019	13833	-	-	
Peace	1796	6917	6571	35665	-	-	
	1797	6980	2188	(no fig.)	-	-	
Neutral Trade and	1798	6576	1624	(no fig.)	-	-	
	1799	7517	3323	(no fig.)	-	-	
War with GB	1800	7097	2942	(no fig.)	-	-	
	1801	7626	2725	(no fig.)	-	-	
Peace	1802	5672	9446	22858	163004	3165	
	1803	6334	12842	19660	127717	6019	
War	1804	6482	6433	26371	119158	4088	
w i t h	Neutral	1805	6401	3358	3968	20391	10650
	Trade	1806	(no fig.)	(no fig.)	2669	106351	4728
		1807	(no fig.)	(no fig.)	5574	101059	(no fig.)
GB	1808	(no fig.)	(no fig.)	21073	110390	(no fig.)	
French Invasion	1809	4768	5120	26724	196858	(no fig.)	
	1810	(Jan - June; 6 months)	1452	3388	16033	153280	11160
Mexican Wars of Independence	1810	(Aug, Sept, Nov, Dec)					
		1786	1455				
	1811	(March - July; 5 months)	603	2413	9701	55830	22806
	1812	(no fig.)	(no fig.)	1558	22028	42397	

Sources:

- (1) & (2) Figures for 1785 - 1805: *Gaceta de México*, Vols. I - XIII.  
 Figures for 1809 - 1811: *Correo Semanario Político Mercantil*,  
 Vol. 1 p.16, 35, 78, 110, 149 - 50;  
 Vol. 2 p.45, 79 - 80, 108, 138 - 39, 178, 223, 295;  
 Vol. 3 p.106 - 7, 149, 180, 328, 402.
- (3) Figures for 1786 - 1796: *Gaceta de México*, Vols. II - VIII;  
 Figures for 1802 - 1812: Miguel Lerdo de Tejada, *Comercio exterior de México* (1853), (Mexico, 1967).
- (4) & (5) Miguel Lerdo de Tejada, *Comercio exterior de México* (1853), (Mexico, 1967).



large quantities of Puebla's *rebozos* (in 1803, 12,910 dozen valued at 119,490 pesos).<sup>50</sup> Records of *ropa de tierra* from Puebla passing through Mexico City's customs house between 1785 and 1811 (see Table I) reveal a steady increase in volume over the 1780's and 90's, clearly substituting European cloth between 1797 and 1802 (when Puebla's weavers were reported to be imitating even the finest European cloth), levelling off after Amiens and slipping back to the level of the 1780's by the end of the decade. Mexico City customs house reports for the years 1809 - 11 show that very little of Puebla's cloth was consumed in Mexico City (see Table II), probably because the capital had acquired its own

TABLE II: *Cloth and Raw Cotton Entering Mexico City Customs House, 1809*

(all in tercios = approx. 175 lbs.)	Euro - pean cloth	Puebla cloth	Chi - nese cloth	Queré - taro cloth	Cloth from other towns	Raw Cotton
Consumed within city	4282	114	206		1029	12614
Passed through to other markets	829	4680	-	525	772	1193
Total	5111	4794	206		2326	13807

Source: *Correo Semanario Político Mercantil*, Vols I & II.

cotton textile industry competing with Puebla's since the 1760's. Most of Puebla's cloth went to provincial tailors and store keepers in the towns, villages and haciendas of the interior (scrutiny of the *avíos* advanced to agricultural labourers in these regions would doubtless reveal a proportion of goods manufactured in Puebla). The inventory of Carlos Chavez's dry goods and cloth warehouse - a specialist in *rebozos* - reveals credit to 360 individuals in over fifty towns, villages and haciendas stretching from Tabasco in the southeast to León, Lagos and Silao in the Bajío, varying in size from two pesos, the value of yarn supplied to Maestro Vargas, weaver of Puebla, to 6,000 pesos, the value of metal goods and textiles supplied to a merchant resident in the fair town of

Lagos in Guanajuato. These credits were valued at 94,891 pesos while his debts to fifty-five import houses, cotton merchants, brokers, storekeepers and the customs amounted to 115,486 pesos 3 reales. A favourable balance of 8,224 pesos resulted when his stock, various pawned items, thirty-two lengths of manta still on the loom but already paid for in advance and 2,600 head of cattle received from the *tierradentro* were taken into account. Apart from coin, principal item of exchange in the cloth trade with the interior was cattle, particularly mules and horses, arriving at Puebla's *ejidos* in November and December, attracting buyers from all over the southeast from as far as Guatemala.<sup>51</sup>

There appears to have been no exclusive specialization in dealing in *ropa de tierra*. Inventories for a wide range of dealers reveal merchants who, purporting to specialise in European goods, at the same time held quantities of local manufactures, as well as *almacenes de ropa de tierra* which kept European goods in stock.<sup>52</sup> A mercer's degree of specialisation would depend upon the kind of specialization of the wholesale warehouse with which he held credit, or the kind of direct involvement he might have with local producers. The inventory of a mercer's shop operated by two men in partnership illustrates this point (see Table III).

This inventory illustrates well the complementarity existing between the trade in imported goods and dealing in *ropa de tierra*, and, given the instability of the export sector, it would have been imprudent for a mercer to concentrate exclusively on either branch of trade.

When the prolonged commercial crisis accompanying the Wars of Independence gradually receded, wholesalers and retailers of *ropa de tierra* significantly show a higher survival rate. Of the eighteen wholesalers and retailers of *ropa de tierra* active in the city in 1807, seven were still in trade in 1820. Of the thirty-four dealers in European cloth resident in 1807, only nine remained in 1820.<sup>53</sup> Both bodies, of course, had suffered greatly from the collapse of the colonial credit and mercantile structure, the disruption this caused in the market of the *tierradentro* and from contraband imports undercutting domestic manufactures in price.

It was the failure of the external sector to recover even to its uneasy pre-war equilibrium that finally persuaded both merchants dealing in imported goods and those still trading in domestic manufactures to seek a more permanent and, so they hoped, a more stable outlet for their investment in the mechanization and transformation of cotton preparation and spinning. Once this movement was underway by the mid-1830's there was very little space left for the *algodonero* or the spinner, and

TABLE III: *Tienda de Ropa, Calle de Mercaderes, Puebla, Belonging to the Company Formed Between José Maria Infante and José Joaquim Cortes for Two Years in July 1829*

ASSETS			
Silks	383	pesos	7 reales
Woolens (Europeans)	82		
Cottons	1,419		7/8
<i>Ropa de Tierra</i>			
(Cotton cloth from Sultepec)	2,959		1
<i>Prendas</i>	5		3 1/4
Debts of Indians through <i>Repartimiento</i>	602		1 4 granos
	<hr/>		
	5,706	pesos	7 1/8
LIABILITIES			
Debts owed to three mercers, dealers in European goods (José Antonio Cardoso, José Manuel Lara and Francisco Javier Manzano) and rent.	2,113	pesos	5 3/4
	<hr/>		
Cash	230	pesos	4 reales
Cortes' investment	2,000	pesos	

Source: ANP Not. No.7, 1829 f. 357.

many mercers and *almaceneros* saw their liquidity vanish as they wrestled with the problems of introducing and operating profitably the new technology. Where the trade in domestic cotton did not change significantly over the period of the mechanization of spinning was at its two extremes, namely those merchants financing cotton agriculture and dealing in scarce cotton for the new factories and those wholesale warehouses dealing principally in imported goods but prepared also to stock local manufactures. Both groups became the usurious creditors to the new industry.<sup>54</sup> The handloom weaver survived the entire period of decline and transformation, providing indeed its vital productive force, though with his independence much reduced now that spinning was fully mechanised and yarn only available at the factory counter.

#### D. Weaving

The focus so far has been on the commercial activities surrounding the productive work of spinners and weavers. The impression given is perhaps of a large number of people, struggling to subsist, who were the passive instruments of mercantile calculation, largely for the merchant's benefit. Closer examination of guild proceedings, census returns, mortgage loans and wills reveals, however, that weavers were far from being an undifferentiated and impoverished mass.

In the depressed years of the early 1830's, before the wave of investment in modern spinning factories had brought about the recovery of the weaving artisanate, contemporaries tended to exaggerate the degree of prosperity of the late colonial weaver. This was often deliberate propaganda put out by protectionists to persuade governments that by protecting Mexican industry a prosperous and stable social order would be restored. Alternatively it was designed to convince underemployed and impoverished weavers of the virtues of the mechanization of spinning, guaranteed to restore them to their past prosperity. Francisco Javier de la Peña, in his annotations to his reedition of Villa Sanchez' *Puebla Sagrada y Profana* in 1835 places the weaver firmly among the merchant class as a beneficiary of the late colonial cotton boom. The industry had divided the city's population into two classes, the first containing "la escarmenadora, azatadora e hilandera ... quienes ... ganaban de tres a cinco reales diarios, sin dejar atender a sus labores domésticas," and the second, "al oficial, al comerciante, al encomendero, al arriero, etc. ... quienes llegaron a juntar capitales de diez, veinte, treinta y cuarenta mil pesos." De la Peña then describes the tastes and lifestyle of the latter group, singling out two artisans whom he knew well. The description has the precision of an inventory (and may be usefully compared to the inventory of Dn. José García Aragón, *rebozo* weaver, in Table IV):

"...yo conocí a dos maestros, uno sombrerero llamado Don Manuel Cadena y otro tejedor de lienzos de algodón Don José Aguilar, con toquillas de onzas de oro en los sombreros, botones de las mismas y escudos en sus vestuarios, sillas de montar magníficas, con fustes guarnecidos de plata maciza, y el ruedo de higas de las anqueras de la propia: sus mujeres estaban ricamente adornadas, y rivalizaban con las señoras de primera clase,... sus casas eran espaciosas y muy curiosamente adornadas: en las salas había hermosas arañas de plata, y no pocos utensilios de servicio, siendo tan común el uso de este metal, que en algunas accesorias de oficiales honrados, se le daba agua a la persona decente que la pedía en el 'jarro de plata'..."<sup>55</sup>

Such men were clearly in the minority within a corps of weavers numbering perhaps 2,500 at the turn of the nineteenth century.<sup>56</sup> But did they represent a significant portion of the weaving population and was the gap in wealth and status which separated them from the mass of weavers one of substance or of degree?

In terms of the ethnic identification of weavers, indicated by what they told the censor in 1791, this was very much a hispano-mestizo occupation. In the main weaving *Barrio de San Francisco*, of the few non-Spanish or mestizo weavers, most were *indios caciques* from Tlaxcala, which says little, as most Indians from Tlaxcala appear as *caciques*.<sup>57</sup> In the preambles to the census returns of the main weaving towns of the valley made in 1792, and also in the short description of these towns made by Manuel Flon in 1803 in all except Cholula, weaving appears to have been explicitly the occupation of *gente de razón*, Indians being occupied in other crafts or in agriculture.

But while the possession of a loom and working indoors might have permitted a small-town Spaniard or mestizo to become differentiated from the surrounding Indian population, for most of its practitioners, cotton weaving offered only the barest subsistence. The censors' phrases in the preambles bear this out: "Lo pasan miseramente en la fatiga de sus telares;" "cuyos miserios productos se sirven pocas tiendas;" "muy corta utilidad para la carestía de materiales;" "la gente de razón que no ejerce algún oficio subsiste con el hilado de algodón," and so forth. There is evidence that weavers in these towns were worse off than their counterparts in the capital. During the 1780's and early 90's, when production in the city of Puebla was expanding fast, the neighbouring town of Cholula's industry was in full decline. Of the 300 looms active there in 1784, only 200 remained in 1791 and of those "no se emplean todos por falta de auxilios." (In 1804 Flon reported that production in Cholula had recovered substantially with encouragement from Puebla's *almaceneros*.) Tlaxcala's weavers in 1791 were obliged to carry their cloth the twenty miles to Puebla where they received a paltry seven reales for their three days of labour in weaving a piece of cloth, surely accounting for why migration to Puebla from that area was so common. Huejotzingo's weavers in 1802 had to sacrifice one real for each piece of *manta* they produced, as commission charged by Puebla's *almaceneros*, who marketed the town's cloth in the interior.<sup>58</sup>

Weavers in the capital, while they might have been better placed for access to credit and in closer touch with markets than their small-town counterparts, felt the pinch just as much when the demand dropped, as

TABLE IV: *Inventory of the Estate of Don José García de Aragón, Cotton Cloth Weaver, at his Death (1781)*

ASSETS	ps.	rls.	gr.
<i>One Story House</i> in Calle de la Puerta del Costado de la Iglesia de Ntra. Sra. de la Merced	1,896	0	0
<i>Furniture</i> : 1 Painted Dais, 12 Chairs, 12 Stools, 1 Glass-topped Table, 4 Cedar Boxes, 1 Wardrobe, 1 Carpet, 8 Paintings of Saints, 1 Statue of Ntra. Sra. del Refugio, 4 Mirrors, 3 Pairs of Candlesticks, 6 Canvases with Images of Saints, 1 Green Bed with embroidered and gilded Headboard, 1 Folding Screen, 3 Toys, Assortment of Venetian and Puebla Glass, China and Talavera Plates, Jars, Flasks and Tankards.	171	0	0
<i>Clothes</i> : 1 Poncho for Outside, 1 Cloth Cape with Velvet Interior, 1 Camlet cloak, 1 Old Cloth Cloak, 2 Black Velvet Suits, 1 Camlet Waistcoat, 1 Old Mantle.	86	0	0
<i>Gold and Silver</i> : 7 Silver Spoons, 1 Silver Jug and 1 Silver Knife, 2 Strings of Pearls, 1 Pair of Gold Barrings, 1 Pair of Gold Earrings with Diamonds.	119	5	6
<i>Other Valuables</i> : 1 Shot Gun, 2 Pistols, 1 Sword, 2 Saddles, 4 Fine red Baize Hats (Militia), Brass Instruments.	71	7	6
<i>Dyer's Shop</i> :	1,781	2	6
of which: 990 lbs. of Indigo Dye	( 1,640	4	0)
Calderons	( 90	6	6)
32 Jars of Odd Dyes	( 40	0	0)
<i>Looms and Cottons</i> :	85	0	6
of which: 2 Looms with 2 Heddles and 2 Redinas	( 20	0	0)
Warping Frame, Wooden Stand and Trestles	( 2	0	0)
7 Heddles with their Beams	( 1	0	0)
Cotton on First Loom (7 lbs. 9 oz.)	( 8	3	6)
Cotton on Second Loom (5 lbs.)	( 5	5	5)
18 lbs. 12 oz. of Blue Cotton on Spindles	( 18	6	0)
12 lbs. of Blue Cotton in Bundles	( 12	6	0)
8 lbs. of White Cotton	( 7	4	0)
<i>Cash</i> : Reales, plus 325 ps. 5 rls. 3 grs., value of 49 arrobas of cocoa de Guayaquil	1,326	4	0
<i>Owed</i> from those supplying the dye shop and money advanced to Spinners	169	1	0
<i>Debts</i> of Grandmother and Grandsons, suspended	( 824	4	0)
	<hr/> 5,707	<hr/> 4	<hr/> 6
Funeral, Debts, and other Costs	1,079	6	6
LIQUID	<hr/> 4,627	<hr/> 6	<hr/> 0

Source: ANP, Miscellaneous Judicial.

TABLE V: *Textile Employment in the Barrios de Santa Cruz, San Francisco, San Marcos and San Sebastian, Puebla de los Angeles 1791*

Occupation (Male)	Spanish	Mestizo	Mulatto	Indian	Total
Weaver	323	264	26	71	684
Carder	1	3	4	79	87
Spinner	3	8	5	52	65
Silk Spinning/ Weaving	3	—	—	—	3
Printing/Dyeing	5	13	1	13	32
Other Textiles (Hemp, Blankets, Ribbons, etc.)	6	7	—	11	24
TOTAL (19.1 percent of labour force)	341	295	36	226	898

Source: AAP, Padrones, Vols. 128–129.

it did very sharply after peace was signed with Britain in 1801. The frantic activity of the cotton weavers' guild in 1803 was but one of the consequences of the sudden renewal of imports after five years of almost unprecedented protection afforded by the war. The guild officers expressed concern about the "total desarreglo en que se halla el Gremio de Tenedores e Hilanderas de Algodón," and proceeded with a general inspection of the art throughout the entire city. What they found was an almost Darwinian struggle between and within the different levels of the cotton trade described above. Starting at the base of the production pyramid, spinners were inserting pieces of damp bread and cardboard in their skeins of spun yarn, defrauding weavers and *algodoneros*; the *algodoneros* in turn were giving short measure to the spinners by using worn wooden weights; weavers were bypassing the *algodoneros* and going out to "las garitas y aun fuera de ellas, a encontrar los Indios, y otras personas de razon, para comprarles allí a menos precio sus hilados;" many unexamined officials had set up looms in their own houses, "algunos en crecido numero;" other unexamined officials "están protexidos y fomentados por maestros del Arte, y otros por comerciantes;" many weavers were making cloth which was "enteramente viciado;" this cloth was being sold illegally on the edge of the city. The guild officials agreed

with the Council's *Fiel Ejecutoria* that general application of the harsh statutory penalties would provoke an uprising and chose instead to administer stern punishments only to two weavers. José Aguilar, an unexamined weaver, working two looms with his two sons, had them confiscated and burnt in the main square. Pablo Carmona, unexamined official and weaver of faulty cloth, had his two looms confiscated and was ordered to work with a master of the art until ready for examination.<sup>59</sup> (Pablo Carmona, after the abolition of the guild in 1813, was to represent the city's cotton weavers on the *Junta de Artesanos* established by the council in 1821.)<sup>60</sup> These were the last official proceedings of the cotton weavers' guild, as far as is known, all guilds being finally abolished ten years later by decree of the Cortes.

The proceedings of the guild in 1803 reveal the desire of certain masters of the art to reduce and control production in a period of recession following a boom when guild controls had been thrown to the wind. The depression itself, however, proved to be much more effective than the half-hearted enforcement of guild ordinances in slimming the industry down. These were years of almost unprecedented migration from Puebla to Mexico City, Carlos Aguirre noticing two important cycles of population expulsion, 1801-4 and 1806-10. Among those swelling the numbers of the *barrio de los poblanos* in Mexico City, textile workers predominated.<sup>61</sup>

Many weavers, however, remained in Puebla, despite the deepening of the economic crisis during the Wars of Independence. Weavers represented the dominant occupational category in both the 1822 and the 1830 census returns, although they were a smaller proportion of the labour force than in 1791.<sup>62</sup> The case of one weaver who remained will be briefly examined to give us a better idea about the hierarchy which existed within the weaving profession and the factors determining it.

In 1791 Don Francisco Armenta was fifteen years old and already working for his father in a substantial two storey house in the Barrio Alto de San Francisco. In that year the Armenta household was composed as follows:

*The Armenta Family, 1791, Barrio Alto, Puebla.*

Don Juan Antonio Armenta, Español, Tejedor,	60	years
Doña Maria Casiana Gonzalez, Española, with seven children:	40	"
Da. Maria de la Luz Armenta	18	"
Dn. Francisco, Tejedor	15	"



Da. Maria Faustina	13	"
Dn. Thadeo	8	"
Da. Maria de la Luz	4	"
Dn. José Mariano	2	"
One infant		
Two servants:		
Francisco Tepechichino, Indio cacique de Tlaxcala	15	"
José Manuel Carvallo, Español	17	"

The Armentas were well established in the *barrio*. There were four other branches of the family living nearby, all of them with at least one of their members engaged in weaving.<sup>63</sup>

In 1835, while Francisco Javier de la Peña was lamenting the decline of Puebla's cottons, which he put down partly to the bad faith and poor workmanship of the city's weavers losing them the trust of merchants, he is reminded of Don Francisco Armenta who "está fabricando en el día excelentes cordoncillos, listados, manteles y servilletas, y paños de algodón y seda de superior calidad; sus esfuerzos son muy loables y dignos de aprecio."<sup>64</sup> In 1833 Armenta employed twelve *oficiales* in his workshop. Inventories of commercial establishments in the 1830's and 40's list *rebozos Armenta*, valued at ten pesos each while ordinary cotton *rebozos* were worth only nine pesos a dozen!<sup>65</sup>

This case grants us some insight into what permitted differentiation within the weaving artisanate: extensive family ties, scale of production and value and quality of the finished product. *Rebozo* manufacture was therefore one way in which a weaver might increase his income and social status, and since both guild ordinance and the skilled nature of the art required that the *rebozo* weaver both spin and dye his own yarn, *rebozo* weaving appears to have been less exposed to mercantile control than ordinary *manta* production.

Bazant mistakenly implies that the *rebozo* was not, like the *manta*, "the object of mass production."<sup>66</sup> Yet it seems clear that by the end of the colonial period *rebozo* manufacture had become a bulk industry as shown in Puebla's exports of this textile to Guadalajara. Also much of the large volume of *ropa de tierra* passing through Mexico's customs house, would have consisted of *rebozos*, given that *manta* manufacture by this time had proliferated throughout southern, central and north-west - central Mexico.<sup>67</sup> *Rebozos* were also sent from Puebla to Guayaquil and Peru before Independence. The unit of production of *rebozos* had grown in size by the beginning of the nineteenth century, a trend evident in other industries, particularly hat - making, tanning and soap manufacture. This trend continued in the manufacture of cotton shawls

throughout the nineteenth century. In 1852 there were twenty-three *rebozerias* with 193 looms, employing 413 *oficiales*, not including the masters. The largest belonged to Cayetano Aguilar and employed 132 *oficiales* on twenty-three looms; the smallest was owned by José de la Luz Alvarado and had three looms employing seven *oficiales*.<sup>68</sup>

The masters of *rebozo* weaving were not the only relatively wealthy weavers in Puebla. *Manta* was also being concentrated in larger and larger units by the 1800's and the merchants and weavers who controlled these *obradores* were able to generate the volume of production necessary to yield a surplus and to afford a higher level of consumption for themselves than was possible from the labour of a solitary *manta* weaver on a single loom. Master cotton weavers working their own looms in their homes earned only two to three reales a day in 1823, *oficiales* earned one real, cotton spinners half a real. A master glass maker, however, owner of his own factory, earned thirty-two reales; a master potter, also a factory owner, earned sixteen reales and master hat-maker José Cadena, employer of twenty-two *oficiales*, earned twenty-eight and one half reales a day.<sup>69</sup>

The picture, then, is of a city containing a prosperous body of weavers and masters of other trades who constituted a privileged and prosperous artisanal aristocracy. Individual craftsmen could achieve such a status due to a variety of circumstances, among which the following seem especially important: their control of guild offices; their expertise and specialization; their ability to control the entire process of production; their ability to control the production of other artisans; concentration of labour into larger production units, or possession of real estate and the attending ability to raise mortgage loans. Such prosperous weavers and other master craftsmen were much better equipped to weather periods of recession and crisis than the mass of their fellow artisans with whom they competed, and who lived much closer to the level of subsistence. From the evidence of daily income for the abortive income tax of 1823, the gap between these two sections of the artisanate appears to have been very wide and the proportion of rich to poor very small indeed.<sup>70</sup> 1823 was, it should be said, a year of severe economic crisis, but then so were many years of the long period discussed in this paper.

### III. Conclusion

Historians looking for pointers in the structure and performance of colonial industry that might indicate a potential for "transformation" or

"sustained growth" are almost unanimous in rating the chances of New Spain's manufacturing industry rather low. Diego López y Rosado sees in the home-based manufacturing, examined in this paper, an obsolete production process, "which failed due to the competition of Indian manufacture, the control of raw materials by merchants and too high prices; lack of direct contact between the weaver and the consumer; lack of capital, and, principally, by the appearance of the *obraje* or 'embrion of the modern factory."<sup>71</sup> Jorge Angulo and Roberto Sandoval show how misleading Luis Chavez Orozco's "modern factory" label is for the *obraje*, stressing the more traditional "rural" character of Querétaro's *obrajes* at the end of the colonial period.<sup>72</sup> In Puebla, of course, the *obraje*, although the dominant form of production during the sixteenth and seventeenth centuries in the woolen industry, was much diminished by the early eighteenth century, though it survived in a state of low equilibrium (four to five establishments with six to ten looms) through to the end of the period studied (1850). By the beginning of the nineteenth century Puebla's *obrajes* were no longer "closed" work houses but employed free wage labour. This transition probably had occurred over the first half of the eighteenth century. Their owners were not averse to technical transformation, Puebla's first steel looms being introduced by a Catalan, Francis Puig, into his *obraje* in the early 1820's.<sup>73</sup> The technical transformation of wool spinning accompanied the revolution in cotton spinning during the 1830's, receiving some resistance, not from merchants but from artisans who destroyed the machinery of the first wool spinning mill to be established in Tlaxcala.<sup>74</sup>

The *obraje* form of production was not used in Puebla's cotton manufacturing because of the great volume of labour involved, its availability and cheapness. Over much of the eighteenth century expansion of production appears to have taken the form which Angulo and Sandoval argue was the principal feature of growth in colonial workshop manufacturing, the multiplication of small units of production. From the late eighteenth century, however, there are clear signs of concentration of production in larger units, fomented by merchant financiers and dominant cotton masters. This trend was greatly accelerated after the slump in the industry over the 1810's and 20's. By the late 1840's, although many one to two loom workshops remained, there were several large weaving shops with between twenty and 100 looms.<sup>75</sup>

Diego López Rosado accepts Lobato Lopez's conclusion that workshop manufacturing was "systematically denied all credit from the clergy and merchants, the bankers of the colony."<sup>76</sup> It has been shown, how-

ever, that the injection of merchant capital at all levels of the cotton industry was of its very essence. True, merchants' interest in the industry fluctuated, but even in the worst periods of recession, such as the early 1820's, merchant capital can be found fomenting cotton agriculture, financing transportation and distribution of raw cotton, financing weavers' production and marketing their products.<sup>77</sup> And the more established and propertied artisans borrowed freely on the "mortgage market" from convent and merchant alike, particularly in periods of instability, when cash was short or when sudden demand for their products was felt.<sup>78</sup>

Many authors concur with the idea that the legal, administrative, political, even the ideological environment for colonial industry was a hostile one. Jan Bazant argues in the conclusion to his "Evolución de la industria textil poblana" that what was inhibiting the transformation of the industry was not lack of enterprise, which he argues Puebla's artisans possessed in abundance, but, rather, the Spanish cultural and ideological environment - "cierto concepto hacia la vida en general y la economía y la sociedad en particular." This ill-defined inhibition he feels restrained both colonial and metropolitan industrial transformation. Political independence, he argues, removed this impediment: "La rapidez con que cunde la revolución industrial de México después de la Independencia, se debe en parte también a la desaparición de las inhibiciones inherentes al dominio español como español, no como colonial."<sup>79</sup> John Coatsworth, in a more recent interpretation of the same period, also grants prominence to administrative, political and cultural inhibitions, related to the nature of the colonial state. "The interventionist and pervasively arbitrary nature of the institutional environment ... favoured those with political influence, [while] small enterprise ... was forced to operate in a permanent state of clandestinity always at the margin of the law, at the mercy of petty officials, never secure from arbitrary acts and never protected against the rights of those more powerful ... This system of government made 'free' enterprise impossible."<sup>80</sup>

The evidence from Puebla over the eighteenth century suggests that Coatsworth's and Bazant's arguments are more applicable to the first half of the century than to the second. The prohibition of trade with Peru, officious *obraje* inspections, over-zealous exaction of the *alcabala*, contemporaries argued, had caused Puebla's economic decline, though, almost certainly, these simply hastened a process which had other causes.<sup>81</sup> Over the second half of the eighteenth century, however, trade liberalization and specific incentives greatly improved the admin-

istrative environment for trade and manufacturing. Measures designed to encourage the Catalan cotton textile industry – the prohibition on Asian cotton and silk imports, the removal of the *alcabala* on raw cotton, the prohibition of cotton cloth imports from other European countries – all redounded to Puebla's favour, particularly in time of war when Atlantic trade was interrupted.<sup>82</sup> At the same time the granting of licenses for neutral powers to trade with New Spain in 1804 brought the first bulk imports of ordinary cottons onto the Mexican market, and gave Puebla's cotton merchants and weavers a foretaste of the increased competition they would face after Independence.<sup>83</sup>

The principal obstacles to the further growth, development and transformation of the manufacturing industry in Mexico at the beginning of nineteenth century had very little to do with "Spanishness," "attitudes to life," Leviathan-like colonial states or tyrannous and interventionist petty officials. Nor was the putative unwillingness of merchants to involve themselves more directly in manufacturing processes a significant cause of the absence of technical and organizational strides in the cotton industry before Independence. These advances came sure enough, when the time was ripe, in the mid-1830's, largely financed and executed by merchants.

Three factors may be held principally responsible for restraining the growth and development of Puebla's cotton textile industry, and Mexico's industry generally, in the first years of the nineteenth century – and again, in the 1850's, after a renewed period of growth during the later 1830's and 40's. Briefly, these factors were silver, war and physical and human geography. 1. Silver, Mexico's principal export and the chief attraction for merchant capital, had a profound impact upon manufacturing production. Fluctuation in the level of mining production, coinage and in the degree of silver retention, influenced by war, had a direct effect upon demand for manufactures. The accumulation of coin in periods of interruption to Atlantic trade undoubtedly spurred manufacturing growth, but renewed exports of silver when peace was signed deepened the trough in demand for domestic manufactures facing the renewal of imports. Scarcity of medium and debasement of coinage after Independence deterred imports, protecting domestic manufactures and making the investment boom in mechanised industry of the late 1830's and early 40's possible, but the recovery of silver mining production after the American War caused merchant capital once more to desert industry. 2. It will have become evident from this paper, that war was more than a merely incidental factor affecting Mexican manufacturing.

The growth of the cotton textile industry in Mexico during the eighteenth century owed much to the frequent interruption of trans-Atlantic trade caused by war. Had peace prevailed, Catalan industrialisation would have surged ahead much earlier, the Mexican market would have been more directly exposed to competition from its products, and the higher price and wage level in Mexico – the result of the "mining constitution of the country" – would have greatly restrained the capacity of expansion of creole – mestizo manufacturing in the cities. Raw cotton would have been drawn off into exports, rather than being sent on expensive mule – backs inland. 3. Finally, complex geographical and socio-cultural facts of Mexican life greatly limited the rate at which manufacturing production might expand. These were the fragmentation of the national market caused by great distance between many of the principal areas of population and high overland transport costs (accentuated after Independence by the steady demonetization of the economy); the limitation of the range and depth of the market due to the existence of a large and impoverished Indian peasantry; finally, erratic and limited demand even in the principal market areas, the provincial capitals, mining towns and haciendas, a consequence of the general poverty and low level of consumption of the mass of the labouring or vagabond population.

These then are three reasons which help to explain why Mexican manufacturing did not grow, develop, transform itself and reproduce its social relations in other areas of economy and society in the way that industrialisation performed these functions in other societies. Mexican industry over the eighteenth and nineteenth centuries was characterised by a very unstable growth pattern – periods of rapid growth, followed by periods of slump, explained, for the late colonial period, by a most unstable external sector; by the introduction of technological and organizational advances in a very piecemeal way so that traditional forms of production, existed side by side with modern techniques and organization; by a declining rather than growing degree of regional specialization – even after factory production was introduced during the 1830's, each region sought its own paper mill, iron foundry and textile mills. Finally, Mexican industry failed to transform, even to significantly modify, the essentially export – import orientation of the country's dominant commercial and financial interests; a result of the impact of international demand for Mexican minerals, particularly silver.<sup>84</sup>

## NOTES

1. Alberto Ruiz y Sandoval, *El Algodón en México* (Mexico, 1884), p.37.
2. Jan Bazant, "Evolución de la industria textil poblana (1554-1845)," *HM*, 13(1964), 495.
3. *Ibid.*, pp.493-501.
4. AAP, Gremios, Vol. 224, pp.176-225 and ANP, Judicial Miscellaneous, 1710.
5. AAP, Militar, Vol. 87.
6. AAP, Gremios, Vol. 234, p.168; ANP, Judicial Miscellaneous, 1776.
7. AGN(M), Industria y Comercio, Vol. 7, pp.2-280.
8. Bazant, "Evolución de la industria textil", p.501.
9. The decline of Villa Alta's cotton mantle industry, resulting from the reform of *repartimiento* trade, and the growth of the cotton textile industry in the city of Antequera (Oaxaca) are described by Brian Hamnett, *Politics and Trade in Southern Mexico, 1750-1821* (Cambridge, 1971), pp.76-77, 130, 187.
10. Frank Perlin, "Proto-Industrialization and Pre-Colonial South Asia," *PP*, 98(1983), 37 and see also Peter Kriedte et.al., *Industrialization before Industrialization, Rural Industry in the Genesis of Capitalism* (Cambridge, 1981).
11. Claude Morin, *Santa Inés Zacatelco (1646-1812). Contribución a la demografía histórica del México colonial* (Mexico, 1973); Thomas Calvo, *Acatzingo, demografía de una parroquia Mexicana* (Mexico, 1973) and Elsa Malvido "Factores de desposición y de reposición de la población de Cholula (1641-1810)," *HM*, 23(1973), 52-110.
12. Günter Vollmer, "La evolución cuantitativa de la población indígena en la region de Puebla (1750-1810)," *HM*, 23(1973), 46-47.
13. Fr. Juan Villa Sanchez, *Puebla sagrada y profana (1746)*, ed. Francisco Javier de la Peña (Puebla, 1967), p.65.
14. Malvido, "Factores de población."
15. *Ibid.*, pp.73-79. Morin, *Santa Inés Zacatelco*, p.57.
16. *Ibid.*, pp.60-61 and Vollmer, "La evolución," p.46.
17. Morin, *Santa Inés Zacatelco*, p.65.
18. Wolfgang Trautmann, *Las transformaciones en el paisaje cultural de Tlaxcala durante la época colonial* (Wiesbaden, 1981), pp.104-107.
19. Reinhard Liehr, *Ayuntamiento y oligarquía en Puebla, 1787-1810* (Mexico, 1976), I, 13-23 and G.P.C. Thomson, "Economy and Society in Puebla de los Angeles, 1800-50," (D.Phil. Diss., Oxford, 1978), pp.20-39.
20. Hugo Leicht, *Las calles de Puebla* (Puebla, 1967), p.5.
21. Villa Sanchez, *Puebla sagrada y profana*, pp.69-90 and Eugenio Aguarales, "Una conmoción popular en el México virreinal," *AEA*, 7(1950), 125-161.
22. Villa Sanchez, *Puebla sagrada y profana*, p.75; Alejandra Moreno Toscano and Carlos Aguirre "Migraciones hacia la ciudad de México en el siglo XIX: Perspectivas de investigación," in Alejandra Moreno Toscano, ed., *Investigaciones sobre la historia de la ciudad de México* (Mexico, 1974), Vol.I, pp.18-19.
23. AAP, Gremios, Vol. 234, pp.233-238.

24. Thomson, "Economy and Society", p.175 - 176.
25. Trautmann, *Las transformaciones*, pp.188 - 189.
26. Villa Sanchez, *Puebla sagrada y profana*, pp.71 - 72.
27. AGN(M), Industria y comercio, Vol. 1., fs.360 - 361, 375 - 378, 381.
28. Alexander von Humboldt, quoted in Diego López y Rosado, *Historia y pensamiento económico de México*, 4 vols.(Mexico, 1969 - 70), IV, 262.
29. BL, Add. Ms. 17, 576, 44, f. 197.
30. Enrique Florescano and Luis Chavez Orozco, *Agricultura y industria textil de Veracruz; siglo XIX* (Jalapa, 1965), p.117.
31. AGN(M), Reales Cédulas, Vol.159, Exp.200, f.330, Florescano and Chavez Orozco, *Agricultura y industria textil*, p.244 and Liehr, *Ayuntamiento y oligarquía*, pp.45 - 46.
32. José Antonio Guemes, Real Aduana de Puebla, to Intendant (records of merchant dealing in raw cotton between Puebla and Veracruz), April 20, 1800, AJP; for Juan Luis Palacios, "riquísimo comerciante español de lienzos de algodón," see Francisco Javier de la Peña, Introduction to Villa Sanchez, *Puebla sagrada y profana*, p.100.
33. For biographical details of Estevan de Antuñano see Bazant, "Evolución de la industria textil," p.508 - 509; Miguel A. Quintana, *Estevan de Antuñano, fundador de la industria de México*, 2 vols.(Mexico, 1957) and Thomson, "Economy and Society", pp.237, 313, 324.
34. Luis Chavez Orozco, *El crédito agrícola en el partido de Cholula de la Intendencia de Puebla en 1790. Por Don Manuel de Flon* (Mexico, 1955), p.VI.
35. The ordinances of the silk and cotton weavers guild forbade the regrating of raw and spun cotton and restricted the sale of both to the main square. But judging from the frequency of guild litigation against regrating from the 1750's through to the 1780's, there was little the guild could do about the growth of this trade. For guild action against regraters: AAP, Gremios, Vol.234, pp.76 - 78, 200 - 201, and, ANP, Judicial Miscellaneous, 1744, 1758, 1768, 1781, 1887.
36. An impression of the very considerable volume of the *algodonería* trade by 1794 may be gained from the Intendant Manuel de Flon's instructions to the council in that year that the hanging of raw and spun cotton in front of the twenty - seven *algodonerías* in the four streets to the north of the *plaza mayor* be prohibited, for "impiden el tránsito de las Gentes que se van a sus negocios, obligándolos a ir por medio de la calle con la incomodidad y perjuicios de que les atropellan y salpiquean de todos los coches y cargadores y sufren otros daños consiguientes." May 20, 1794, ANP, Judicial Miscellaneous.
37. Rafael Parra and Ignacia Alatríste vs. José Mones, Jan. 9, 1795, ANP, Judicial Miscellaneous.
38. Estevan de Antuñano, *Ampliación, aclaración y corrección a los principales puntos del manifiesto sobre el algodón manufacturado y en greña* (Puebla, 1833, repr. ed. Mexico, 1955), p.72.
39. Aduana to Intendant, April 20, 1800, AJP.
40. *El Jornal de Veracruz*, Vol.I (March - June 1806), 129 - 228.
41. *Gaceta de Literatura* (1792) (Puebla, 1830 edit.), pp.89 - 95 and 138 - 140.
42. AAP, Gremios de Artesanos, Vol.234, ff.214 - 216.
43. Florescano and Chavez Orozco, *Agricultura y industria textil*, p.244.



44. See Guadalupe Albi Romero, "La sociedad de Puebla de los Angeles en el siglo XVI," *JLA*, (1970), 17 - 145, and Thomson, "Economy and Society," pp.126 - 147.
45. Villa Sanchez, *Puebla sagrada y profana*, p.87.
46. De la Peña, Introduction to Villa Sanchez, *Puebla sagrada y profana*, p.147, and, for location of "caxones de ropa de tierra" in 1820 see AAP, Militar, Vol.119, Exp.1319.
47. K.N. Chaudhuri, "The Structure of the Indian Textile Industry in the Seventeenth and Eighteenth Centuries," *IESHR*, XI (1974), 131 - 181.
48. David Szewczyk, ed., *The Viceroyalty of New Spain and Early Independent Mexico, A Guide to the Manuscripts of the Rosenbach Museum and Library* (Philadelphia, 1980), p.88.
49. José Augustin Escudero, who set up Chihuahua's first modern textile factory, recalled in 1831 how the northern provinces, before civil war intervened in 1812, were supplied with textiles from Puebla. See *Registro Oficial*, Vol.4 (Jan. - April 1831), p.35. For Puebla goods in Coahuila see Charles Harris, *A Mexican Family Empire* (Austin, 1975), pp.97 and 108.
50. Provincia de Guadalajara, Estado que manifiesta los frutos y efectos de agricultura, industria y comercio (1803), BL, Mss. ADD, 17, 557.
51. Balance de las existencias en la casa de Carlos Chabez..., Nov. de 1831, ANP, Judicial Miscellaneous.
52. Thomson, "Economy and Society," pp.444 - 471, for wholesale, retail and market commerce.
53. Consulado de Puebla, AGN(M), Consulados, Vol.463, Exp.3, and AAP, Militar, Vol.119, Exp.1319.
54. G.P.C. Thomson, "Protectionism and Industrialisation in Mexico 1821 - 54: the Case of Puebla," in Colin Lewis and Christopher Abel, eds., *Latin America: Economic Imperialism and the State; The Political Economy of the External Connection From Independence to the Present* (London, 1985), pp.125 - 46.
55. De la Peña, Introduction to Villa Sanchez, *Puebla sagrada y profana*, p.146.
56. *El Jornal de Veracruz*, Vol.I (March - June 1806), pp.129 - 228.
57. Padrón del Curato de la Santa Cruz, AAP, Padrones, Vol.128, Exp.1390.
58. AGN(M), Padrones, Vols.22, 27, 38 and *El Jornal de Veracruz*, Vol.I (1806), pp.129 - 228.
59. AAP, Gremios, Vol.234, fs.268 - 278.
60. AAP, Gremios, Vol.209, fs.1 - 3 (Feb. 6, 1821).
61. Moreno Toscano and Aguirre, "Migraciones hacia la ciudad de Mexico," pp.16 - 20.
62. Thomson, "Economy and Society," p.478.
63. AAP, Padrones, Vol.128, Exp.1390, f.6v.
64. De la Peña, Introduction to Villa Sanchez, *Puebla sagrada y profana*, p.154.
65. Tienda de Ropa de Tierra, Santiago Sarabia, 1847, and "El Emporio Poblano," Tienda de Ropa de Tierra, Manuel Rangel, 1850, both ANP, Judicial Miscellaneous.
66. Bazant, "Evolución de la industria textil," p.499.
67. Estevan de Antuñano, "El manifiesto de algodón (1833)," in Miguel Quintana, *Estevan de Antuñano*, I, 31.

68. Thomson, "Economy and Society", pp.105 – 120 for *tocineria*, pp.339 – 430 for other industries and Juan del Valle, *Guia de Forasteros* (Puebla, 1852), pp.181 – 182 for *rebozos*.
69. AAP, Padrones, Vol.133.
70. Thomson, "Economy and Society," p.486 .
71. Diego López y Rosado, *Historia y pensamiento económico*, II, 69 – 70.
72. Jorge Angulo and Roberto Sandoval, "Los trabajadores industriales de Nueva España, 1750 – 1810," in Enrique Florescano, ed., *La clase obrera en la historia de México*, (Mexico, 1980), I, 173 – 238.
73. Thomson, "Economy and Society," p.389.
74. *Ibid.*, p.333.
75. *Ibid.*, p.489.
76. Ernesto Lobato Lopez, *El crédito en México* (Mexico, 1945), p.74.
77. The municipal archive in the city of Tlaxcala contains several bundles Customs documents for the early 1820's. *Guías* for raw cotton being transported by mule from Veracruz through *algodonerías* in Puebla to weavers in small towns and villages of Tlaxcala, show some of the principal merchants of the region to be involved in the trade at a time when "officially" the region's cotton industry was declared to be dead.
78. Thomson, "Economy and Society," pp.384 – 392.
79. Bazant, "La evolución de la industria textil," p.507.
80. John Coatsworth, "Obstacles to Economic Growth in Nineteenth – Century Mexico," *AHR*, 83(1978), 94.
81. Villa Sanchez, *Puebla sagrada y profana* , p.87.
82. Thomson, "Economy and Society," p.166.
83. Miguel Lerdo de Tejada, *Comercio exterior de Méjico desde la conquista hasta hoy [1853]* (Mexico, 1967), see tables 19 and 21 for cotton imports.
84. The ideas in this final paragraphs are pursued at some length in Thomson, "Protectionism and Industrialisation."