

New Spain's Mining Depression and the Supply of Quicksilver from Peru 1600-1700

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FAUSTO DE ELHUYAR in his study of silver mining in New Spain gives three reasons for the mining recession of the seventeenth century: 1) the expense of more complicated mining operations introduced after 1600; 2) the heavy burden of taxes put on the miners by the royal treasury; 3) the shortage of quicksilver.¹

Of these three obstacles to the expansion of Mexican mining in this period it is clear from the correspondence of viceroys, other royal officials, and the miners themselves, that the quicksilver shortage caused the greatest damage. By 1611 the royal officials of Durango had noted the adverse effect of the quicksilver shortage on the quintos collected.² Three years later, the royal official Rafael de Abué pointed out that the mines of the north were suffering from the drop in supply of the mineral.³ Later, in 1669, Gonzalo Suárez de San Martín, a member of the audiencia of Mexico, attributed the by now marked decline in mining to the failure of the Spanish authorities to provide an adequate annual supply of quicksilver.⁴ Towards the end of the century the same sentiment was expressed with regard to the Parral mines by the Conde de Paredes.⁵

Ever since the introduction of the patio process into Mexico (1555-1557), silver mining had been almost entirely dependent on the supply of quicksilver, the principal element of amalgamation. It is true that some silver continued to be processed by smelting, but this was an extremely small proportion of the entire production, since this system

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¹ F. de Elhuyar, *Memoria sobre el influjo de la minería en la agricultura, industria, comercio, población y civilización de la Nueva-España . . .* (Madrid, 1825), 30-31.

² Royal Officials of Durango to Crown, May 1, 1611, Archivo General de Indias (hereafter cited as AGI), Audiencia de Guadalajara, leg. 33.

³ Rafael de Abué, royal official, to Crown, April 15, 1614, *ibid.*

⁴ Gonzalo Suárez de San Martín, fiscal of the Mexican audiencia, to Crown, April 8, 1669, AGI, Audiencia de Méjico, leg. 612.

⁵ Conde de Paredes to Crown, July 12, 1681, *ibid.*

was suitable only for very high-grade ores.⁶ The majority of Mexican miners depended on a steady annual supply of quicksilver from the Almadén mines in Spain with the result that their operations were hampered by inadequate delivery—a frequent occurrence in the seventeenth century.

The quicksilver shortage meant that loads of mined silver ore lay for months and even years without processing, thereby deteriorating in quality. Consequently, miners did not receive the returns for their work, and in order to continue at all, they went into debt to the *mercaderes*. When their debts became too great, they were forced to withdraw and abandon their mines. Moreover, when supplies did eventually arrive, they were often monopolized by the distributors—the *alcaldes mayores* and the *receptores de azoques*—so that the miners were obliged to pay excessively high prices, thus adding to their already mounting debts. Faced with such financial problems, they might become involved in cheating on the quintos and in dealing in the *metales de rescate*. As a consequence, the royal income from the mines steadily decreased.

The chief reason for the quicksilver shortage was that the Crown relied on the production of Almadén, almost all of which was reserved for New Spain and that this mine rarely managed to produce the 5000⁷ quintals per year required.⁸ The Crown was not being unreasonable in expecting Almadén to cope with the needs of New Spain; first, these mines were the richest in Europe; second, experts repeatedly assured the Council of the Indies that the Almadén mines were capable of producing 5000 quintals per year. Nevertheless, a steady production of this amount would have required expensive improvements in the mines, and these were never carried out, because of the perpetual penury of the Crown.⁹ Although at the be-

⁶ In 1669, Gonzalo Suárez de San Martín informed the Crown that very little metal was suitable for processing by smelting. *Ibid.* However, with the revival of mining in the eighteenth century, a larger proportion of silver came to be processed by smelting. Alexander von Humboldt points out that in 1785, the ratio of amalgamation to smelting was three and a half to one. *Essai politique sur le royaume de la Nouvelle-Espagne* (5 vols., Paris, 1811), IV, 50.

⁷ This figure, quoted by Vicente Riva Palacio, is confirmed by the correspondence in the Archivo de Indias. Riva Palacio, *México a través de los siglos* (5 vols., México, 1940), II, pt. II, 684.

⁸ Cf. Pierre and Huguette Chaunu's tables of quicksilver importation into New Spain. In the first part of the century the average delivery from Spain was about 3000 quintals, but in the second half this dropped to about 2000. Chaunu, *Séville et l'Atlantique* (Paris, 1959), VIII, 2, 2, pp. 1960-1964.

⁹ In 1666 an expert, Sebastián de Saavedra, was sent to inspect the Almadén mines; his report confirmed that it would not be difficult to produce 5000 quintals per year, if reforms were implemented. Fiscal to Crown, 1667, AGI, Patronato, leg. 238, no. 2, ramo 13.

ginning of the century the Almadén production fell little short of the total required, by the end of the century it could barely provide one-fifth of New Spain's needs.¹⁰

Fortunately for Spain, Almadén was not the only source of supply open to her—she had an alternative quicksilver deposit in the mines of Huancavelica in Peru. The Huancavelica deposit was discovered at a most propitious moment—barely a decade after the introduction of the patio process in New Spain and a few years before the adoption of this method in Peru in 1573. Like Almadén, the Peruvian deposits were extremely rich, so that it was natural that if the Spanish mines should fail, Huancavelica should be looked upon as a reliable stand-by.

The administration of these mines followed the system at Almadén. After purchasing the mines from the Spanish discoverer, Amador de Cabrera, the Crown leased them out to private miners, who in return were expected to extract a certain quantity of quicksilver per year, to be paid for at a fair price by the Crown.

The Huancavelica mines proved so productive that they were early used by the government to supplement the inadequate Almadén supplies to New Spain. Thus a decree of 1591 ordered the shipment of 1500 quintals per year to the northern viceroyalty.¹¹ How long such supplies were sent regularly is not clear, although shipments must have come regularly from Peru at least until the early years of the seventeenth century. A cédula of 1602 referring to the price of quicksilver in New Spain laid down regulations for supplies coming from both Spain and Peru.¹² By 1610, however, complaints from miners and royal officials about a shortage of quicksilver would suggest that supplies from Peru were declining, since the amounts received from Almadén in the preceding years were up to average.¹³

What is certain is that an accident to the works at the Peruvian mines in the second quarter of the seventeenth century interrupted the supply from that source, and it would appear thereafter that deliveries from Peru to New Spain were the exception rather than the rule. Thus by the middle of the century royal officials were suggesting that supplies from Peru be obtained solely as an emergency measure.¹⁴

Nevertheless, the decline in the output from Almadén in the

¹⁰ Chaunu, *Séville et l'Atlantique*, VIII, 2, 2, pp. 1960-1964.

¹¹ Clarence H. Haring, *Trade and Navigation between Spain and the Indies in the Time of the Hapsburgs* (Cambridge, Mass., 1918), 160.

¹² Cédula of February 7, 1602, AGI, Audiencia de Méjico, leg. 2235.

¹³ See Chaunu, *Séville et l'Atlantique*, 1962.

¹⁴ Parecer del fiscal de su majestad sobre las minas de Chilapa, 1667, AGI, Patronato, leg. 238, no. 62, ramo 13.

second half of the century forced the authorities of New Spain to turn once again to Peru as a possible source of supply. Until the 1650s Mexican mining was able to limp along on what Almadén could send, and until this time the deliveries of quicksilver fell only about 2,000 quintals short of the total supply required. But after 1658, the amount received annually from Spain showed a sharp drop, as is clear from the following figures:¹⁵

1659:	400 quintals
1660:	2,400 "
1661:	1,003 "
1662:	1,785 "
1663:	1,401 "
1664:	460 "

Since the minimum total requirement in New Spain was 5000 quintals, the Almadén supply was now totally inadequate, and it was becoming a matter of extreme urgency to procure an annual supplement from some other source.

For this reason, the appeal to Peru for quicksilver seems to have become a regular feature of viceregal government beginning with the administration of the Marquis of Mancera. At a time when the Mexican mines were desperately short of quicksilver, the fleet of 1665 had brought from Spain a year's supply of only 2026 quintals.¹⁶ Faced with an imminent collapse of the silver mining industry, Mancera called a Junta General de Hacienda in January 1666 to discuss how the shortage was to be remedied. This junta decided to request help from the Viceroy of Peru, asking him to supply quicksilver.¹⁷ This help, however, was slow in coming, as is evident from the persistent complaints of Mancera over the next few years, and it was not until 1670 that two ships from Peru, bearing 3000 quintals, reached Acapulco.¹⁸ The benefits of this subsidy of quicksilver were immediately felt, so much so that the next year the royal officials of Zacatecas were rejoicing at sending 405,003 pesos in royal dues on silver to the treasury in Mexico City, the largest amount in many years.¹⁹

Such remissions from Peru were irregular, however, and any

¹⁵ Chaunu, *Séville et l'Atlantique*, 1966.

¹⁶ Viceroy to Crown, October 19, 1665, AGI, Patronato, leg. 238, no. 2, ramo 12.

¹⁷ Francisco Calderón, oidor, to Crown, April 27, 1666, *ibid.*

¹⁸ Robert C. West, *The Mining Community in Northern New Spain: The Parral Mining District (Ibero-Americana, No. 30, Berkeley, 1949)*, 113.

¹⁹ Royal officials of Zacatecas to Crown, April 2, 1671, AGI, Audiencia de Guadalajara, leg. 33.

benefits were short-lived, with the result that the situation soon became critical again. In 1673 the fleet from Spain under General Pedro Corbete delivered 5000 quintals—but this amount was to last for two years.²⁰ A new supply was not forthcoming until the fleet under General Francisco Martínez de Granada arrived in September 1675, carrying 5034 quintals.²¹ On this occasion also, the supply was for two years, since the fleet due to sail the following year (1676) was suspended.²² Thus the viceroy found himself again in the position of having to appeal to Peru for supplies. This time help was quicker in coming; in August 1677 a ship arrived in Acapulco from Peru carrying 3500 quintals, anticipating the new (1677) delivery from Spain by one month.²³ Needless to say, the almost simultaneous arrival of supplies from Peru and Spain caused a momentary excess of the mineral.²⁴

By the following year, however, supplies were again running low, and since it was estimated that only 2000 quintals could be obtained in Spain for that year, another appeal was made to the viceroy of Peru. This appears to have been the first occasion on which the Crown, anticipating the shortage, took the initiative and ordered the viceroy of Peru directly to forward 2000 quintals of quicksilver to New Spain. Previous requests to Peru had always been made by the viceroy in Mexico. In fact, the anticipated 2000 quintals to be delivered by the fleet of 1678 turned out to be no more than 1580 quintals—and again this was to be the total supply for two years.²⁵ On this occasion, there is no evidence of the arrival of the requested subsidy from Peru,²⁶ so that by the end of 1679, mining operations were limping along on what was left from the heavy quicksilver supply of 1677.

Two years elapsed before another request was made to Peru, this time at the initiative of the Conde de Paredes in 1681.²⁷ The shortage this year seems to have been particularly serious since the amount asked for was 4000 quintals, the largest yet requested from Peru.

²⁰ Tribunal de Cuentas to Crown, January 15, 1674, AGI, Audiencia de Méjico, leg. 612.

²¹ Viceroy to Crown, September 21, 1675, *ibid.*

²² Crown to Viceroy, June 22, 1677, *ibid.*

²³ Viceroy to Crown, February 12, 1678, *ibid.*

²⁴ Francisco Fernando Marmolejo, superintendent of the Real Almacén, to Crown, June 9, 1679, *ibid.*

²⁵ Viceroy to Crown, January 26, 1679, *ibid.*

²⁶ On January 6, 1679, the viceroy informed the king that the ship from Peru had not arrived. *Ibid.* It is clear from a report by Marmolejo that it still had not arrived by November 7, 1679. *Ibid.*

²⁷ Conde de Paredes to Crown, July 12, 1681, *ibid.*

The response from Lima was again slow, so that it was not until 1683 that a ship reached Acapulco carrying 3000 quintals.²⁸ This shipment, together with the supply from Spain which arrived shortly after, was immediately distributed so that by the autumn of the same year the colony was again without a reserve of quicksilver. Thus the viceroy, Conde de Paredes, was forced to make a new appeal to Peru for 4000 quintals just after he had received 3000 quintals from that source.²⁹ By the end of 1684 no further supplies had been received either from the mother country or from Peru, and Paredes was advising the authorities in Spain to get two ships ready in Cádiz for an emergency operation.³⁰

There is no record of additional supplies arriving as a result of this request. When the new viceroy, the Conde de Monclova, arrived in New Spain in 1686, the situation was more desperate than ever. Monclova immediately requested 4000 quintals from Peru,³¹ although before his arrival the Crown had already instructed the Viceroy in Lima to send 3000 quintals. The fleet carrying Monclova from Spain had brought 2000 quintals, but this amount was distributed immediately. And when a subsidy from Peru was not immediately forthcoming, the amount being requested from Lima in 1687 was increased to 6000 quintals.³²

Although the viceroy of Peru assured Monclova that he was preparing a shipment of quicksilver, there is no record that it reached Acapulco.³³ By 1689 the situation was critical, for all the supplies from Spain had been exhausted. It can be assumed that by this time both the viceroy and the Crown had given up hope of obtaining a quick supply from Peru, because the crown agents began searching for a possible source of supply in Europe to supplement the meagre 1085 quintals that had been sent from Almadén to New Spain in June of that year.³⁴ Such a supply was in fact found, giving momentary relief.³⁵

Indeed the viceregal officials seem to have lost faith in any possibility of obtaining help from Peru during the next few years. Efforts from 1690 to 1692 were concentrated on finding a possible new

²⁸ Conde de Paredes to Crown, August 18, 1683, *ibid.*

²⁹ *Ibid.*

³⁰ Conde de Paredes to Crown, August 10, 1687, *ibid.*

³¹ Conde de Monclova to Crown, August 10, 1687, *ibid.*

³² *Ibid.*

³³ Possibly because of interception by pirates.

³⁴ Conde de Calzada, of the Consulado, to Crown, June 12, 1689, *ibid.*

³⁵ A supply was obtained by sending an agent to Italy who managed to obtain 1,600 quintals on behalf of the Crown in 1689. *Ibid.*

source of supply in China.³⁶ Yet at the same time, they must have continued their requests to Lima, for in 1693 a Peruvian ship reached Acapulco with 3005 quintals.³⁷

In the last years of the century demands for quicksilver to Peru were intensified, but the response from the southern viceroyalty became slower and slower. At the insistence of the viceroy and royal officials of New Spain, the king issued a decree in 1699³⁸ ordering the viceroy of Peru to provide for a *yearly* shipment of quicksilver from Huancavelica to New Spain. This document contained unusually specific orders for the immediate dispatch of the first quantity to be sent to Acapulco under this new *cédula*; the King said he had been informed of the extreme slowness of supplies of quicksilver reaching New Spain from Peru; the royal officials at Huancavelica were to collect immediately all the quicksilver available and send it to New Spain; in the future, the corregidor of Huancavelica was to give the viceroy in Lima three months notice of the despatch of quicksilver to Callao so that the latter could have a ship ready in time for sending to Acapulco; the cost of transport was to be immediately borne by the Royal Treasury, to be recovered later on the price of the quicksilver distributed to the miners of New Spain. On the same day, the corregidor of Huancavelica was instructed to see that the miners of that town were promptly paid for all the quicksilver produced, so that a steady production would be maintained.³⁹

Thus at last the Crown was making provisions for the regular supplementing of the deliveries from Almadén, which were now officially recognized to be inadequate, although for more than a century it had been clear that they were quite insufficient. In fact, these royal orders were not carried out. In the following century the shipping of quicksilver from Peru continued to be a rare occurrence.⁴⁰

Why were such provisions not made at a much earlier date, since by the middle of the century it was already evident that the supplies from Almadén could not satisfy the demands of the mines of New Spain? One explanation is to be found in the Crown's commercial policy. It is important to bear in mind that restrictions on inter-colonial trade by the mother country bore particularly heavily on commerce between New Spain and Peru. Especially after the prohibition of all trade between New Spain and Peru in 1634, communi-

³⁶ Via the Philippines.

³⁷ Conde de Galves to Crown, April 8, 1694, *ibid.*

³⁸ *Cédula* of December 5, 1699, *ibid.*

³⁹ Crown to corregidor of Huancavelica, December 5, 1699, *ibid.*

⁴⁰ West, *The Parral Mining District*, 113, states that in 1741, 4000 quintals from Peru were unloaded at Acapulco.

cation between the two viceroalties was practically reduced to the illegal commerce of silks from the Philippines.⁴¹ This meant that there was no regular transport system between New Spain and Peru which could have handled a permanent shipping of quicksilver. In the case of an emergency, a special ship had to be fitted out—not always an easy task.

Moreover, because it was the express policy of the Crown to discourage trade between the two viceroalties, the royal officials were reluctant to approve the regular shipment of supplies of quicksilver on ships which would offer the opportunity for smuggling forbidden goods such as fruits, clothes, etc. Thus when the king instructed the viceroy of Peru in 1678 to send 2000 quintals to New Spain, he simultaneously ordered the royal officials to inspect the ship carrying the quicksilver, before leaving Peru, to make sure that it carried no fruit or other goods.⁴² For this same reason the Council of the Indies, when considering ways and means of remedying the quicksilver shortage in New Spain, was constantly reminded by the royal officials not to have recourse to Peru as a solution. The Crown was advised in 1667 not to bring quicksilver from Peru, since to do so would encourage what the Crown had forbidden—commerce between New Spain and Peru.⁴³ The fact is that by providing for the regular shipping of quicksilver from Callao to Acapulco, the Spanish government would have been authorizing intercolonial trade involving other things apart from quicksilver. That the Crown was fully aware of this circumstance, is clear from the decree of 1699 ordering the regular despatch of the mineral from Peru, since it authorized the same ship to carry 120 tons of fruit to New Spain and to bring back the same amount of goods to Peru.⁴⁴ In this way the critical quicksilver situation caused the mother country to make a notable relaxation in the rigorous intercolonial commercial policy, which she had followed throughout the century.

It seems evident, then, that the desire to restrict trade between New Spain and Peru was the prime motive in the Crown's reluctance to provide for a regular supply from Huancavelica. At the same time, production at Huancavelica was not always so abundant that amounts on the order of 3000-4000 quintals could be shipped to New Spain at short notice. It is true that the Peruvian quicksilver mines

⁴¹ Woodrow Borah, *The Decline of Silk Raising in Colonial Mexico (Ibero-Americana, No. 20, Berkeley, 1943)*, 97.

⁴² Viceroy to Crown, January 26, 1679, AGI, Audiencia de Méjico, leg. 612.

⁴³ Parecer del fiscal sobre las minas de Chilapa, 1667, AGI, Patronato, leg. 238, no. 2, ramo 13.

⁴⁴ Crown to Viceroy of Peru, June 24, 1699, AGI, Audiencia de Méjico, leg. 612.

were extremely rich. But at the same time it must be remembered that the demand for quicksilver in Peru itself was high, and there was always far too little for exporting abroad.

Peru itself required for its mines 97 to 99 percent of the production of Huancavelica.⁴⁵ On an average this came to about 5000 quintals per year, which meant that there would have been an annual surplus of a maximum of 450 quintals for exporting to New Spain. In addition, production at Huancavelica fluctuated, with the result that in some years it fell well below the average 5000 and necessitated the importing of quicksilver from Idria (in Venezia Giulia). In fact, almost all the quicksilver purchased from Idria for exporting went to Peru.⁴⁶ It is not surprising, therefore, that the viceroys of Peru were often slow in meeting requests from New Spain.

It is clear, moreover, that full production at Huancavelica was not possible for two reasons: first, the output repeatedly slacked off because the constant penury of the Royal Treasury meant that the miners were not always paid promptly for the quicksilver mined;⁴⁷ second, there was a "repartimiento" problem at Huancavelica. An exception had been made in Peru in allowing repartimiento Indians to work in quicksilver mines. But this already had had an adverse effect on the number of Indians living in the vicinity of these mines. To increase production in order to meet the extra demands for New Spain would have meant increasing the repartimiento and would perhaps have killed off what remained of the Indian population.⁴⁸ Since it was the express policy of the Crown to preserve and protect the native population, the order to increase the repartimiento was never given; production did not go up; and therefore there could be only a limited amount of quicksilver available for transporting to New Spain.

One last reason can be discerned for the slowness in obtaining supplies from Peru. Because the quality of the quicksilver produced at Huancavelica was inferior to that of Almadén and a proportionately smaller amount of mineral could be processed with it, the miners of New Spain were reluctant to use it. This difference in quality was not offset by a price difference, for Peruvian mercury was charged

⁴⁵ Chaunu, *Séville et l'Atlantique*, VIII, 2, 2, p. 1970.

⁴⁶ *Ibid.*, 1971. Quicksilver was frequently bought from Idria in the seventeenth century, and almost all of it went to Peru. See Chaunu's importation tables, 1973-1975.

⁴⁷ As a means of insuring production, in 1699 the Crown ordered the corregidor of Huancavelica to see that miners were paid regularly. Audiencia de Méjico, leg. 612.

⁴⁸ This was the opinion of the fiscal in 1667. See note 43.

to the miners at a price based on the production cost plus the freight costs from Callao to Acapulco. Indeed it would appear that, for the most part, Peruvian quicksilver, although of inferior quality, was more expensive in New Spain than the quicksilver from Almadén. In 1679, when the Almadén quicksilver brought 82 pesos per quintal, the Huancavelica product cost 100 pesos.⁴⁹ It is not surprising, then, that the royal officials could never get rid of loads of quicksilver delivered from Peru until all the supply from Almadén had been exhausted.⁵⁰ Viceroy Conde de Galves in 1694 informed the Crown that the miners would accept the quicksilver from Peru only out of sheer necessity, because they preferred that of Almadén.⁵¹ Previously, in 1678, Viceroy Fray Enríquez de Rivera had experienced similar difficulties in disposing of the quicksilver which had been delivered from Peru.⁵² Taking into consideration, therefore, the inferior quality of Huancavelica quicksilver, its high price, and the difficulties of the royal officials in disposing of it, it is not surprising that the Crown was slow to look to Peru as a regular source of supply for the mines of New Spain. But it is undoubtedly one of the failings of colonial government that the potentiality of Peru as a source of supply was not adequately exploited.

⁴⁹ Francisco Fernando Marmolejo, superintendent of the Real Almacén, to Crown, AGI, Audiencia de Méjico, leg. 612.

⁵⁰ *Ibid.*, September 6, 1679.

⁵¹ Conde de Galves to Crown, September 8, 1694, *ibid.*

⁵² Fray Payo Enríquez de Rivera to Crown, February 12, 1678, *ibid.*