

Global Connections: Humboldt's Scientific Interest in California and the West

Alexander von Humboldt, the famous Prussian naturalist and explorer is most known for the five-year exploration voyage he carried out from 1799 to 1804 in the Spanish possessions in America, which at the time were divided into the viceroyalties of New Spain (including much of what is now the southwestern United States), New Granada, Peru and the island of Cuba. Yet the region he was most intrigued by, from the preparation of his American expedition in Spain in 1799, through his last years spent drafting his final synthesizing grand oeuvre, the *Cosmos*, and up to his death 1859 at the age of almost 90, was an area he personally never set foot in, California, and the area we today call the American West. Though Humboldt's view on the region is better described as the Global West, looking at California from both a Spanish and U.S. perspective, while taking Russian, British and French territorial aspirations in the area into account. In fact, for many reasons, it was particularly California that attracted Humboldt's attention, first as the northern edge of the Spanish Empire, and later as the western border of the nascent American empire. Today numerous places in California are named after the Prussian explorer and thus attest to this connection including; Humboldt Bay, Humboldt County, and Humboldt Redwoods State Park, among others. Unsurprisingly, finding his name on so many geographical features has led to the erroneous understanding that he was one of the actual European explorers of the American West. Though factually incorrect, this connection symbolizes his indirect ties to the West and attests to the global scope of what will be called *Humboldtian Science*, a term introduced in scholarship in 1978 and widely discussed since then.¹

Humboldt is generally considered a key figure in the study of the globalization of science both within Europe and in the larger Atlantic context. His impact on the progress of knowledge extended beyond his scientific contribution to specific scholarly fields. It is also not limited to the exploration of those territories that he personally visited. Due to his enormous fame, and his extensive

transdisciplinary and transnational networks, Humboldt was able to participate in or contribute to numerous scientific projects in very distinct ways. These networks were fundamental to the collaborative work he developed over his entire life, and the basis for his global approach to all fields of knowledge.² The key concept for his scientific method is his holistic understanding of nature. He envisaged the Earth as an inseparable organic whole, all parts of which were mutually interdependent. Detecting these interdependencies between the different phenomena and understanding their structure was much more important for Humboldt than contributing to specific areas of knowledge. Yet he did not only apply his holistic concept to different academic disciplines, and the ties between them, but also in a geographical sense analyzing the relationships between distinct regions. With his holistic, collaborative and comparative science and his global scope he defied all kind of boundaries, both between areas of knowledge and geographical regions.

This paper aims to analyze Humboldt's view of California and the West through this perspective, looking at the ties of these regions to other areas of the world. More specifically, it will (1) depict the different facets of his scientific interest in this area, how he was able to collaborate with those that were involved in the exploration of this area; and (2) explore the potential Humboldt saw in this region, both for the development of the United States, once expanded towards the Pacific, as well as for Europe and Asia. In other words, this paper looks both at the crucial role of the Global West already in Humboldt's period of time, and the position it could potentially reach on the world stage in the future. In this way, Humboldt anticipated the current historiographical trend of placing California and the West in global context. This paper thus seeks to depart from a more nationalist or nation-based historiography, centered around concepts of *manifest destiny*, *American exceptionalism* and *frontier thesis*, and instead contribute to looking at the West from a broader point of view. Moreover, it aims to show Humboldt's contribution to the scientific exploration of the American West as an interesting example in order to demonstrate what he was able to achieve through his collaborative networks in places he himself never had been.



Image 1: Alexander von Humboldt, by Karl Joseph Stieler, 1843. Source: Public domain via Wikimedia Commons at <https://commons.wikimedia.org/wiki/File:AvHumboldt.jpg>

Initial Travel Plans

In the spring of 1799, while in Spain, Humboldt began his scientific and diplomatic preparation for his voyage.³ Humboldt expressed his interest in adding California, then the northern province of New Spain, to his itinerary in the New World.⁴ Nevertheless, his travel route underwent several changes, and though he did stay in New Spain for a year, Humboldt neither traveled up north to California, nor did he see the region today known as the American West. Humboldt's visit to the United States in the spring of 1804, right after concluding his expedition through Spanish America was limited to a six-week stay in a small area of the East Coast, between Philadelphia and Washington. Nevertheless, an

interesting coincidence in time and space would direct Humboldt's future scholarly interests: Precisely at the moment when he finished his own exploration voyage, the systematic and government sponsored exploration of the West was initiated with the Lewis and Clark expedition (1804-1806), organized by President Thomas Jefferson. This expedition's voyage to the Pacific had left from the Missouri River only two weeks before Humboldt's arrival in the United States. Possibly, if he had not been pressed to return to Europe at that moment, he might have modified his itinerary once again, as he had repeatedly done over the previous five years in order to participate in this challenging project.

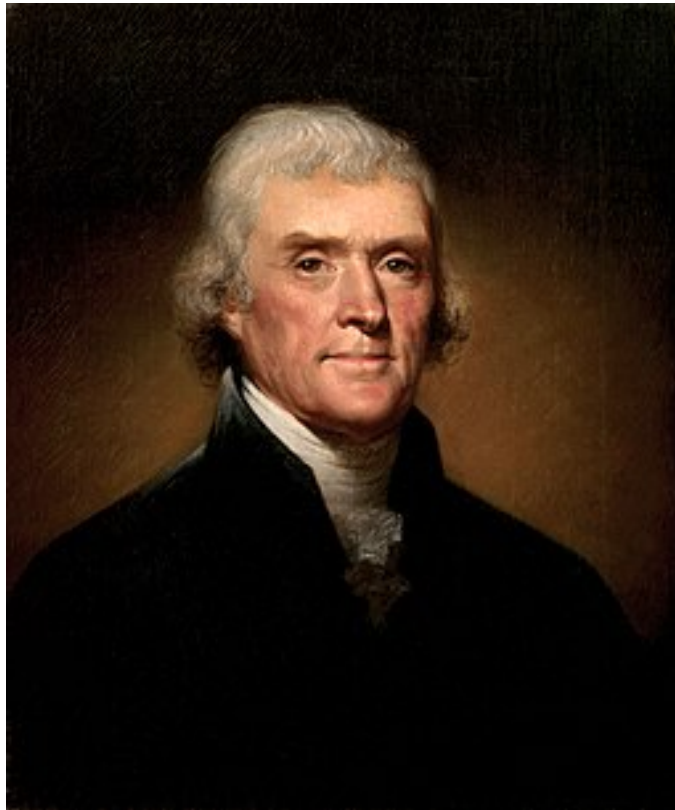


Image 2: Thomas Jefferson, by Rembrandt Peale, 1800. Source: Public Domain via Wikimedia Commons at https://commons.wikimedia.org/wiki/File:Thomas_Jefferson_by_Rembrandt_Peale,_1800.jpg

From Humboldt's comments in several letters, it appears that he indeed would have preferred to remain longer in the United States. Nevertheless, after his absence of almost five years, he felt the need to bring to an end his exploration and to begin work on the publication of his findings. Aware of the interest of the US government in exploring the western regions of the country, he

saw a possibility to return and personally contribute to this task. In a letter to James Madison, then Secretary of State, he expressed his wish to re-visit the United States in a few years, when the way from Missouri to the Pacific Ocean would be open. For Humboldt, the Great Lakes in Canada and the area from Pittsburgh to the Rocky Mountains offered a vast field for geological explorations.⁵ Important research could be undertaken, Humboldt added, and he personally envisioned travel up north to Mount Saint Elias in Alaska and the Russian possessions. To the architect and physician William Thornton he confirmed that “the country that extended to the west of the mountains offered a wide field to conquer for the sciences”⁶ and in a letter to John Vaughan, the philanthropist, treasurer and librarian of the American Philosophical Society, he expressed his strong desire to travel one day over the immense western region, a plan for which he saw Jefferson as just the right man to support him.⁷ These comments reveal that Humboldt was perfectly aware of the fact that Jefferson’s eyes were set on America’s “continental destiny”, though at least in the preserved correspondence to the president himself, the Prussian did not express these ideas openly.

In spite of these future exploration plans, once back in Europe Humboldt was taken up with his ambitious editorial tasks and was not able to return to the United States. Yet in many ways he did have a considerable impact on the larger process of the scientific exploration of the West. In his extensive correspondence with naturalists, travelers, artists, diplomats, politicians, publishers and writers on both sides of the Atlantic, over several decades, he discussed the latest studies, evaluating or promoting the works of specific explorers, providing his expertise on particular questions, or establishing contacts between his correspondents. Through his contact to some of the expedition leaders and planners, he was always well informed about the latest projects and their respective outcomes. He read attentively all new publications that were sent to him over the years, mostly by the American authors themselves, but also through his institutional as well as diplomatic connections. His in-depth and comparative analysis of these works was incorporated in several of his publications, and he used his close contacts to some publishers to make these works known in the Old World. As a result, he acquired a solid amount of information on the American West, he very actively circulated this knowledge and was likely to become the best-informed person about this region in Europe.

Reasons for Humboldt's Interest in the West

Why was the scientific exploration of the western part of North America such a fascinating project for Humboldt? At this point we have to distinguish between his intellectual engagement in the early exploration voyages undertaken by

different European nations during the 16-18th century, which he studied with great attention, and the Western expansion directed by the US government during the 19th century. While the first approach formed part of his historic interest in the different expeditions carried out by the Spanish Empire in particular, in the second case he was able to observe the beginning of a nation building process in which to a certain extent he felt implicated. The fact that Humboldt was enthusiastic about the future of the United States provides his research an additional dimension. Besides his interest in the scientific reconnaissance of the West, there was also the political and social implications of the US expansion through European settlement and the growth of the nation. In addition, the Western exploration combined several aspects of his scholarly interests, such as the rich and varied natural world, with its particular geological formations, mineralogical resources or climatological conditions. Interestingly, Humboldt continued being intrigued both by the romantic idea of traveling through unknown territories in remote areas, the fascination of the American wilderness, far away from European civilization, and by his vision of connecting this world through the new transportation and communication technologies. All equalling the potential future impact of the United States on international politics and commerce. This concern must be seen in connection with his moral approval for the expansion of a society based on the values of the Enlightenment he firmly believed in. However, in spite of his positive position, and his moral approval, of the expansion of a society based on those enlightened principles, Humboldt also observed the growth of the young republic into a new empire with suspicion and occasionally expressed severe critical comments about the invasion of Mexican territory. In 1847, for instance, when he was contacted by the American journalist Robert Walsh seeking his statement regarding the "Mexican Question," Humboldt declared that he believed the war "to be unjust and unpolitical" and stated he was horrified by it.⁸ Here we have to be aware that Humboldt's attitude towards the United States and its strategic aspirations also underwent a considerable evolution over time, from a rather enthusiastic point of view at the beginning to more critical reflections at a later stage of his life.

It is thus not surprising that in this context Humboldt's meeting with Jefferson, as advocate of Western expansionism, during the time the Prussian spent in Washington, was very fruitful.⁹ The president was in search for any kind of reliable and updated geographical information regarding the Spanish possessions in America. This had to do with his plan for a future territorial expansion of his young nation, but also with his concern to possess strategic information about his neighboring country. Given these circumstances, Humboldt's visit shortly after the Louisiana Purchase in 1803 and just at the beginning of the US exploration of the West, was the perfect timing for a personal

encounter with the American president. Jefferson was also the president of the American Philosophical Society, America's most prestigious learned society. Humboldt's knowledge of the area, taken from Spanish archives in Madrid as well as Mexico City, was crucial to him in order to obtain more precise information regarding the nature of the acquired territory and its still disputed borders.¹⁰ Humboldt translated into French parts of his early work on New Spain called *Tablas Geográfico-Políticas*, which he had originally prepared for the viceroy of New Spain, José de Iturrigaray.¹¹ He added a two-page summary specifically on the border region of the Louisiana territory. These documents contain a valuable amount of both descriptive and precise statistical data on the size of different areas, population, the climate, the political division in various provinces, as well as information regarding agriculture, commerce and a possible geological exploitation of the new territory.¹²

Early Spanish Exploration Voyages

During the first months of 1799 in Madrid, while he was occupied with the scientific and administrative preparation of his expedition, Humboldt initiated his study of the early Spanish exploration voyages at different institutions in the Spanish capital, among them the Royal Botanical Garden, the Royal Cabinet of Natural History (today's National Museum of Natural Sciences) and the Hydrographical Office, the institution in charge of marine cartography. The discovery and rediscovery of the West, the different phases of its scientific reconnaissance by generations of intrepid travelers at different moments and within different political contexts, fascinated him. This is connected to his general historic interest regarding America, to which he dedicated his publication *Examen Critique* (1836-39). Particularly, the expedition by Alessandro Malaspina and José de Bustamente carried out from 1789 to 1794 caught his attention, and more specifically the work undertaken by the members of this expedition along the West Coast of North America. Humboldt had even been in the lucky position to meet some of them during his stay in Madrid, who were very helpful in the preparation of his own endeavor.

Years later, during his time in Mexico City from October to December 1803, Humboldt again took advantage of the opportunity to work in the Spanish colonial archives situated in the capital of the Viceroyalty of New Spain. He consulted all available material in the colonial archives regarding the diverse exploration voyages of the southwestern part of North America. His personal travel annotations contain a detailed description of the documents he consulted in those archives. He found numerous records regarding the Malaspina expedition and their explorations of the West coast, furthermore manuscripts of

the diary of Juan Francisco de la Bodega y Quadra's travels to Nootka, different other maps of the Northwest coast, as well as documents by Juan Crespi and Tomas de la Peña Saravia, produced as the result of their participation in the expedition directed by Captain Juan Pérez to explore the coast north of Monterey in 1774.¹³ Much of this material was in a preliminary state and not intended to be prepared for publication. These circumstances made his findings in the archives relevant, and his analysis based on these sources unique.

Later he would present his elaborations regarding these early exploration voyages in several of his books, in a scattered way and in the respective context of each publication. From his *Views of Nature*,¹⁴ published in Germany in 1808, to his last and synthesizing work *Cosmos*.¹⁵ Nevertheless, most of the information is included in his regional description of the viceroyalty of New Spain, his *Political Essay on the Kingdom of New Spain* (1808-1811), regarded as the first comprehensive modern regional description with statistical and economic analysis of the region that today belongs to Mexico and the American Southwestern of the U.S.

Westward Expansion of the United States

During his visit to Philadelphia and Washington, the scholarly and the political center of the young nation, Humboldt's interest in the West took on a new direction. He was much intrigued with the government promoted exploration of this territory and over the next decades he tried to keep up with all types of news he received regarding its progress. The different aspects of the scientific reconnaissance of the American West occupied a considerable space in his correspondence with the United States, particularly in his letters with John C. Frémont, Louis Agassiz, George Catlin, Alexander D. Bache, William H. Emory, John Torrey, Amiel W. Whipple, but also with some of the German explorers, such as Balduin Möllhausen, Heinrich K. Beyrich or Duke Friedrich Paul Wilhelm von Württemberg. Besides this group of travelers, he discussed with correspondents in Germany the progress of the manifold exploration activities, for instance with the cartographer Heinrich Berghaus, the geographer Carl Ritter, the banker Alexander Mendelsohn, the publicist Samuel Spiker, and the diplomats Friedrich von Gerolt and Johann Gottfried Flügel.¹⁶



Image 3: John C. Frémont by George Peter Alexander Healy, unknown date. Source: Public Domain via Wikimedia Commons at https://commons.wikimedia.org/wiki/File:John_C._Fr%C3%A9mont.jpg

With Humboldt's international fame growing constantly, American scholars in different disciplines, explorers, naturalists, and also writers and artists were eager to be in contact with the famous naturalist. Members of the *U.S. Coast Survey* such as Alexander D. Bache, as well as officers of the *Corps of Topographical Engineers*, the branch of the Army tasked with the exploration of the West, knew about Humboldt's scientific methods and applied them.¹⁷ They were enthusiastic about discussing their research questions with him and to keep him informed about their publications and latest projects. They wished to be introduced by him to others, or to visit him personally in Paris or later in Berlin. Humboldt was well connected within political and diplomatic circles. He was acquainted with most of the American representatives in Germany as well as the Prussian diplomats in the United States and over the years he became close

friends with several of them. They took it as a personal task to provide Humboldt with the latest progress and news related to the United States. He thus received an important amount of material through these official channels, for instance through Johann Gottfried Fluegel (1788-1855), the American diplomat in Leipzig from 1839-1855, who worked as an agent for the Smithsonian Institute since 1847. Or Friedrich Freiherr von Gerolt (1797-1879), the Prussian envoy in Washington since 1844.¹⁸

There were manifold reasons for Humboldt's correspondents to provide him with information. Some authors sought to disseminate their work through the cosmopolitan scholar on an international level, others had an interest in being connected to certain European institutions and publishing their work in the Old World, or they appreciated Humboldt's personal expertise on specific topics. The military engineer and surveyor Amiel Weeks Whipple, for instance, sent him living specimen of cactaceae, knowing that Humboldt had collected similar species in the plains of Mexico, as well as volcanic stone samples, which Humboldt had examined by a geological expert before sending him his reply with a detailed analysis.¹⁹ In a very different matter the German geographer Johann Georg Kohl contacted him in 1856. He had been asked by the U.S. government to gather all important cartographic material spread in different archives about the history of the discovery and first settlement of North America and prepare a critical edition of it. Knowing about Humboldt's expertise as a cartographer, he sought advice for the important task he had been entrusted with.²⁰ Finally, there were also those who had a personal or professional interest in transmitting information through him in Europe regarding the progress of their new nation. John Buchanan Floyd, then Secretary of War, mentioned to Humboldt that he would continue sending him information regarding the western exploration, so that the Prussian could judge the progress of the civilization in those vast regions. To which, he added, Humboldt through his voyages and publications more than any other, had attracted the attention of the American people.²¹

Consequently, in the last decades of Humboldt's life, his library grew continuously. He had excellent holdings on the American West, with numerous publications of his correspondents Frémont, Emory, Bache or Catlin, but also other authors or cartographers like James D. Dana, Georg W. Featherstonhaugh, Friedrich A. Wislizenus and Joseph N. Nicollet. It was likely one of Germany's best collections in this field, containing travel narratives, specific studies on American geography, geology, climate, cartography, Native American languages, as well as the proceedings of the most relevant scholarly societies and specific reports from various institutions.²² Humboldt was thus always very knowledgeable about the latest developments, projects or debates and discussed them in his correspondence with colleagues. Also in his publications he made

continuous references to these works, commented on their results, or established comparisons with other regions he personally had explored. Unfortunately, there is also no specific part of his publications dedicated to his discussion of the western exploration through the United States, but we can find these elaborations inserted in the argument of several of his works. In his essays on New Spain and on Cuba, his *Views of Nature*, *Views des Cordilleres*, *Asie Centrale* and in his last work *Cosmos*.

Humboldt's Intellectual Engagement with the West

Given his professional training as a mining expert, Humboldt developed a strong interest in the gold production in different parts of the world.²³ After his Russian Expedition in 1829, where he studied the geological situation particularly in the region of the Ural, he was eager to obtain data for his comparative analysis. As his interest in North American gold production grew, he initiated an intense dialogue with several of his American correspondents that were in the position to provide him the required data, among them Robert M. Patterson, Albert Gallatin, Henry Wheaton, Levi Woodbury, John M. Clayton, Theodore S. Fay and Edward Hannegan. The set of questions he tended to ask reveals how his interest in gold production was interconnected with other fields such as the economy, politics, geography and geology. He forwarded the received material to several of his correspondents in Germany and elaborated it in some of his publications, such as his *Asie Centrale* where he described the gold findings in Virginia, North and South Carolina and Georgia during the years 1824 to 1836.²⁴ Humboldt compared the mountain ranges of the Ural with the Alleghenies with regard to their gold productions and this comparative analysis made him develop predictions regarding the locations in the United States where minerals might be discovered.²⁵ Not surprisingly, the finding of gold in California in 1848 raised Humboldt's interest in this topic. He analyzed the mineralogical conditions there, established comparative studies with other regions and warned in several occasions of the possible consequences of the Californian gold rush. The discovery of the rich deposits of gold would, as he feared, "have very injurious consequences for the colonization of California. Loafers, good-for-nothings and scoundrels of all kinds, of which there is certainly no lack in the United States, will flock there." All this would have a negative impact on the development of agriculture, he continued in his argument.²⁶

Another aspect of the West that attracted much of Humboldt's attention were its geographical and geological features, in particular the mountainous western regions of the country. In his work *Asie Centrale* we find not only numerous references to the analogies and differences between the mountain ranges in Asia, America and Europa, but also detailed elaborations regarding the

different chains and the geological particularities that distinguish them. His *Views of Nature* provides general observations on the configuration of North America, describing the regions in the West of the Pacific alpine mountains of California, the dry and uninhabited high plains, and to the east, between the Alleghenies and the Rocky Mountains, and the water-rich, fertile and densely populated Mississippi basin.²⁷ In this context he points to the achievements of a number of American naturalists in the exploration of these areas and shows how their work was connected to his research.

*“Our physical and geognostic understanding of the mountainous western regions of North America has been greatly amended by the bold journeys of Major Long, the excellent work of his companion, Edwin James, and most of all by the broadly diverse observations of Captain Frémont. All of the information collected in my works on New Spain regarding the northern mountain ranges and plains, which I could present only as hypothesis, is now clearly illuminated.”*²⁸

In other parts of this work he praises the fact that “the body of knowledge concerning the mountain systems lying north of the parallels 30 and 31, which are known as the Rocky Mountains and the Sierra Nevada de California, has in very recent times increased considerably in all areas: astrogeographical, hypsometric, geognostic and botanical”, thanks to what he considers to be the “superb work” made by Frémont, explicitly citing his *Geographical Memoir on Upper California* (1848), and by Wislizenus (*Memoir of a tour to Northern Mexico*, 1848) as well as the *Examination of New Mexico in 1846 and 1847* by James W. Albert and William G. Peck.²⁹

The Great Basin between the Rocky Mountains and the Sierra Nevada also fascinated him, as well as the extension of the Great Salt Lake in Utah, depicted by him as Lake Timpagonos on the large map of Mexico 1804.³⁰ Moreover, rivers in both their features as facilitator of connection as well as a separating element called his attention. He describes how the Mississippi divided the United States into two large regions, an Eastern region with rapid advances in terms of culture and civilization, and a wild and inhabited Western part. And he discussed the possibility of the Missouri River for the transcontinental communication with the Pacific Ocean.

Considered to be one of the promoters of modern geography and a distinguished mapmaker, both very important disciplines for the emerging United States, Humboldt made important contributions to the cartography of the American West. His famous map of New Spain *Carte Générale Du Royaume de la Nouvelle Espagne* gathered geographical findings of Spanish explorers and

relied mostly on Bernardo de Miera y Pacheco's map of the 1776 expedition conducted by the Franciscan priests Domínguez and Escalante. Before his departure in 1804, he left a copy of a draft of that map at the Secretary of State's office in Washington. Given the access he had to first-hand cartographic material in the Spanish archives on both hemispheres, the map was unusually well documented for its time and was copied by several cartographers. In addition, it marks an important step towards the application of modern methods to American cartography and thus remained the standard map of the area for the next decades. Another significant cartographic work in this context is his *Carte du Mexique et des Pays limitrophes*³¹ which includes the southern part of what today belongs to the United States. Other results of Humboldt's geographic research can be contemplated in Heinrich Berghaus' *Physikalischer Atlas*, that contains both an ethnographic map and a map of the mountain chains of North America.³²

Connected to Humboldt's interest in cartography was his concern for the exact geographic determination of places. He therefore elaborated tables with geographical positions of numerous locations, determined by astronomical observations, with indications regarding the specific sources he used.³³ Also in this context Humboldt was not interested in the study of the geographical features in isolation, but rather in the interconnection between these topographic characteristics and the social conditions and the progress of culture in the North American states.

Moreover, the West offered a huge and interesting terrain for Humboldt's climatological studies. In his *Views of Nature* he pursued his aim to "put together a single picture of the diverse causes of America's humidity and decreased heat."³⁴ The key question for him was to find the reasons for the climate difference in the east versus the west of the Alleghenies. Based on Samuel Forry's work on climatology,³⁵ he studied the distribution of heat in three regions of the US, the Atlantic states east of the Alleghenies, the Western states in the broad basin between these mountain ranges and the Rocky Mountains, and the plains between the Rocky Mountains and the coastal range of New California.³⁶ Another focus of his concern was the difference of the mean annual temperature on the eastern littoral of the U.S. compared to Europe and the West coast, in search of an explanation for the higher temperature of the Pacific compared to Atlantic coasts.³⁷ Through this analysis, undertaken in the year 1843, Humboldt turned out to be one of the first influential people to propagate the healthy climate theory and the mildness of the winter in California.³⁸ Due to both Humboldt's celebrity and the attention California started to receive in those years, these comments were immediately taken up by other people. Among them was Frémont, who in his *Geographical Memoir upon Upper California* referred to

the mild climate in the maritime region west of the Sierra Nevada and in this context referred to Humboldt and commented that the Prussian had considered its olive oil equal to that of Andalusia, and its wine akin to that of the Canary Islands.³⁹

Of central importance was Humboldt's attempt to incorporate the American West into a global network of communication, envisioning both commercial and intellectual exchange. He foresaw the potential benefits of this interconnection for the "progress of civilization" and therefore, the new communication and transportation technologies such as steamboats, electric telegraphy and railroads caught much of his attention.⁴⁰ In particular, an idea to establish a canal between the Atlantic and the Pacific gained traction at this time. Humboldt made an elaborate map presenting nine different options for such water passages, explaining the advantages of each of them.⁴¹ He predicted that such a connection would shorten the navigational distances between Asia and the American West, thus creating vast new markets for European and American traders and helping to position the United States as a player in global affairs. Through such a connection, he added, the wealth of America could provide economic prosperity for the Old World, and European knowledge and technology could bring similar advantages to people from the New Continent. This was the first important detailed study of a potential connection between the oceans and did influence where the Panama Canal would later be built. With the gold rush in California this project was even more relevant to him. On numerous occasions he continued to make his opinion public and pointed to the crucial significance of such a connection and the advantages it would bring, in particular for the United States, explicitly hoping that North American companies would become interested in this enterprise. In 1850 he made a special effort to have a passage from his *Views of Nature* published in this country, where he explained how the canal would revolutionize international trade.

On other occasions Humboldt returned to the importance of the American West to strengthen the future commercial potential of the United States. In the preface to Balduin Möllhausen's *Diary of a Journey from the Mississippi to the Coasts of the Pacific* for instance, next to his ethnological and historical interest in the region, he also revealed his far-sightedness in his economic and political considerations, pointing to the important role that the West could possibly play in the slowly emerging trade with Asia. "These countries are richer than the sea-board lying opposite to Europe in safe and beautiful harbors, in timber for ship building, and in the mineral productions most in demand. This new territory, so long under the strict, though peaceful, rule of the monks, and engaged only in the productive chase of the sea-otter, is now, with all its physical advantages, in the hands of a restlessly active, enterprising and intelligent population, destined to

play an important part in the commerce with China and Japan, as well as in the slowly rising trade of East Siberia.”⁴²

In an 1850 letter to Oscar Lieber, the son of the well-known publicist and jurist Franz Lieber, Humboldt predicted that through the incorporation of the West Coast the United States would dominate China and in this context takes the opportunity to point to the urgent need to improve the communication facilities between both sides of the Ocean.⁴³

Connected to the vision he had for the West in terms of trade was his interest in the territorial expansion of what he considered to be a promising new society. Parts of his concern thus focused on the population of this territory, on the possibilities the land offered for future settlements or the climatic and soil conditions for agriculture for instance. In other words, besides his scientific interest in the geographic exploration of this region in order to contribute to the advancement of knowledge, there was also the political and social implication of the Western expansion through European settlement and of the growth of a nation. In spite of his growing critical attitude over time, Humboldt was impressed by the active role the U.S. government played in the promotion of scientific knowledge and in several occasions honored the fact that scholars or explorers received support for specific projects. In his famous speech held in 1829 at the Imperial Academy of Sciences in St. Petersburg he mentioned the interest the U.S. government showed for the extension of the cultivation of crops, being aware of the advantages that its vast territory offered, and presented this position as a model to follow for Russia as well.⁴⁴

Nevertheless, another aspect of the West which had always fascinated a large number of Europeans, the world of Native Americans, did not have a predominant position within Humboldt's interests. His concern for the indigenous population of the United States seemed not to be disconnected from his general interest for all types of interrelations or interdependencies within the Natural World he studied. In general, he tended to contemplate the human being as part of the regions he described in detail. It is therefore mainly in his work on New Spain, in particular in the chapters on Old and New California, as well as New Mexico where he included information on the different Native American tribes that had lived or still remained there. The aspects he seemed mostly interested in were linguistic studies, statistical data regarding the autochthonous population within his sociological studies or his broader reflections on Native American cultures on the progress of American society.⁴⁵ In this context, he manifested a rather neutral vision of this part of the population and did not seem to be influenced by any of the European philosophical debates regarding Native American civilizations. The westward expansion of the United States and its inevitable confrontation with different Native American tribes did not seem to

actively interest Humboldt. This is not surprising if we keep in mind that he undertook only limited travels on the East Coast and the planned travels through the West might have led to considerably different results. Nonetheless, with some of his North American correspondents, for instance Albert Gallatin and Henry Schoolcraft, he discussed his interests in indigenous languages and tried to promote the study of Native American cultures in general. Much of the data regarding Native American languages Humboldt acquired would be later passed on to his brother Wilhelm, who was a renowned linguist.

Another topic he was intrigued by was the idea of the West as a place that resisted the introduction of slavery. The inhumane institution was for Humboldt one of the most abominable aspects he was confronted with during his American Expedition, and for the rest of his life he did not miss an opportunity to express how much he was disgusted by all forms of slavery, in the Spanish colonies, but even more in the United States, a country that he praised for the liberty it offered to its citizens.⁴⁶ As he stated on several occasions, the Western expansion offered an opportunity for the country to finally eliminate this evil and return to the enlightened values, on which their society was built. To Oscar Lieber, he also expressed his strong desire that the western provinces should remain free from the burden of slavery and the shameful legislation that came along with this system.⁴⁷ Also in one of his letters to Frémont he praised the fact that California had “so nobly resisted the introduction of slavery, will be worthily represented by a friend of liberty and of the progress of intelligence.”⁴⁸ Finally, during the election campaign of 1856, more than 50 years after his personal visit to North America, he stated openly his preference for the Republican Frémont against the Democrat James Buchanan, pleased that the explorer based his campaign on opposition to the spread of slavery into the new territories of the West.

Final Reflections

Humboldt's contribution to the scientific exploration of the West was not limited to one field of knowledge nor was it only descriptive. According to his usual methodology he developed a rather analytical approach, establishing constant comparisons between different people, periods of time or regions. He continuously based his comparative studies on material recollected or observations made by him in other regions, in New Spain, Cuba or Russia; or else analyzed the data provided by other explorers and offered his evaluations. Another important aspect to understand Humboldt's interest in western exploration is that this topic was interconnected with most of the other concerns he pursued in his life. The scientific reconnaissance of this region was necessary to establish his global comparisons; he needed this data in order to incorporate it in his world knowledge. Finally, Humboldt revealed a holistic and integral

approach to the West and did not just consider it as an interesting laboratory for certain geological formations or specific types of vegetation. While analyzing its scientific and political implications, he always kept in mind the larger significance for the growth of the nation through future settlement and the improvement of living conditions. It is for this reason, that he constantly tied together geographic, mineralogical or botanical data with information on commerce and trade, along with knowledge on the latest technological developments. In this sense Humboldt indeed seemed to have thought ahead of his times by reflecting on the role that the West could potentially play in a further globalized world, as a way to bring Asia, America and Europe closer together and suggesting clearly the steps that needed to be taken in this direction. While he predicted appealing opportunities for scientists, for immigrants, settlers and, on a larger scale, also for the development of a new nation, willing to find its place in a global context, at the same time he also warned of potential risks and negative developments. Humboldt was far from seeing California and the West as merely destined for Americans, for him it was global from the beginning and he outlined the further development of those global connections. In other words, he saw and imagined the West in a highly entangled word, a perception that would be repressed later by the US expansion and the narratives that ideologically supported it.

With his long-lasting interest in the scientific exploration of the western part of North America, and the future he foresaw for the United States once the nation expanded to the Pacific, it is not surprising that Humboldt was appropriated to promote *Manifest Destiny*, the conviction that Americans were destined to settle on the entire North American continent. His continuous support of the people and institutions involved in this endeavor was understood as a statement in favor of this belief, and Humboldtian science was used in order to justify European settlement and the growth of the new nation.⁴⁹ Certainly, his interest in the reconnaissance of the West cannot be disconnected from its political and social implications for European settlement and the growth of the new nation. Both the cartographic material he produced and the scientific exploration of the continent that he promoted contributed to these processes. Yet this was another aspect of the ways in which Humboldt and his science were used for geopolitical interests without his personal approval. It also illustrates his lifelong delicate position between science and politics.

It may be an interesting final thought to consider the potential impact of Humboldt, if he himself had been able to carry out the exploration voyage to California and the West he initially envisioned. Particularly in his capacity as a renowned expert in geology, he might have contributed significant discoveries in an area rich in natural resources and thus made important contributions to this

discipline. Nevertheless, his overall contribution to the Western scientific reconnaissance might have been less impressive if he had focused on his own exploration of one particular geographical area or scholarly field. The fact that in the end he was only able to contribute to this project from a distance, through his different types of networks or forms of collaboration, opened the way for a level of implication that turned out to be much broader and more far reaching in his influence. Thanks to these connections his physical presence and his personal implication in the actual process of exploration *in situ* was not necessary in order to contribute in an outstanding way to this process. Everything was achieved through his wealth of knowledge, the importance of his name, and the influence he had on influential people and, last but not least, his specific way of interconnecting and combining Spanish, Prussian, Russian, British and French scientific traditions with the emerging American science.

Sandra Rebok is a German historian of knowledge and ideas, whose research focuses on 18th/19th century exploration voyages, intellectual networks and transnational scientific collaboration. Trained in Heidelberg, Paris and Madrid, she worked for many years at the Spanish National Research Council and was a Marie Curie Fellow at the Huntington Library in California. She has over twenty years of experience in scholarship related to Alexander von Humboldt, is the author of several books on him and the editor of three of his works in Spanish. One of her last books discusses his intellectual exchange with Thomas Jefferson (*Jefferson and Humboldt*, 2014) and her forthcoming monograph analyzes his position between the Spanish Empire and the expanding United States (*Humboldt's Empire of Knowledge*, in press). She is working on her new book project that analyzes Humboldt's networks of knowledge within the United States (*Expanding the Frontiers of American Science*). In addition, she has many years of experience in science communication and has curated several exhibitions in the field of history of knowledge. Currently she is a Visiting Scholar at the University of California in San Diego (History Department), and during 2022-23 she is additionally a fellow at the UCSD Center for US-Mexican Studies and a research associate at the University of San Diego. This is an edited and abbreviated version of her arguments published in: Sandra Rebok, "Humboldt's exploration at a distance," H. Curry, N. Jardine, J. A. Secord and Emma C. Spary, ed., *Worlds of Natural History* (Cambridge: University Press, 2018), 319-334. Dr. Rebok can be reached at srebok@ucsd.edu or sarebok@icloud.com and at <https://sandrarebok.net>.

Notes

¹ Susan Faye Cannon, *Science in Culture: The Early Victorian Period* (New York: Dawson, 1978), chapter on Humboldtian Science. See also: Michael Dettelbach, "Humboldtian Science", N. Jardine, J.A. Secord, and E.C. Spary, eds., *Cultures of natural history* (Cambridge, New York: Cambridge University Press, 1996), 287-304.

² My current work seeks to analyze those networks – and their impact – for the case of the United States: Sandra Rebok, *Expanding the Frontiers of American Science: Alexander von Humboldt's Networks of Knowledge* (book project in progress).

³ A detailed description of Humboldt's scientific and diplomatic preparation in Madrid of his expedition through the Spanish colonies can be found in: Miguel Angel Puig-Samper and Sandra Rebok, *Sentir y medir. Alexander von Humboldt en España* (Aranjuez: Doce Calles, 2007); Sandra Rebok, *Una doble mirada: Alexander von Humboldt y España en el siglo XX* (Madrid: CSIC, 2009).

⁴ Humboldt to Karl Ehrenbert von Moll, June 5, 1799, Ulrike Moheit, ed., *Humboldt. Briefe aus Amerika. 1799 – 1804* (Berlin: Akademie-Verlag, 1993), 33; Humboldt to Carl Ludwig Willdenow, February 21, 1801, in Moheit, *Humboldt Briefs America*, 126ff.

⁵ Humboldt to James Madison, June 19/20, 1804, in Ingo Schwarz, ed., *Alexander von Humboldt und die Vereinigten Staaten von Amerika. Briefwechsel* (Berlin: Akademie Verlag, 2004), 94. (French original: "Il me paraît que je reverrai ce beau pays en peu d'années. Le chemin du Missouri aux côté de l'Océan pacifique sera alors déjà ouvert. Les lacs, le Canada et l'immense bassin qui s'étend después Pittsburg aux montagnes vues par Fidler offrent un vaste champs aux recherches géologiques.")

⁶ Humboldt to William Thornton, June 20, 1804, in Schwarz, ed., *Alexander von Humboldt und die Vereinigten Staaten von Amerika*, 96. (French original: "Ce pays qui s'étend à l'ouest des montagnes présente un vaste champs à conquérir pour les sciences")

⁷ Humboldt to John Vaughan, June 10, 1805, in Schwarz, ed., *Alexander von Humboldt*, 105.

⁸ Robert Walsh to Humboldt, December 8, 1847, in Schwarz ed., *Alexander von Humboldt und die Vereinigten Staaten*, 252.

⁹ Sandra Rebok, *Jefferson and Humboldt: A Transatlantic Friendship of the Enlightenment* (Charlottesville: University of Virginia Press, 2014). Revised and updated Spanish translation: Sandra Rebok, *Humboldt y Jefferson: Una amistad transatlántica de la Ilustración* (Santiago de Chile: Biblioteca Nacional de Chile, 2019).

¹⁰ Sandra Rebok, “Weaving the Net: Humboldt’s Visit to Washington amidst Jefferson’s Pursuit of Geographical Intelligence”, Sabrina Guerra and Elisa Sevilla Perez, eds., *Enigmas de las Américas 3: Humboldt y el álbum geográfico* (accepted); Sandra Rebok, “Humboldt as Intelligence Agent? Circulating scientific Knowledge, and Strategic secrets, in Washington”, Maria Fernanda Valencia Suarez and Carolina Depetris, eds., *The influence and legacy of Alexander von Humboldt in the Americas* (Mérida: Mexico CEPHCIS-UNAM, 2022), 33-51.

¹¹ Humboldt, Alexander von, “Tablas geográfico-políticas del Reino de Nueva-España, en el año de 1803...” *Boletín de geografía y estadística*, Boletín del Instituto Nacional de Geografía y Estadística de la República Mexicana (1869): 635-657.

¹² “Tableau statistique du Royaume de la Nouvelle Espagne,,” in Schwarz, *Humboldt und die Vereinigten Staaten*, 484-495.

¹³ Margot Faak, ed., *Alexander von Humboldt. Reise auf dem Rio Magdalena, durch die Anden und durch Mexiko*, vol. 8 (Berlin: Akademie Verlag, 1986, reedition 2003) 329-330. A detailed list of consulted material can also be found in his unpublished travel journals: Margot Faak, *Alexander von Humboldts amerikanische Reisejournale: eine Übersicht* (Berlin: Alexander-von-Humboldt-Forschungsstelle, 2002), Diaries VII b and c (278R-278V), VIII (60, 64R, 3, 89 V).

¹⁴ Stephen T. Jackson and Laura Dassow Walls, eds., *Alexander von Humboldt. Views of Nature* (Chicago: University of Chicago Press, 2014), 49 and 151.

¹⁵ Alexander von Humboldt, *Cosmos: a sketch of a physical description of the universe*, 4 vols. (New York: Harper & Brothers, 1858), vols. II and IV. For an analysis of Humboldt’s engagement with the West, see also: Sandra Rebok, “A vast field to conquer for the sciences: The American West in Humboldt’s Kosmos”, Giacomo de Angelis, ed., *Kosmos nel XXI Secolo. Humboldt im XXI. Jahrhundert*, Humboldt-Kolleg, Associazione Italiana Alexander von Humboldt (Villa Vigoni: Lovenio di Menaggio, 2020), 107-116.

¹⁶ Ulrike Leitner, ed., *Alexander von Humboldt und Cotta: Briefwechsel* (Berlin: Akademie Verlag, 2009); Sebastian Panwitz and Ingo Schwarz (eds.), *Alexander von Humboldt. Familie Mendelsohn. Briefwechsel* (Berlin: Akademie Verlag, 2011); Ingo Schwarz (ed.), *Alexander von Humboldt. Samuel Heinrich Spiker* (Berlin: Akademie Verlag, 2007); *Briefwechsel Alexander von Humboldt's mit Heinrich Berghaus aus den Jahren 1825 bis 1858*. 3 vols (Leipzig: Hermann Costenoble, 1863); Ulrich Pässler, *Alexander von Humboldt. Carl Ritter. Briefwechsel* (Berlin: Akademie Verlag, 2010).

¹⁷ Hugh Richard Sloten, *Patronage, practice, and the culture of American science: Alexander Dallas Bache and the U.S. Coast Survey* (Cambridge/New York: Cambridge University Press, 1994), 116-130 (chapter: "Providing patronage for American science: The Humboldtian program").

¹⁸ Ingo Schwarz, "Alexander von Humboldt's Correspondence with Johann Gottfried Fluegel," *Yearbook of German-American Studies* 46 (2011), 87-94.

¹⁹ See Amiel W. Whipple to Humboldt, August 8, 1854, in Schwarz, *Humboldt und die Vereinigten Staaten*, 334-335; Humboldt to Amiel W. Whipple, August 18, 1855, in Schwarz ed., *Humboldt und die Vereinigten Staaten*, 350-353.

²⁰ Johann Georg Kohl to Humboldt, September 17, 1856, in Schwarz ed., *Humboldt und die Vereinigten Staaten*, 402-404.

²¹ John Buchanan Floyd to Humboldt, July 14, 1858, in Schwarz ed., *Humboldt und die Vereinigten Staaten* 457.

²² Henry Stevens, *The Humboldt Library; a catalogue of the library of Alexander von Humboldt; with a bibliographical and biographical memoir* (London: American Agency, 1863).

²³ Alexander von Humboldt, *On the Fluctuations in the Production of Gold* (New York: Cambridge Encyclopedia, 1900). See also, Humboldt's map "Carte des divers routes par lesquelles les richesses métalliques refluent d'un continent a l'autre," in Alexander von Humboldt, *Atlas de la géographie et physique du royaume de la Nouvelle-Espagne : fonde sur des observations astronomiques, des mesures trigonometriques et de nivellemens barometriques par Al. de Humboldt*, accessed May 16, 2023, <https://collections.lib.uwm.edu/digital/collection/agdm/id/31701/>. Hereafter referred to as *Atlas de la Nouvelle-Espagne*

²⁴ See for instance document 22 (Über die Goldgewinnung in den Vereinigten Staaten, Feb. 1833) and document 23 (Goldwäsche am Altai, Feb. 1833) in Schwarz (ed.), *Samuel Heinrich Spiker*, 272-274.

²⁵ Humboldt to Johann Ludwig Tellkamp, November 14, 1843, in: Schwarz, *Humboldt und die Vereinigten Staaten*, 229. (German original: “Die Entdeckung der reichen Goldlager wird, ich fürchte es, für die Colonisierung Californien’s sehr nachtheilige Folgen haben. Tagediebe, Taugenichts und Gesindel allerlei Art, woran es in den Vereinigten Staaten warlich nicht fehlt, wird dahin strömen, auch Europa sein Contingent stellen, und die ackerbautreibende Ansiedlung auf lange Zeit hinausschieben”).

²⁶ See for instance letter Humboldt to Heinrich Berghaus, received on September 25, 1849, in *Briefwechsel Alexander Von Humboldt's Mit Heinrich Berghaus Aus Den Jahren 1825 Bis 1858*, Vol. 3 (New York: Forgotten Books, 2008 reprint of 1863 Leipzig edition).

²⁷ Humboldt, *Views*, 51.

²⁸ Humboldt, *Views*, 46-50 (quotation 46).

²⁹ Humboldt, *Views*, 150-52.

³⁰ *Humboldt Views*, 9 and 151-152.

³¹ “Carte du Mexique et des Pays limitrophes situés au nord et a l’est dressé apres la Grande Carte de la Nouvelle Espagne” in Humboldt, *Atlas de la Nouvelle-Espagne*, 1808.

³² Heinrich Berghaus and Alexander von Humboldt, “Ethnographische Karte von Nordamerika,” in *Dr. Heinrich Berghaus’ Physikalischer Atlas oder Sammlung von Karten...*, vol. 2, 8. Ethnographie (Gotha: Justus Perthes, 1846); Heinrich Berghaus and Alexander von Humboldt, “Bergketten in Nord-Amerika”, in: *ibidem*, vol. 1, 3. Geologie, 1842.

³³ Humboldt, *Essay on New Spain*, vol. 1, civ.

³⁴ Humboldt, *Views of Nature*, 82.

³⁵ Samuel Forry, *The Climate of the United States* (New York: Langley, 1842), 37, 39 and 102.

³⁶ Humboldt, *Views of Nature*, 85.

³⁷ Humboldt, *Zentral-Asien*, 30, 537-539.

³⁸ See also John Bertrand de Cusance Morant Saunders, *Humboldtian physicians in California* (Davis: Library Associates of the University Library, Davis, 1971), 13 ff.

³⁹ Frémont, *Geographical Memoir*, 11. Here Frémont refers to the comments Humboldt gives regarding Californian wine and olive oil in his *Essay on New Spain* (1811) vol. 2, p. 225 and 235.

- ⁴⁰ Moritz von Brescius, “Connecting the New World Nets, mobility and progress in the Age of Alexander von Humboldt”, *Humboldt im Netz*, 2012 (XIII, 25): 11-33 (<http://www.uni-potsdam.de/romanistik/hin/hin25/brescius.htm>)
- ⁴¹ “Points de partage et communications projetées entre le Grand Océan et l’Océan Atlantique”, published in: Humboldt, *Atlas de la Nouvelle-Espagne*.
- ⁴² Balduin Möllhausen, *Diary of a journey from the Mississippi to the coasts of the Pacific with a United States government*, with an introduction by Alexander von Humboldt (London: Longman, Brown, Green, Roberts, 1858), xvii.
- ⁴³ Humboldt to Oscar Lieber, March 6, 1850, in: Schwarz, *Humboldt und die Vereinigten Staaten*, 264-265 (German original: “Der herrliche Besitz den ihr Vaterland von der Westküste genommen, von dem aus sie China beherrschen werden, macht es nothwendig auf etwas besseres zu denken als auf eine elende Railroad bei Panama und eine Flussschiffahrt durch Rio Juan”). More information on Humboldt’s relationship to Lieber offers: Ingo Schwarz, “da ich mich lebhaft für sein Schicksal im Neuen Continent interessire” Alexander von Humboldt als Förderer Oscar M. Liebers.” *Humboldt im Netz*, IX, 16, 2008, <http://www.uni-potsdam.de/romanistik/hin/hin16/schwarz.htm>.
- ⁴⁴ Humboldt, *Zentral-Asien*, 783.
- ⁴⁵ See for instance his linguistic studies of the Utah Indians in the context of his research on the Timpanogos Lake in Humboldt, *Views of Nature*, 152.
- ⁴⁶ Philip S. Foner, *Alexander von Humboldt on Slavery in the United States* (Berlin: Humboldt-Universität, 1984).
- ⁴⁷ Humboldt to Oscar Lieber, March 6, 1850, in: Schwarz, *Humboldt und die Vereinigten Staaten*, 264-266 (German original: “Mögen nur die westlichen Provinzen von der Pest des Sklaventhums und der schändlichen Gesetzgebung welche diese Pest (mit sich bringt) befreit bleiben!”)
- ⁴⁸ Humboldt to John C. Frémont, October 7, 1850, in Schwarz, ed, *Humboldt und die Vereinigten Staaten*, 275-277 (French original: “La Californie, qui a noblement résistée à l’introduction de l’esclavage, sera dignement représenté par un ami de la liberté et des progrès de l’intelligence.”)
- ⁴⁹ Sandra Rebok, “Humboldt and the American West: Defending or defeating the Manifest Destiny?”, *German Life and Letters. Special Issue: The legacy of Alexander von Humboldt (1769-1859). A critical reappraisal 250 years on*, ed. by Andrea Acle-Kreysing and Adrián Herrera Fuentes, 74, issue 3, (June 2021): 326-338.