Economía Vol. XXXIII, N° 66, semestre julio-diciembre 2010, pp. 128-153 / ISSN 0254-4415

Mercury (not always rising) and the social economy of nineteenth-century Peru[1]

José R. Deustua C.*

RESUMEN

Este estudio se centra en el análisis económico e histórico de la industria minera del azogue en el Perú del siglo XIX. El azogue o mercurio fue crucial para el desarrollo de la industria minera de la plata en el Perú y México durante la época colonial y continúo siéndolo en menor medida durante el siglo XIX. Sin embargo, ya no era la industria boyante del final del siglo XVI, la segunda mitad del XVII y la segunda mitad del XVIII, la que alcanzó niveles de producción sobre los 13 000, 8000 y 7000 quintales por año. Más bien, en el siglo XIX, era una actividad económica modesta (*not always rising*) pero que también tuvo coyunturas de auge y crisis. Este artículo discute las cifras y la gráfica de producción construida en los años cincuenta por los ingenieros Fernández Concha, Yates, y Kent, presentando nuevas cifras que vienen del estudio de archivos peruanos, las que prueban ciclos regionales de producción y una articulación de consumo con el centro minero de Cerro de Pasco. La producción del mercurio, además, no se circunscribía a la antigua mina colonial de Santa Bárbara en las afueras de la ciudad de Huancavelica, sino a otros centros mineros en la región de Huancavelica, como Angaraes y Lircay, al centro minero de Chonta en el Cerro de Pasco e, incluso, a exploraciones en Chachapoyas. El artículo también discute la dinámica conflictiva que existía entre empresarios criollos, el Estado, comerciantes y trabajadores campesino indígenas. Hubo varias iniciativas empresariales y del Estado para revitalizar la mina de Santa Bárbara y otras en Huancavelica, pero es también clara que la acción de comerciantes y «rescatiris» muestra otras dinámicas en las cuales trabajadores mineros, «humachis» y otros, perteneciendo al mundo cultural quechua, creaban circuitos diferentes de comercio y generación de ingresos, lo que ocurría en especial durante las bajas en la producción y precios del mercurio. El autor finalmente reflexiona sobre el sentido de lo que significa el desarrollo económico criticando a historiadores económicos como Stephen Haber, de la Universidad de Stanford, y John Coatsworth, de la Universidad de Columbia, por su idea de que los países latinoamericanos tienen que *catch-up* (igualarse) en el desarrollo capitalista de los Estados Unidos y Europa Occidental. Así también critica a los nuevos estudios históricos post-modernistas y culturalistas que no tienen en cuenta la materialidad de la vida humana.

Palabras clave: minería del mercurio, minería de la plata, economía minera, Huancavelica, mina Santa Bárbara
Clasificación JEL: N56

---

[1] I thank my friends and colleagues at the Department of History at Eastern Illinois University (EIU) for their help and support on the research and writing of this paper, in particular its chairwoman, Dr. Anita Shelton. I also thank the members of the Latino(a)and Latin American Studies Committee at EIU. Funds from the History Department and the College of Arts and Humanities allowed me to pursue the final stages of this research. Amanda Terrel, a history graduate student, was my research assistant and helped me particularly with some technical computer problems and the elaboration of chart n.1.
Agradezco también al Dr. Carlos Contreras (Ph.D. El Colegio de México) del Departamento de Economía de la Pontificia Universidad Católica del Perú y a los dos anónimos críticos y lectores por sus sugerencias para mejorar este artículo.

* Department of History Eastern Illinois University.

ABSTRACT

This study focuses on the Peruvian mining industry of mercury or azogue in the nineteenth century. Mercury was a crucial component for Andean and Mexican silver mining during colonial times and still in the first century of Republican Peru. However, it was not the booming industry that occurred at the end of the sixteenth century, in the second half of the seventeenth, and at the second half of the eighteenth century with production peaks at 13 000, 8000 and 7000 quintals per year. During the nineteenth century it was rather a relative modest industry («not always rising») but also had moments of peak and decline. The article discusses production figures from the 1950 by engineers Fernandez Concha, Yates, and Kent, with new statistics coming from archival sources, which shows important regional levels of production and articulation with silver mining centers such as Cerro de Pasco. The article also shows that mercury production was not limited to the old colonial Huancavelica mine of Santa Bárbara but to other areas in the Huancavelica region, such as Angaraes and Lircay, or beyond Hunacavelica, such as Chonta in Cerro de Pasco or even Chachapoyas. It also focuses on the conflictive dynamics that mining production meant for *criollo* business people, the government, merchants, and indigenous workers. There were several business efforts to revitalize the mine of Santa Bárbara as well as to invest in Huancavelica mercury mining in combination with government initiatives and actions, but it is also clear the action of mercury merchants, *rescatires*, who many times rather dealt with workers and *humachis*, independent laborers or small entrepreneurs, many times Andean Quechua peasants, who rather benefitted during the down cycles in mercury production. Finally, after analyzing this particular industry, the author reflects on the meaning of economic development and historical studies to criticize U.S. economic historians such as Stephen Haber (from Stanford University) and John Coatsworth (from Columbia University) and their view that Latin American countries have to «catch-up» with the capitalist development in the United States and Western Europe, as well as post-modern and cultural studies which deny the materiality of human life.

Keywords: mercury mining, silver mining, mining economy, Huancavelica, Santa Bárbara mine

The nineteenth century was not fully the century in which Latin America fell behind. This study will defend this premise in opposition to what has been argued in a varied and uneven book some ten years ago (Haber 1997). Latin America perhaps fell behind, compared to the development of Western Europe and later the United States, in the eighteenth century, with its slow incorporation to world markets and the international trading system led by Great Britain, and the mixed results of the Spanish empire Bourbon reforms[2]. Definitively Latin America fell behind in the sixteenth century, a century of Spanish and Portuguese conquest, demographic devastation and, in general, societal catastrophe, in which entire populations disappeared and full societies vanished from the face of the Earth[3]. It could even be argued that «the fall behind» of Latin America took place in the twentieth century, when the rates of economic growth in the continent

[2] Among many studies see Brading (1988), Fisher (1985, 1993); finally for Mexico the controversial article by Coatsworth (1982).

[3] See, among others, Cook (1981) and Wachtel (1977).

for the whole century, according to some research, have been similar as those of the so-called developed world[4]. However, the basis for this twentieth-century comparison is clearly uneven: the GNP per capita of Latin America in 1900 was well behind that of the United States, England, France or Germany, for example. Thus, although growth rates are similar, Latin America started from a much lower base, and with an industrial sector not developing substantially, one could expect that the end-results were completely different at the beginning of the twenty-first century. Furthermore, both areas of the world, Europe and the U.S. on one hand and Latin America on the other, were tied in just one international economic system in which they played very different roles: the former, a supplier of capital and the latest manufactured and technological goods and services, the latter of raw materials and simple manufactured goods.

ASSUMPTIONS AND DEBATE

One of the strong assumptions behind the analysis of Latin America «falling behind» in the nineteenth century is that all processes of economic growth should pass through the same stages and forms of development and, therefore, Latin America should imitate (and catch up) with the development of the United States and Western Europe (Coatsworth 1998). Historically, this seems to be a complete mistake. Latin America should follow its own path of even and, perhaps, modest development, without the pretension of reaching to the skies or imitating U.S. or Western European models of industrialization and economic growth. Furthermore, after the appalling deterioration of the Earth's environment in the twentieth century McNeill (2000), new processes of industrialization with heavy environmental degradation are absolutely dangerous and highly detrimental for the possibility of reaching again the «Earth's balance»[5].

Thus, this study argues that the process of economic growth in Latin America have been much more difficult and complicated than those of the United States, England, France, or Germany. Surely Latin America did not have an «agricultural revolution» preceding the «industrial one», as Paul Bairoch argued more than forty years ago (Bairoch 1967). So, agricultural productivity in Latin America only had notorious gains in the export sector[6]. Furthermore, First World development was not a panacea, as some

---

[4] Haber, «Introduction: Economic growth and Latin American economic historiography», in Haber (1997) on data taken from Angus Maddison (1989). Salvucci, however, stresses income gaps «unable to be recovered», although referring just to Mexico and Cuba in the 19th and 20th centuries, in Haber ed. (1997: 216-42, 216-7).

[5] Currently, only the United States sends 1407 million tons of polluting gases yearly to the environment, which is 23% of the world's total.

[6] In 19th-century Brazil, according to Nathaniel Leff, the elastic supply of labor, through the slave trade first and later with the European and Asiatic immigration, prevented any «agricultural revolution» because labor costs were kept low with no need to serious technological progress, except, toward the end of the century, with the railroads. See Leff (1997).

historians pretend to show, but a serious and dramatic process of disenfranchisement, proletarianization, uprootment, and environmental degradation that also included tragic times of global war and destruction[7].

PERU AND MERCURY MINING

Thus, this study will address questions of social and economic development («economic growth») looking at a «depressed» industry in nineteenth-century Peru, mercury mining. The nature and characteristics of mercury mining underline too the direction and projection development and growth take in a particular Third World nation, whether to create or consolidate a domestic economy or to build export sectors. It also poses questions on the role of peasant economies and societies in a country with a rich history of indigenous organization at the local, regional and macro-national level, and a culture of resistance and autonomic defiance which goes from the sixteen to the twenty-first century (Pease 1978, Stern 1987, Rénique 2004).

Peru's mining economy grew fast between 1820 and 1840 to decline immediately afterwards and have later upswings and downswings until the 1900. Two other moments of growth in silver mining during the nineteenth century occurred in the 1870, when Peru experienced its «dance of the millions», and the 1890, when a shift in the mining industry took place from silver to large-scale copper mining. This change implied a total transformation from a small-scale, artisan-like, highly productive, silver economy, to a large-scale, more industrial but with a lower productivity (particularly in terms of the commercial value of natural resources) copper economy (Deustua 2000, 1986; Contreras 1988).

Mining was one of the key sectors in defining the options for national development in nineteenth-century Peru. All through the century distinct paths of growth and development were posed to business leaders, government officials, and middle class intellectuals. The extremes were whether to embark fully in a path of free-trade economic liberalism, focusing mostly on a few basic export industries (such as silver to 1840, guano from the 1840 to the 1870 and then nitrates, sugar, cotton, wool, and others) and, consequently, to also drop all barriers to the import of the goods needed for domestic consumption. Or, on the other hand, to rather close the economy totally to a form of autarky that privileged the development of domestic sectors and some monopolist control Peruvian merchants had on national markets. The latter option also implied developing some form of industrial economy, or «compulsive manufacturing», inherited from colonial times, the *obraje* system, and to foster too the large and variegated artisan

[7] Compare, for example, world histories by Johnson (1991), a conservative historian, with Hobsbawm (1994), and/or McNeill (2000).

sector, which was mostly located in the capital city of Lima[8]. The powerful guild of Lima merchants, the *Tribunal del Consulado*, obviously favored the protectionist-nationalist option because they kept a form of almost monopolic control of the domestic market, excluding from it the activities of foreign merchant houses, mostly British, French, and from the United States[9] (Gootenberg 1982, 1989).

This study will show that plebeian mining (mercury, lead, coal, and iron, among other substances and minerals) was tightly connected with the second option and with the functioning of a domestic economy. It also had strong ties to the agrarian sector, through backward and forward linkages, and to other mining industries, particularly the most dynamic one, silver. Mining of mercury, lead, coal, and iron also fueled regional economies, regional markets, and craft industries in some cities of the country and many rural villages. The export take-off never took place in the mining of mercury, lead, coal and iron, until the last decade of the century and, therefore, plebeian mining served rather the consistency of the Peruvian domestic economy.

However, this option was not played such as the Lima protectionist and monopolist merchants would have liked it. Rather this study shows that this articulation of mining with a form of domestic development opened enough room for the participation of different social and economic actors, whether regional and local merchants or *rescatires*, large, medium-size and small mine owners, government officials, scientists and local technicians, and even Indian peasant petty entrepreneurs and workers. The latter ones, as we shall see next, benefited particularly from the downturn in the mining economic cycle to engage in their own businesses and economic activities, which served mostly to enhance their own livelihood and cultural and political autonomy. The option for domestic development then was clearly present from the birth of Peru as a modern nation and continued throughout the century, as a form of defiance to the world development toward international capitalism and globalization.

This paper focuses only on what was the «queen» of the colonial mining economy, mercury, or *azogue* as it was called during colonial times[10]. The other sectors of plebeian mining still need further inquiry[11]. Mercury mining was an aging queen mother which, during the nineteenth century, seemed sometimes ready for her burial ceremonies. From

---

[8] The most relevant nineteenth-century Peruvian author proposing industrialization in the 1840 is Casanova (1972). Casanova's widely read and finely argued book, however, emphasized rather the promotion of industrialization than to continue protecting the *Tribunal del Consulado*, which with its monopolist or oligopolist control of trade was hindering domestic development. See also Gootenberg (1993), Quiroz Chueca (1988).

[9] On the conflicts with British interests in the 1830 see Wu Brading (1993).

[10] *Azogue* was an Arabic name used by the Spaniards to call what today we consider mercury. «*Este nombre azogue es arábigo, de un verbo que vale correr*» (this name *azogue* is Arabic, from a verb which means to run), see De Ulloa and Santacilia de Ulloa, (1989). *Azogue* «runs» in the sense that its natural state is liquid and flows constantly.

[11] Preliminary advances are in Deustua (1989).

the standpoint particularly of Indian peasants interests and ways of life, the agony of this queen mother was however a success of some sorts.

«AZOGUE» IN HUANCAVELICA: A FADING QUEEN, SANTA BÁRBARA MINE, AND REGIONAL MARKETS

Along with silver, *azogue* constituted the backbone of the colonial economy of the viceroyalty of Peru. Whereas silver was produced mainly in Potosí until the late eighteenth century, when Cerro de Pasco gained great prominence, mercury production took place mostly in the southern highland mines of Huancavelica. Huancavelica supplied Potosí, and later Cerro de Pasco, with a fundamental input for the transformation of silver ores into metal, due to the use of the *amalgama* and the *patio* system in which large amounts of mercury were mixed with the crushed mineral ores, water, salt, *magistral* and other substances in lesser proportions, to provoke a chemical reaction which isolated pure silver particles. Huancavelica also supplied the larger silver mining industry in Mexico, although the latter depended less on Huancavelica's mercury than on supplies from Spain. Huancavelica and Potosí were thus for most of the colonial period the two central axes of mining in the viceroyalty of Peru; and if silver was the king, mercury was its queen[12].

In the late eighteenth century, however, the boom of silver mining in Cerro de Pasco altered the market circuits and the mercury supply lines traditionally held until then. Mercury from Huancavelica now started to go to Cerro de Pasco instead of being sent to Potosí or Mexico via coastal ports. During the nineteenth century, as we shall see next, conditions and levels of production changed in Huancavelica due, among other reasons, to a dramatic cave-in in its major mercury mine, Santa Bárbara, named as such due to its dedication to Saint Barbara, the virgin martyr who professed Christianity against the will of his father during the times of the Roman Empire. However, mercury mining continued throughout the century showing strengths and regional modifications which will be shown and discussed soon. Colonial mercury mining has also received much more attention by academic historians, whereas mercury mining in the nineteenth century has only been the focus of research and data gathering by government officials and engineers[13].

During colonial times mercury mining in Huancavelica went through three great declining cycles with their respective upward and downward phases. These three great cycles had their peaks at the end of the sixteenth century, in the second half of the seventeenth, and at the second half of the eighteenth century. The highest figures for mercury production in these three moments were 13 000, 8000 and 7000 quintals of mercury,

---

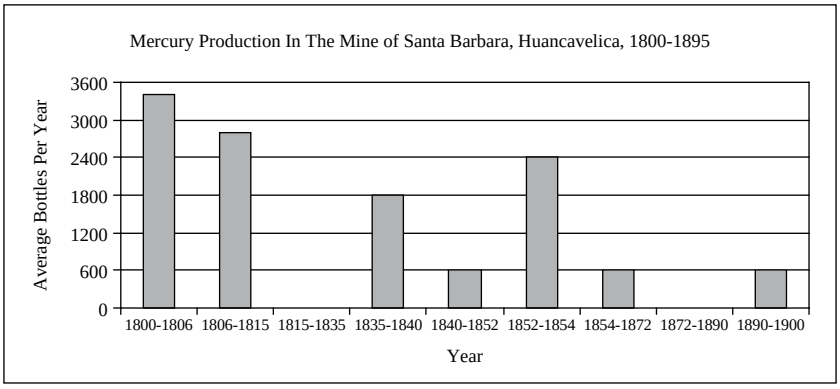
[12] Among many references, see in particular Bakewell (1984); Cole (1985); Fisher (1977); Tandeter (1993). For an overview of colonial mining see Brading and Cross (1972) and Bakewell (1987).

[13] An historiographical classic is, for example, Lohmann Villena (1948). A more recent academic work is Contreras (1982). For more references see below.

or 598, 368 and 322 tons per year (De Rivero y Ustáriz 1857, Jiménez 1924, Lohmann 1949, Fisher 1970, Contreras 1981, 1982, Macera 1972). The nineteenth century, in contrast, was a period of lesser levels of mercury production, although with its moments of growth and decline, which should be considered carefully.

Chart N° 1 shows the cycles of mercury mining production in nineteenth-century Huancavelica, according to the research of mining engineers Fernández Concha, Yates, and Kent (Fernández Concha, Yates, and Kent 1952: 30 and ff.). The discussion of their data limitations will follow. But according to their figures, mercury production in the mine of Santa Bárbara, in Huancavelica, the largest mercury mine in colonial Peru, decreased from a yearly production level of some 3 400 bottles (or 2 615 quintals) in the period 1800-1806 to 600 bottles (or 461 quintals) during the 1840 to the early 1870s except for short revivals in the late 1830 and in the period 1852-1854 when levels of production reached close to 1800 and 2400 bottles of mercury per year respectively[14]. These levels and their peaks are low compared with the colonial period, when production never fell below 8000 bottles per year. The chart also shows that there were moments in which mercury production fell to zero, as in the years 1815-1835 and 1872-1890, although this is going to be discussed with my own research data. It is, however, sure that the transition from the colonial era to the national period was for mercury production the continuation of a long period of crisis that started at the end of colonial times, in 1786 to be exact, when the cave-in took place at Santa Bárbara mine. Some attempts at recovery, nevertheless, existed during the nineteenth century, particularly during the years 1800-1815, 1835-1870 and 1890-1900.

Chart N° 1



Sources: Fernández Concha, Yates and Kent (1952: 30). The authors observe however that «all the figures from 1790 on are in their majority estimations based on scarce data» (29).

[14] The equivalences are the following: 1 Spanish quintal = 1,3 bottles; 1 Spanish quintal = 46 kilograms. I organized in columns the more disperse data of Fernández Concha, Yates, and Kent (1952).

The decline in the mining of mercury at Santa Bárbara affected all Peruvian mining, but silver, the most powerful mining sector in the nineteenth century, was especially sensitive to it. In some areas, however, silver mining still used the Indian refining system of *huayras* and precarious *boliches*, which almost always prescinded of mercury to obtain the white metal, but *huayras* or *boliches* could only be used with high yielding silver ores or to process coarsely just small amounts of mineral (De Rivero y Ustariz 1828, 182-227, 216). *Bolicheros* grinded mineral ores with some sort of *batán* (fulling-mill) to obtain limited amounts of silver[15]. Lack of mercury, in this sense, was a technological limitation for the advancement of silver mining and a serious concern for the Peruvian state. According to some sources (Arduz Eguía 1985), nevertheless, silver could also be refined without mercury using *magistral* and other substances. But these were the exceptions rather than the rule. The large mines used mercury, because of its technical superiority to isolate silver from the other chemical components in the mineral ore, and also because of its relative low price. The scarcity of mercury then, or the increase in its prices (because of its scarcity), was a periodic obstacle in the development of silver production. It was also a reason to increase silver production costs. Keeping mercury prices low and its supply constant were strategic questions for the development of silver production, and therefore major concerns for the nineteenth-century Peruvian government.

The Peruvian State used two major policies throughout the century to increase mercury production and supply: it decreed the free importation of mercury (this was attempted for the first time at the end of the colonial administration), and it attempted to bring to full production again the mine of Santa Bárbara and others located nearby in Huancavelica.

As an example of import dealings, the proposal made by the Colombian merchant Agustín Mandracha in 1826 is very interesting. He suggested to the Peruvian Government to import 10 000 quintals of mercury, if he was excused of paying duties on the exports of silver and gold. Ten thousand quintals of mercury would have clearly satisfied more than twice the national demand for mercury, estimated at 4000 quintals per year (Fisher 1977, Du Chatenet 1880). The proposal however did not seem to have a positive answer, due to the fact that the Peruvian Government could not excepted export duties for gold and silver, a key revenue for the national treasury. But the case shows the capability of some merchants to import very large amounts of foreign mercury that could have sink domestic production (AGN 1826). From then on, or rather from the creation of the Republic, domestic production of mercury took place side by side with foreign imports of it.

---

[15] In 1849 a «Razon de los boliches existentes en el Cerro de Pasco» (Census of all *boliches* existing in Cerro de Pasco) was elaborated. See ADRMCP (1856). Archivo de la Dirección Regional de Minería del Cerro de Pasco (hereafter ADRMCP). «Libro Inventario de los libros y papeles de la secretaria de la Diputacion», XXX, n. 35, 1856, f. 10v.

The other policy implemented by the Peruvian State was to try to rehabilitate Santa Bárbara and other mines in Huancavelica. In 1825, for example, a government commission undertook a «recognizance, inventory and appraisement» of the mine of Santa Bárbara in order to prepare its revival. The commission found in the mine a series of technical devices and materials that could be used for its revival, but it agreed that it could not find open mercury deposits. To find them, large capital investments would have been required, merely to repair the damage from the various collapses that the mine had experienced in the past. To dig new mine tunnels to search for mercury deposits, additional capital was needed. The government officials in charge of doing the appraisal estimated, in the third day of their work, that the value of the mine, including its assets, was 31 400 pesos (Biblioteca Nacional del Perú 1825). This was a substantial amount of money, particularly if we compare it with the usual value of a silver mining company in the early nineteenth century, estimated at 5000 pesos (Deustua 1986). Santa Bárbara was worth in that moment six times the average productive silver mine.

The mine of Santa Bárbara was certainly in crisis but this report nonetheless proved that its future working could have been a promising venture. In fact, some attempts to revitalize the mine, as we will see, were made throughout the century; and they produced positive results, at least at mid-century, between, say, 1835 and 1870. Santa Bárbara, however, never recovered its colonial splendor, but it revived regional and local markets, reconnecting again the area and city of Huancavelica with the main silver producing areas of the country, particularly at that time with Cerro de Pasco. This trading connection with Cerro de Pasco created a commercial continuum particularly by mid-nineteenth century that linked the southern Andes with the north of the central sierras of Peru.

AZOGUE IN AND BEYOND SANTA BÁRBARA: QUECHUA INDIAN PEASANT WORKERS, PRICES, AND CRIOLLO BUSINESS INITIATIVES

The problem with the data of the previous chart, however, is that it registers mercury production only in Santa Bárbara. And Huancavelica was more than the Santa Bárbara mine. Likewise mercury production was also acknowledged in other places beyond Huancavelica, particularly due to the interest of the State and some of its officials to find Santa Bárbara substitutes. Furthermore, as a historical rule, at least in nineteenth-century Peruvian mining, once a monopoly center declined in its economic importance other regional alternatives rose up to occupy its prevailing position. Although, of course, this depended on the availability of the natural resource[16]. The crisis of Santa Bárbara, nevertheless, provoked regional diversification and efforts to revitalize Huancavelica

[16] Gold mining in nineteenth-century Peru could be another case in point. The decline of Huamanga's late colonial production provoked the upsurge of Puno's gold mining by the 1840. See Deustua (1984).

beyond this old colonial mine. The central State, local authorities, and regional business entrepreneurs took a leading role on achieving this goal.

Chachapoyas, for example, in northeastern Peru, became another area with mercury production potential in the early years of the Republic. In 1822, one year after Peruvian Independence was proclaimed, the ambassador of Peru in Mexico, Joseph de Morales, claimed that Mexico would also be interested on «*la común necesidad*» (the common necessity) to foment «*el mineral de Azogue de Huancavelica*». But if this was not possible, «I also have memories that in the *partido* of Chachapoyas, in the Intendancy of Trujillo, another mining source was discovered at the same time (as Huancavelica) with the same kind of *cinabrio*»[17]. This mine of mercury or *cinabrio*[18] was located in the *doctrina* of Santo Tomás de Quilloay. An Indian noble there knew about the mercury deposits, although, as Morales acknowledged, «these natives from this and other provinces have always refused to recognize the (mining) wealth that Peru contains, because they did not benefit from it and they are even forced to work in the mines under very harsh rules, as was the case of *mita*» (Ortiz de Zevallos 1975). The project of working mercury mines in Chachapoyas, according to Morales, had been already proposed by the Mining Tribunal (*el Tribunal de Minería*) of Guayaquil in the previous years.

Morales tried to make the case that Chachapoyas could replace Huancavelica as the main producer of mercury in Peru, especially with the assistance of the Mexican Empire, under José de Iturbide. But his vision and lobbying efforts came to nothing, neither the support of the then «Mexican Empire» materialized. Other particular efforts to relaunch Huancavelica rather prevailed.

By 1826 the current mercury mining activity in Huancavelica was attested to in a report of its City Council, contradicting the zero-production suggested in the data of Fernández Concha, Yates and Kent. This report contained a list of all the mercury merchants (*rescatadores del azogue*) that were not paying taxes for their trade. The largest were a merchant or *rescatire* called N. Zapata and another «trader from Limo». Both were found guilty of tax evasion in the extraction of *azogue*. Zapata owed taxes on forty quintals of *azogue*, the «trader from Limo» on thirty quintals. The tax amounted to four pesos per quintal of mercury extracted. The document also named thirteen other *rescatires* who in October 1826 were involved in trading *azogue* (BNP 1826).

Therefore, although the production levels of mercury in Huancavelica were low, but not zero as shown in the chart, regional trading was very much alive. Mercury or *azogue* was being bought by *rescatadores del azogue*, who put it in the different markets of the Peruvian mining economy, mostly in Cerro de Pasco, but also, and for sure, Potosí,

---

[17] «El Ministro del Perú en México, Joseph de Morales, dirígese a su Cancillería informando sobre la situación de determinadas minas de azogue en Chachapoyas...». Ortiz de Zevallos (1975).

[18] *Cinabrio* was the Spanish name of mercury in its natural state.

as well as in several ports of the Peruvian coast. The State, well aware of this business, named and persecuted these merchants, who should have paid the due taxes on it[19].

The demand for mercury is also clear in the request of a silver miner, José Toribio de la Torre, also from 1826, asking that «some quintals of *azogue* would be sent to work a mine that he possessed in Urubamba, in the Department of Cuzco» (AGN 1826). And José Antonio Lopez, the following year, wished «to buy 10 quintals of gunpowder to work mercury mines in the district of Huancavelica» (AGN 1827). Thus, mercury from Huancavelica, kept in well designed bottles of some 35 kilograms, was going in different directions to supply mining production areas, whether in Urubamba, Cuzco, or in other places; whereas gunpowder was being bought to extract and produce the precious liquid mineral substance, *azogue*.

There was, then, a certain mining activity in Huancavelica and a regional trade in *azogue* and gunpowder which are not reflected in chart N° 1. Mercury production and trade, however, were injected with a new dynamism beginning in 1835-1836 with the investments of Demetrio Olavegoya in Huancavelica. Nevertheless the pre-1836 lethargy of mining in Huancavelica left room for Indian mine workers to go to the mining areas and exploit the mercury deposits on their own, a trait showing the subtle economic and political autonomy of indigenous mining peasants in early nineteenth century Peru. When a dominant economic sector and its mining profits slumped and, therefore, business people and *criollo* mine owners were not interested on that particular economic activity, Indian workers from peasant origins, most of them still keeping their ties to their rural villages and communities, went into the mines to work on their own with their modest tools at hand. They did this operation in groups or even individually, obviously not taking into consideration the ownership of the mines. The mineral resources, the mercury, according to their views, belonged to the earth, to nature, to the *mamapacha*; the access to them, the mine shafts, for these Indian workers, was not a matter to be reckoned with. Furthermore, they were risking their lives to do this kind of work. In Huancavelica these Indian mine workers were called *humachis*, in Cerro de Pasco similar Indian peasant workers doing the same kind of operations in silver mining were called *busconeros* or *juqueros*, and they worked in conjunction with *bolicheros* mentioned above (ADRMCP 1833, 1856). These independent Indian peasant workers, from Quechua and Aymara ethnic backgrounds, who exercised «production as a popular practice», were called *kajchas* in Potosí and other Bolivian mining centers [20](Tandeter 1981, Rodríguez Ostria 1989).

The action of *humachis* in Huancavelica put in question to the ownership and property rights set by the Peruvian State, and its colonial and republican laws. Indigenous Andean

---

[19] On the act of *rescatar* as trading in late nineteenth and early twentieth century Peru see Burga and Reátegui (1981).

[20] Kajchas entered almost 22% of all the silver gotten at the *Banco Nacional de Rescates* of Potosí between 1831 and 1850, or some 330 or 350 silver marcs (139).

peasants kept their own traditions and worldviews in the nineteenth century, even using the new political spaces created by the establishment of the Republic (Walker 1999).

A report from the Deputy of Mining to the Prefect of Huancavelica in 1840 described the actions of *humachis* and the conditions of mercury production in Huancavelica before 1837. According to this archival source, between the output generated by legitimate mine owners and that of *humachis* the mercury production in Huancavelica reached 700 quintals per year, this before the investments of Demetrio Olavegoya and the relative boom of the mid-1830. The Deputy of Mines wrote establishing a clear connection between prices and levels of mercury production, at the same time that he blamed the «Indians» («los indios») for what he perceived as «work without rules». «Little by little the mining center was decaying because the price of *azogue* fell very low, to between twenty five to fifty pesos per quintal, a wretched price that did not pay the miners' costs. And these (the miners) had to abandon their mines which were left to the mercy of Indians called *humachis*, who worked them without any rules[...] This disgrace lasted until eighteenth thirty seven, being extracted to that time by some miners and *humachis* some seven hundred quintals per year», the Huancavelica *Diputado de Minería* wrote (BNP 1840).

The report of the Deputy of Mines acknowledged some of the fluctuations in mercury production in Huancavelica that the previous chart also showed for Santa Bárbara. Mining of mercury was very low between 1815 and 1835, although it experienced growth afterwards, particularly between 1835 and 1840. But the quantity which the Deputy of Mining gave as the annual average production, 700 quintals or 910 bottles, was relatively high compared with the almost non-existent production that Fernández Concha, Yates and Kent estimated for Santa Bárbara. Certainly this primary source is giving us a more accurate figure of the real production in Huancavelica, than that of Santa Bárbara depicted in the study of Fernández Concha, Yates and Kent (Fernández Concha, Yates, and Kent 1952). It also shows that mercury was obtained in other mines in the Huancavelica region beyond Santa Bárbara, sometimes worked by established mine owners, other times by informal producers or *humachis*. Economic production was then an arena of confrontation between the legal order set by dominant groups and popular forces trying to make a living. This also explains why these *humachis* in Huancavelica, or *busconeros* or *juqueros* in silver mining in Cerro de Pasco, were also called in the documents we had worked with, *ladrones*, robbers, thieves.

The Deputy of Mines report makes also clear the strong impact of mercury prices on production. When prices reached the very low mark of 25 to 50 pesos per quintal, production halted, whereas every increase over that mark, or better so if prices reached 100 *pesos* or more, mercury production in Huancavelica was strongly stimulated. A price decline also meant more autonomy for *humachis* to go into mercury mines and extract *azogue*, whereas a price hike, particularly over 100 pesos per quintal, represented a rush of *criollo* Peruvian entrepreneurs into mercury mining.

The impact of market prices over production did not necessarily means the existence of a dominant market economy, or for that matter a prevailing capitalist one in nineteenth-century Peru or all over the Huancavelica region. Rather, in a heavily commodified industry, such as mercury mining since the sixteenth century, it was to expect that price fluctuations caused an immediate effect on production capabilities, whether the ones who worked the mines were Andean peasants or *criollo* entrepreneurs. They both were well aware of these interrelations between prices and production, although for the former the expectation was for prices to decline in order «to sell their wares» (a bottle of mercury or two), for the latter that international prices measured in Lima could translate into «business opportunities» in Huancavelica[21].

Similar price swings were also experienced in Lircay, south of Huancavelica, in what is today the province of Angaraes. In 1827 mercury was being bought there with prices as high as 125 pesos per quintal (BNP 1827). Lircay then became another mercury producing area in the country, and *humachis* showed up also there to take part in these economic activities. Thus, when prices were low whether in Huancavelica proper or in Lircay, *humachi* activities were noticeable, whereas when higher prices appeared, especially those record ones of 1827 in Lircay, a sharper confrontation between *humachis* and formal mine *criollo* owners ensued.

One explanation for this very Andean social phenomenon is the fact that mercury merchants, the so-called *rescatires*, using the Quechua spelling, or rather in a more Spanish one, the *rescatadores*, were in many cases itinerant traders who were not shy of dealing with Indian Andean peasants to buy their mercury. More established mining entrepreneurs and, of course, government officials were, on the contrary, not happy at all with these underground social and economic networks developing. Trade also has a special meaning in the Andean historical world, *rescatar* implied personal relationships or, as in the case of wool in the late nineteenth century, sometimes *compadrazgo*, sometimes the forced selling or buying of goods[22] (Burga and Reátegui 1981).

Mercury prices, then, fluctuated sharply in the early Republic. As we have seen, they were at 25 pesos per quintal in Huancavelica shortly after Independence, they were at 125 pesos in Lircay in 1827, a 500% hike, although to go from the first place to the second supposed too to climb to high mountain passes and to descend into warmer valleys (BNP 1840). Price differences were also extremely acute in the various regional markets that formed the Peruvian economy then. If in Lima, the nation's capital, mercury prices were in 1828 at 65 pesos per quintal, in Arequipa they reached 95 pesos two years earlier, whereas in Cerro de Pasco they hit the roof, getting to 190 pesos per quintal in a particular moment of acute scarcity (De Rivero y Ustáriz 1828; AGN 1826). Huancavelica's

[21] For market relations and market building in Andean countries seen through the prism of mining see Harris, Larson, and Tandeter (1987: 159-231, 379-424, 445-67, 471-557), Tandeter and Wachtel (1983: 549-613), Deustua (2000: 104-73, 177-80).

[22] Valcárcel (1981: 53-54) on the uses of *ranti* and *yapa* as incentives for trade.

merchants, or the so-called *rescatires*, and mine owners were very much aware of these price fluctuations, regional price variations, and the conditions in silver producing areas for mercury consumption. Imports also played a role on flattening mercury prices or, when they lacked, on increasing these regional and local variations.

In 1836 a new dynamic took place in Huancavelica when a moderate mercury production recovery was experienced in the area. This was the result of the contract that Demetrio Olavegoya signed with the government to establish a mining company, «*una Compañía de Minas*», to work Santa Bárbara. Olavegoya was the son of a merchant and muleteer from Tucumán, a province of the recently founded Republic of Argentina, who had settled in Tarma, in the central Peruvian sierra. From his merchant operations he extended his activities to be involved in mining, «owning in three different periods some sixty mines», as well as in agriculture and livestock herding. He bought the *hacienda* Cónsac, located in the valley of the Mantaro river, and later he developed businesses in finances with the Italian bank (*el Banco Italiano*), insurances, and the textile industry (Manrique 1979: 37-38). His wealth and availability of capital enabled him to enter into this new economic venture: to revive the Santa Bárbara mercury mine. He had enough capital and initiative to do it.

According to the 1840 report of the Deputy of Mining of Huancavelica to the Prefect of the Department, after 1837 the mining center of Huancavelica began to expand. Some mines were put in production («*habilitándose varias minas*»), new mercury deposits were discovered, the population of the town grew, and the consumption of foodstuffs also increased. In 1840 the Mining Deputy calculated that the mercury production in Huancavelica had reached 2000 quintals per year, compared with the 700 quintals he had estimated for the years before 1836 (BNP 1840). In 1839, however, the situation changed. In April, Olavegoya's original company dissolved, new Government dispositions were established and a new enterprise created, *la Compañía Metalúrgica*, in which Olavegoya figured as Director, although now the Government had more influence and a larger number of shares (Jiménez 1924, Nieto and Santos de Quiros 1864: 168-174).

Because of this new atmosphere, another large company was established in the area, the *Sociedad Huancavelica*, that in 1840 started to work the mines La Minilla and Trinidad Grande, affected by floods and an «old ruin» («*una ruina antigua*»). Felipe Cavero and Anacleto Rubianes were also exploiting another mine, Trinidad Chica. All the news, however, was not promising. According to the Deputy of Mines, if the mercury prices dropped below 100 pesos per quintal the company of Olavegoya would suffer losses and work would be paralyzed (BNP 1840).

The warning seemed to have positive effects because the level of activity grew in the following years. New contracts of leasing and mine exploitation were signed between the Government, the legal owner of Santa Bárbara, and local, provincial, and national mining businessmen. In addition to the original contract signed with Olavegoya in 1836 and the one of 1839 with the Compañía Metalúrgica, another agreement was struck in

1843 with the Sociedad Huancavelicana. In 1846 a new contract was signed with Flores y Compañía, and in 1866 with Basadre y Compañía (Jiménez 1924). It seems, however, that not all these business deals were successful. The mining recovery in Huancavelica was only partial. For example, the data of chart n. 1 shows that Santa Bárbara enjoyed a period of growth between 1835 and 1871, compared to 1815-1835, with two peaks in 1835-40 and 1852-54, but the level of production was never extremely high.

We can perceive, however, a level of mining activity that is the result of several social and economic factors relating to whether the action of businessmen and private commercial companies, or the government role in the economy. The main business people involved in the relancing of mercury production in Huancavelica were Demetrio Olavegoya, a regional entrepreneur from Tarma with commercial connections with Lima, Felipe Cavero, Anacleto Rubianes, Luis Flores, and Modesto Basadre. Some of them were local or regional entrepreneurs, whose commercial horizons did not extend beyond several provinces or departments, others were influential businessmen connected with the capital of the country and its central government.

Between 1836 and 1866 then commercial companies were now operating at full speed in mercury mining in Huancavelica. These were the *Compañía Metalúrgica*, *Sociedad Huancavelica*, *Sociedad Huancavelicana*, *Flores y Compañía*, and *Basadre y Compañía*, among others. They were formed mostly to deal with the Government, the legal owner of Santa Bárbara, and to work the Santa Bárbara mercury mine or others in the area. The setting of these formal commercial companies, however, kept hidden particular personal interests of individual businessmen who used these formal appearances to strengthen their own private and many times regional agendas. It was not still the time for Peruvian formal capitalism or modern companies to lead an economic industry. It was rather a time for local or regional powerholders, *gamonales*, to continue their traditional grasp on economic resources and social spheres, and mercury mining was just a new venue for these old power games. Thus, at the other side of the spectrum, these years of economic recovery meant for *humachis* or independent Indian peasant workers a frontal attack on their livelihood and economic initiatives. By 1847 there were some 560 workers toiling daily in Huancavelica, 60 in Santa Bárbara and some 500 of them in other mercury mines and plants of the area. None of them were *humachis*. They were rather mining peasant workers paid in cash or not (AGN 1847).

> 1847 was a year closer to what an economic boom would have meant for Huancavelica. In that year the Deputy of Mining wrote that there were 560 people working in the mines, and the annual production grew again from 700 quintals before 1836 to 2000 quintals in 1840, and to some 3000 quintals by 1847. Nonetheless, the picture was mixed. Whereas Santa Bárbara was worked with some 60 laborers, although producing feeble results, private mines, according to the report, were flooded and almost in ruins. The report, however, blamed the fact on the lack of capitalists or investors, who could do better with the natural resources existing in the area. The Mining Deputy wrote:

> The great mine of Santa Bárbara, owned by the Government, is worked methodically by don Luis Flores who has it on lease. He employs more than sixty workers although its products are rather scarce. The large part of mines owned privately are not being worked, whether because they are flooded or ruined, or because there is an absolute lack of mining capitalists. There are more than two hundred refining offices commonly built... obtaining from them some three thousand quintals of mercury per year and working on them constantly more than five hundred men... (AGN 1847).

Mercury mining in Huancavelica, then, experienced a recovery after the 1830, after the post-Independence decline; but it never recuperated the production levels of its height during the colonial era. Still the relative growth of the 1830 and 1840 permitted a reconstruction of some mercury supply circuits which connected Huancavelica with other mining areas in the country, particularly silver ones, to strengthen the prevalence of some regional markets. The most important connection, and the one who implied the largest flows of mercury, was with Cerro de Pasco, the greatest silver producing center of nineteenth-century Peru. Large and small merchants, the so-called *rescatires*, had a strong hold on this circuit. Muleteers, with their trains of mules, and *llameros* with their llamas, were active in establishing this trade circuit. Some data on this trade exist for the years 1843-1846. According to a report of the Police Intendancy of Huancavelica, the following deliveries of mercury were made from Huancavelica to Cerro de Pasco on the following dates:

Table N° 1
Deliveries of mercury from Huancavelica to Cerro de Pasco
1843-1846

Year	Date	Amount	Total
1843	From Aug. 2 to Aug. 21	155 quintals	155 quintals
1845	From Feb. 20 to Mar. 15 From Ap. 17 to May 20 From May 20 to Jun. 18	169 quintals 166 quintals 182 quintals	 517 quintals
1846	From Dec. 27 to Jan. 15 From Feb. 16 to Mar. 27	97 quintals 263 quintals	 360 quintals

Source: AGN. Serie Minería. Legajo 72, years 1843, 1845, 1846. *Informe de la Intendencia de Policía de Huancavelica*.

Although the data are incomplete, they at least give us an idea of the frequency, amount, and market value of the mercury deliveries. According to this record there was one delivery of mercury in 1843 for 155 quintals, three in 1845 with a total of 517 quintals, and two in 1846 with a total of 360 quintals. Assuming these deliveries occurred weekly, I estimate the average amount of mercury sent to Cerro de Pasco at some 49 quintals, with an estimated market value of 4900 pesos. This would have meant mercury production in Huancavelica of some 2 664 quintals per year, a figure relatively

close to the amounts reported by other sources: 2000 quintals of mercury produced in 1840, 3000 quintals in 1847 (BNP 1840, AGN 1847). Huancavelica was therefore sending a very large part of its mercury production to Cerro de Pasco, an obvious conclusion if we think of the very close links that existed historically, and also in the 19th century, between mercury and silver production.

But Huancavelica was not the only mercury-producing center in 19th-century Peru. As a result of the great demand for mercury for silver refinement, alternative mining centers started to operate. As we have seen, Joseph de Morales had proposed to promote one such center in Chachapoyas (Ortiz de Zevallos 1975). There was also the search for mercury deposits in other parts of the country. The most important example of these new ventures was the mining center of Chonta, located near Cerro de Pasco.

MERCURY BEYOND HUANCAVELICA

The mining center of Chonta was discovered in 1756, at the beginning of the Bourbon reforms, and was in production for decades. By 1828 we know that, however, Chonta had only one mine in operation, although there also was a processing furnace whose output was some a hundred quintals of mercury per year. By 1845 the number of mines in operation had increased to nine from which cinnabar (*cinabrio*) was extracted. *Cinnabar* was the combination of mercury with sulphiden, «the most common form in which mercury is found in nature» (Contreras 1981: 7). The cinnabar of Chonta was distilled at that time in 8 furnaces that produced some 60 quintals of mercury per month, or 720 quintals per year, between 20% or 30% of what Huancavelica produced in the same years. A small part of Chonta's mercury production was used in Chonta itself for the refining of silver, but most was sent to Cerro de Pasco. Smaller amounts were also sent to Huallanca, Huaraz, Cajatambo and Queropalca. Mariano de Rivero estimated that these destinations absorbed close to 10% of Chonta's production (De Rivero y Ustáriz 1857: 171-173).

Mercury production in Chonta combined then an extractive phase, taking cinnabar from the earth, with a refining process, transforming cinnabar into mercury in the smelting furnaces. These furnaces were, according to all indications, *hornos de aludeles* (furnaces with sublimating pots and tubes), the regular technique used since colonial times in Huancavelica. In the best case these *hornos* produced one pound of mercury for every six pounds of cinnabar processed. In the worst case this ratio was one to fifteen. In the words of Mariano de Rivero, the yield of Chonta's mines was on average of twenty pounds «*por hornadas de 20 cargas*»[23], although in other cases they produced up to fifty pounds of good mercury (De Rivero y Ustáriz 1857: 173).

[23] *Carga* is the mule load of some 350 pounds approximately.

Chonta's mercury was traded by *rescatadores* and merchant houses that bought it at 7 reales or even one peso per pound, say between 87 and 100 pesos per quintal[24]. This reference allows us to estimate the market value of the mercury produced by each mining company in the area. If in 1845 the mines and furnaces of Chonta produced 720 quintals of mercury that were sold at, say, 100 pesos per quintal, the total market value of the mining production in the area was of some 72,000 pesos, or between 8000 to 9000 pesos per mine in operation there (De Rivero y Ustáriz 1857). This sum is between three and four times lower than the estimate of the value of the Santa Bárbara mine in Huancavelica in 1825 (31 400 pesos) (BNP 1825).

Rivero also commented on «the lack of arms» (*la falta de brazos*) noting that the mine workers were *maquipureros* from the neighboring areas, seasonal workers that did not stay in Chonta for a long time. This scarcity of stable and skilled mine workers was an obstacle to the development of mercury mining in Chonta, as was the lack of *arrieros bajadores*, muleteers that would transport the mercury down to the areas of trade. Chonta, located at 4465 meters above sea level, was the mercury producing area that was nearly competitive with Huancavelica, although its geographical surroundings, in the cold and desolated high-altitude steppe, made it like a bizarre urban and productive center well above warmer Andean valleys. In contrast to Huancavelica, located at lower geographical levels and with its long mining tradition, Chonta appeared as a new mining town with all the typical difficulties for a new center of production in attracting labor, capital, and residents. Only the market value of mercury and the decline of Huancavelica could explain its nineteenth-century history.

Lircay was another area that produced mercury. Lircay was located just south of Huancavelica and influenced by it. For this reason Lircay's economic fluctuations followed Santa Bárbara's, and hence to some extent reflected changes in the international and national prices of mercury. In 1827, for example, according to a local report, Lircay had recently gone through «a long period of misfortune in which there was almost no exploitation of its mines because of the very low price of *azogue*, that was reduced to 25 pesos per quintal». Thus, «almost all the miners abandoned their mines and belongings, giving the opportunity to the Indians, who had no other way of living, to squander and ruin all the mines without exception». But in 1827, «because there is no *azogue* all over America [...] its prices went up to the point of paying 125 pesos per quintal». Mine owners, then, «have started new investments and mercury production has recovered strongly» (BNP 1827).

The report, however, warned about the *rescatires* who «besieged» the mine owners in search of mercury to buy from them at lower prices. The *Junta Subalterna de Minas* of Lircay underlined again the ubiquity and power that merchants exerted on mine owners in various regions of the country. The free and independent work of the mines by Indian mine workers in moments of crisis, like what had occurred with the *humachis*

[24] Spanish quintals of 46 kilograms.

in Huancavelica, and the pressure that merchants and *rescatires* exerted upon the mine owners in times of recovery and growth, are features that were present both in Lircay and Huancavelica in almost the same years.

When in Cerro de Pasco the demand for mercury was high and, therefore, its prices rose, *azogue* was also exploited in Cuypan, a mining center located in the Oyon mountain range, west of the Bombon high plateau and close to Cerro de Pasco. In this area dispersed small pockets of cinnabar were found. Costs of production, then, were high and productivity on the whole was low. Per each *cajón* of cinnabar that was extracted only one *arroba* of mercury was obtained, a ratio of 240/1, whereas in Chonta, as we have seen, the ratio was between 6/1 in the best cases, and 15/1 in the worst ones; a rate 16 and 40 times higher.

Close to the hacienda San Lorenzo also some *cinnabar* was exploited, although with the same poor yields of Cuypan. Only the proximity to the great silver mining center of Cerro de Pasco made these deposits profitable. In contrast Chuquitambo, also close to Cerro de Pasco to the north, enjoyed «*azogue* metals with high yields» (De Rivero y Ustáriz 1828: 191-197).

There were also deposits of cinnabar in Azángaro, although these were not really exploited. Rivero y Ustáriz also mentioned that the *azogue* mines of Arapa, on the shores of lake Titicaca, should be press for these to be exploited more intensively to regularly supply of mercury the silver mines of Puno and Lampa, and at a lower price. Some silver mines in this area, indeed, were choked by the scarcity of mercury, and its high price (De Rivero y Ustáriz 1826: 1-36, 21-23)[25].

As a whole, then, mercury mining was a lively, steady, sometimes in decline, sometimes growing economic sector in nineteenth-century Peru. Mercury mining was not always rising but was never completely paralyzed either, as have been assumed in many historical studies. As the discussion above shows, there was a certain economic activity, a constant supply, and a demand for mercury to be used as an input for silver refining. What emerges from this analysis is rather an image of frustration for government officials and entrepreneurs, visible in the failed attempts to revive mining production in Santa Bárbara, Huancavelica as a whole, or in other mercury producing areas of the country.

The domestic demand for mercury, then, was not met by domestic production. Silver miners had to rely on imports, mostly from the United States, the Balkans and Spain, and secondarily from China (Mitre 1981: 116-21; AGN 1826). In 1855, for example, *azogue* was being sold in Pasco at 60 pesos per quintal «due to the effects of the free trade» and the free importation of it[26]. Thus, the final picture of the *azogue* mining sector in nineteenth-century Peru is rather one of frustration from the business side of an economic analysis.

---

[25] Data come from 3 and 21-3.

[26] Report of the correspondant of the newspaper *El Comercio* (1855). On the mining situation of Cerro de Pasco for the years 1855, 1856, 1857 and 1858, see also *El Comercio* (1856: 3, 1857: 2, 1858: 2, 1859: 3).

Mercury mining in the nineteenth century, then, changed somewhat its fundamental place within the colonial Peruvian mining economy, as a complement of silver mining, and as a working partner of the great silver mining center of Potosí or later Cerro de Pasco. Hence in the Huancavelica region mining never regained the prominence it had enjoyed during colonial times. It was rather displaced by a rural world of large landholdings, peasant communities, *haciendas*, and a traditional agricultural economy that was now the region's *modus vivendi* (Favre 1976: 105-138).

The attempts to re-float mercury mining in Santa Bárbara, and other similar efforts, leave the impression that nineteenth-century upper-class Peruvians and government officials and scientists, such as Mariano de Rivero, did not want to give up the dream of a long-lost golden era. The same impulse led to exploration of alternative and competitive centers of *azogue* production in Chonta, Lircay, Cuypan, etc. although they never could compare with the jewel of colonial mining, the Santa Bárbara mine in Huancavelica. Nineteenth-century mercury mining was, if not a complete failure, at least a constant dissatisfaction for government officials and entrepreneurs.

However *azogue* was not the only secondary mining sector in the nineteenth-century Peruvian economy. There were other new industries and mining goods such as iron, coal, lead, tin, etc. whose performance was also frustrating, also hopeful, anticipating for sure the shape of Peru's mining in the twentieth century (Deustua 1989: 118-131, Macera 1972, Chaca 1975).

AS A CONCLUSION: «FALLING BEHIND», SOCIAL ECONOMICS, AND POST-MODERNISM

If Peruvian mercury mining was not an extremely «productive and efficient» economic sector competing with other ones, such as silver in Peru (Bolivia, Mexico, to some extent Chile, for that matter), or the iron and coal industries of Great Britain, Belgium or the United States, does that mean that is it not worthy of historical inquiry that pinpoints its difficulties to expand or grow? Plus, was not better for *humachis* or *busconeros* in Huancavelica that this sector stayed low, producing small amounts of the precious liquid, so they and their communities could make a living? If history is seen from above: growth, investment, great profits, matter. If history is seen from below, a «subterranean Andean history» of *humachis* and their communities livelihood, as Urus in Aymara country, or *marranos* in Spain, Portugal, or Latin America in general, is worthwhile the effort, trying to identify the ways of living of the Andean masses and their strategies to survive and prosper[27]. Thus, to search for the social economy of nineteenth-century mercury mining demanded not only to present a key economic analysis but also to discuss the subterranean

[27] I am referring here, of course, to the work of Wachtel (1990, 2001: 29- 30).

dwellers who did most of the labor and also dealt with merchants, *rescatires*, prices, markets, *patrones* and *gamonales*, etcetera.

In Latin American history economic growth has perhaps not been as important as economic justice or «development with equity». Thus, it is not so clear after presenting these pages that Latin America really «got behind» Europe or the United States in the nineteenth century; or if that really was an issue for the people of the Andes, particularly Andean *huancavelicanos (as)* in this case study. Furthermore, if economic growth also meant environmental destruction, as it did in world history during the nineteenth and twentieth centuries, perhaps it was better not to have a «take-off» in the nineteenth[28]. In that sense it would be rather appropriated to focus on the well being of the whole society and its inter-relations with the natural environment to evaluate later if one society is «behind» or «ahead» of others.

Finally, one of the virtues of a social economics approach to history is that traditional or neo-classic economic variables, such as «efficiency» or «growth» or, worse so, «labor costs», rather translate into social analysis of classes, layers of society, and cultural and ethnic groups, which give new dimensions to the historical whole. Likewise, compared to post-modernist approaches to culture and politics in Latin America after the «linguistic turn» (a wrong turn in many respects), a social economics approach never loses track of the materiality of human life (Vernon 1994: 81-97; Kirk 1995: 222-240, Aguirre 2002 y Ruiz 1998).

REFERENCES

Manuscripts

ADRMCP (Archivo de la Dirección Regional de Minería del Cerro de Pasco)

1827 «Libro copiador de notas desde 1832 hasta 1835. Correspondencia. Comunicación de la Diputación de Minería a la Prefectura del Departamento». f. 38.

1856 «Libro Inventario de los libros y papeles de la Secretaría de la Diputación». Vol. XXX, N° 35. f. 10v.

AGN (Archivo General de la Nación)

1826a *Agustín Mandracha demanda importación de azogue*. PL6, N° 244.

1826b *Don José Toribio de la Torre solicita se remitan de Huancavelica algunos quintales de azogue*. PL6, N° 331.

1826c *El Director de Minería sobre la escasez de pólvora que se experimenta en el Departamento de Arequipa*. PL6, N° 164.

1827 *Don José Antonio López, vecino de Huancavelica, solicita comprar 10 quintales de pólvora*. PL7, N° 46.

[28] The notion of «take-off» for industrialization or processes of economic growth comes from Rostow (1964) of course, is fully assumed in Haber (1997). For environmental destruction in the nineteenth and twentieth centuries due to economic growth see again McNeill (2000).

1847 *Informe de la Diputación de Minería de Huancavelica al Prefecto del Departamento del 19 de agosto de 1847*. Serie Minería C-12, legajo 72.

BNP (Biblioteca Nacional del Perú)
1825 «Reconocimiento, inventario y tasación de la mina de Santa Bárbara». *Manuscritos republicanos*, D 10363.
1826 «Informe de la Municipalidad de Huancavelica sobre el rescate de azogue». *Manuscritos republicanos*, D8696.
1827 «Informe de la Junta Subalterna de Minas de Lircay». *Manuscritos republicanos*, D 9465.
1840 «Expediente que el Diputado de Minería eleva al Prefecto de Huancavelica». *Manuscritos republicanos*, D 9510.

Publications

Aguirre, Carlos
2002 «La historia social del Perú Republicano (1821- 1930)». *Histórica*, Vol. XXVI, N° 1-2, pp. 445-501.

Arduz Eguía, Gastón
1985 *Ensayos sobre la Historia de la Minería Alto-Peruana.* Madrid: Editorial Paraninfo.

Bairoch, Paul
1967a *Revolución Industrial y Subdesarrollo.* Mexico City: Siglo XXI.
1967b «Desarrollo agrícola y desarrollo industrial». *Desarrollo Económico*, Vol. VII, N° 25, pp. 749-780.
1991 «How and why not: Economic inequalities between 1800 and 1913. Some background figures». In Batou, Jean (editor). *Between Development and Underdevelopment, 1800-1870.* Geneva: Droz.

Bakewell, Peter J.
1984 *Miners of the Red Mountain: Indian Labor in Potosí, 1545-1650*. Albuquerque: University of New Mexico Press.
1987 «Mining». In Bethell, Leslie (editor). *Colonial Spanish America*. Cambridge: University of Cambridge Press.

Brading, David A.
1988 *Bourbon Spain and its American empire*. In Bethell, Leslie (editor). *Colonial Spanish America*. Cambridge: University of Cambridge Press.

Brading, David A. and Harry Cross
1972 «Colonial silver mining: Mexico and Peru». *Hispanic American Historical Review*, Vol. 52, N° 4, pp. 545-79

Burga, Manuel and Wilson Reátegui
1981 *Lanas y Capital Mercantil en el Sur. La Casa Ricketts, 1895-1935.* Lima: Instituto de Estudios Peruanos.

Casanova, Juan Norberto
1972 *Ensayo Económico-Político sobre el Porvenir de la Industria Algodonera Fabril del Perú*. Lima: Universidad Nacional Mayor de San Marcos and Biblioteca Peruana de Historia Económica.

Chaca Gamarra, Pablo Alejandro
1975 «El capitalismo en el sector minero». Bachelor thesis. Universidad Nacional Mayor de San Marcos. Lima.

Coatsworth, John H.
1982 «The limits of colonial absolutism: The State in eighteenth-century Mexico». In Spalding, Karen (editor) *Essays in the Political, Economic, and Social History of Colonial Latin America*. Newark, Del.: University of Delaware.
1998 *Economic and institutional trajectories in nineteenth-century Latin America.* In Coatsworth and Alan M. Taylor (editors). *Latin America and the World Economy since 1800*. Cambridge, MA: Harvard University David Rockefeller Center for Latin American Studies.

Cole, Jeffrey A.
1985 *The Potosí Mita, 1570-1700*. Stanford: Stanford University Press.

Contreras, Carlos
1981 *El Azogue en el Perú Colonial (1570-1650)*. Lima: Pontificia Universidad Católica del Perú.
1982 *La Ciudad del Mercurio: Huancavelica, 1570-1700*. Lima: Instituto de Estudios Peruanos.
1988 *Mineros y Campesinos en los Andes: Mercado Laboral y Economía Campesina en la Sierra Central, siglo XIX*. Lima: Instituto de Estudios Peruanos.

Cook, Noble David
1981 *Demographic Collapse: Indian Peru, 1520-1620*. New York and Cambridge: Cambridge University Press.

De Rivero y Ustáriz, Mariano Eduardo
1826 «Visita a las minas del departamento de Puno en al año de 1826». *Colección de Memorias*, Vol. II, pp. 1-36.
1828 *Memoria sobre el rico mineral de Pasco*, in *Colección de Memorias*, I.
1857 *Colección de Memorias Científicas, Agrícolas e Industriales*. Brussels: H. Goemaere.

De Ulloa, Antonio and Jorge Juan y Santacilia de Ulloa
1989 *Relación Histórica del Viaje a la América Meridional*. Madrid: Fundación Universitaria Española.

Deustua, José R.
1984 «El ciclo interno de la producción del oro en el tránsito de la economía colonial a la republicana: Perú, 1800-1840». *Hisla. Revista Latinoamericana de Historia Económica y Social*. No. 3, I semester, Lima, pp. 23-49.
1986 *La Minería Peruana y la Iniciación de la República, 1820-1840*. Lima: Instituto de Estudios Peruanos.
1989 *Mines, Monnaie et Hommes dans les Andes: Une Histoire Economique et Sociale de l'Activité Minière dans le Pérou du XIXe siècle*. Paris: Ecole des Hautes Etudes en Sciences Sociales.
2000 *The Bewitchment of Silver: The Social Economy of Mining in Nineteenth-Century Peru*. Athens, OH: Ohio University.

Du Chatenet, Mauricio
1880 *Estado Actual de la Industria Minera en el Cerro de Pasco.* Lima: Anales de la Escuela de Construcciones Civiles y de Minas, Imprenta del Universo, de Prince y Buxo.

Henri Favre
1976 «Evolución y situación de la hacienda tradicional de la región de Huancavelica». In Matos Mar, José (editor). *Hacienda, Comunidad y Campesinado en el Perú*. Lima: Instituto de Estudios Peruanos.

Fernández Concha, Jaime; Robert G. Yates, and Dean F. Kent
1952 *Geología del Distrito Mercurífero de Huancavelica*. Lima: Instituto de Investigación y Fomento Mineros del Ministerio de Fomento y Obras Públicas.

Fisher, John R.
1970 *Government and Society in Colonial Peru: The Intendant System, 1784-1814*. London: The Athlone Press.
1977a *Silver Mines and Silver Miners in Colonial Peru*. Liverpool: University of Liverpool.
1977b *Minas y Mineros en el Perú Colonial, 1776-1824*. Lima: Instituto de Estudios Peruanos.
1985 *Commercial Relations between Spain and Spanish America in the Era of Free Trade, 1776-1796*. Liverpool: University of Liverpool.
1993 *El Comercio entre España e Hispanoamérica, 1797-1820*. Madrid: Banco de España.

Gootenberg, Paul
1982 «The social origins of protectionism and free trade in nineteenth-century Lima». *Journal of Latin American Studies.* Vol. 14, No. 2, pp. 329-358.
1989 *Between Silver and Guano: Commercial Policy and the State in Postindependence Peru*. Princeton: Princeton University Press.
1993 *Imagining Development: Economic Ideas in Peru's «Fictitious Prosperity» of Guano, 1840-1880*. Berkeley: University of California Press.

Haber, Stephen
1997 *How Latin America Fell Behind: Essays on the Economic Histories of Brazil and Mexico, 1800-1914*. Stanford: Stanford University Press.

Harris, Olivia; Brooke Larson, and Enrique Tandeter (editors)
1987 *La Participación Indígena en los Mercados Surandinos. Estrategias y Reproducción Social, siglos XVI a XX*. La Paz: CERES.

Hobsbawm, E.J.
1994 *The Age of Extremes: A History of the World, 1914-1991*. New York: Pantheon Books.

Jiménez, Carlos P.
1924 «Reseña histórica de la minería en el Perú». In Ministerio de Fomento. *Síntesis de la Minería Peruana en el Centenario de Ayacucho*. Lima: Imprenta Torres Aguirre.

Johnson, Paul
1991 *Modern Times: The World from the Twenties to the Nineties*. New York: Harper & Collins.

Kirk, Neville
1995 «History, Language, Ideas and Post-Modernism: A Materialist View». *Social History View,* 20, pp. 220-40

Leff, Nathaniel H.
1997 *Economic Development in Brazil, 1822-1913. In Haber (editor). How Latin America Fell Behind: Essays on the Economic Histories of Brazil and Mexico, 1800-1914*. Stanford: Stanford University Press.

Lohmann Villena, Guillermo
1949 *Las Minas de Huancavelica en los siglos XVI y XVII*. Seville: Escuela de Estudios Hispanoamericanos.

Macera, Pablo
1972 «Estadísticas Históricas del Perú. Sector Minero (Precios)». Mimeo. Lima: Centro Peruano de Historia Económica.

Maddison, Angus
1989 *The World Economy in the 20th Century.* Paris: OECD.

Manrique, Nelson
1979 *El Desarrollo del Mercado Interior en la Sierra Central, 1830-1910*. Lima: Universidad Agraria de La Molina, pp. 37-38.

McNeill, J.R.
2000 Something New *under the Sun: An Environmental History of the Twentieth-Century World*. New York: Norton.

Mitre, Antonio
1981 *Los Patriarcas de la Plata. Estructura Socioeconómica de la Minería Boliviana en el siglo XIX*. Lima: Instituto de Estudios Peruanos, pp. 116-21.

Nieto, Juan Crissóstomo and Mariano Santos de Quiros
1864 *Colección de Leyes, Decretos y Órdenes Publicadas en el Perú desde su Independencia.* Lima: Imprenta de la Colección.

Ortiz de Zevallos, Carlos (editor)
1975 «El Ministro del Perú en México, Joseph de Morales, dirígese a su Cancillería informando sobre la situación de determinadas minas de azogue en Chachapoyas». In *Colección Documental de la Independencia del Perú*. XI, *Misiones Peruanas, 1820-1826*. Vol. 1, *Las Primeras Misiones Diplomáticas en América.* Lima.

Pease, Franklin
1978 *Del Tawantinsuyu a la Historia del Perú*. Lima: Instituto de Estudios Peruanos

Quiroz Chueca, Francisco
1988 *La Protesta de los Artesanos, Lima-Callao 1858*. Lima: Universidad Nacional Mayor de San Marcos.

Rénique, José Luis
2004 *La Batalla por Puno: Conflicto Agrario y Nación en los Andes*. Lima: CEPES.

Rodríguez Ostria, Gustavo
1989 «Kajchas, trapicheros y ladrones de mineral en Bolivia, 1824-1900». *Siglo XIX. Revista de Historia*, Vol. IV, N° 8, pp.125-39.

Ruiz Zevallos, Augusto
1998 *Buscando un centro. La crisis de la modernidad y el discurso histórico en el Perú*. Lima: Universidad Federico Villareal.

Salvucci, Richard J.
1997 «Mexican national income in the era of Independence, 1800-40». In Haber (editor) *How Latin America Fell Behind: Essays on the Economic Histories of Brazil and Mexico, 1800-1914*. Stanford: Stanford University Press.

Stern, Steve (editor)
1987 *Resistance, Rebellion, and Consciousness in the Andean Peasant World, Eighteenth to Twentieth Centuries*. Madison: University of Wisconsin Press.

Tandeter, Enrique
1981 «La producción como actividad popular. "Ladrones de minas" en Potosí». *Nova Americana*, N° 4, pp. 43-65.
1993 *Coercion and Market. Silver Mining in Colonial Potosí, 1692-1826*. Albuquerque: University of New Mexico Press.

Tandeter, Enrique and Nathan Wachtel
1983 «Conjonctures inverses. Le movement des prix à Potosi pendant le 18ème siècle». *Annales. Economies, Sociétés, Civilizations*, Vol. 38, N° 3, pp. 549-613.

Valcárcel, Luis E.
1987 *Memorias*. Lima: Instituto de Estudios Peruanos, pp. 53-54.

Vernon, James
1994 «Who's afraid of the "linguistic turn"? The politicals of social history and its discontents». *Social History,* 19, pp. 81-97.

Wachtel, Nathan
1977 *The Vision of the Vanquished*. Hassocks: Harvester.
1990 *Le retour des ancêtres. Les Indiens Urus de Bolivie, XXe- XVIE siècle: Essai d'Histoire Régressive*. Paris: Gallimard.
2001 *La foi du Souvenir. Lebyrinthes Marranes*. Paris: Editions du Seuil.

Walker, Charles F.
1999 Smoldering *Ashes. Cuzco and the Creation of Republican Peru, 1780-1840*. Durham and London: Duke University Press.

Wu Brading, Celia
1993 *Generales y Diplomáticos: Gran Bretaña y el Perú, 1820-1840*. Lima: Pontificia Universidad Católica del Perú.