



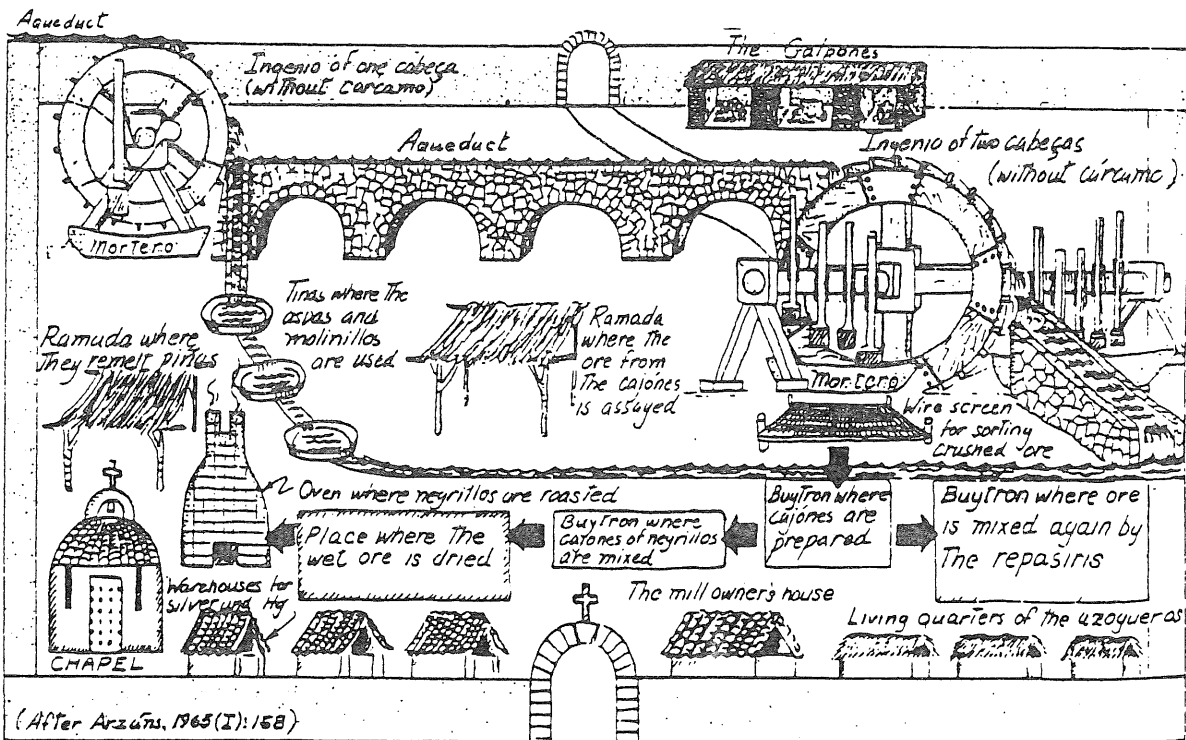
The Silver Refinery at Potosí, Bolivia, 1700

The silver refineries of Spanish America were among the largest and most heavily capitalized industrial enterprises in the Western Hemisphere during the colonial period. By the middle of the seventeenth century the mines of Potosí, Bolivia, had attracted a population of more than 120,000.

A typical refinery (*ingenio*) is presented in the accompanying illustration. Aqueducts carried water from large reservoirs on nearby mountainsides to the refineries. In this particular refinery the water wheel shown on the right drove two sets of vertical stamps that crushed ore. Each iron-shod stamp was about the size and weight of a telephone pole. Crushed ore was

sorted, dried, and mixed with mercury and other catalysts to extract the silver. The amalgam was then separated by a combination of washing and heating. The end result was a nearly pure ingot of silver that would later be assayed and taxed at the mint.

Silver production carried a high environmental cost. Forests were cut down to provide fuel and the timbers needed to shore up mine shafts and construct stamping mills and other machinery. Unwanted base metals produced in the refining process poisoned the soil. In addition, the need for tens of thousands of horses, mules, and oxen to drive machinery and transport material led to overgrazing and widespread erosion.



Bolivian silver mine, ca. 1700 (From *In Quest of Mineral Wealth: Aboriginal and Colonial Mining and Metallurgy in Spanish America*, edited by Alan K. Craig and Robert C. West, 1994. Vol. 33 of *Geoscience and Man*. Courtesy, Geoscience Publications)

Economies of Exploitation in the Spanish Empire

The Heritage of World Civilizations by Albert Craig, et al

The colonial economy of Spanish America was an economy of exploitation in two senses. First, the organization of labor within the Spanish empire in one situation after another involved structures of highly dependent servitude or slavery. Second, the resources of the continent were exploited in mercantilist fashion for the economic advantage of Spain.

Varieties of Economic Activity

The early *conquistadores* (“conquerors”) had been interested primarily in gold, but by the middle of the sixteenth century silver mining centers were Potosi in present-day Bolivia and smaller sites in northern Mexico. The Spanish crown was particularly interested in mining because it received one fifth (the *quinto*) of all mining revenues. The crown thus maintained a monopoly over the production and sale of mercury, which was required for separating silver from the other impurities in ore. Silver mining was a flourishing source of wealth for the Spanish until the early seventeenth century, when the industry underwent a recession because of a lack of new investment and the increasing costs involved in deeper mines. Nonetheless, silver predominated during the colonial era and experienced a major boom, especially in Mexico, during the eighteenth century. Its production for the benefit of Spaniards and the Spanish crown epitomized the wholly extractive economy on which Latin American colonial life was based.

The activities associated with this extractive economy mining the ore, smelting it, harvesting wood to feed the smelters’ fires—required labor. From the initial contact with America, there were too few Spanish colonists to provide the needed labor. Furthermore, the social status and expectations of those colonists who did come to the Americas made them unlikely to provide wage labor. Consequently, the Spaniards looked first to the native Indian population and then to black African slaves. Indian labor dominated on the continent and African labor in the Caribbean.

Encomienda The Spanish devised a series of institutions to exploit Native American labor. The first was the *encomienda*, a formal grant by the crown of the right to the labor of a specific number of Native Americans for a particular time. An *encomienda* usually involved a few hundred Native Americans, but might grant the right to the labor of several thousand. The *encomienda* was first used on Hispaniola, but spread to the continent as the conquest took place. *Encomienda* as an institution persisted in some parts of Latin America well into the eighteenth century, but had generally declined by the middle of the sixteenth. Some of Native Americans substituted payments in kind or cash for labor.

The Spanish crown disliked the *encomienda*. The monarchy was distressed by reports from concerned clergy that the Native Americans were being mistreated under the system and feared that *encomienda* holders were attempting to transform themselves into a powerful independent nobility in the New World.

Repartimiento The passing of the *encomienda* led to another arrangement of labor servitude, the *repartimiento*, which was largely copied from the draft labor practices of the Incas. *Repartimiento*, in an adaptation of the Incan *mita*, required adult male Native Americans to devote a set number of days of labor annually to Spanish economic enterprises. In the mines of Potosi, the *repartimiento* was known as the *mita*. The time limitation on *repartimiento* led some Spanish managers to use their workers in an extremely harsh manner, under the assumption that more fresh workers would soon be appearing on the scene. Native Americans sometimes did not survive their days of labor rotation.

The Hacienda Outside the mines, the major institution using dependent labor in the Spanish colonies was the *hacienda*. This institution, which dominated rural and agricultural life in Spanish colonies on

the continent, developed when the crown, partly to counter the extension of the *encomienda*, made available grants of land. These grants led to the establishment of large landed estates owned by *peninsulares*: whites born in Spain, or creoles, whites born in America. The crown thus continued to use the resources of the New World for patronage without directly impinging on the Native Americans because the grazing that occurred on the *haciendas* required far less labor than did the mines. The establishment of *haciendas* represented the transfer of the principle of the large unit of privately owned land, which was characteristic of Europe and especially of Spain, to the New World. Such estates would become one of the most important features of Latin American life. Laborers on the *hacienda* usually stood in some relation of formal servitude to the owner. Furthermore, they were usually required to buy goods for everyday living on credit from the owner. They were rarely able to repay the resulting debts and thus could not move to work for new landowners. This system was known as *debt peonage*. There were two major products of the *hacienda* economy: foodstuffs for mining areas and urban centers, and leather goods used in vast quantities on mining machinery. Both farming and ranching were thus subordinate to the mine economy.

A Contemporary Describes Forced Indian Labor at Potosi

The Potosi range in Bolivia was the site of the great silver-mining industry in the Spanish Empire. The vast wealth of the region became legendary almost as soon as mining commenced there in the 1540s. Native Americans, most of whom were forced laborers working under the mita system of conscription, did virtually all of the work underground. This description, written by a Spanish friar in the early seventeenth century, portrays both the large size of the enterprise and the harsh conditions that the Native Americans endured. At any one mine only one third of the 13,300 conscripted Native Americans were employed. The labor force was changed every four months.

How efficient does the description suggest the mines were? What would have been the likely effects of working so long underground surrounded by burning candles?

According to His Majesty's warrant, the mine owners on this massive range have a right to the *mita* [conscripted labor] of 13,300 Indians in the working and exploitation of the mines, both those which have been discovered, those *now* discovered, and those which shall be discovered. It is the duty of the Corregidor [municipal governor] of Potosi to have them rounded up and to see that they come in from all of the provinces between Cuzco over the whole of El Colao and as far as the frontiers of Tarija and Tomina...

The *mita* Indians go up every Monday morning to the locality of Guayna Potosi which is at the foot of the range; the Corregidor arrives with all the provincial captains or chiefs who have charge of the Indians assigned them, and he there checks off and reports to each mine and smelter owner the number of Indians assigned to him for his mine or smelter; that keeps him busy till 1 p.m., by which time the Indians are already turned over to these mine and smelter owners.

After each has eaten his ration, they climb up the hill, each to his mine, and go in, staying there from that hour until Saturday evening without coming out of the mine; their wives bring them food, but they stay constantly under ground, excavating and carrying out the ore from which they get the silver. They all have tallow candles, lighted day and night; that is the light they work with, for as they are underground, they have need of it all the time...

These Indians have different functions in the handling of the silver ore; some break it up with a bar or pick, and dig down in, following the vein in the mine; others bring it up; others up above keep separating the good and the poor in piles; others are occupied in taking it down from the range to the mills on herds of llamas; every day they bring up more than 8,000 of these native beasts of burden for this task. These teamsters who carry the metal do not belong to the *mita*, but are *mingados*-hired.