

# Introduction

JORGE CAÑIZARES-ESGUERRA



After perusing this important collection of essays, readers will most likely reach the conclusion I have myself reached: “science” was the handmaiden of the Iberian empires. Cosmography and natural history were the backbone upon which the Portuguese and Spanish crowns built their mighty Christian monarchies. The systematic gathering of information, plants, curiosities, and indigenous knowledges was a trademark of both empires.<sup>1</sup>

Yet the public in general still harbors an image of these empires as built on the quicksand of superstition and greed. Students readily bring up the formula “glory, gold, and God” when prompted to describe the Iberian colonization of the New World. They have been educated and socialized into thinking of the “Spanish conquest” as an adventure led both by soldiers of fortune bent on pillaging and by a fanatic clergy obsessed with converting Indians. In such a narrative, there is no role for “science,” for the latter belongs with the likes of Copernicus, Galileo, and Newton—not Cortés and Pizarro. Textbooks on the history of Western Civilization rarely pause to ponder the role played by astronomy and cosmography in the fifteenth-century Iberian southward Atlantic expansion.

The scientific revolution is often linked to the collapse of the Ptolemaic cosmos, as geocentricism and Aristotle’s physics gave way to heliocentrism and a new physics of motion.<sup>2</sup> But just as significant was the collapse of Ptolemy’s *Geography*: Portuguese and Spanish cosmographers and navigators literally redrew the map of the earth, as Onésimo T. Almeida and María M. Portuondo remind us in their essays. As the Portuguese inched their way around the Cape of Good Hope with the help of cross-staffs, astrolabes, and compasses, they helped rewrite

history on a global scale. The new maritime routes across the Atlantic and the Indian Ocean helped create new global economies. Contrary to common opinion, America did not yield gilded treasures but green ones: naturalists, doctors, apothecaries, and merchants helped identify new dyes, stimulants, pharmaceuticals, woods, and spices, creating new fortunes and economies across the Atlantic, as well as new forced migrations from Africa.<sup>3</sup> Iberian metallurgy also transformed the globe. European merchants traded with their Asian peers using American silver, which was extracted largely with technologies first developed due to the painstaking experimentation of Iberian metallurgists and alchemists in the Peruvian and Mexican highlands.<sup>4</sup>

But why do students and the general public think of the Iberian empires in terms of ignorant, zealot friars and plundering conquistadors rather than of savvy naturalists and learned cosmographers? The answer, to be sure, lies in age-old religious battles harking back to the Reformation. Under Philip II, Spain and Portugal became the leaders of the Catholic Reformation, a movement that sought to stall the spread of Protestantism in continental Europe and of the Ottomans in the Mediterranean. An overstretched Spanish empire gradually bled itself white, and Protestant printers decisively won a propaganda campaign that cast Iberia as a land of murderous, rapacious conquerors, and benighted, zealous priests.<sup>5</sup> To be fair, the propaganda campaign also managed to present Iberians as soulful primitives—artistically gifted playwrights and painters.

Why were the Iberians unable to counter these claims? Surprisingly, the answer lies in the nature of Spanish and Portuguese print culture. The first to have suggested this was Alexander von Humboldt. His *Examen critique de l'histoire de la géographie du nouveau continent* (Critical Examination of the History of Geography of the New Continent; 1836–39) was a massive, five-volume history of the origins of the early modern Iberian expansion to the New World. His reconstruction of the history of late medieval and early modern geography was possible, he remarked, only because new archival sources had recently been made available by the Spanish scholar Martín Fernández de Navarrete: it was in the archives where scholars should be looking for evidence of Iberian contributions to scientific knowledge. The sources Fernández de Navarrete published between 1825 and 1837 had in fact been collected some fifty years earlier by the Valencian Juan Bautista Muñoz. Like Humboldt, Muñoz thought that the answer to a well-entrenched Enlightenment tradition that dismissed Spanish contributions to early modern knowledge lay in the archives. Muñoz spent most of his adult life collecting evidence of Spain's contributions to European knowledge, putting together ninety-five folio and eighteen quarto volumes of materials he found in the ar-

chives. It is deeply ironic that Muñoz never saw any of these thousands of primary sources into print.<sup>6</sup>

Contributors to this collection have heeded the calls of Muñoz and Humboldt. Most essays are based on painstaking archival research. Timothy Walker, for example, reconstructs the ways Portuguese naturalists and physicians drew upon the indigenous knowledge of Africans, Asians, and Native Americans. His sources are six hitherto unpublished natural histories written in 1596, 1612, 1770, 1788, 1794, and 1799. Antonio Barrera-Osorio reconstructs the massive sixteenth-century culture of Spanish empirical trials, digging up countless sources in archives. Paula De Vos identifies 335 shipments of curiosities that naturalists and bureaucrats in the colonies sent to Madrid in the eighteenth century alone. And the list goes on.

It has taken the collective archival effort of generations of historians to be able to understand a few aspects of the role that science played in the Iberian colonial expansion. These efforts beg the question: Why would the Iberians let their collective efforts gather dust in archives? Anyone who has done work on the early modern Spanish empire has surely noticed that works often circulated in manuscript, not print. One answer to this puzzle lies in the bureaucratic culture of secrecy that the monarchy fostered, *arcana imperii* (state secrets), as María M. Portuondo in her dissertation has reminded us.<sup>7</sup> Knowledge was best kept in manuscripts and circulated only among trusted readers so as to deny any potential imperial rivals information about loosely held frontiers and territories. But in addition to a culture of bureaucratic secrecy, there seems to have been distrust in the media of print itself. As book historian Fernando Bouza has argued, early modern Spain was characterized by a lively scribal culture of manuscripts, the preferred means of circulating knowledge.<sup>8</sup> We know that this was a wider pattern of the Atlantic World. It took some time for the English elites to own up to the virtues of the printing press, originally preferring to circulate their wares in manuscripts, for print was thought to be a medium of charlatans, hackers, poseurs, and struggling lower-class “authors.”<sup>9</sup> The circulation of manuscripts using pen names, for example, remained typical of the elite public sphere in eighteenth-century British America.<sup>10</sup> Clearly, Iberian intellectuals shared an even deeper ancien régime suspicion of authorship. Yet they also paradoxically realized the importance of print culture to gaining the propaganda wars for prestige. From the evidence, it is clear that the Iberians badly lost these wars.

The role of images in communication could also help explain the puzzling Iberian culture of print. In a nicely crafted essay in this volume, Daniela Bleichmar shows the sheer amount of botanical images that

circulated in the eighteenth-century Spanish empire. The botanical expedition of Mutis alone completed 6,700 folio illustrations of plants. It has taken two centuries for some of these illustrations to be published. Curiously, of all the Enlightenment-age sciences, the Iberians excelled in one in particular: botany. It is true that the demands of empire put a premium on establishing monopolies of new agricultural commodities, thus promoting expeditions of all kinds.<sup>11</sup> Yet botanical images worked in the Catholic monarchy in strikingly similar ways, as did religious ones; namely, as mnemonic aids to help distant audiences experience the plant itself without traveling.<sup>12</sup> Within the empire, knowledge circulated widely through images. For both the learned and the masses, the path to memory, piety, and the emotions began with images, not print.<sup>13</sup> It is difficult for readers to grasp the all-pervasive presence and sheer monumentality of visual culture in the Catholic monarchy: large and complex urban economies of artisans and guilds sprouted from scratch. Their sole function was to keep up with the production of religious paintings and sculptures. The culture of the Iberian empires postulated that religious (and secular) knowledge was to be gained through the senses. Along with sounds, smells, and the choreographed motion of the theater, images and objects played key roles in this religious, empirical epistemology. It should therefore not surprise us that, along with botanical illustrations, there was also a brisk demand for natural objects to collect, keep, exchange, and study, as Paula De Vos has marvelously documented.

Perhaps one of the most important contributions of this volume is to remind readers of the particular religious culture in which the scientific practices of the Iberian empires flourished. Júnia Ferreira Furtado introduces the reader to José Rodrigues Abreu, an enlightened Portuguese medical reformer who, after visiting Minas Gerais in Brazil, was convinced that the original location of Paradise was in the American tropics. Rodrigues Abreu was concerned with the alchemical origins of gold and was deeply aware of the religious, millenarian overtones of alchemy and Paracelsianism.<sup>14</sup> Abreu belonged to a long tradition of learned, millenarian alchemists operating in Minas Gerais whose political impact is poorly understood. Adriana Romero for example, has described the plights and adventures of an Abreu counterpart: Pedro de Rates Henequin, who also thought that Paradise had originally been located in Minas Gerais. Henequin sought to persuade the younger brother of João V, Manuel, to lead an independent kingdom in Brazil, the much-awaited Fifth Monarchy of Daniel's prophecies. For all their contributions, we still do not know the alchemical foundations of the millenarianism of these naturalists.<sup>15</sup>

As Kevin Sheehan's fascinating study of the pilot-cosmographer Pedro Fernández de Quirós suggests, varieties of this alchemical millenarianism

flourished in the Spanish empire much earlier. With the help of powerful patrons in Rome—including the pope Clement VIII and a learned Spanish Neoplatonist, the Jesuit Juan Bautista Villalpando—Quirós devised a plan to discover the *quarta pars incognita*, an Antarctic continent expected to exist in the Antipodes to keep the planet in balance. With the help of several special apparatuses of his own design, including machines to measure longitude and to obtain fresh water out of seawater, Quirós eventually landed in 1606 in what today is New Guinea. He christened the new land “Austrialia” (*sic*) to honor the Austrian roots of the Spanish Habsburg Philip III. He also laid the groundwork for a new city in the wilderness, New Jerusalem. What is remarkable about this long-forgotten adventure is not so much the striking modernity of many of Quiros’s devises, but the religious world that spawned the expedition. Villalpando wrote a Neoplatonic interpretation of Ezekiel’s description of the Temple of Solomon, arguing that every detail of the temple was a prefiguration of the history of the Catholic church.<sup>16</sup> Villalpando also maintained that the Israelites, the temple, and King Solomon were prefigurations of the Iberians, the Escorial, and the Spanish Habsburgs, in that order. Quirós belonged to Villalpando’s world of Catholic Neoplatonism and typological readings of history and the cosmos. It is not surprising, therefore, that Quiros envisioned Philip III as a new Solomon whose New Jerusalem in the New Ophir that was Australia was the fulfillment of biblical prophecies, including the arrival of a new millennium. The “modernity” of his mechanical devices belongs in the same world as his founding of New Jerusalem in Austrialia, part of the larger learned (Neoplatonic, typological), millenarian traditions of the Catholic monarchy.<sup>17</sup>

Juan Pimentel’s subtle essay on Juan E. Nieremberg’s natural history of American wonders is yet another example of the importance of baroque Catholic theology in the framing of interpretations of the natural world in the Iberian empires. Pimentel argues that seventeenth-century Spanish natural history went beyond utilitarian, commercial goals; it was ultimately religious. Nieremberg was a Neoplatonist, not unlike Kircher, who found in nature a language of religious signs to be decoded. Such messages pointed to occult sympathies, micro- and macrocosmic correspondences, and more important, narratives of human sin and Christian salvation. Iberian science, as Antonio Barrera-Osorio and María M. Portuondo suggest, was pragmatic and utilitarian. Yet it also belonged in a religious, cultural world that historians cannot afford to overlook. I am sure readers will enjoy the many learned contributions in this collection. It is my hope that they will also be drawn into mental worlds that still remain largely uncharted.