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INTRODUCTION

'I and my companions suffer from a disease of the heart which can be cured only by gold', Hernán Cortés told Montezuma's ambassador.[1] Yet once the emperor's hoard was divided among the conquerors gold and silver were not found in any great quantity within the confines of the Aztec Empire. As Bernal Díaz del Castillo, himself a participant in the Conquest, later recalled: 'and since we saw that the villages around Mexico did not have any gold, cotton or mines, but only a good deal of maize and maguey plants from which they make their wine, for this reason we held it to be a poor country, and went to settle other provinces'.[2] And indeed for the first thirty years of settlement after 1521 New Spain offered little in the way of mineral production. If the early conquerors were a restless race, endlessly seeking El Dorado, it was because the Conquest, once the initial flush of plunder was exhausted, brought them little fortune and opened up few sources of acceptable employment.

Central Mexico was rich in Indians, not gold. According to recent estimates the coastlands and plateau of central and southern Mexico supported a population that numbered anywhere between twelve and twenty-five million.[3] The splendours of Tenochtitlan, the empire's wealth and culture, all rested upon the small marginal surplus created by the muscle-power and energy of a peasantry unassisted by either the wheel or by draught animals. Labour, in these circumstances, constituted both wealth and power; taxes were largely paid in personal service; and the ownership of land usually carried with it a right to peasant labour. Surplus produce went to the local chiefs, the temples, and the Triple Alliance which had created the empire. The imperial tribute comprised large amounts of maize, beans and cloth, and luxury items, such as feather-shields, head-dresses, gold and amber.[4]

[1] Francisco López de Gómara, *Cortés, The Life of the Conqueror by His Secretary*, trans. and ed. Lesley Byrd Simpson (Berkeley and Los Angeles, 1966), p. 58.

[2] Bernal Díaz del Castillo, *Historia verdadera de la conquista de la Nueva España*, introducción y notas de Joaquín Ramírez Cabañas (Mexico, 1960), p. 349.

[3] Sherburne F. Cook and Lesley Byrd Simpson, *The Population of Central Mexico in the Sixteenth Century* (Berkeley and Los Angeles, 1948), p. 38. Woodrow Borah and Sherburne F. Cook, *The Aboriginal Population of Central Mexico on the Eve of the Spanish Conquest* (Berkeley and Los Angeles, 1963), pp. 88, 157. For a hostile view of these calculations, see Angel Rosenblat, *La población de América en 1492: viejos y nuevos cálculos* (Mexico, 1967), pp. 23–80.

[4] For a list of imperial tribute, see Borah and Cook, *Aboriginal Population*, pp. 109–49.

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To maintain and feed his soldiers Cortés took advantage of this system and distributed large encomiendas to his principal followers. The encomenderos each received an allocation of Indians—in some cases as many as 20,000—who were obliged to pay their new masters tribute in both goods and service. These grants did not confer any civil jurisdiction or title to land.[1] In practice the Mexican encomienda replaced the former imperial tribute, and hence did not entail any immediate disruption of the local Indian society which continued to be governed by its own nobles and chieftains.

But this distribution of Indians did not content the Spaniards whose quest for fortune in the New World was not to be satisfied by the maize, cotton and feathers offered them by their tributaries. A frantic search began, therefore, not merely for precious metals, but for any product of commercial value. Encomenderos imported livestock from Europe and seized land for the cultivation of wheat. Cortés, the greatest of the encomenderos, hunted for pearls in the Gulf of California, traded with Peru, initiated gold placer-mining in the south, and opened the first silver mines at Taxco.[2] On his vast estates he also raised great herds of cattle, sheep and pigs. In all these enterprises he and his fellow encomenderos did not hesitate to summon their Indian tributaries to work for them free of charge. Their Spanish dependents and their negro slaves were fed and clothed from tribute. The encomienda thus gave an initial impetus to the creation of a European economy in New Spain: the free labour it provided alone made possible many of the first Spanish ventures.

But this phase of wageless labour was legally terminated by the New Laws of 1542. Many encomenderos had grossly mistreated their Indian subjects, over whom, contrary to the terms of their grant, they had exercised a quasi-absolute authority.[3] To prevent further exploitation and to safeguard its jurisdiction, the Crown decreed that henceforth all encomienda tribute should be paid either in money or goods, but never by service. The encomenderos thus lost contact with the Indians and became a mere rentier class, subject to a declining income. In any case, the super-abundant labour supply of the 1520s was soon to be replaced by relative scarcity as the Indian population rapidly dwindled in number. Recent computations state that, by 1568, only two and a half million persons

[1] Charles Gibson, *The Aztecs under Spanish Rule* (Stanford, 1964), pp. 58–81.
[2] Woodrow Borah, *Early Colonial Trade and Navigation between Mexico and Peru* (Berkeley and Los Angeles, 1954), pp. 8–16. Jean Pierre Berthe, 'Las minas de oro del Marqués del Valle en Tehuantepec 1540–47', *Historia Mexicana*, 7 (1958), pp. 122–31.
[3] Gibson, *The Aztecs*, pp. 78–80.

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survived in the area of New Spain.[1] The curve of this decline, sharp at the outset, slowly flattened out as the century progressed, to reach a horizontal in the first decades of the seventeenth century, when little more than a million Indians remained.

The causes of this demographic catastrophe were several. In the first place, the very density of population had brought Indian society close to the margin of subsistence. Already—in 1454–7 and 1504–6—two great famines had killed thousands.[2] So, when the Spaniards made unreasonable demands upon the labour capacity of their new subjects, it was small wonder than many should have died. But, more importantly, the Conquest destroyed the continental immunity that had permitted the growth of such a dense population. America fell prey to European and Asian disease, and even while Cortés besieged Tenochtitlan its defenders lay stricken under an attack of smallpox. In part, Mexico received a transatlantic overflow of the epidemics which in many areas of fourteenth-century Europe had reduced the population by a third or more, and which continued to haunt the cities of the Old World. But the Spaniards also brought with them tropical diseases, acquired in Africa and Asia, which flourished with great violence in the coastal regions of America.[3] It appears that these tropical scourges were more lethal than their European counterparts, since while the Indians of the plateau suffered decimation, along the Veracruz coast and in the islands of the Caribbean they virtually disappeared. As an English traveller of the time observed: 'In this towne of Veracruz within twenty yeres, when women were brought to bed, the children new borne incontinently died.'[4]

The effect of this demographic crisis upon Indian society was all-pervasive. In the early decades of Spanish rule the tribal chieftains and nobles retained their authority. They organised labour drafts for the encomenderos and the Church; they collected the royal tribute levied on their communities; they still enjoyed the exclusive service of an extensive class of serfs who were exempted from other tribute payment.

[1] Sherburne F. Cook and Woodrow Borah, *The Indian Population of Central Mexico 1531–1610* (Berkeley and Los Angeles, 1960), p. 48.

[2] Sherburne F. Cook, 'The Incidence and Significance of Disease among the Aztecs and Related Tribes', *Hispanic American Historical Review*, 26 (1946), pp. 320–31.

[3] *The Cambridge Economic History of Europe*, I. *The Agrarian Life of the Middle Ages* (2nd ed., ed. M. M. Postan, Cambridge, 1966), pp. 562–70, 673–7.

[4] Woodrow Borah, 'America as Model: The Demographic Impact of European Expansion upon the Non-European World', *Congreso Internacional de Americanistas* (Mexico, 1962), pp. 379–87. Richard Hakluyt, *Voyages* (8 vols.; London: Everyman, 1962), VI. 'A Relation of the Commodities of Nova Hispania, and the Manners of the Inhabitants, written by Henry Hawks merchant, 1572', p. 280.

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But, during the 1560s, the Spanish Crown shattered this sytem of indirect rule. Labour had become scarce and tributes exiguous. The Crown, therefore, demanded that free peasant and private serf alike should pay tribute collected on a strict capitation basis. Chiefs remained exempt, but they were deprived of the tribute, expressed either in goods or service, formerly paid by their serfs.[1] By the close of the century Indian society had been reshuffled into a series of small villages governed by elected magistrates, recruited from the peasantry. The wider relations of tribe or empire were eliminated; the internal hierarchy was simplified and reduced. The few Indian noble families that retained their wealth were soon absorbed into the Hispanic community.

The continuous reduction of the Indian work force also redefined the pattern of Spanish colonisation. The encomendero class, its source of income drying up, suffered a loss in social position. More importantly, the Spaniards were obliged to enter the realm of agrarian production to obtain an adequate supply of food and clothing for the colony's urban population. For it must be emphasised that the Spaniard, both from reasons of safety and general cultural preference, was a town-dweller, so that throughout the New World the empire rested upon a network of towns which dominated the surrounding countryside.[2] These urban centres soon attracted large numbers of Indian and negro domestics, and mestizo and mulatto artisans, and so formed a considerable market for the produce of the rural economy.

Since the diminishing number of Indians proved incapable of supplying the towns, the Spaniards, authorised by viceregal grants, appropriated the land left vacant. The tide of land transfer mounted rapidly after 1550 to reach a peak in the years 1570–1600: in all, some 30,000 square miles were legally ceded.[3] Each town came to be encircled by a group of relatively small estates devoted to the cultivation of wheat, maize and fruit. Further afield, great tracts of land were thrown open to livestock, which in the new environment multiplied with remarkable rapidity. Cattle and sheep, in effect, competed with the Indian for living space, and at times pastured

[1] Sherburne F. Cook and Woodrow Borah, 'Quelle fut la stratification sociale au Centre du Mexique durant la première moitié du XVIe siècle?', *Annales*, 18 (March–April 1963), pp. 23–35.

[2] Fernand Braudel, *El mediterráneo y el mundo mediterráneo en la época de Felipe II* (2 vols.; Mexico City and Buenos Aires, 1953), I, 258. J. H. Parry, *The Spanish Seaborne Empire* (London, 1966), p. 112. Richard M. Morse, 'Some Characteristics of Latin American Urban History,' *The American Historical Review*, 63 (January 1962), pp. 317–38.

[3] Lesley Byrd Simpson, *Exploitation of Land in Central Mexico in the Sixteenth Century* (Berkeley and Los Angeles, 1952), pp. 19–21.

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off his crops.[1] In large sections of central Mexico, European livestock virtually replaced the indigenous population. On the open ranges of the north huge herds roamed unhindered. Hispanic society outside the towns was highly pastoral, almost nomadic, and depended heavily upon the rapid increase of these imported animals. Horses and mules for transport, sheep and cattle for wool, leather and meat—these as much as wheat or maize were indispensable, and, unlike the cereals, could be produced without much effort.

But although the partial disappearance of the former population permitted both the creation of the Mexican hacienda and the proliferation of livestock, the Indian was still required for the cultivation of the soil. The Crown, therefore, organised a system of draft labour to supply the cereal-producing haciendas with workers. In addition, the Indian villagers were called upon to build churches, to construct roads and to serve in the silver mines. Then, in the first decades of the seventeenth century, the Crown recruited thousands of Indians from the central valleys to cut the great drainage trench of Huehuetoca.[2] Small wonder that, faced with such heavy demands upon their labour, many Indians abandoned their villages. They fled to the towns to become servants or artisans; to the north to work in the mines; and more commonly, they enrolled as peons on the nearest hacienda. Landowners welcomed these refugees. They protected their peons from the labour levies of Crown and village alike; they paid their tribute; they gave them small plots of land; and, by the grant of loans which were never to be repaid, they bound them for life to the hacienda. The Indians who opted permanently to join the Spanish economy—in the town, hacienda or mining camp—slowly became hispanised in dress, custom and language. Their daughters slept with, or married, the mestizo and mulatto hired hands, the negro slaves, and the Spanish overseers. Their descendants formed part of that mestizo class in which lay Mexico's future. But the present, numerically speaking, still belonged to the Indian who remained in his village and who, despite often excessive labour demands, cultivated his own property. Many villages, it is true, especially in the central valleys, soon lost their land, but they still formed autonomous communities, which, in return for seasonal assistance, rented land from the neighbouring hacienda. They thus still dwelt within a relatively self-sufficient agrarian economy.

In general the countryside did not attract much Spanish settlement.

[1] François Chevalier, *La formación de los grandes latifundios en México* (Mexico, 1956), pp. 71–90; see also map, p. 252.
[2] Gibson, *The Aztecs*, pp. 248–9.

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Hacendados found it difficult to obtain managers. In 1599 Gonzalo Gómez de Cervantes stated: 'Those who have rural estates let them go to ruin because they are unable to find anyone to entrust them to . . . no one can be found who wishes to go to the country.'[1] Instead, he asserted, Spaniards would rather sell wine in the streets of a town. Yet the local economy could not satisfy all the needs of the Spanish society resident within the colony. Mexico, as much as early New England, depended upon its metropolis for both iron and cloth.[2] It required weapons, iron and steel for implements, brandy and wine, paper, and, above all else, textiles. Indians could dress in cotton, and the populace might be satisfied with the coarse, locally woven woollens, but the well-to-do demanded cloth of European manufacture. But for what could these imports be exchanged? As Luis de Castilla wrote, 'there was no use sending cotton cloth or cacao, or maize to Castile, nor would ships come from Spain to pick up such products'.[3] Similarly, wool and wheat were so many coals to Newcastle. Apart from a few hides, the Mexican hacienda existed to supply an internal market, it did not produce anything worth exporting.

This balance of payments problem was solved by the export of bullion, furnished first from the windfall confiscation of Aztec treasure, then by the scanty yields of gold placer-mining, and finally, after 1550, by the large-scale production of silver. At the close of the century bullion comprised over 80 per cent of NewSpain's total exports.[4] Cochineal was the only other item of much worth. The curve of silver production determined the rhythm of transatlantic commerce, which in terms of preponderant value, resolved itself into an exchange of American silver for European cloth.

The internal economy was equally affected by the rise of silver mining. The discovery of this metal drove the Spaniards far beyond the boundaries of the Aztec empire into the vast northern area, then called the Great Chichimeca, after the savage, nomad Indians whose hunting ground it was. For although rich deposits of silver were to be found near Mexico City —in Pachuca, Sultepec, Tlalpujahua and Taxco—the mining camps which

[1] Gonzalo Gómez de Cervantes, *La vida económica y social de Nueva España al finalizar el siglo XVI*, prólogo y notas de Alberto María Carreño (Mexico, 1944), pp. 117–18.

[2] Bernard Bailyn, *The New England Merchants in the Seventeenth Century* (2nd ed.; New York, 1964), p. 61.

[3] Quoted in Borah, *Early Colonial Trade*, p. 8.

[4] Parry, *The Spanish Seaborne Empire*, pp. 242–3: 'At no time in the late sixteenth and early seventeenth centuries did the proportion of gold and silver in the recorded eastbound cargoes amount to less than 80 per cent, computed by value.' In the peak year of 1595, gold and silver comprised 95·6 per cent of the total value, cochineal amounted to 2·8 per cent and hides 1·4 per cent.

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produced most ore lay in the north, interspersed upon the outflung ridges of the Sierra Madre that cut across the northern plateau, and located for the most part along an axis that stretched from Pachuca to Sonora. Effective production began during the 1550s following the discovery of Zacatecas (1546), Real del Monte (1552), Pachuca (1552), Guanajuato (1550) and a string of smaller camps in the north.[1] If the upward curve in output did not continue beyond the 1590s, a serious decline did not occur until after 1630. Thus the rise in silver production coincided with the end of the encomienda system, and reached its peak at a time when the major effects of the demographic crisis had already made their mark.

Information as to which camps produced most silver is hard to find. But, in 1632, two-thirds of the mercury required by the industry was distributed in the north, including Guanajuato in that term; and a full third of that was consumed by the mines subject to the Zacatecas treasury.[2] This northern preponderance of mineral deposits initiated the effective settlement of that region, since each mining camp was soon surrounded by a dependent group of haciendas. Most of these estates were developed by mine-owners in search of grain for their mules and workers, as well as wood, leather, and other raw materials for their mines. The northern hacienda's prosperity was closely subordinated to the progress of the mining industry.

Mining profits paid for the conquest of entire provinces. Francisco de Ibarra, for example, financed the colonisation of Nueva Vizcaya (modern Durango) out of the fortune made by his uncle in Zacatecas.[3] Similarly the conqueror of New Mexico, Juan de Oñate, inherited a fortune from his uncle—another miner of Zacatecas.[4] Then again, the great estates of Francisco de Urdiñola in Coahuila, which later formed the basis of the marquisate of San Miguel de Aguayo, were largely supported by his silver mines.

The northern mines attracted a small but persistent flow of Indian workers, who, since the Chichimecas proved intractable employees even as slaves, must have emigrated from Michoacán or the central valleys. Towards the end of the sixteenth century, the mines of the centre, Guanajuato and Zacatecas employed the following categories of men.[5]

[1] Modesto Bargalló, *La minería y la metalurgia en la América española durante la época colonial* (Mexico City and Buenos Aires, 1955), pp. 61–3.
[2] A. Matilla Tascón, *Historia de las minas de Almadén* (Madrid, 1958), p. 223.
[3] See J. Lloyd Mecham, *Francisco de Ibarra and Nueva Vizcaya* (Durham, N.C., 1927), and George P. Hammond, *Juan de Oñate and the Founding of New Mexico* (Santa Fe, N.M., 1927).
[4] Vito Alessio Robles, *Coahuila y Texas en la época colonial* (Mexico, 1938), p. 148.
[5] Woodrow Borah, *New Spain's Century of Depression* (Berkeley and Los Angeles, 1951), pp. 37–8.

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Negro slaves	1,022
Free Indians	4,606
Drafted Indians	1,619
	7,247

Nearly all the drafted labour worked in mines relatively close to Mexico City—in Taxco and Pachuca—whereas in Zacatecas the Indians were almost all free wage-earners. Negro slaves, it should be noted, were used in the refining phase of the industry; they could not endure the rigours of deep-shaft mining, given the altitude of the Mexican plateau.

If we use the mercury distribution scale of 1632 as a rough guide, then it appears that these 7,247 men accounted for about two-thirds of New Spain's silver production. The industry, therefore, probably did not require more than 11,000 men. A labour force of such dimension could easily escape the effects of Indian population decline, the more especially since mine-owners paid high wages and granted their workers a share of the ore they cut.[1] To the tougher and more spirited Indians, oppressed by communal obligations, the mines presented an attractive road of escape. Once in the mining camps, they doubtless soon mixed with the Spaniards, mestizos, mulattoes and negroes for whom the industry also offered the prospect of high earnings and a possible fortune. The northern miners formed a labour aristocracy among the workers of Mexico, characterised by freedom, mobility and lavish spending.

Two distinct processes were at work in New Spain during the sixteenth century. In the area formerly governed by the Aztecs the Indian economy was either entirely replaced or subordinated to the growth of the hacienda and the new Spanish towns. In the north a frontier mining economy was created. But by the first decades of the seventeenth century both these movements slowed down or went into reverse. The causes and stages, however, of this economic depression remain obscure.

For the central valleys, it is true, the continuing erosion of the labour force can serve as an explanation. We may reasonably postulate that the expansion in agrarian production implied by the wholsesale seizure of land during the years 1570–1600 soon reached a high-water mark, only to recede as it conflicted with the declining curve of labour supply. Much land, temporarily brought under cultivation by the new hacendado class, was abandoned particularly after the 1620s when the Crown's demand for

[1] Alonso de la Mota y Escobar, *Descripción geográfica de los reynos de Nueva Galicia, Nueva Vizcaya y Nuevo León*, introducción por Joaquín Ramírez Cabañas (Mexico, 1940), pp. 151–2. The monthly wage for a pickman was 5–8 ps.

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Indian levies to cut the drainage trench of Huehuetoca terminated the already waning system of draft labour.[1] From then on, Spanish farmers were obliged to rely upon free wage-earners and a small group of peons who resided permanently on their estates. During this critical decade many hacendados entirely abandoned production. These were experimental years, so to speak, and if the price of maize be accepted as a measure, then the relation between supply and demand—between haciendas and towns—did not attain equilibrium until the 1620s. A *fanega* of maize, which in 1573 sold for 4·8 rls. (*reales*), by 1627 cost 9 rls., a level beyond which it was not to rise, drought years apart, for more than a century.[2]

If in the central valleys little more than a 'shaking down' process occurred, in the north, by contrast, the mining industry experienced a severe depression. Earl J. Hamilton's estimates of American bullion exports to Spain clearly demonstrate that during the 1630s production declined precipitously, reaching a trough in the 1650s that barely equalled the output of the 1550s.[3] The curve of transatlantic trade drawn up by M. Chaunu corroborates Hamilton's figures.[4] Similarly, Fausto de Elhuyar, an eighteenth-century mining expert, who was granted access to mint records, declared that in 1632 some 5,109,000 pesos were coined by the Mexican mint, a figure which was not surpassed until the years 1689–92, and not permanently bettered until after 1706.[5]

Any explanation of this fall in silver production must be tentative. The 'labour crisis', however, cannot be easily invoked, since the mines enjoyed a boom as the population declined, and fell into decay only after the population had reached a point of stability.[6] The two movements cannot be synchronised. Possibly camps such as Pachuca and Taxco, which relied upon drafted labour, experienced competition from Huehuetoca. But most viceroys gave first priority to the mines; in any case, these camps near Mexico City only accounted for a third of total production. Moreover, the number of men employed in the industry was sufficiently small

[1] Gibson, *The Aztecs*, pp. 236–42.

[2] Woodrow Borah and Sherburne F. Cook, *Price Trends of Some Basic Commodities in Central Mexico, 1531–1570* (Berkeley and Los Angeles, 1958), p. 18. See also C. Chester L. Guthrie, 'Colonial Economy Trade, Industry and Labor in the Seventeenth Century', *Revista de Historia de América*, 7 (December 1939), pp. 103–34. For a critique of these studies see Enrique Florescano, *Precios del maíz y crisis agrícolas en México 1708–1810* (Mexico, 1969), pp. 21–8.

[3] Earl J. Hamilton, *American Treasure and the Price Revolution in Spain 1501–1650* (Cambridge, Mass., 1939), pp. 34, 43.

[4] H. and P. Chaunu, *Séville et l'Atlantique (1504–1650)* (8 vols.; Paris, 1955–9), VII, 54–5. See also John Lynch, *Spain under the Hapsburgs* (Oxford, 1964), pp. 163–6.

[5] Fausto de Elhuyar, *Indagaciones sobre la amonedación en la Nueva España* (Madrid, 1818), p. 12.

[6] Borah, *New Spain's Century of Depression*, pp. 43–4.

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and the wages they received sufficiently high for silver mining to escape the effects of labour scarcity.

What, then, caused New Spain's mines to decay? Poor technique, exhausted lodes, exorbitant taxation—did these familiar threats haunt the industry? To begin with, mere discovery of mineral deposits did not of itself create the late sixteenth-century mining boom. For the average quality of Mexican ore was not high enough to permit much profit from the simple smelting method in vogue at the time of the Conquest. Only during the 1550s was a German technique introduced in which silver was separated from base metal by a lengthy amalgamation with mercury.[1] It was this process that liberated the industry from its former dependence upon lucky strikes of rich metals. Furthermore, in 1548, the Crown reduced the tax it levied upon silver production from a fifth to a tenth.[2] This concession, extended only to miners and not to mere refiners or merchants who bought silver, when combined with the amalgamation technique, established the new discoveries of the 1550s upon a durable economic basis.

But in the years that followed the industry experienced a steady rise in general costs as the world-wide inflation in which New Spain participated drove up both the price of raw materials and the cost of labour. At the same time the value of silver relative to gold fell from 12:1 to 14:1.[3] Then again, since most silver was coined, its market price remained stable, and hence its value, expressed in commodities, steadily declined. However, althought this upward curve of prices may well have reduced profits, it did not hinder production, since the mines boomed when inflation was most pronounced, and only decayed after the inflationary movement had been halted. Nor can poor technique carry the burden of explanation. For example, during the years 1612–20, the zealous royal magistrate of San Luis Potosí distributed 60,000 ps. (pesos) in credit to the local industry, and, equally important, organised the construction of a drainage tunnel below the lode some 250 yards long. The result was to increase production by a third.[4] Technique, it appears, although primitive, was still adequate to the needs of the time.

[1] Modesto Bargalló, *La minería*, pp. 115–33. See also Alan Probert, 'Bartolomé de Medina: The Patio Process and the Sixteenth Century Silver Crisis', *Journal of the West*, 8 (January 1969), pp. 90–124.

[2] Fabián de Fonseca and Carlos de Urrutia, *Historia general de Real Hacienda escrita por orden del virrey, conde de Revillagigedo* (6 vols.; Mexico, 1845–53), I, 15.

[3] Hamilton, *American Treasure*, p. 71.

[4] Woodrow Borah, 'Un gobierno provincial de frontera en San Luis Potosí, 1612–20', *Historia Mexicana*, 13 (April–June 1964), pp. 532–50.

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