CHAPTER THREE

SILVER, THE ABUNDANT METAL: MEXICO

If the Spanish and Portuguese were seeking gold at the beginning of the sixteenth century, the Spaniards succeeded immediately in the Caribbean. The Portuguese, too, found a bountiful supply of the metal in Brazil, although they only began to exploit the placers in the 1690s. In early Spanish America, however, the discovery of abundant lodes of silver, particularly in Mexico, Upper Peru (present-day Bolivia), and Lower Peru (present-day Peru), constituted a bonanza for the Old-World colonizers. In Mexico the wealth of the silver mines at Catorce, Guanajuato, Parral, Real del Monte, and Zacatecas became legendary. So, too, were those of Upper Peru at Potosí, Oruro, and Chucuito. In Lower Peru the Cerro de Pasco, Hualgayoc and Huallanca near Trujillo, and Huantajaya near Arica also produced their share of silver, primarily in the eighteenth century. In fact, between 1492 and 1810, total silver output in Spanish America amounted to a staggering 86,000,000 kilograms, or 3,500,000,000 pesos of eight reales (see Tables 3–1 and 3–2).

Silver Mining Methods and Techniques

Native Americans mined silver and gold long before Europeans arrived in the New World, using methods that the Spanish colonizers often adopted. Ground sluicing for mining gold in New Granada was a good example. Spaniards found these techniques useful because native laborers were familiar with them. In general, too, archaeological finds of gold and silver ornaments, jewelry, and ritual pieces reveal that Native Americans were well skilled at virtually all aspects of metalworking.¹ Another good example of Spanish adaptation of native

¹ See the first section of Alan K. Craig & Robert C. West, eds., In Quest of Mineral Wealth: Aboriginal and Colonial Mining and Metallurgy in Spanish America (Baton Rouge: Louisiana State University, Department of Geography and Anthropology,
practices occurred in the Potosí region of Upper Peru, where Spaniards adopted native methods of refining silver with guayras. These were smelters about three feet tall shaped like an inverted cone with holes cut in the sides to allow wind to fan the fire. Indigenous refiners always placed guayras at sites with a maximum amount of wind. Charcoal or llama dung served as fuel. The crushed ore placed in the guayras was heated, separating the impurities from the silver. Sometimes they processed it twice to ensure even greater purity. By all accounts the use of these smelters persisted at Potosí throughout the colonial epoch.2

Unlike gold mining, in which placer mining was the preferred method, silver extraction during the Spanish colonial epoch was primarily lode or vein mining in shafts dug in the side of hills or mountains. Miners first cut adits (socavones) into these silver-rich sites and then dug tunnels, which they shored up with timber supports. The tunnels led from the adits to the richest deposits of silver ore. Wielding iron picks, workers (barreteros) chipped out the ore in chunks and pieces. Carriers (apiris in the Andes and tenateros in Mexico) toted the raw ore up ladders to the adits in leather bags until they reached the surface. Resting places in the adit shafts were built about ten yards apart. At the surface, laborers, often women, sorted the ore to prepare it for grinding at a stamp mill (ingenio). Human beings, animals, or water powered these mills with every effort being made to grind the silver ore as finely as possible. In Peru, mine workers came from the mita, a forced labor levy drawn from designated villages in the Andes, but a large pool of hired workers (mingados) grew up also.3 In Mexico, Spanish miners relied primarily on paid rather than forced labor. Moreover, in the Andes at Potosí and other areas, native mine workers (kajchas) were allowed entry to the mines on the weekends to extract whatever ore they could find (or had stashed away during

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1994), 5–108. The pieces in this section concern various aspects of indigenous American metallurgy and mining in the pre-conquest epoch.
