

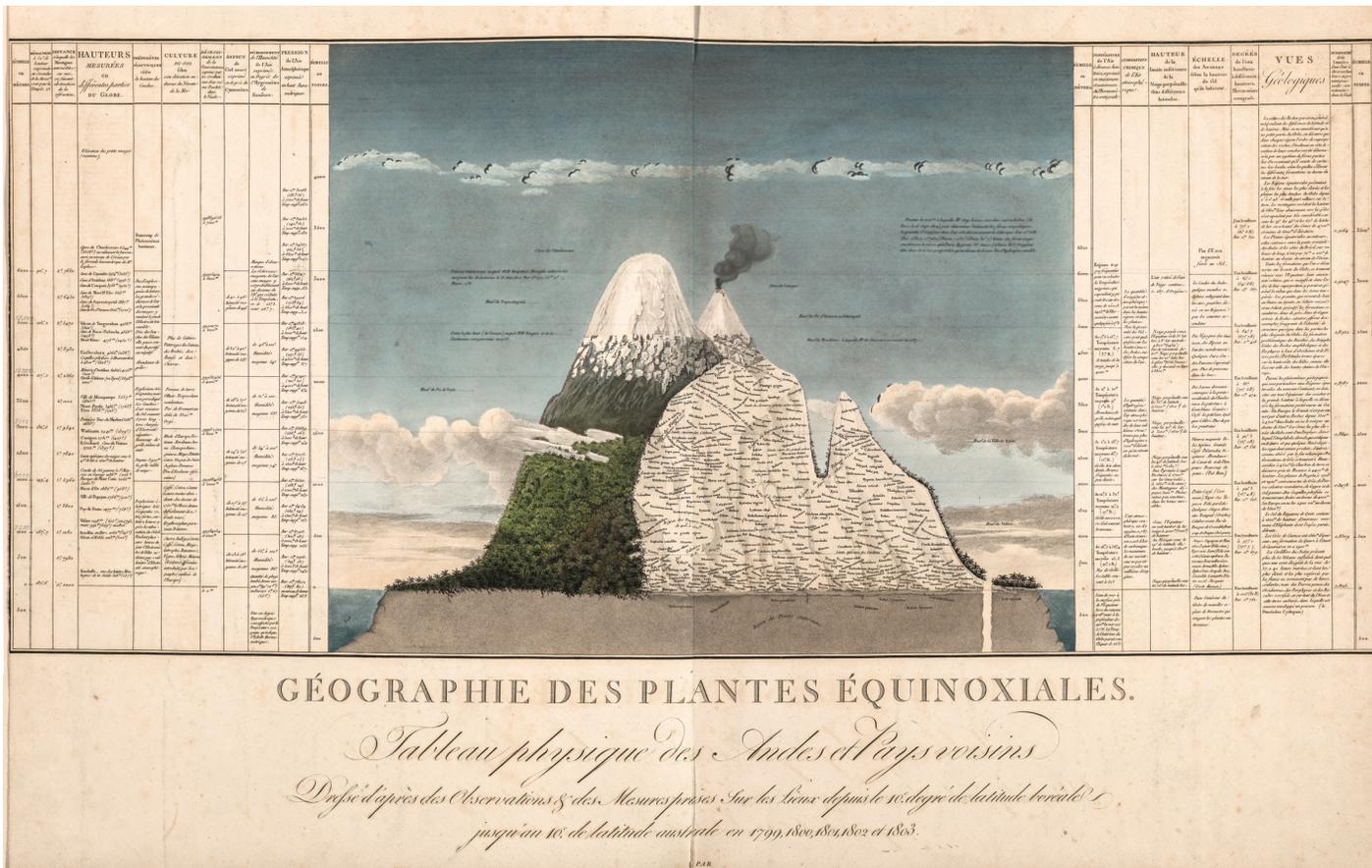
- 5 Despite this fact, *Niagara* has—since 1966—been read in highly charged, symbolic terms, most memorably by David C. Huntington in *The Landscapes of Frederic Edwin Church: Vision of an American Era* (New York: George Braziller, 1966), 67–71.
- 6 Oliver Wendell Holmes, “The Stereoscope and the Stereograph,” *Atlantic Monthly*, June 1859, 744. Raab (*Frederic Church*, 84–85) also discusses Holmes’s essay. Alan Wallach argues for the importance of photography for Church, albeit with different emphasis, in Wallach, “Accounting for the Panoramic in Hudson River School Landscape Painting,” in Elizabeth Mankin Kornhauser et al., *New World: Creating an American Art* (Munich: Hirmer Verlag, 2007), 81–82; and Elizabeth McKinsey directly compares *Niagara* to stereoscopes in *Niagara Falls: Icon of the American Sublime* (Cambridge: Cambridge Univ. Press, 1985), 243–47.
- 7 I would argue that the challenge photography posed to the fine arts was not merely its greater mimetic power but its reconceptualization of the relation of particulars to compositional wholes. One might understand this development as part of a broader epistemic shift away from synthetic modes of knowledge and toward a more fragmented field generated by the possessive individualism of the modern self under commodity capitalism. Thanks to Kenneth Myers for this insight.
- 8 With the consolidation of an elite artistic culture following the Civil War, such direct appeals to popular forms of entertainment eventually consigned Church to stylistic obsolescence. Alan Wallach, “Rethinking ‘Luminism’: Taste, Class, and Aestheticizing Tendencies in Mid-Nineteenth-Century American Landscape Painting,” in *The Cultured Canvas: New Perspectives on American Landscape Painting*, ed. Nancy Siegel (Durham: Univ. of New Hampshire Press, 2011), 115–47.
- 9 Kenneth Myers, “Skepticism and the Transformation of Landscape Production in New York in the 1860s” (paper, College Art Association Annual Conference, Washington, D.C., 2016).
- 10 I am thinking here not only of the critical hegemony of Clement Greenberg but of his shaping influence on Michael Fried, as well as on the parallel project of the Frankfurt School theorist Theodor Adorno.

Rachael Z. DeLue

Humboldt’s Picture Theory

In the introduction to *Cosmos: A Sketch of a Physical Description of the Universe* (1845–62), the German naturalist Alexander von Humboldt set out to describe comprehensively and definitively the “forms, phenomena, and events, which constitute nature.”¹ Humboldt brought together decades of observation and analysis of all manner of terrestrial and celestial phenomena, forces, and forms in support of his ultimate argument for the unity and stability of the universe as expressed by essential relations among all categories of existence.

Humboldt paired his inventory and examination of data in *Cosmos* with a lengthy historical account of evolving human interest in the natural world, beginning with ancient Greece and Rome. His chronicle of this sphere of “sensations,” as distinct from “the purely objective domain” of the empirical sciences, surveys a variety of approaches to nature in such fields as philosophy, literature, and the arts, and he considers the challenges presented to science by any endeavor to delineate the natural world in its entirety.² The author’s preface, for instance, dwells on the problems posed by picturing nature as a totality through the medium of language. The “very abundance of the materials which are presented to the mind for arrangement and definition,” Humboldt wrote, posed the chief obstacle, for such profusion imparted “no inconsiderable difficulties in the choice of the form under which such a work must be presented.”³ In other words, the sheer quantity and diversity of material available for observation and interpretation threatened to exceed the capacity of exposition, especially if the writer desired to marry truthfulness with style or to produce more than a wearying enumeration of



1 Alexander von Humboldt and Aimé Bonpland, *Géographie des plantes équinoxiales: Tableau physique des Andes et pays voisins*, in Alexander von Humboldt and Aimé Bonpland, *Essai sur la géographie des plantes*. . . (Fr. Schoell; J. G. Cotta, 1807). Photograph © Kew Library, Kew Royal Botanic Gardens, Richmond, Surrey, U.K.

facts. Striking a balance between a vision of the whole and its myriad parts—between design and data—proved especially challenging, as suggested by Humboldt’s extended discussion in his introduction of the limits of empirical study and experimentation, the imprecision presented by nomenclature, and the problematic divergence of the qualitative and quantitative within scientific methodology.⁴

Humboldt’s concerns in *Cosmos* regarding the matter of delineation and his sustained attentiveness to the problems of representation posed by the project manifested in other attempts to picture nature. Take, for instance, the *Géographie des plantes équinoxiales: Tableau physique des Andes et pays voisins* (*Geography of Equatorial Plants: Physical Tableau of the Andes and Neighboring Countries*) (fig. 1), a hand-colored engraving designed jointly by Humboldt and the French botanist Aimé Bonpland following their groundbreaking expedition to Central and South America (1799–1804). The engraving illustrated *Essai sur la géographie des plantes* (*Essay on the Geography of Plants*) (1807), which foreshadowed Humboldt’s argument in *Cosmos* for the essential interconnectedness of the phenomena of the universe through the case study of plant geography.⁵ The large-scale foldout includes a schematic picture of the Andean peaks Chimborazo and Cotopaxi annotated with the names and locations of various plant species, flanked by tables containing familiar data such as temperature, barometric pressure, and altitude as well as more obscure quantities: the blueness of the sky as measured by a cyanometer or the distance at which mountains can be seen from sea level. Humboldt dedicated around 80 percent of the book’s total text to elucidating the information represented in the engraving (hereafter *Physical Tableau*).⁶

In the *Physical Tableau*, then, Humboldt combined multiple representational modes and notational systems into a single pictorial field in order to incarnate the myriad data he gathered for the purpose of discerning order in nature. He also presented his viewers with a landscape, understood in the most basic terms as a portion of nature, here the Andes of Ecuador, organized by an act of human vision or representation. Yet he tendered a paradoxical sort of landscape, employing an aesthetics of translation, substitution, conversion, and evacuation to denote nature, rather than depict nature itself. Words replace a mountainside and the plant species native to it, taking on through their twists and turns the characteristics of that terrain and the distribution of its plant life while never making fully clear what has been removed. Data replace the natural features and phenomena characteristic of landscape painting of the period, such as the effects of whipping wind or sunlight on terra firma. A stratum of brown and the summary notation “region des Plantes souterraines” stand in for the entirety of the underground world.

Of course Humboldt formulated these features partly for the sake of expediency and because no two-dimensional, static format, even one brimming with pictorial and textual information, could possibly say it all. Still, as a denatured landscape, the *Physical Tableau* provides an opportunity to broaden our definition of the genre: to ask not just what counts as landscape but what landscape ultimately is. To start, Humboldt’s picture posits landscape as more than a self-contained thing, suggesting instead its capacity as a network or apparatus. Embedded within the image, for instance, are the temporality and trappings of scientific exploration: the instruments, sketchpads, and notebooks used to gather data in the field over a period of several years; the notational methods employed to communicate these data in writing; the individuals in Europe and the Americas who supplied Humboldt with measurements he could not acquire himself; the people for hire in the Andes who made his expedition possible; the artists and print shop that collaborated in preparing the illustration; and the time of travel itself, of people and objects moving across oceans and among continents. Given Humboldt’s situatedness in multiple systems of production and multiple geographies, a series of questions arises: What would one see if one were to consider more familiar landscape images as of a piece with Humboldt’s picture, as time-based systems-cum-apparatuses in their own right? Does a landscape painting by, say, Thomas Cole or Martin Johnson Heade carry within it something analogous to Humboldt’s manifold system of action and delineation? And, if so, what would these works look like if the nature depicted in them underwent a Humboldt-like translation into an array of visual, verbal, and numerical signs? Landscape approached thusly winds up being not simply a representation of terrain but a terrain or system in its own right, one that radically exceeds its pictorial field.

In this way, the species of landscape hypothesized by Humboldt’s *Physical Tableau* posits the genre’s limits, for in the end his picture gives us mountains of data but no real sense of how those data add up to the divinely designed clockworks of the natural world.⁷ Words written on a mountainside are only words written on a mountainside, not an explanation of the global distribution of plants or the impact of geography on their anatomy or patterns of growth. One comes away with the sense that the *Physical Tableau* longs to be a picture in some manner commensurate with the “very abundance” of the natural world. At the same time, the image acknowledges its limitations as a vehicle for reintegrating phenomena that have been artificially separated into categories of information and rendered as notation. Humboldt’s *Physical Tableau*, then, presents a compelling template for new approaches to landscape: as a mode of representation as well as an integrated system of matter, entities, and actions in the world—a picture but also a hypothesis about what pictures are and what they can manage to do.

Notes

- 1 Alexander von Humboldt, *Cosmos: A Sketch of a Physical Description of the Universe*, trans. E. C. Otté, vol. 1 (London: Henry G. Bohn, 1864), 30.
- 2 Alexander von Humboldt, *Cosmos: A Sketch of a Physical Description of the Universe*, trans. E. C. Otté, vol. 2 (New York: Harper Brothers, 1866), 19.
- 3 Humboldt, *Cosmos*, 1:x, xi, xii.
- 4 Ibid., 1:37–56. Jennifer Raab considers relevant concerns regarding reconciling data and theory in *Frederic Church: The Art and Science of Detail* (New Haven: Yale Univ. Press, 2015). See also Andrea Wulf, *The Invention of Nature: Alexander von Humboldt's New World* (New York: Alfred A. Knopf, 2015); Julia B. Rosenbaum, "Frederic Edwin Church in an Era of Expedition," *American Art* 29, no. 2 (Summer 2015): 26–34; and Michael Dettelbach, "Humboldtian Science," in *Cultures of Natural History*, ed. Nicholas Jardine, James A. Secord, and Emma C. Spary (Cambridge: Cambridge Univ. Press, 1996), 287–304.
- 5 Stephen T. Jackson and Sylvie Romanowski, "Note to the Reader," in *Essay on the Geography of Plants*, by Alexander von Humboldt and Aimé Bonpland, ed. Jackson, trans. Romanowski (Chicago: Univ. of Chicago Press, 2009), xii–xiv.
- 6 Stephen T. Jackson, "Introduction: Humboldt, Ecology, and the Cosmos," in *ibid.*, 26.
- 7 Sylvie Romanowski, "Humboldt's Pictorial Science: An Analysis of the *Tableau physique des Andes et pays voisins*," in Humboldt and Bonpland, *Essay*, 157–97, discusses the strategies Humboldt devised to accommodate the limits of visual representation.

Eleanor J. Harvey

Founding Landscape

Charles Willson Peale's Exhumation of the Mastodon

Charles Willson Peale's *Exhumation of the Mastodon* (fig. 1), executed between 1806 and 1808, has long been interpreted as a successful blending of genre painting, portraiture, and history painting.¹ Peale used this work to document his extraction of mastodon bones from John Masten's farm in upstate New York, an enterprise that utilized an ingenious pulley system of his own devising to drain the bog and expose the fossils. The gallery of onlookers in the painting is composed of prominent Philadelphia scientists as well as numerous members of Peale's family, including his second wife (then already deceased) and his current wife, along with nine of his eleven surviving children. The discovery of the bones of several mastodons on Masten's property was more than a local curiosity; it figured prominently in an international debate concerning the merits of American culture, providing support for the nation's claim to a scientifically significant past as well as a metaphorically rich matrix from which to extrapolate its future prospects.

This debate took shape as a literary duel between the French scientist Georges-Louis Leclerc, comte de Buffon, and the third American president, Thomas Jefferson. In volume fourteen of his *Histoire naturelle* (1766), Buffon had asserted that all species found in the New World were inferior and degenerate versions of European life forms. Jefferson refuted Buffon's claims in his *Notes on the State of Virginia*, published in Paris in 1785, using the massive scale of the mastodon bones found in the United States to confirm the existence of a creature larger than any living species.² However, our tendency to focus on the cultural significance of this excavation can blind us to the other major thematic element of Peale's iconic American painting: the landscape.

Landscape painting emerged in the nineteenth century as the artistic genre that came closest to defining America's national ambitions. We are conditioned to think that this