

Humboldt's Cosmography

El cocodrilo de Humboldt no es el cocodrilo de Hegel.
José Alejandro Restrepo, 1994¹

As Europe began expanding its imperial domains, travel literature played a major role in mapping and constructing the Americas' identity. From Christopher Columbus' earthly paradise, overflowing with lush vegetation to a land of dangerous savages, the New World was re-envisioned over and over by European travelers through a vast array of narratives that blended fact and fiction. Explorers, missionaries, surveyors, soldiers, traders, and merchants all described the "outsized reality" of the New World guided by their interests and often employing myths and hyperboles to represent the dramatically foreign.²

During the eighteenth century, a particular kind of traveler emerged. Propelled by the scientific revolution and the advancement of a new worldview, travelers were guided by a desire of knowledge that would allow them to map the globe more accurately and acquire a better understanding of the natural world. Equipped with more precise instruments, and trained to observe scientifically, travelers spanned the globe collecting specimens of flora and fauna to document their discoveries. The desire to explore remote lands was not solely restricted to the advancement of science; it permeated many fields of inquiry. The relationship between nature and human societies instilled a reflexive imprint

on Europe that spurred a critical re-evaluation of self through others. Consequently, as travel became more accessible and accounts of travel more popular, writers, philosophers, and artists also headed to far off lands to observe and reflect upon the cultural significance of these new realities. As Dennis Porter notes in *Haunted Journeys*, it was the emergence of critical philosophy during the Enlightenment that encouraged travelers to make systematic comparisons between their homeland and non-European societies.³ To know oneself meant to compare and observe other societies.

Swedish naturalist Carl Linnaeus' taxonomical classification was instrumental for this task because it provided a common language to approach this global view of the world. As Europeans examined the new species of animals and plants brought back by travelers, they had no systematic way of sorting out this disparate nature. Linnaeus' *Systema naturae* (1735) offered just that: a classification for all plants, animals, and minerals through a hierarchical system. His organization established an overarching natural order, with a methodology based on observation determined by distinct and discernible laws.⁴ Linnaeus argued that the first step toward wisdom was to know the things themselves, to have "a true idea of the objects"; classification was the means to achieve this knowledge. His logic was succinct: "objects are distinguished and known by classifying them methodically and giving them appropriate names. Therefore, classification and name-giving will be the foundation of our science."⁵

Linnaeus established three kingdoms, which were divided into classes and subsequently into orders, families, genera, and species. The most influential aspect of his classification was the ordering of plants based on the characteristics of their reproductive parts. He arranged all plants, known and unknown, in twenty-four classes according to the number and position of their stamens (male parts), and he broke down the classes into sixty-five orders according to the number and position of the pistils (female parts).⁶ His procedure was based on a standard series of yes or no questions, which guided his readers through careful observation. A year later, when Georg Dionysius Ehret depicted the twenty-four classes in a pictorial table, the visual characteristics of his taxonomy highlighted and reinforced the simplicity of his system.⁷ Linnaeus recognized that his was an "artificial" order, but its clarity and practicality were extremely attractive to naturalists, amateurs, travelers, and even gardeners. His system included a binomial nomenclature to identify plants and

animals—the first part identified the genus and the second the species within the genus. If naming was a way “to know the things themselves,” as Linnaeus explains in his “Observations,” his terminology of Greek and Latin root words is telling.⁸ It not only reflected his cultural background but also, more importantly, it reinforced the common ancestry that Greek and Latin culture represented for Europeans. Hence, his way of defining this new order determined the spatial context in which knowledge was to be constructed and legitimized: It was to be European.⁹ Despite the fact that many plants came from abroad, he disregarded their indigenous names arguing they did not possess any scientific value. By eliminating indigenous languages, Linnaeus was also erasing a wealth of information provided in numerous sixteenth-century herbariums such as those included in Bernardino de Sahagun’s *Florentine Codex* or Martín de la Cruz’s *Libellus de Medicinalibus*.¹⁰ These texts presented detailed descriptions and illustrations of a myriad of plants together with their attributes for curing different ailments. Linnaeus’ omission of indigenous knowledge was a way of ensuring that the construction of global knowledge, especially scientific knowledge, remains a European enterprise.

Linnaeus believed—as did Louis Agassiz—that nature was “a balanced and harmonious system” and that the scientist could find the significance of God’s creation through observation.¹¹ Hence, his goal was to provide a clear methodological system to assess nature. His taxonomy offered a comprehensive understanding of nature, while domesticating the globe’s vast and heterogeneous nature within clearly defined European parameters. It was an extraordinary feat: containing all future discoveries and global otherness within Europe’s purview.

Despite Linnaeus’ great success at simplifying the natural world beyond Europe, not everyone agreed with his approach. In his quest to uncover the laws of nature, Georges-Louis Leclerc, Comte de Buffon, questioned Linnaeus’ taxonomical approach in his voluminous *Histoire naturelle, générale et particulière* (1749), preferring to focus on habitat and changes among animals and plants. He argued that to understand the present, one had to understand the past. This historical dimension added a new perspective to nature and the environment. Unlike Linnaeus, Buffon considered nature an end in itself, not a reflection of a higher reality. His secular vision of the living world “reified nature into a generative power responsible for the harmony, balance, and fullness of creation.”¹² Buffon’s order had a relational quality. The living world followed natural laws determined by

natural relationships, driving forces, and geographical distribution. Like Linnaeus, he believed that through observation, the scientist could uncover and explain the current distribution of living forms on earth, but his form of observation took into account change.

Linnaeus and Buffon provided a universalist conceptual framework to understand the natural world based on observation, which kept Europe at the center of this worldview. Within this global vision, the Americas occupied a special place in Europe. Asia and Africa were distinctly different; hence, they did not question Europe's preeminence and civilizing force, but America presented a slightly different problem: The continent may have been different, but it had been colonized by Europeans. Antonello Gerbi succinctly summarized this dilemma in *The Dispute of the New World*: "America was Europe's offspring ... it was both Europe and non-Europe."¹³ This explains in part why the Americas became a focal point for Europe's own identity. Buffon's historical perception classified the American continent as inferior to Europe because it was a "new" continent in geological terms, largely without a history. Furthermore, Buffon argued that its animals were smaller, less powerful, and less developed. There were no rhinoceroses, elephants, and camels, and the largest of animals was much smaller than those of the Old Continent. Following his relational system, Buffon extended his negative assessment of animals to the indigenous inhabitants within the same environment.¹⁴ His views would be contested (especially by Thomas Jefferson, who took great offense at Buffon's assessment), but they would also be adopted and expanded by other prominent figures reinvigorating the dispute.¹⁵ Among Buffon's key followers were Dutch philosopher and geographer Cornelius de Pauw, British historian William Robertson, French author Abbé Guillaume Raynal, and German philosopher Friedrich Hegel.

Although both Linnaeus and Buffon provided a comprehensive approach to classifying nature, neither of them ever traveled outside the confines of Europe.¹⁶ The Prussian scientist and traveler Alexander von Humboldt would highlight this flaw contesting many of their analogies and observations by emphasizing direct observation within local settings. Building on both scientists' work, Humboldt's extensive travels throughout South America, Cuba, and Mexico would provide the empirical evidence to refute Buffon's negative categorization of the Americas and underscore the limitations of Linnaeus' taxonomical order. Nature in Humboldt's view was a display of interconnections.

To observe a plant outside its microcosm meant grasping nature only partially, missing the possibility of understanding the function of a plant or why it developed a certain way. Humboldt emphasized the importance of travel in order to comprehend the interconnectedness of nature's phenomena. Only through direct observation could the scientist truly grasp nature's complexity. As Jorge Cañizares-Esguerra states: "A new more positive, less skeptical, European historiography of the New World is inaugurated with von Humboldt," prompting Europe to shift its viewpoint and reposition the Americas within the global landscape.¹⁷

HUMBOLDT'S VIEW OF NATURE

Embracing the scientific shift of the eighteenth century, Humboldt set off to explore the Americas equipped with a new lens of observation. His writings inspired Spanish Americans to applaud their natural riches while at the same time, he incited Europeans to expand and reassess their explorations and travels to the "New Continent"—as he preferred to call it. His goal was to understand nature in its complexity and grasp its interconnections. The first step in this process was to observe the individual phenomenon, but in order to truly grasp an understanding of each phenomenon, it was necessary to observe its relation with other phenomena. In other words, nature's unity could only be comprehended through its multiplicity. Nature, as Humboldt argued, "submitted to the process of thought, is a unity in diversity of phenomena; a harmony, blending together all created things, however dissimilar in forms and attributes; one great whole (*to πᾶν*) animated by the breath of life."¹⁸ In one of his earlier works, *Essay on the Geography of Plants* (Schoell 1805), he explains what this process entails. Contrary to Linnaeus' approach to the study of plants, which did not take into account plants' relation to their micro-systems, Humboldt proposed a "physique générale," a physical description of the globe that demanded a new geography of plants which took into account climatic, physical, atmospheric, moral, and aesthetic aspects of nature as well.¹⁹ It was a unitary vision of the world and its phenomena, which today would resemble the study of natural ecosystems.²⁰ Summarizing his global vision in *Cosmos*, his final multivolume work, Humboldt reiterates the underlying principles of the universe:

The most important result of a rational inquiry into nature is, therefore, to establish the unity and harmony of this stupendous mass of force and matter, to determine with impartial justice what is due to the discoveries of the past and to those of the present, and to analyze the individual parts of natural phenomena without succumbing beneath the weight of the whole. Thus, and thus alone, is it permitted to man, while mindful of the high destiny of his race, to comprehend nature, to lift the veil that shrouds her phenomena, and, as it were, submit the results of observation to the test of reason and of intellect.²¹

Humboldt's perspective on nature was relational and comparative: relational in terms of how discrete entities connect with their surroundings, and comparative in terms of highlighting differences and similarities with other geographical locations. Unity of nature was, in other words, a balance between the particular and the general. To achieve this, travel and fieldwork were essential, for one could only grasp the complex web of interrelations through careful on-site observation.

Humboldt articulates his theory throughout his extensive writings on the New Continent. During his five-year journey traversing more than 9000 miles, across what today is Venezuela, Colombia, Ecuador, Peru, Cuba, Mexico, and briefly to the United States, he collected thirty-five boxes of "treasures" containing thousands of plants, seeds, shells, insects, rocks, minerals, animal specimens, and indigenous artifacts.²² In addition, he took prolific notes, made numerous meteorological and geomagnetic observations, and drew countless maps and illustrations. This resulted in a multivolume publication in French entitled *Voyage aux régions équinoxiales du Nouveau Continent* [*Voyage to the Equinoctial Regions of the New Continent*], which comprised thirty-four volumes with 1200 copper plates of illustrations that he edited and revised over a time span of twenty-nine years (1805–1834).²³ His work reveals an extraordinary multi-disciplinary gaze that addresses a vast array of studies and complex analyses in the fields of atmospheric physics, botany, ethnography, geology, geopolitical studies, topography, and zoology, including landscape painting, among others. Humboldt's view of nature as an all-encompassing planetary system created what Mary Louise Pratt termed, "a new kind of planetary consciousness."²⁴

To uncover this complex planetary system, Humboldt approached nature through systematic measurements, assessing the oxygen, humidity, temperature, electrical charge, and barometric pressure of the

atmosphere; the blueness of the sky; the magnetic fields; the vertical and horizontal planes of the earth; and the altitude of mountains. Thus, using a plethora of scientific instruments, he breaks nature down into its distinct individual components to construct a “synchronic narrative of the land.”²⁵ Humboldt would spend more than three decades of his life constructing this synchronic narrative, creating a uniquely complex composition that intertwined multiple disciplines and expanded the realm of observation through travel.

PICTURING SCIENCE

Humboldt's views on nature were not only scientific but also visual. His texts are filled with visual aids: sketches, drawing, charts, tables, and maps, all designed to complement the data he presents and make the distant travel site visible. In addition to their informative, measurable data, Humboldt's maps also highlight their relevance to the visual arts.²⁶ In the same way that America became visible for Europeans through travel narratives, maps played an important role in grounding those images, even when those maps were symbolic or thematic. Maps are both material and social products that reflect cultural values and concerns of the society that produce them; they tell stories; in essence “they literally and figuratively influence the way we *see* the world.”²⁷ Humboldt drew countless maps, illustrating barometric measurements, hysothermes, latitude, and longitude, all geared at creating, in the words of Anne Marie Claire Godlewska, “a language—or a way of seeing—that would encourage both conceptual depth and rigor and holistic vision.”²⁸ It was a new way of observing nature, and therefore a new way of looking at the Americas. At the same time, these measurable features (height, barometric pressure, and geologic structure) allowed Humboldt to display the awe-inspiring majestic nature of the Americas while containing it. His maps, in other words, became a tool to divulge and tame nature's overpowering force.

Highlighting his unitary vision of nature, Humboldt develops what I call micro-cosmographies of the regions he visits. These singular visual/textual representations (tableaux, maps, and illustrations) chart and interconnect his copious measurements with numerous distinctive features of a specific region to create an all-encompassing artistic view. This view, however, does not remain static, for it extends metaphorically beyond the borders that frame the image through numerous points

of reference.²⁹ These micro-cosmographies are a particular blending of different spheres of knowledge, an artistic spatialization of Humboldt's cumulative knowledge.³⁰

A superb example is Humboldt's depiction of his ascent of the Chimborazo entitled: "Voyage vers la cime du Chimborazo tenté le 23 Juin 1802 par Alexandre Humboldt, Bonpland et Carlos Montúfar," which appeared in the *Atlas géographique et physique du Nouveau Continent*.³¹ The illustration displays the magnificent volcano in the center, framed by two columns of measurements. Blending the scientific data with the painted image of the Chimborazo in the center, the illustration makes a visually striking impression upon the reader/viewer (Fig. 1).

The volcano expands horizontally on the page. The rugged layers of hardened lava, typical of the stratovolcano, are depicted through two alternating hues of chestnut brown that recreate its rocky texture. As the broad low slopes of the base become increasingly steeper, the change in elevation is rendered visible by a distinct light-brown marbled snow belt that wraps across the mountain. The change is also indicated by the presence of the Yanacocha Lake, a small alpine water basin that "does not merit the name of a lake."³² At the top, the familiar bell-shaped summit crowns the mountain with its perpetual snow. Transversally, cutting across the left mountainside, similar to the *Tableau Physique*, Humboldt itemizes, in Latin, the different alpine plants he and Bonpland collected. This "botanical graffiti" of plants snake up to the base of the snow-covered dome, where organic life ends, and eternal snow begins.³³

The illustration is geared at underscoring the majestic height of the Chimborazo as well as Humboldt's proud accomplishment of almost reaching the top of what was considered then the highest peak in the world. The two columns of measurements (the left marking temperatures and the right noting altitudes) provide a local context to observe the volcano (the Cotopaxi, a passage in the Andes). They also supply the altitudes of other mountains well known to Europeans (the Vesuvius, Mount Etna, Mount Blanc, and the northern peak of the Himalayas). In this way, Humboldt anchors the local phenomenon—the Chimborazo—within a global setting and expands the information beyond the borders of the pictorial frame. These spatial connections are essential to secure the different spheres of knowledge, for as Humboldt reminds his readers, "Incomplete analogies prevent Europeans from having a just idea of the aspect of the torrid zone."³⁴

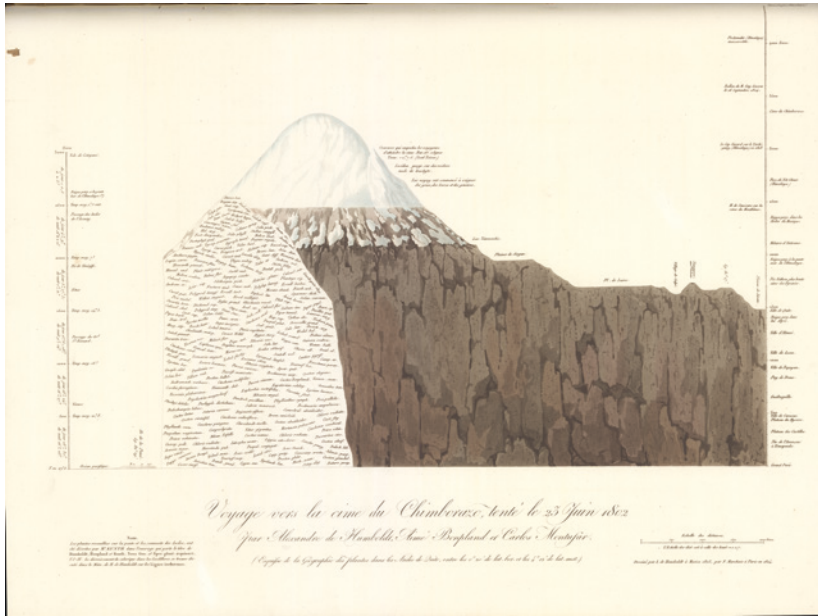


Fig. 1 “Voyage vers la cime du Chimborazo, tenté le 23 Juin 1802 par Alexandre de Humboldt, Aimé Bonpland et Carlos Montúfar.” Illustration by Alexander von Humboldt in *Atlas géographique et physique du Nouveau Continent*, Plate 9. From the collections of the Ernst Mayr Library, Museum of Comparative Zoology, Harvard University

Humboldt’s illustration is also a narrative, already evident in the title. It is the visual documentation of his voyage with Aimé Bonpland and Carlos Montúfar, dated June 23, 1802, when the three travelers attempted to climb the Chimborazo from the south–south eastern side of the mountain. Humboldt wrote the final version of his ascent fifty years after the fact, in 1853, carefully following the notes from his travel diary.³⁵ His narrative is inscribed in the illustration through discrete notations punctuating the right-hand side of the Chimborazo, almost paralleling the meandering climb of the plants. As the travelers reach the beginning of the snow-covered summit, the inscription states that the travelers’ eyes, lips, and gums began to bleed as a result of the altitude (“Les voyageurs ont commencé à saigner des yeux, lèvres et gencives”). While Humboldt asserts that his ascent had “little dramatic interest,”

when reaching this point in his narrative, he details the dizziness, difficulty breathing, the bleeding gums, and conjunctivitis the climbers suffered. He relates these experiences to those of other climbers as well as his own and expands the narrative by including the time when he fell unconscious trying to climb the Pichincha.³⁶ A bit further up in the illustration, there is a fissure in the mountain. Rather than simply record it, Humboldt gives it meaning by labeling the image “the crevasse that inhibits the travelers from reaching the top” (“la crevasse qui empêche les voyageurs d’atteindre la cime”). In the end, the travelers came within only a few hundred feet of the peak. The goal of these micro-cosmographies is to connect the local with the global, the visual with the textual, the aesthetic with the scientific, and the personal with the general.

Interestingly, Humboldt’s description of his ascent does not always coincide with its visual representation. Based on the illustration, the viewer would assume an enormous variety of plants existed along the slopes of the volcano. But in his text, Humboldt states: “At Chimborazo, like everywhere around the high peaks in the Andes chain, the extensive grassland (los pajonales) is very monotonous,” adding that “Chimborazo’s flora generally seemed to us much less rich and varied than that of other snow-capped mountains around the city of Quito.”³⁷ He also mentions large brown-black shapeless columns rising up from the snow and steep ridges up the dome, which are absent from his depiction.

These discrepancies do not mean that Humboldt’s illustrations are deceiving. On the contrary, his goal is not to portray an exact copy of what he observed, but in fact to let free the imagination. Emotion does not undermine knowledge in Humboldt’s view; they go hand in hand. He appeals to the senses because they enable the viewer “to engage the imagination, and at the same time to enrich life with new ideas by the increase of knowledge.”³⁸ Aesthetic descriptions or representations of nature (poetry and art), he states, are the only way to achieve “insight into the harmonious co-operation of forces” of nature, the only way to understand the unity of science.³⁹

Most of Humboldt’s micro-cosmographies have to do with mountains and height. Mountains explain the shape and topography of the continent while engaging the senses. His hypsometric map of another volcano in Ecuador, the Pinchincha, is a beautiful graphical representation with little scientific value but was an important part of an ensemble of clues on the internal structure of the planet (Fig. 2). Mountains are the result

The visual height of the lofty Chimborazo or Cotopaxi releases in the observer emotions of the sublime, and the body reacts unleashing emotions that surpass the rational:

[I]n the forests of the Amazons, as on the slopes of the Andes, I felt that the surface of the Earth was alive everywhere with the same spirit, the life even which is in the rocks, the plants and the animals, as in the heart of humanity from one pole to the other. Everywhere I went I realised just how much the relationships I formed in Jena (where I conducted part of my academic training) were having a profound influence on me, and how much, inspired by Goethe's perspectives on Nature, I had gained new organs of perception.⁴³

Influenced by Goethe's concept of nature, Humboldt's holistic approach takes into account perception ("Anschauung") with the process of observation. Perception gives nature the power to excite the senses. Consequently, Humboldt's "new organs" are bodily organs as well as scientific instruments.⁴⁴ They are tools of observation: One appeals to the realm of emotions, and the other demands rational analysis; together, they advance a deep appreciation and knowledge of nature. Cognizant of the enormous power of the visual, Humboldt promoted landscape painting as a means of uncovering nature's laws. Nature had to be represented. As he reminds his readers, painting also had a scientific value: "Descriptions of nature, I would again observe, may be defined with sufficient sharpness and scientific accuracy, without on that account being deprived of vivifying breath of imagination."⁴⁵ And among the possible artistic descriptions, landscape painting was the most important:

Landscape painting, though not simply an imitative art, has a more material origin and a more earthly limitation. It requires for its development a large number of various and direct impressions, which, when received from external contemplation, must be fertilized by the powers of the mind, in order to be given back to the senses of others as a free work of art.⁴⁶

For Humboldt, scientific observation was complemented by art. In this way, he inspired a wide range of travelers to uncover the Americas. Humboldt's unique observation of nature inspired renowned artists such as Frederic Edwin Church, Louis Mignot, George Catlin, Moritz Rugendas, and Ferdinand Bellerman, who followed his journey to the tropics and painted some of the most vivid and important landscapes of their careers, as well as scientists such as Darwin, Henry Walter Bates,

Louis Agassiz, and even curious travelers such as Fanny Calderón de la Barca. These travelers would be profoundly indebted to Humboldt as they traversed the Americas and explored new forms of observation.⁴⁷

UNCOVERING THE TROPICS

Until Humboldt's voyage, Spain had restricted foreign explorations in its colonies. While it had garnered a wealth of maps (topographic, physical, and political), nautical charts, geographical reports, and accounts and illustrations of the American flora and fauna through its own scientific expeditions, the information was stored and kept secret, mostly for political and economic reasons. By mid-century, however, the impact of the Bourbon reforms and growing pressure from its European neighbors forced Spain to ease control over its American monopoly.⁴⁸ But until Humboldt's voyage, no scientific expedition had been authorized to the Americas without including Spanish scientists.⁴⁹

Spain's authorization to allow Humboldt to freely travel, explore its territories in the New World, and have access to its reports was something no other non-Spanish European had achieved. Circumstances in Spain helped Humboldt. Wars with France and England, in addition to internal political problems and unrest in the colonies, hampered the Crown's motivation to invest in long and costly expeditions. Humboldt solved that problem by offering to finance his trip independently. An added attraction was his reputation as a noted mining engineer, trained at the prestigious Mining Academy in Freiberg—where Spain had sent several of its scientists. In return for its support, Spain hoped Humboldt might help revamp the productivity of the mines in its colonies.⁵⁰

Humboldt was interested in all aspects of science. He had studied geomagnetism and physics, conducted experiments (even on himself) in galvanism and chemistry, and researched methods employed in collecting botanical and zoological specimens. His desire to travel and explore nature had been inspired by his voyage with Georg Forster, famed geographer who had accompanied Cook on his second voyage around the world. Forster trained Humboldt how to discern the essential traits of a landscape, and how to observe and describe nature with art and precision.⁵¹ After two years of failed attempts to join a major scientific expedition, Humboldt decided to organize his own expedition with his recent inheritance. He would do so with Aimé Bonpland, a botanist and doctor he had befriended. Using his European network and diplomatic skills,

Humboldt contacted Spanish naturalists, diplomats, and governmental authorities to obtain the support he needed.⁵² In March 1799, two “royal” passports were issued to the travelers guaranteeing their unrestricted access to the Spanish colonies and assuring the full assistance of every governor and magistrate within the region.⁵³

In June 1799, Humboldt and Bonpland set sail from la Coruña on the *Pizarro*. After a brief stop to explore Tenerife, they anchored in the port of Cumaná, on July 16th. During the following five years, the two friends traveled through major cities, small towns, and relatively uninhabited areas; they visited missions and made short excursions into the jungle with the expertise of indigenous guides; they explored coasts as well as the interior of the continent; and in Caracas, they climbed Mount Avila with the prominent intellectual and acclaimed poet, Andrés Bello. They witnessed a meteor shower and an earthquake. They navigated through the upper Orinoco River and its tributaries, exploring the Casiquiare canal, which allowed them to confirm the connection between the Orinoco and Amazon water systems.⁵⁴ They traversed the Andes and studied and climbed volcanoes—as already stated, one of Humboldt’s proudest moments was almost reaching the top of the Chimborazo. These were extraordinary accomplishments. They also visited Cuba twice and spent a year in Mexico where they worked side by side with renowned scientist and academics. Humboldt and Bonpland could not have succeeded in their endeavors alone. They received prodigious help from countless men and women of letters, university professors and students, naturalists, artists, government authorities, local inhabitants, indigenous people, and guides, who assisted them with their travels and helped access public and private archives. Finally, before returning to Europe, they made a brief visit to the United States, where they met President Thomas Jefferson and other important authorities, but did not engage in any travel beyond Washington. Upon their return, a rich new chapter on the Americas began, based on a new understanding of the continent introduced by Humboldt.

PERSONAL NARRATIVE

Relation historique, translated as *Personal Narrative*, is Humboldt’s unfinished travel narrative of his American journey, included in *Voyage aux régions équinoxiales du Nouveau Continent*. Published twelve years after his voyage, only the first three volumes were completed

(1814, 1819, and 1825, respectively), leaving out more than two full years of the journey—from April 1801 until his return in 1804.⁵⁵ As a travel narrative, *Personal Narrative* stands out for its uniqueness. While it chronicles Humboldt and Bonpland's itinerary, the narrative unfurls through the profuse connections Humboldt establishes. It is a narrative that combines history, science, art, and a bit of adventure, carefully threaded through observation. It is also a narrative in which the traveler takes on multiple identities. Using a variety of grammatical forms ("we," "he," "the traveler," "the travelers," "the spectator," and "I"), Humboldt creates, what Oliver Lubrich calls, a "semantic dispersion" of the textual subject, which often disorients the reader.⁵⁶ It is almost as if by stripping the subject from the viewing, the perceptions and observations become neutral and are free to expand. This, perhaps, explains Ottmar Ette's assertion that: "For Humboldt, the different narrating figures or narrative instances form a unity."⁵⁷ At the time, most travel narratives presented readers with antiquarian "curiosities" to convey a "local tint" or else they focused on recording scientific information. But Humboldt's desire for unity led him to develop a different kind of narrative in which he could convey all the scientific information acquired, including the excitement of discovery and emotional response to the "curiosities," with scientific precision. This however proved to be much more difficult than he expected, which might explain his initial reluctance to write his travel narrative. Early on in his introduction, Humboldt frames his narrative by laying out the important elements the genre must address:

When I began to read the numerous narratives of travels, which compose so interesting a part of modern literature, I regretted that travellers, the most enlightened in the insulated branches of natural history, were seldom possessed of a sufficient variety of knowledge, to avail themselves of every advantage arising from their position. It appeared to me, that the importance of the results hitherto obtained did not keep pace with the immense progress which, at the end of the eighteenth century, had been made in several departments of science, particularly geology, the history of the modifications of the atmosphere, and the physiology of animals and plants. I saw with regret, (and all scientific men have shared this feeling) that whilst the number of accurate instruments was daily increasing, we were still ignorant of the height of many mountains and elevated plains; of the periodical oscillations of the aerial ocean; of the limit of perpetual snow within the polar circle and on the borders of the torrid zone; of the variable intensity of the magnetic forces, and of many other phenomena, equally important.⁵⁸

Considering the advances of science, Humboldt envisioned the traveler would utilize the new tools to assess the enormity of facts, which still had to be uncovered. He expected barometric and atmospheric readings, careful measurements, and descriptions that the traveler observed “under his own eye.”⁵⁹ However, those facts were only interesting inasmuch as they were connected to a broader network: “the knowledge of insulated facts” was far less interesting than observations “on the geographical relations of the vegetable world, on the migrations of the social plants.”⁶⁰ The difficulty was separating the observations of details from those more general results, which in Humboldt’s view, interested every enlightened mind. In trying to find a balance between the details and the broader picture, Humboldt expanded his narrative to include almost everything. Travel in Humboldt’s hands was not simply an effort to collect and enlarge inventories, though he certainly recognized the importance and usefulness of this; it was to observe and connect the individual facts with a more global understanding, specifically to determine the phenomena and “the laws observed” of their relations with each other.⁶¹ This not only dispersed the narrative but also, in the tropics, it was particularly difficult, for nature was overwhelming in its beauty and size, as he wrote to his brother upon arriving in Cumaná:

What trees! Coconut tress 50 to 60 feet high, the *Poiciana Pulcherrima* with garlands of magnificent bright red flowers a foot long; bananas and a mass of trees with monstrous leaves and fragrant flowers the size of a hand, of which we know nothing ... and what color of birds, fish, even crabs (sky blue and yellow). So far we have wandered like crazy; in the first three days we could not decide anything, because one topic is rejected to pursue another. Bonpland assures me he will go mad if the marvels do not stop appearing. But what is even more beautiful about these wonderful sights is that they give the impression of the whole of nature’s plants, powerful, lush and yet so sweet, so delicate, so serene. I feel I could be very happy here...⁶²

Humboldt’s excitement is evident. In the tropics, the senses are electrified. The exuberance and sheer size of the plants with their bright colorful flowers and perfume envelop the travelers hindering their focus. As more “marvels” keep appearing, their jaunting gaze rambles about without an anchor. Almost as a reminder to himself, in an effort not to lose his ground, Humboldt asserts that beyond the individual elements, it is

the ensemble that makes the most lasting and vivifying impression. Some critics found his narrative a “mishmash” of information; others were more critical, like John Barrows who, writing in the *Quarterly Review*, found his synthesis regressive.⁶³ Critics often found his generalizations and systematization deviating from the factual imperative. For example, in describing the rapids of the Orinoco, in a span of several pages, he compares them to the Yellala Falls of the Congo River, the pongs of the Amazon, and the Nile; he discusses the rock formations around the rapids and falls, comparing them to the granite composition of the Mont Blanc; he delves into barometric measurements, soils, vapors, sounds, the indigenous inhabitants of Atures, and their manners; and discusses observations made by John Barrows regarding Africa, Father José Gumilla on the Orinoco, and even Aristotle.⁶⁴

One could easily conclude that so much information and relational construction would paralyze his narrative. But Humboldt threads into his scientific descriptions lively accounts of his personal adventures. Readers follow him through his battles warding off mosquitoes and gnats, enduring shocks and experimentation with electric eels, paddling through crocodile infested waters, studying monkeys, coming head to head with a jaguar, and climbing the peaks of the Andes.⁶⁵ Even when relaying scientific information, his narrative is full of evocative descriptions of nature so “even those who, uninstructed in the several branches of physical science, feel the same emotion of delight.”⁶⁶ He takes pleasure in describing all that inspires wonder: the texture and color of a plant, the pungent smell of a fruit, and the flowing outburst of the waterfall—all that constitutes the varied landscape of the tropics. His ornate descriptions are associated with German Romanticism and *Naturphilosophie*. From the Romantics, he embraced a language that inspired the imagination and conveyed the dazzling power of nature through the sublime. He shared their sense of oneness with nature but without their melancholic longing. He embraced *Naturphilosophie*’s vision of nature as a dynamic force that could be studied through analysis and contemplation.⁶⁷ He shared its pursuit to uncover the forces at play in nature to achieve a total history of the planet. This allowed him to bring science and emotion together, enhancing his broader appeal. When describing the constellation of the Southern Cross, for example, the physical immensity resonates in the immense beauty of the constellations:

Nothing awakens in the traveller a livelier remembrance of the immense distance by which he is separated from his country, than the aspect of an unknown firmament. The grouping of the stars of the first magnitude, some scattered nebulae, rivalling in splendour the milky way, and tracts of space remarkable for their extreme blackness, give a peculiar physiognomy to the southern sky. This sight fills with admiration even those who, uninstructed in the several branches of physical science, feel the same emotion of delight in the contemplation of the heavenly vault, as in the view of a beautiful landscape, or a majestic site. A traveller needs not to be a botanist, to recognize the torrid zone by the mere aspect of its vegetation.... The heavens and the earth,—everything in the equinoctial regions, presents an exotic character.⁶⁸

Humboldt makes clear that observation is the key to any type of knowledge; it is what enables even those “uninstructed” in science to feel delight. Hence despite criticisms, *Personal Narrative* was both informative and entertaining, and became extremely popular. However, Nigel Leask rightly notes, it was not the complete narrative that became popular, but rather the numerous abridged versions. These versions eliminated some of the distracting extensive connections to highlight his more interesting descriptions, adventures, and extraordinary discoveries.⁶⁹

Humboldt recurrently invokes the image of “discovery” through his travels, which has led many critics to consider him a “second Columbus.” In the first page of his *Personal Narrative*, he announces that he and Bonpland traversed regions, which “have remained almost unknown to most of the nations of Europe, I might add even to Spain.”⁷⁰ Like Columbus, Humboldt explored many remote and uncharted lands, treading across the interior of the continent through remote roads and rough rivers, and, like Columbus before him, he opened the New World to Europe. In this sense, what Humboldt saw in Columbus—an agent of transformation, the usher of a new period in European consciousness—applies to him as well.⁷¹ But unlike Columbus, Humboldt did not claim or try to possess those lands. He simply described them in a new way through empirical observation. He will be one of the first to point out the industrial possibilities of guano, but only because he was a careful observer of its use at the time, not because he “discovered” it and claimed it.⁷² This is precisely Laura Dassow Walls’ point as she cautions current-day readers that celebrating Humboldt as a “second Columbus” has darker undertones that highlight the enslavement and exploitation of the indigenous peoples

and their lands brought on by Columbus.⁷³ Hence, in her view, it would be preferable not to equate the two. Other critics disagree, arguing that the analogy is in fact quite telling. Mary Louise Pratt characterizes Humboldt as an omnivorous, godlike viewer who observes and taxonomizes everything with an all-consuming imperial gaze, and who self-consciously positions himself as a “double of the first European inventors of America.”⁷⁴ Pratt aligns Humboldt with Columbus for reinventing America as “primal nature, an unclaimed and timeless space occupied by plants and creatures (some of them human), but not organized by societies and economies; a world whose only history was the one about to begin.”⁷⁵ Mauricio Olarte concurs with Pratt, arguing that Humboldt’s comparisons—measuring and contrasting the New Continent against the Old—reproduce the traditional dichotomy between nature and culture to underscore America’s lack of culture.⁷⁶ Even his “rhapsodic” language—to use Pratt’s adjective—is evocative of Columbus, as they both unearth the flourishing and exuberant vegetation of the tropics.⁷⁷ These criticisms point to Humboldt’s European prism in viewing the tropics. In the eyes of these critics, Humboldt imposed a new kind of colonizing imprint on the New World: a geography that awaited to be read and decoded by European eyes.

There is no denying Humboldt’s Eurocentrism. He systematically contrasts his observations with Europe: “A European acquainted with only the opuntia in our hot-houses is surprised to see ...,” the port of Cumaná is large enough to receive “the fleets of Europe.”⁷⁸ But more importantly, it is through his observations and contrasts between Old and New Continents that he constructs knowledge: “From what I have seen in the mountains of Europe, and in the Cordilleras of America, caverns may be divided, according to their interior structure, into three classes.”⁷⁹ He repeats this process with different aspects of nature: mountains, rivers, and grottoes. In other words, while global science may be constructed from Europe, there is no global science without the Americas. Furthermore, although Humboldt places Europe at the center of scientific knowledge, he celebrates many aspects of the Americas, from its extraordinary natural world to its different cultures. He also questions prior tenets held by Europe until then and disputes authorities such as La Condamine and William Robertson, among many others. His observations demonstrate how much Europeans still ignored about the world: “The great problem of the physical description of the globe,” he explains regarding the distribution of minerals, plants, and animals,

“is the determination of the form of these types, the laws of their relations with each other, and the eternal ties which link the phenomena of life, and those of inanimate nature.”⁸⁰ Perhaps the most significant trait in Humboldt’s quest to “know” the tropics is that he is willing to suspend, review, and even correct many prior assessments or preconceived notions he and others had believed were true. In this sense, although his maps make the Americas accessible and important to Europe in new ways, his gaze simultaneously reexamines European knowledge connecting it to the Americas.

Challenging Pratt’s argument that Humboldt essentially erases the human landscape to emphasize the Americas as primal nature, Dassow Walls asserts that wherever “Humboldt goes in the world he looks for traces of the human.”⁸¹ Walls argues that he acknowledges the human imprint in the landscape particularly when observing the indigenous population—which he finds both praiseworthy and disgraceful. He also speaks out against European imperialism and creoles’ exploitation of the indigenous inhabitants. In her words, “Humboldt did far more than unlock the closed gates of the Spanish empire; he showed Americans how to imagine themselves as something more than offshoots of European ambitions.”⁸² However, as Stanton Catlin argues, by the time Humboldt arrived in the Americas, a Latin American consciousness was already beginning to emerge in part through the work in the art academies—Humboldt simply reinforced it from a European perspective. In the Quito school of sculpture, for example, under the direction of José Celestino Mutis, creole and Ecuadorean Indian artists were working together to reproduce with scientific accuracy natural specimens. Applying new techniques and colors to reproduce precisely detailed illustrations of extraordinary artistic quality, these artists created striking renditions of Americas’ nature that sparked a sense of homeland and self-awareness.⁸³

It is worth noting that despite these criticisms, when the colonies embarked on their battles for independence, they embraced Humboldt’s scientific observations and outspoken opinions as validation of their own legitimacy.⁸⁴ The great independence leader Simón Bolívar exalted Humboldt for what he considered his most important act: “with *his eyes* he pulled her [America] out of ignorance and with his pen he painted her as beautiful as her own nature.”⁸⁵ Many Spanish Americans fighting for independence shared this perception. North Americans, such as Prescott, Ticknor, Irving, and Longfellow, would also embrace Humboldt’s view as he applauded the US political and economic model,

which echoed many of his values. While Humboldt was not a politician, he was well aware of the political consequences his observations had in local contexts. But unlike in Spanish America, where he was and still is highly praised, in the United States his relevance would eventually be curtailed, especially when he voiced his aversion to the continuing of slavery, the Indian Removal, the Mexican-American War, and the burgeoning materialism that permeated US culture. These opinions were cautiously altered or deleted from his subsequent publications in the United States.⁸⁶

Humboldt's travels altered perceptions of the New Continent on both sides of the Atlantic. From landscape painters to natural scientists, they all credit Humboldt with giving them the urge to travel and *see* the continent. While he may well have naturalized colonial relations and racial hierarchies as Pratt contends, Humboldt also questioned both creole and colonial inequalities and denounced all forms of exploitation.⁸⁷ Most importantly, he relished observing nature and the inhabitants of the New World, highlighting their relevance for Europe, and galvanizing travelers to engage in observation and explore the Americas with a new lens.

POLITICAL ESSAY ON NEW SPAIN

Personal Narrative did not include Humboldt's travels through his beloved Mexico, yet it was far from absent throughout his work. In fact, as he confessed to his brother back in Europe, Mexico was where he intended to spend the last years of his life:

I have a great plan for a central establishment of the sciences in Mexico to serve all free America. The emperor of Mexico, whom I know personally, will fall, a new republican government will come, and I insist on spending my days in the most agreeable and useful manner for the sciences in a part of the world where I am dearly loved and where everything indicates I would lead a happy existence. It is a way to avoid dying without glory, to surround myself with many educated people.⁸⁸

Mexicans shared the feeling. In 1827, Humboldt and Bonpland were declared honorary citizens of Mexico.⁸⁹ But Humboldt would never return to the Americas, unlike his friend Bonpland, who had an adventurous life in South America, teaching, studying plants, raising sheep, and producing yerba mate in the unstable tri-border region of Argentina, Brazil and Paraguay. His final years were spent in the northern Argentine

province of Corrientes, where he died.⁹⁰ Humboldt's commitment to Mexico, however, never subsided and transcended his geographical distance. His *Essai politique sur le royaume de la Nouvelle Espagne* (1808–1811) is an in-depth study of Mexico's economic, political, and cultural characteristics, which had great political relevance for Mexicans.⁹¹ During their quest for independence, creoles embraced his study as a blueprint of their great potential and the need to take control of their assets.⁹² Ensuring a good administration under Mexican control would nevertheless be much more difficult than anyone could have anticipated, as Mexicans' struggle for independence was a drawn out and costly process.

Humboldt and Bonpland reached New Spain from the Pacific port of Acapulco on March 22, 1803, accompanied by Carlos Montúfar, a wealthy creole who had joined them in Quito a few years before.⁹³ From Acapulco, they took the less traveled route to Mexico City, crossing the scorching valley of the Mezcala River, through Taxco's temperate climate, past Cuernavaca. As they advanced with twenty-one overloaded mules, Humboldt mapped the towns, villages, farms, and mines they visited, registering barometric pressures and other climactic changes. He would do the same at the end of his journey, from Mexico City to the port of Veracruz—a road that almost every European traveler to Mexico would follow thereafter, often citing him. Having completed the trajectory, Humboldt became the first to map Mexico's altitude from the Pacific to the Atlantic coasts.⁹⁴

Viceroy José de Iturrigaray received the travelers warmly, offering his services and placing all available resources at their disposal. Humboldt was struck by Mexico City's beauty: "There is perhaps no city in all of Europe that in general terms is more beautiful than Mexico. It has the elegance, regularity, and uniformity of the beautiful constructions of Turin, Milan; [and] of the beautiful neighborhoods of Paris, Berlin."⁹⁵ He admired its elegant stone buildings and cobbled stone streets, its lovely gardens, colorful squares, glistening canals, impressive aqueducts, and rich display of art.⁹⁶ He was also impressed with the high standards of its cultural and scientific institutions: "I was most surprised by how advanced the civilization of New Spain was compared to the other parts of South America that I had just explored."⁹⁷ But Mexico's beauty was tarnished by harsh contrasts, for nowhere else did he see so much misery and unequal distribution of wealth: "There is no city in all of Europe with so much misery. Thirty to forty thousand men (Indians) completely naked, covered in a wool blanket or just in rags. A sad and repulsive sight!

An abundance of lice! Such uneven fortunes!”⁹⁸ This would be a disturbing recurring image subsequent travelers would continuously confront.

During his yearlong stay, Humboldt made a series of short trips to specific points of interest, measuring altitude, longitude and latitude, and barometric pressure. He measured and climbed volcanoes (el Jorullo, el Cofre de Perote); visited mines (in Taxco and Guanajuato); and collected plants and made numerous sketches and drawings of what he saw. In Mexico City, he set up his research center at the Royal School of Mining (1792), where he collaborated with several colleagues from Freiberg, including the Director of the School of Mines, Andrés Manuel del Río. He worked tirelessly with scholars and artists, studying and copying documents and archives, and discussing geology, geography, art, and even commerce.⁹⁹ He gave a series of lectures on pasigraphy (a universal conceptual writing system), which was included in the first textbook on geology printed in the Americas (1805), compiled by del Río.¹⁰⁰

Although Humboldt refrained from participating in local political debates, he knew his work had political significance. While in Mexico, he published a short text, *Tablas geográficas políticas del Reino de Nueva España* (1804), “a sketch” (“bosquejo”) or preliminary study that would later be developed in his *Political Essay*.¹⁰¹ Dedicated to Viceroy Iturrigaray in gratitude for his generous support, *Tablas* contains a wealth of statistical information in a summarized form: from the different goods produced in Mexico (cochineal, indigo, and sugar paper) and the annual production of silver and gold in the mines to the demographics and geographical distribution of the population (Spanish, creole, Indian, and mulattoes), including income distribution, military expenses, and fortifications, as well as state income. The information is listed with only brief explanations, composing a scientific record of Mexico’s assets and deficiencies, which Humboldt views from a comparative perspective. Summarizing his findings on Mexico’s income, for example, he states: “The total income of New Spain is almost equivalent to that of the king of Prussia and exceeds three times the income of the king of Sweden.”¹⁰² His conclusions create a new kind of awareness toward New Spain, on both sides of the Atlantic. Spain had zealously concealed this information not only from the rest of Europe but even from Mexico’s inhabitants.¹⁰³ Humboldt was cognizant of the repercussions his report might have, and in his dedication to Iturrigaray, he acknowledges the political relevance of his study: “The majority of the materials I have used,” he confesses sarcastically to the Viceroy, “do not exist in

the Secretariat of this Viceroyalty and this realization leads me to believe that my work will be of some interest to your royal excellency.”¹⁰⁴ His statement reveals a critical undertone toward Spain’s secrecy and administration. Embracing liberal and democratic ideals of progress, Humboldt sustained that knowledge had to be shared to ensure progress; thus, he was determined to disseminate as much information as he could. In fact, during his visit to the United States, he shared his maps and research on Mexico with President Thomas Jefferson and US government authorities. Secretary of Treasury Albert Gallatin had several copies made of his detailed maps. It is believed that much of this information was instrumental in the United States’ incursion against Mexico in the Mexican-American War.¹⁰⁵

In the wake of independence, Mexican historian Carlos María Bustamante would invoke Humboldt’s critique of Spain’s secrecy and protectionist policies. Bustamante tried to spread Humboldt’s research by publishing a serialized version of *Tablas* in his newspaper *Diario de México*. But local authorities concerned about divulging information, given the tensions in Europe and the political climate in Mexico, interrupted the publication. *Tablas*, nevertheless, quietly circulated among scholars and political leaders until it was finally published in 1822. It was a unique compilation of Mexico’s geographic, economic, and political landscape.

Tablas can be considered an aide-memoire for Humboldt’s more persuasive and elaborate text, *Political Essay*, published four years later in France (1808–1811). Far from a travel narrative that leads the reader through an unknown geography, *Political Essay* examines, scrutinizes, ponders, and appraises New Spain’s society, briefly peppered with personal anecdotes. Dedicated to King Charles IV of Spain, it is Humboldt’s contribution to “perfect the social institutions and the eternal principles which are needed to assure people’s prosperity.”¹⁰⁶ Humboldt analyzes Mexico’s geography and population; provides statistics of each *intendencia*; makes astronomical observations; studies the agriculture and mines, its products and commerce, and its general income and military defense. Humboldt is much more critical in this text, detailing problems and offering solutions. He repeatedly compares Mexico to the United States, as if anticipating future conflicts. He discusses hydraulic systems at length, the improper care of roads, and the treatment of the indigenous population. His work is so exhaustive in certain areas such as Mexico’s mines that he almost “single handedly” produced

a boom in British investment and was later blamed for exaggerating the information when investments failed.¹⁰⁷

Humboldt helped Mexicans gauge their assets in a more organic way, taking into account their rich and diverse geography.¹⁰⁸ In his study of Mexico City, rather than focus on the established urban limits imposed by Spain—as most studies did at the time—he redrew the administrative units taking into account the area's physical geography. This allowed him to understand the changes of natural resources (especially water) of the fertile valley since the Aztecs and recommend solutions for potential problems given the population growth.¹⁰⁹

Attentive to the interconnection between nature and mankind, he paid special attention to the indigenous communities, studying their language and comparing physical traits, customs, and cultures. As he reminded readers in his *Personal Narrative*, “The forms of plants determine the physiognomy of nature; and this physiognomy influences the moral disposition of nations.”¹¹⁰ In Mexico, Humboldt reflected extensively on the indigenous populations. He contested Buffon's theories of Americans' inferiority, arguing that the fertility of the land was exceptional and that the corresponding “immaturity” Buffon and De Pauw sustained was erroneous given the inhabitants' physical strength, especially of those working in the mines: “The appearance of these hard-working and robust men could have changed the opinion of the likes of Raynal, of De Pauw, and of many other authors, who—though otherwise esteemed—have proclaimed so often the degeneration of our species in the torrid zone.”¹¹¹

Marco Antonio Urdapilleta Muñoz explains that Humboldt's view of indigenous peoples is determined by an evolutionary model of progress defined by four modes of sustenance: hunter-gatherer societies, herding, farming, and commerce. Hence, their inferiority—which Humboldt does not contest—is not due to a hostile climate but rather to a moral deficiency given their lack of social development.¹¹² Despite their general good health, he notes they tend to get drunk, are naturally indolent and subservient, and lack imagination. Yet, in making these assertions, Humboldt also recognizes the need for caution, as there are many cultural differences he may not be able to assess.¹¹³ In the end, he considers that these traits, as well as their inferiority, he claims, are due to their history of enslavement.¹¹⁴ In Humboldt's view, individual freedom is essential to advance progress. He faults the despotism of the Aztecs, and subsequently the Spanish, who continued to build on a legacy of

abuse, forcing indigenous people to be relocated, stripping them of their land and coercing them to work in the mines, or join the military.¹¹⁵ European readers are not exempt from these criticisms in Humboldt's global view, for "the same cruelties which tarnished the conquest of America, have been re-enacted before our own eyes in times which we supposed to be characterized by vast progress, information, and general refinement of manners."¹¹⁶ Among the uncivilized acts committed by "civilized nations" he cites: the Reign of Terror in France (1793–1794), the expedition to Saint-Domingue (1791–1803), the War of the Third Coalition (1803–1806), the Chios massacre (1822) and the destruction of Ipsara (1824) by Ottoman troops, and the adverse justice in slave countries.

While *Political Essay* analyzes Mexico's commercial products, its artistic production is presented in a beautiful visual publication that highlights its indigenous legacy, *Vues des cordillères, et monumens des peuples indigènes de l'Amérique* (Paris 1810).¹¹⁷ *Views of the Cordilleras*, as it is known in English, comprised 69 magnificently executed plates almost all accompanied with texts by Humboldt. The volume, did not focus solely on Mexican art and landscape, it also included images of his beloved Chimborazo and other volcanoes; landscapes in Ecuador; Inca gardens; and Muisca drawings. But most of all, the illustrations focus on Mexican art in a "revolutionary" effort to connect the Americas.¹¹⁸

Humboldt's writings presented the creole elite a new visual and textual map of their own territory filled with prospects of economic development, which would help ease the path for the future new republic to claim its own riches. He would become a major "figure" for independence, and his findings were endowed with national significance. Yet, Mexico's fight for independence was perhaps the most entangled process of all the former Spanish colonies. Although it began as a popular uprising, constant infighting as well as foreign incursions systematically hampered the process unlike anywhere else in Spanish America. Resisting the loss of one of its major colonial holdings, Spain did not recognize Mexico's independence until 1836, and it would take another three years until it sent its official envoy to acknowledge that independence. The man endowed with this task was the first Plenipotentiary Minister, Don Ángel Calderón de la Barca, who arrived in Mexico in 1839, accompanied by his wife, Scottish-born Frances Calderón de la Barca.

Fanny Calderón, as she was popularly known, is perhaps the first traveler to explore Mexico with as much freedom as Humboldt.

Well educated and fluent in Spanish, she took advantage of her husband's diplomatic privilege to explore Mexican society. If Humboldt assessed, measured, and analyzed Mexican society focusing on its economy, government policy, indigenous art, flora and fauna, and mountains, Fanny Calderón followed Humboldt's path through the country, updating many of his findings while also penetrating deep into the interior of Mexican society. At a time when women had very few opportunities to act independently, much less to follow their own curiosity, Fanny Calderón explored Mexico with extraordinary zest, engaging in everyday life, observing creoles' tastes, manners, and education, as well as traveling through the countryside with exceptional self-confidence. Inspired by Humboldt's travels and writings, which she often quotes, Fanny Calderón tries to document it all. Humboldt had taught his readers that everything one observed was of interest. The key was to understand how different elements were connected, to scrutinize the ways in which the natural and social environments were linked. Fanny Calderón takes Humboldt's lesson to heart, engaging with Mexicans, from creole to indigenous populations, detailing their customs, habits, likes, and dislikes. Her interest is limitless, as she explores the countryside, ruins, mines, markets, and finds her way into peoples' homes, orphanages, and hospitals, even gaining access to restricted places such as convents. In this way, her narrative on Mexico expands Humboldt's study. As Dawn Ades notes, although Humboldt paid great attention to the wonders of the primitive cultures, his interest in the remains of these American cultures was historical rather than aesthetic; hence, there is relatively little *costumbrismo*—little focus on the everyday mannerisms and local color of the population—in his *Voyage*.¹¹⁹ Fanny Calderón's narrative fills this gap. Her travel narrative complements Humboldt's *Voyage* by highlighting Mexico's geopolitical structure through her detailed observation of the landscape and her contemporary examination of its people and lifestyles thirty years later. It is a unique and unexpected portrait that shifts the focus of observation toward the internal manners of Mexican society.

NOTES

1. "Humboldt's crocodile is not Hegel's crocodile" (1994) is the title of Colombian artist José Alejandro Restrepo's video installation. It is part of his multimedia project, *Transhistorias*, a series of installations in which he reworks images of Latin America from the nineteenth century.

- “El cocodrilo de Humboldt no es el cocodrilo de Hegel” highlights the debate between the Old and New Worlds through a playful rendering of Hegel’s assessment of America. The title is based on Humboldt’s letter to Varnhagen von Ense, dated July 1, 1837, in which he states: “I would gladly abandon ‘the European beef,’ which Hegel’s phantasy presents as so much better than the American, and I could almost wish to live near the weak inanimate crocodiles (which, alas! measure twenty-five feet).” The installation consists of two monitors, spaced twenty-five feet apart on a white wall, one with a blown-up eye of a crocodile slowly blinking, and the other with the crocodile’s tail wagging. Restrepo’s project not only criticizes nineteenth-century views but also, especially, seeks to shed light on the extent in which the colorful and exoticizing gaze toward America is still prevalent today in many cosmopolitan centers. On Restrepo’s exhibit, see http://admin.banrepcultural.org/sites/default/files/joseres_0.pdf, 47–50, accessed September 16, 2015. I am grateful to Juan Torbidoni for bringing Restrepo’s work to my attention. For the complete letter, see Alexander von Humboldt, *Letters of Alexander von Humboldt to Varnhagen von Ense, from 1827 to 1858*, trans. Friedrich Kapp (New York: Rudd & Carleton, 1860), 59–60.
2. Gabriel García Márquez, “The Solitude of Latin America” (Nobel Literature Prize lecture), December 8, 1982, accessed July 2, 2015. http://www.nobelprize.org/nobel_prizes/literature/laureates/1982/marquez-lecture.html.
 3. Dennis Porter, *Haunted Journeys: Desire and Transgression in European Travel Writing* (Princeton: Princeton University Press, 1991), 29.
 4. Other inventories existed long before Linnaeus’, such as Pliny the Elder’s thirty-seven volume *Naturalis Historia* (AD77–79), which encompassed knowledge about medicine, technology, and art, in addition to that of the natural world.
 5. Carolus Linnaeus, *Systema naturae 1735* Facsimile of the First Edition with an Introduction and a First English Translation of the “Observations” by Dr. M. S. J. Engel-Ledeboer and Dr. H. Engel (N.P.: Nieuwkoop b.d. Graaf, 1964), 19, accessed September 16, 2016. https://www.kth.se/polopoly_fs/1.199546!/Menu/general/column-content/attachment/Linnaeus-extracts.pdf.
 6. Paul Lawrence Farber, *Finding Order in Nature: The Naturalist’s Tradition from Linnaeus to E. O. Wilson* (Baltimore: The Johns Hopkins University Press, 2000), 9.
 7. Daniela Bleichmar analyzes the interplay between the textual and visual characteristics in the classification of plants inspired by Linnaeus’ taxonomy, particularly in the publications used by botanists traveling to Spanish America. See Daniela Bleichmar, “Exploration in Print: Books and

- Botanical Travel from Spain to the Americas in Late Eighteenth Century,” *Huntington Library Quarterly* 70, no. 1 (March 2007): 129–151.
8. Linnaeus, *Systema*, 19.
 9. This Eurocentrism continues today. Take, for example, the current process for naming hurricanes. The list of names for tropical cyclones in the Atlantic is maintained and updated by an international committee of the World Meteorological Organization, an agency of the United Nations. There are six lists of alphabetical names (male and female) in use for tropical storms in the Atlantic, which rotate each year. The list of one year will not be reused for six years. The names are compiled from French, English, and Spanish—but not Portuguese. The WMO website states: “The tropical cyclone/hurricane names selected are those that are familiar to the people in each region. Obviously, the main purpose of naming a tropical cyclone/hurricane is basically for people easily to understand and remember the tropical cyclone/hurricane in a region.” If all twenty-one names are used, names from the Greek alphabet are used; however, no Algonquin, Haitian Creole, Nahuatl, Mayan, or other indigenous language names are included, despite their regional relevance. Names may also be retired. Accessed August 8, 2016. <http://www.wmo.int/pages/prog/www/tcp/Storm-naming.html>; http://www.nhc.noaa.gov/aboutnames_history.shtml.
 10. See Bernardino De Sahagún, *Historia general de las cosas de Nueva España* known as *Florentine Codex* Book XI, and Martín de la Cruz, *Libellus de Medicinalibus Indorum Herbis*, *Manuscrito Azteca de 1552, Según traducción latina de Juan Badiano; Versión española con estudios y comentarios por diversos autores*, 2 vols. (México: Fondo de Cultura Económica, 1991). It is striking to note that the *De la Cruz-Badiano Codex* circulated among indigenous, mestizos, and creoles throughout the colonial period, which undermines Linnaeus’ argument regarding indigenous cultures’ lack of scientific knowledge. However, recognizing indigenous knowledge would have entailed approaching and studying their worldview in a way that recognized their authority. Their complex knowledge still remains unclear, as today we still lack a precise understanding of Nahua concepts of plant nomenclature. See Salvador Reyes Equiguas, “Plants and Colors in the *Florentine Codex*,” in *Colors Between Two Worlds: The Florentine Codex of Bernardino de Sahagún*, eds. Gerhard Wolf and Joseph Connors in collaboration with Louis Waldman (Florence: Kunsthistorisches Institut in Florenz, Max-Planck-Institut: Villa I Tatti, the Harvard University Center for Italian Renaissance Studies, 2011), 135–155; Sandra Zetina et al., “The Encoded Language of Herbs: Material Insights into the *De la Cruz-Badiano Codex*,” in *Colors Between Two Worlds*, 221–257. I thank Eulogio Guzmán for his insights on this topic.

11. Farber, *Finding Order in Nature*, 11.
12. Ibid., 18.
13. Antonello Gerbi, *The Dispute of the New World: The History of a Polemic 1750–1900*, trans. Jeremy Moyle (Pittsburg: The University of Pittsburgh Press, 1973), 157.
14. Ibid., 6.
15. Thomas Jefferson was among those who contested Buffon's degeneracy theory in the Unites States; see Thomas Jefferson's last section of his *Notes on the State of Virginia* (1785) and his letter to Buffon (dated October 1, 1787) accompanying the bones and skin of a Moose, and the horns of a Caribou and Elk to Paris. Others contesting Buffon's theory in Latin America are Juan Ignacio Molina, *Compendio de la historia geográfica, natural y civil del Reyno de Chile*, 2 vols. (1788 and 1796) and Francisco Xavier Clavijero, *Historia antigua de México* (1780–1781). For an important overview regarding European philosophical travelers, see Jorge Cañizares-Esguerra, *How to Write the History of the New World: Histories, Epistemologies, and Identities in Eighteenth-Century Atlantic World* (Stanford: Stanford University Press, 2001).
16. Linnaeus did encourage his students to travel. Most of them went to Asia and Africa, but his favorite pupil, botanist Peter Löfving, joined a Spanish expedition to Venezuela, where he would eventually contract a fever and die. Humboldt made a special visit to his tomb in Cumaná, Venezuela.
17. Jorge Cañizares-Esguerra, *How to Write the History of the New World*, 3.
18. Alexander von Humboldt, *Cosmos: A Sketch of the Physical Description of the Universe*, 2 vols., trans. E. C. Otté (Baltimore: The Johns Hopkins University Press, 1997), 1: 24. The work was originally published in five volumes over the span of several years. The first volume appeared in 1845, and the fifth and last volume appeared posthumously in 1862.
19. Susan Faye Cannon coined the term "Humboldtian Science" to characterize this new type of scientific inquiry that marked the first half of the nineteenth century in *Science in Culture: the Early Victorian Period* (New York: Science History Publications, 1978). For a more contemporary and nuanced reading of Humboldt's scientific method see Michael Dettelbach, "Humboldtian Science," in *Cultures of Natural History*, eds. N. Jardine, J. A. Secord and E. C. Spary (Cambridge: Cambridge University Press, 1996): 287–304.
20. Hugh Ridley, *Darwin Becomes Art. Aesthetic Vision in the Wake of Darwin: 1870–1920* (Amsterdam: Rodopi, 2014), 16.
21. Humboldt, *Cosmos*, 1: 24–25.
22. Humboldt to Freiesleben, near Bordeaux, August 1, 1804 in *Cartas Americanas*, comp. Charles Minguet, trans. Marta Traba (Caracas, Venezuela: Biblioteca Ayacucho, 1980), 135.

23. Humboldt chose to write in French, which was the scientific language par excellence at the time. The complete title is *Voyage aux régions équinoxiales du Nouveau Continent, fait en 1799, 1800, 1801, 1802, 1803, et 1804 par Alexandre de Humboldt et Aimé Bonpland, rédigé par Alexandre de Humboldt avec un atlas géographique et physique (1810–1834)*. Humboldt's publications on his voyage to the Americas are difficult to itemize because his work is dispersed throughout numerous editions. Furthermore, Humboldt revised and expanded subsequent editions many times. In addition, not all the translations reproduce the exact material. A useful source is Charles Minguet, *Alexandre de Humboldt historien et géographe de l'Amérique espagnole, 1799–1804* (Paris: François Maspero, 1969). Noted Humboldtian scholar Ottmar Ette has been awarded an eighteen-year grant for his long-term project: "Travelling Humboldt–Science on the Move" at the Berlin-Brandenburg Academy of Sciences and Humanities: <http://www.bbaw.de/forschung/avh-r>. This project will offer a genealogy and chronology of Humboldt's works. Ette is also in charge of "Alexander von Humboldt's American Travel Diaries" (ART) based at the University of Potsdam and the Berlin State Library. <http://www.uni-potsdam.de/humboldtart/>.
24. Alexander von Humboldt, *Personal Narrative of Travels to the Equinoctial Regions of America, During the Years 1799–1804*, trans. and ed. Thomasina Ross, 3 vols. (Henry G. Bohn, 1852–1853), 1: ii–iv; Mary Louise Pratt, *Imperial Eyes*, 120.
25. Michael Dettelbach, "Global Physics and Aesthetic Empire: Humboldt's Physical Portrait of the Tropics," *Visions of Empire: Voyages, Botany, and Representations of Nature*, eds., David Philip Miller and Peter Hanns Reill (Cambridge: Cambridge University Press, 1996), 161.
26. This point is developed by Magali M. Carrera in *Traveling from New Spain to Mexico: Mapping Practices of Nineteenth-Century Mexico* (Durham: Duke University Press, 2011). Mapmaking would be central to Mexico in the process of reimagining its identity as it shifted from being a place known as New Spain to becoming Mexico.
27. Karl Offen and Jordana Dym, "Introduction," *Mapping Latin America: A Cartographic Reader*, eds. Jordana Dym and Karl Offen (Chicago: The University of Chicago Press, 2011), 6.
28. Anne Marie Claire Godlewska, "From Enlightenment Vision to Modern Science? Humboldt's Visual Thinking," *Geography and Enlightenment*, eds. David N. Livingston and Charles W. J. Vithers (Chicago: The University of Chicago Press, 1999): 236–276. Humboldt conceived location in three dimensions: latitude, longitude, and altitude; or in geognosic terms, position and superposition as key to understanding

- the natural world. See also Godlewska's *Geography Unbound: French Geographic Science from Cassini to Humboldt* (Chicago: The University of Chicago Press, 1999), especially Chap. 7.
29. Humboldt was deeply concerned about how to map the dynamic forces of nature (movement, change, and migration), thus the importance of inscribing analogies within the text. Ottmar Ette focuses on his "mobile knowledge" in "TransTropics: Alexander von Humboldt and Hemispheric Constructions," trans. by Vera M. Kutzinski, *Alexander von Humboldt and the Americas*, eds. Vera M. Kutzinski, Ottmar Ette, Laura Dassow Walls (Berlin: Edition tranvía-Verlag Walter Frey): 209–236. This point is also emphasized by Minguet, *Alexandre de Humboldt*, 76–77 and by Godlewska, *Geography Unbound*, 245.
 30. I am building on Bruno Latour's spatialized metaphors of cycles of accumulation through which "universal knowledge" is created. See Bruno Latour, *Science in Action: How to Follow Scientists and Engineers Through Society* (Cambridge, MA: Harvard University Press, 1987), 215–258.
 31. The complete caption states: "Voyage vers la cime du Chimborazo, tenté le 23 Juin 1802. Par Alexandre de Humboldt, Aimé Bonpland et Carlos Montufar. -Esquisse de la géographie des plantes dans les Andes de Quito, entre les 0° 20' de lat. Bor. Et les 1° 12' de lat. Austr.-" in Alexander von Humboldt, *Voyage de Humboldt et Bonpland première partie, relation historique. Atlas géographique et physique du Nouveau Continent* (Paris: Schoell, 1814), MCZ, Harvard University. Another well-known example of Humboldt's micro-cosmographies his depiction of the Chimborazo in *Tableau physique des Andes from Geography of Plants* (1807). On this particular image, see Paul Smethurst, *Travel Writing and the Natural World, 1768–1840* (New York: Palgrave, Macmillan, 2012), 107; Nigel Leask, *Curiosity and the Aesthetics of Travel-Writing, 1770–1840* (Oxford: Oxford University Press, 2002), 254; Nina Gerassi-Navarro, "Picturing the Tropics from Humboldt to Darwin," eds. Klaus Hock and Gesa Mackenthun, *Entangled Knowledge: Scientific Discourses and Cultural Differences* (Münster: Waxman, 2012), 201–230.
 32. Alexander von Humboldt, "About an Attempt to Climb to the Top of Chimborazo," trans. Vera M. Kutzinski, *Alexander von Humboldt: Transatlantic Personae*, ed. Vera Kutzinski (New York: Routledge, 2012), 139.
 33. Leask, *Curiosity*, 254. Leask argues that the itemization disfigures and disrupts the visual unity as a whole, whereas Paul Smethurst points out that the purpose of the image is to deconstruct the unity of surface appearances to reveal a deeper equilibrium of underlying force. Smethurst, *Travel Writing*, 107.

34. Humboldt, *Personal Narrative*, 2: 257.
35. Humboldt published a prior version of his ascent in 1838, which lacks the revisions and footnotes he subsequently added. The 1853 version of his ascent, published in Humboldt's *Shorter Writings*, has been translated by Vera M. Kutzinski in *Alexander von Humboldt: Transatlantic Personae*, 135–155. This book was previously published as a special volume of *Atlantic Studies* 7, no. 2 (June 2010).
36. Kutzinski, *Transatlantic Personae*, 136; 141.
37. *Ibid.*, 139. It is worth noting that in *Views of the Cordilleras*, he presents the *pajonal* like a golden carpet and describes the different grasses and plants in more detail.
38. Alexander von Humboldt, *Views of Nature: or Contemplations on the Sublime Phenomena of Creation; with Scientific Illustrations*, trans. E. C. Otté and Henry Bohn (London: Henry G. Bohn, 1850), xi. Humboldt emphasized the importance of “enjoyment” in this work, originally published in German *Ansichten der Nature*, 1808.
39. Humboldt, *Views of Natur*, 347.
40. Bernard Debarbieux, “Mountains: Between Pure Reason and Embodied Experience: Philippe Buache and Alexander von Humboldt,” in *High Places: Cultural Geographies of Mountains, Ice and Science*, eds. Denis Cosgrove and Veronica della Dora (London: I.B. Tauris, 2009), 104.
41. Bernard Debarbieux, “The Various Figures of Mountains in Humboldt’s Science and Rhetoric,” *Cybergeo: European Journal of Geography* (2012) 9, accessed September 27, 2016. <http://cybergeo.revues.org/25488>.
42. Denis Cosgrove and Veronica della Dora, “Introduction: High Places,” in *High Places*, 1.
43. Humboldt to Karoline von Wolzogen, May 14, 1806: “[H]e reconocido en los bosques del Amazonas, y sobre los contrafuertes de los Andes, que el mismo soplo anima la misma vida de un polo a otro en las piedras, en las plantas, en los animales y en el dilatado pecho del hombre. El sentimiento de la gran influencia de Jena me persigue por todas partes, ya que las ideas de Goethe respecto a la naturaleza me habían transportado y, por así decir, me dotaron de nuevos órganos.” *Cartas Americanas*, 163. Translation quoted from Debarbieux, “Mountains: Between Pure Reason and Embodied Experience, Philippe Bouache and Alexander von Humboldt,” in *High Places*, eds. Cosgrove and della Dora, 101.
44. Debarbieux, “Mountains: Between Pure Reason,” 101.
45. Humboldt, *Cosmos*, 2: 81.
46. *Ibid.*, 94–95.
47. On Church, see Stephen Jay Gould, “Church, Humboldt, and Darwin: The Tension and Harmony of Art and Science,” *Frederic Edwin*

- Church*,” ed. Franklin Kelly (Washington D.C.: National Gallery of Art: Smithsonian Institution Press, 1989): 94–107; Nina Gerassi-Navarro, “Picturing the Tropics”; Pablo Diener and Maria de Fátima Costa, *A América de Rugendas. Obras e Documentos* (São Paulo, Brazil: Kosmos Editora, 1999). Regarding Catlin and Mignot as well as the other artists, see Katherine Manthorne, *Tropical Renaissance: North American Artists Exploring Latin America, 1939–1879* (Washington: Smithsonian Institution Press, 1989).
48. Scientific research in Spain and in the colonies would advance particularly during Carlos III’s reign, from 1759 to 1788. See Concepción Arias and Cándida Fernández, “La ciencia mexicana en el Siglo de las Luces,” *Historia de la Ciencia en México: estudios y textos. Siglo XVIII*, 5 vols., recopilación e introducción de Elías Trabulse (México: Conacyt/Fondo de Cultura Económica, 1983–1989). See especially 3: 9–28.
 49. To deter spies and maintain control of the areas explored, Spanish scientists accompanied all expeditions to the Americas. For example, although French geographer Charles Marie de La Condamine led one of the most well-known geodesic expeditions to Ecuador (1735–1746), Jorge Juan and Antonio de Ulloa accompanied La Condamine and produced a report for Spain, as did Vicente Doz and Salvador Medina, who traveled with French astronomer Abbé Jean Baptiste Chappe d’Auteroche to the coast of Baja California (1769). Among the expeditions Spain sponsored: José Antonio Pavón and Hipólito Ruiz to Chile and Peru (1777), José Celestino Mutis’ voyage to the New Kingdom of Granada (1783), José Mociño and Martín Sessé’s to New Spain (1786), and Juan Tafalla’s trip to Ecuador (1799). For a list of Spain’s sponsored trips during the second half of the eighteenth century, see Daniella Bleichmar, “Painting as Exploration: Visualizing Nature in Eighteenth-Century Colonial Science,” *Empires of Vision: A Reader*, eds. Martin Jay and Sumathi Ramaswamy (Chapel Hill: Duke University Press, 2014), 67. Also, regarding Spanish scientific explorers, see Iris H. W. Engstrand, “Spain’s Role in Pacific Exploration during the Age of Enlightenment,” in *Enlightenment and Exploration in the North Pacific 1741–1805*, eds. Stephen Haycox, James Barnett, Caedmon Libud (Seattle: University of Washington Press, 1997), 25–37; S. Castroviejo, “Spanish Floristic Exploration in America: Past and Present,” in *Tropical Forests: Botanical Dynamics, Speciation and Diversity*, eds. L. B. Holm-Nielson, I. C. Nielson, and H. Balslev (London; San Diego: Academic Press, 1989), 347–354; Juan Ortega y Medina, “Estudio preliminar,” in Alexander von Humboldt, *Ensayo político sobre el reino de la Nueva España*, 4th edition (Mexico: Porrúa, 1984), xxvii–xxviii.

50. Concerned with its diminishing funds, Spain was already investing in reinvigorating the exploitation of its colonial mines. In 1788, the Basque Fausto de Elhuyar, who had studied at the Freiberg School of Mines, was appointed General Director of Mining in Mexico, where he founded the School of Mines in 1792. Humboldt would indeed make several recommendations regarding the mines, especially in Mexico, but they would be to encourage the creoles to take charge of the mines as the battles for independence would begin shortly after.
51. Minguet, *Alexandre de Humboldt*, 42.
52. Miguel Angel Puig-Samper Mulero, "Alexander von Humboldt, su estancia en España y sus contribuciones a la geografía peninsular," *Alexander von Humboldt: Estancia en España y viaje americano*, coords. Mariano Cuesta Domingo and Sandra Rebok (Madrid: Real Sociedad Geográfica, 2008), 70.
53. Although Bonpland was an equal and played a major part in the exploration, it is interesting to note that his passport stated *criado (servant)*. Furthermore, their travels did not include Brazil. In fact, in one instance, as they were traveling down the Amazon river in a region unclearly defined, the Portuguese authorities were mobilized and, considering Humboldt a spy, were ready to imprison him.
54. This was a major feat given that at the time geographers, who believed that watersheds were delineated by mountain systems, thought it was impossible that two major river basins such as the Orinoco and the Negro could be connected. See Bernard Debarbieux, "The Various Figures of Mountains in Humboldt's Science and Rhetoric," *Cybergeo: European Journal of Geography* (2012), accessed April 14, 2015. <http://cybergeo.Revues.org/25488>.
55. Three volumes were published in French in quarto. The first English translation, in octavo, by Humboldt's friend, Helen Maria Williams, consisted of seven volumes and was published between 1814 and 1829 (the last translated volume appeared three years after Williams died), entitled *Personal Narrative of Travels to the Equinoctial Regions of the New Continent during the years 1799–1804 by Alexander von Humboldt and Aimé Bonpland, with Maps, Plans etc.* Humboldt never completed writing the last part of his voyage, leaving out his travels through Colombia, Ecuador, Peru, and Mexico. However, information regarding these and other countries is dispersed throughout his work, in addition to his studies: *Essai politique sur le royaume de la Nouvelle Espagne* (on Mexico)—discussed further down—and *Essai politique sur l'Île de Cuba*. It appears that the fourth and final volume of his *Personal Narrative* was complete and in press, but was halted and destroyed under Humboldt's orders. Minguet, *Alexandre de Humboldt*, 105. Leask mentions that it was Humboldt's

- close friend Helen Maria Williams, who encouraged him to write his travelogue, which she subsequently translated. Leask, *Curiosity*, 288. See also his "Salons, Alps and Cordilleras: Helen Maria Williams, Alexander von Humboldt, and the Discourse of Romantic Travel," *Writing and the Public Sphere, 1700–1830*, eds. C. Grant, E. Eger, C. O'Gallchoir, and P. Warburton (Cambridge: Cambridge University Press, 2001), 217–238. As previously stated, quotes are from Thomasina Ross' translation.
56. Oliver Lubrich, "Alexander von Humboldt: Revolutionizing Travel Literature," *Monatshefte* 96, no. 3 (Fall, 2004), 363.
 57. Ottmar Ette, "Der Blick auf die Neue Welt," in Alexander von Humboldt, *Reise in die Äquinoktial-Gegenden des Neuen Kontinents*, 2 vols., ed. Ottmar Ette, with recourse on the translations by Hermann Hauff, Paul Usteri, and Therese Heyne-Forster-Huber, in part newly translated (Frankfurt: Insel, 1991), 1580–1581, trans. Lubrich and quoted in Lubrich, "Alexander von Humboldt," 365.
 58. Humboldt, *Personal Narrative*, 1: x–xi.
 59. *Ibid.*, xx.
 60. *Ibid.*, x.
 61. *Ibid.*, xi.
 62. Humboldt to Wilhelm von Humboldt, Cumaná, July 16, 1799: "Qué árboles! Cocoteros de 50 a 60 pies de altura, la *Poinciana pulcherrima* con ramilletes de un pie de altura de flores de un rojo vivo magnífico; plátanos y una masa de árboles con hojas monstruosas y flores perfumadas de tamaño de una mano, de las que no sabemos nada. ... y qué colores poseen los pájaros, los peces, hasta los cangrejos (azul cielo y amarillo). Hasta ahora nos hemos paseado como locos; en los tres primeros días no pudimos decidir nada, porque se rechaza un tema para interesarse en otro. Bonpland asegura que se volverá loco si no terminan pronto de aparecer las maravillas. Pero lo que es más bello aún que estas maravillas vistas particularmente, es la impresión que produce el conjunto de esta naturaleza vegetal poderosa, exuberante, y sin embargo tan dulce, tan fácil, tan serena. Siento que sería muy feliz aquí...". *Cartas Americanas*, 15–16 (my translation).
 63. In Paul Smethurst, *Travel Writing*, 93.
 64. Humboldt, *Personal Narrative*, 2: 260–266.
 65. *Ibid.*, 287; 112–113; 192; 453; 168.
 66. *Ibid.*, 134.
 67. For a clear and succinct explanation of the differences between Romanticism and *Naturphilosophie*, see Nicholas Jardine, "Naturphilosophie and the Kingdoms of Nature," in *Cultures of Natural History* (Cambridge: Cambridge University Press, 1996): 230–245; for this distinction related specifically to Humboldt, Paul Smethurst, *Travel Writing*, 95–98.

68. Humboldt, *Personal Narrative*, 1: 134.
69. Leask, *Curiosity*, 288–296.
70. Humboldt, *Personal Narrative*, 1: ix.
71. Anthony Pagden, *European Encounters with the New World* (New Haven: Yale University Press, 1993), 105.
72. Ortega y Medina, “Estudio preliminar,” xi.
73. Laura Dassow Walls, *The Passage to Cosmos: Alexander von Humboldt and the Shaping of America* (Chicago: The University of Chicago Press, 2009), 13–15.
74. Pratt, *Imperial Eyes*, 126.
75. *Ibid.*, 126.
76. Mauricio Nieto Olarte, “Alexander von Humboldt y Francisco José de Caldas: americanismo y eurocentrismo en el Nuevo Reino de Granada,” *Alexander von Humboldt. Estancia en España y viaje americano*, 127–142.
77. Pratt, *Imperial Eyes*, 126.
78. Humboldt, *Personal Narrative*, 1: 151; 1: 160.
79. *Ibid.*, 265.
80. *Ibid.*, xi.
81. Walls, *The Passage to Cosmos*, 19.
82. *Ibid.*, 17.
83. Stanton Loomis Catlin, “Traveller-Reporter Artist and the Empirical Tradition in Post-Independence Latin American Art”; and Dawn Ades, “Nature, Science and the Picturesque,” in *Art in Latin America: The Modern Era, 1820–1980*, ed. Dawn Ades with Guy Brett, Stanton Loomis Catlin, and Rosemary O’Neill (New Haven, CT: Yale University Press, 1989), 41–61 (especially 45), 63–99.
84. Humboldt has often been hailed as a staunch defender of the independence movements in Spanish America. However, as Ulrike Leitner notes, while Humboldt believed that liberal reforms accompanied by a healthy economic growth were the way to ensure progress and democratic freedom, beyond that he was unsure of the path to follow. Nevertheless, he was adamantly against armed revolutions, as in his view they only engaged more violence. See Ulrike Leitner, “Humboldt y la emancipación de México,” *Humboldt y la emancipación de Hispanoamérica*, comp. Segundo E. Moreno Yáñez (Quito: Edipuce, 2011): 49.
85. Simón Bolívar to Humboldt, November 10, 1821. Bolívar writes, “El barón de Humboldt estará siempre con los días de la América presente en el corazón de los justos apreciadores de un grande hombre, que con sus ojos la ha arrancado de la ignorancia y con su pluma la ha pintado tan bella como su propia naturaleza.” In *Cartas americanas*, 266 (emphasis added).

86. See Aaron Sachs, *The Humboldtian Current. Nineteenth-Century Exploration and the Roots of American Environmentalism* (New York: Viking, 2006) and especially Sandra Rebok, *Humboldt and Jefferson* (Charlottesville: University of Virginia Press, 2014).
87. Pratt, *Imperial Eyes*, 130.
88. Humboldt to Wilhelm von Humboldt, Verona, October 17, 1822: “Tengo un gran proyecto de un establecimiento central de ciencias en Mexico, para toda América libre. El Emperador de México, a quien yo conozco personalmente, va a caer, vendrá un gobierno republicano, y yo sigo empeñado en terminar mis días de la manera más agradable y la más útil para las ciencias en una parte del mundo donde soy estremadamente querido y donde todo me permite esperar una feliz existencia. Es una manera de no morir sin gloria, de reunir alrededor muchas personas instruidas...” *Cartas americanas*, 202–203 (my translation). Charles Minguet notes that there is no corroboration to the affirmation that Humboldt knew the Emperor personally.
89. This distinction was awarded by the governor of the State of Mexico Lorenzo de Zavala, and later ratified by President Benito Juárez in 1859, a month after Humboldt’s death. Commemorating his legacy, 200 years after his travels, in 1999, a new statue of Humboldt was placed in the beautifully renovated Alameda Park of Mexico City with the epithet of “honorary citizen” that Juárez had so proudly declared (“Benemérito de la patria 1799–1999”).
90. Stephen Bell, *A Life in Shadow: Aimé Bonpland in Southern South America 1817–1858* (Stanford: Stanford University Press, 2010). In 1821, on a plant-collecting expedition in northern Argentina in an area disputed with Paraguay, Bonpland was detained by the Dictator of Paraguay, José Gaspar Rodríguez de Francia. After eight years in prison, amid pleas from Humboldt and Chateaubriand, among others, Bonpland was set free. Subsequently, he ran a plantation of yerba mate in the province of Corrientes, Argentina, where he died a year before Humboldt, in 1858.
91. *Essai politique sur le royaume de la Nouvelle Espagne* was accompanied by an atlas with numerous charts and data entitled, *Atlas géographique et physique de la Nouvelle Espagne* (*Geographical and Physical Atlas of New Spain*). Alejandro de Humboldt, *Ensayo político sobre el reino de la Nueva España*, ed. Juan A. Ortega y Medina (Buenos Aires: Porrúa, 1984). All quotes from this edition are my translation.
92. José Enrique Covarrubias and Richard Weiner further highlight Humboldt’s enduring influence in Mexican politics in their comparative analysis, “Political Economy, Alexander von Humboldt and Mexico’s 1810 and 1910 Revolutions,” *Rupkatha Journal* 2, no. 3, accessed August 4, 2015. <http://rupkatha.com/V2/n3/ALEXANDERVONHUMBOLDT.pdf>.

93. Carlos Montúfar y Larrea (1778–1816) was a wealthy aristocrat who had studied in Spain. In 1801, he joined Humboldt and Bonpland for three years, returning with them to Europe. He subsequently left Europe to join Bolívar's fight for independence. He was imprisoned and killed in Popayán, Colombia, in 1816. Montúfar is said to have been romantically involved with Humboldt. In a letter to botanist José Celestino Mutis, dated June 21, 1802, Colombian naturalist Francisco José de Caldas complained that Montúfar had stolen Humboldt's heart. On Humboldt's homosexuality, see Helmut de Terra, *Humboldt and the Life and Time of Alexander von Humboldt 1769–1859* (New York: Alfred A. Knopf, 1955), 28.
94. See Alexander von Humboldt, *Route d'Acapulco a Mexico* (Paris: F. Schoell, 1807), accessed April 2, 2015. <http://www.davidrumsey.com/luna/servlet/detail>.

Several of Humboldt's maps and illustration of New Spain are included in his *Atlas géographique et physique du royaume de la Nouvelle-Espagne, fondé sur des observations astronomiques des mesures trigonométriques et des nivellemens barométriques* (Paris: Dufour, 1812). Folio 5 illustrates the route from Acapulco to Mexico; Folio 18 maps the port of Acapulco, which Humboldt redrew, correcting its meridians.

95. Alexander von Humboldt, "Tal vez no hay ciudad en toda Europa que en general sea más bella que México. Tiene la elegancia, la regularidad, la uniformidad de las bellas construcciones de Turín, Milán, de los bellos barrios de París, de Berlín," *Diario de viaje* (de Acapulco a Veracruz, 1803–1804). *Tablas geográficas políticas del Reino de Nueva España acompañadas de correspondencia mexicana, 1803–1854; Diario de viaje (de Acapulco a Veracruz); Introducción a la pasigrafía geológica; El destino de un manuscrito*, comp. Elías Trabulse (México: Siglo XXI, 2003), 229–230 (my translation).
96. Among the buildings he most admired were: The Royal School of Surgeons (1768), The Royal Academy of Fine Arts (1781), and the famed Royal School of Mining (1792).
97. Humboldt, *Ensayo político*, 1.
98. Humboldt, "No hay ciudad en toda Europa donde se vea tanta miseria en las calles..." *Diario in Tablas geográficas*, 231 (my translation).
99. Halina Nelken, *Alexander von Humboldt: His Portraits and Their Artists. A Documentary Iconography* (Berlin: Dietrich Reimar Verlag, 1980), 55.
100. Humboldt would later publish a geognostical essay, which included the principles of a geognostic pasigraphy. Of particular interest in geology, pasigraphy was a simplified means of notations that omitted the structure and composition of rocks "to express with great facility the most complicated relations that exist between the position and periodical occurrence of formations." See Alexander von Humboldt, *A*

- Geognostical Essay of the Superposition of Rocks in Both Hemispheres* (London: Longman, Hurst, Rees, Orme, Brown, and Green, 1823), viii.
101. The original title was *Tablas geográficas políticas del reyno de Nueva España, que manifiestan su superficie, población, agricultura, fábricas, comercio, minas, rentas y fuerzas militares*. Quotes are from the following edition: Alexander von Humboldt, *Tablas geográficas*, 27–31.
 102. Humboldt, *Tablas geográficas*, 99.
 103. In fact, data regarding income and state assets were unavailable until Viceroy Revillagigedo requested the information, which was only published in 1791 by Fabián de Fonseca y Carlos de Urrutia in *Historia General de Real Hacienda* and a compendium by Joaquín Maniáu in 1794. In Alexander von Humboldt, *Tablas geográficas políticas*, eds. Miguel S. Wionczek and Enrique Florescano (Mexico: Dirección de estadística, 1970) 131, cited by Trabulse in *Tablas geográficas*, 16.
 104. Humboldt, *Tablas geográficas*, 29–31 (my translation).
 105. Donald McCrory, *Nature's Interpreter: The Life and Times of Alexander von Humboldt* (Cambridge, UK: The Lutterworth Press, 2010), 111. On Humboldt's trip in the United States, see Ortega y Medina, "Estudio preliminar," xvi–xvii; Rebok argues that the information shared by Humboldt would have been out of date by the time the United States invaded Mexico. Rebok, *Humboldt and Jefferson*, 50.
 106. "¿Un trabajo como este podría desagradar a un buen rey, cuando dicho trabajo se refiere al interés nacional, al perfeccionamiento de las instituciones sociales y a los principios eternos sobre los cuales reposa la prosperidad de los pueblos?" Humboldt, *Ensayo político*, clxxx.
 107. Pratt, *Imperial Eyes*, 131.
 108. Federico Fernández Christlieb, "Humboldt, el medio y la representación orgánica de la ciudad de México," *Humboldt y América Latina*, comps. Leopoldo Zea y Alberto Saladino (Mexico: Fondo de Cultura Económica, 2000): 79–90.
 109. Humboldt, *Ensayo político*, 117; 152.
 110. Humboldt, *Personal Narrative*, 2: 257–258
 111. Humboldt, "La vista de estos hombres laboriosos y robustos hubiera podido hacer mudar de opinión a los Reinales, a los Pauwes y al gran número de autores, por otra parte estimables, que tanto han declamado sobre la degeneración de nuestra especie en la zona tórrida." *Ensayo político*, 49.
 112. Marco Antonio Urdapilleta Muñoz, "La imagen del indígena en el *Ensayo político* sobre el reino de la Nueva España," in *Humboldt y América Latina*, 93.
 113. Humboldt cautions: "Sin embargo no apunto esta opinión sino con timidez; es preciso ser circunspecto en extremo cuando se trata de decidir acerca de lo que se llaman disposiciones morales o intelectuales de los

pueblos que están separados de nosotros por los millares de estorbos que nacen de la diferencia de idiomas, hábitos y costumbres.” *Ensayo político*, 64.

114. Humboldt saw slavery as an institution endorsed by local creole elites and adamantly warned against it. For Humboldt's views on slavery, see Michael Zeuske, “Humboldt, esclavitud, autonomismo y emancipación en las Américas, 1791–1825,” *Alexander von Humboldt. Estancia en España y viaje americano*, 257–277.
115. It is interesting to note that this is the very same perspective Prescott adopted in his *History of the Conquest of Mexico*.
116. Humboldt, *Personal Narrative*, 3: 283–284.
117. Alexander von Humboldt, *Views of the Cordilleras and Monuments of the Indigenous Peoples of the Americas: A Critical Edition*; with an introduction by Vera M. Kutzinski and Ottmar Ette; trans. J. Ryan Pounter; with annotations by Giorleny D. Altamirano Rayo and Tobias Kraft (Chicago: The University of Chicago Press, 2012).
118. Vera Kutzinski and Ottmar Ette, “Introduction,” *Views of the Cordilleras*, xvi.
119. Ades, “Nature, Science and the Picturesque,” 68.

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