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Nineteenth-Century Scientific Expeditions of the US Navy

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Scientific exchanges reigned in the nineteenth century and were indispensable to the process of globalization and in the reduction of different orders of distance. The US Navy journeys were part of this enterprise.

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Travels and travelers have become important themes in the humanities, specially in the field of History. The reports produced by men and women from the past are sources which show social, political, and economic transformations over centuries, as well as the modifications of how to travel and narrate the experience. They are important sources for reporting encounters that were often unequal, with unpredictable results, between groups who followed different rhythms and temporalities, highlighting the complexity of the circulation of men, ideas, and scientific discussions.

Scientific exchanges reigned in the nineteenth century, under the influence of the Enlightenment, and were indispensable to the process of globalization and in the reduction of different orders of distance. Constant flows and exchanges — mutual aid, as well as competition between the parties — ensured joint work, resulting from various fusions, mergers, and amalgamations. This is the case of the scientific work carried out by the navies of Western countries.

During the nineteenth century, officers and cartographers circled the globe from East to West and sailed the planet from the North to the South Pole. Considerable parts of the Earth were still 'unknown' or unmapped, according to the rigor of 'reason.' The Atlantic and above all the Pacific lacked recognition. A large number of scientists, notably Europeans, did not shy away from measuring, mapping, and drawing the globe: rivers were identified, river mouths measured, coasts identified, shoals revealed, especially those which put vessels at risk. This involved an extraordinary effort from navies in peacetime. It can be noted that this task of mapping the globe based on sophisticated mathematical calculations, made by specialized cartographers, was not only linked to the science of the period, but also to geopolitics and the safety of commercial shipping.

In addition to training cartographers-officers, the United States was concerned with creating fields of knowledge in universities which could produce skilled personnel for the development of science in the country, becoming partners of the Europeans. Tirelessly, the Americans entered the race to discover the globe and also to benefit their trade. Gradually they constructed their own cartography, used by their navy and merchant marine.

The scientific journeys of the US Navy allow an understanding of the extent of US interests around the world, even though their navy was small compared to the Europeans. Trade with China since the eighteenth century stimulated circulation: ships with fur trade from the American West, amongst other products, were found in Shanghai and Hong Kong.

With the objective of ensuring free trade in international waters and inspired by English activity, the Americans created naval squadrons — types of overseas stations —, offering support to US vessels and facilitating formalities with foreign countries. These squadrons were formed by one or more ships, in accordance with the 'demands of the region.' They remained in determined ports prepared to support damaged American ships, whether military or not, and other emergencies.

The first squadron created by the US Congress was the Mediterranean Squadron in 1815, in order to repress piracy in North Africa (Algeria, Tunis, and Tripoli). In 1822, it was the turn of the West Indian Squadron which controlled the movement of ships in the Caribbean. With the growth of whaling, a profitable venture at the time, the Pacific Squadron was created in 1822. In 1826, the Brazil Squadron began to safeguard traffic in the South Atlantic, anchoring in the port of Rio de Janeiro. In 1835, the East Indian Squadron in India guaranteed the circulation of American ships and goods in Southern Asia. Finally, in 1841 the Home Squadron was created, which supervised the country's coasts and traffic in the North Atlantic.

It should be highlighted that the voyages in the first half of the nineteenth century were carried out while the United States set in motion the aggressive territorial conquest which moved its frontiers from the Appalachian mountains to the Pacific, between 1783 and 1848. Here we will deal with the most significant US scientific voyages in the Atlantic, although we will go beyond the limits of this ocean since some of the trajectories commented on went beyond its boundaries.

Voyages in the age of sail: the circumnavigation of the U.S. Exploring Expedition.

The most audacious US venture was to undertake an ambitious seaborne circumnavigation expedition between 1846 and 1848. The *U. S. Exploring Expedition* involved six sailing ships, with 346 men, including 37 cartographers, seven scientists (two naturalists, two botanists, a mineralogist, a conchologist, and a philologist), and two draughtmen. Like others of the same type, the expedition's first work was the nautical mapping carried out by the cartographers-officers, since the task of the scientists (the civilians in the exploration expedition) was in the background, even though they were responsible for the important report of the expedition, consisting of five narrative and 18 scientific volumes. The U. S. Exploring Expedition was undertaken at the same time as circumnavigations by Britain, France, Spain, and Russia.

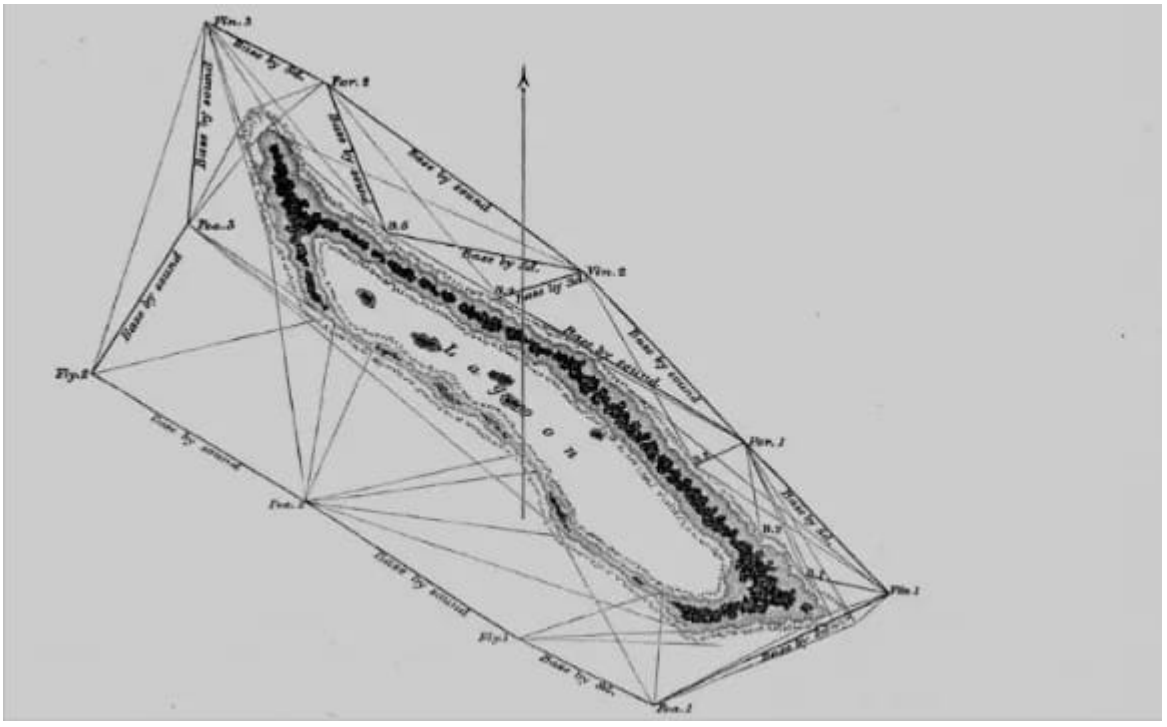
Although the focus of many of those involved in going around the globe was on the Pacific, the US expedition, amongst others, spent some time in the Atlantic, where it carried out a hydrographic survey and revised inconsistent maps. The resulting work used the travel writings of other officers, particularly Europeans, who had initially surveyed coastal or submersed geographical landforms. Simultaneously, the expedition narrative recognized the achievements of Europeans, especially the English, the most important navy of the epoch, and established the United States as partners in the international scientific debate.



Ships from the U.S. Exploring Expedition in Orange Harbor, Tierra del Fuego.

Source: Narrative of The United States Exploring Expedition (1838-1842). Philadelphia, Lea & Blanchard, 1845, p. 120.

Based on previously published travel reports, travelers from distinct countries agreed on positions and rectified incongruences in nautical charts which became more and more precise. In this way a transnational product was consubstantiated, although modern knowledge was marked by the tension between the national, or local, and the international — between national affirmation and transnational knowledge networks.



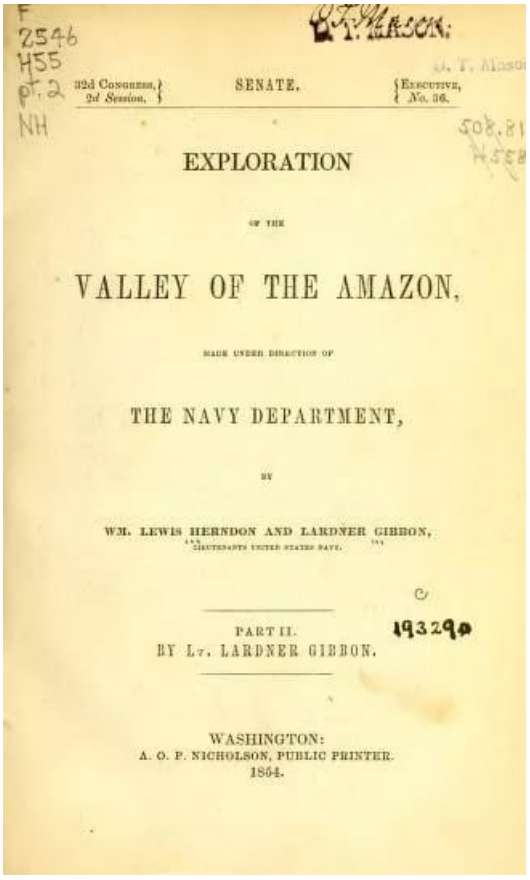
Example of mapping using the triangulation method.

Source: Wilkes, Charles. Narrative of The United States Exploring Expedition (1838-1842), Philadelphia, Lea & Blanchard, 1845, p. 431.

In the case of the U. S. Exploring Expedition*,* one of its main achievements is considered — although not without some dispute with Europeans — to be the proof that the Antarctic is another continent. Following this, maps were redrawn, this time with seven continents. In addition, around 40 tons of specimens were collected, giving rise to the Smithsonian Institution, the complex of museums in Washington.

The age of steamships: traveling along the rivers of South America.

Steamship boilers propelled river exploration. In the 1850s, US officers left the North Atlantic to explore the rivers of South America. The right to sail in rivers was an internationally debated question. In 1851, Captain William Lewis Herndon, initially serving in the Pacific Squadron, left from the Andes with Lardner Gibbon to explore the Amazon. The region's difficulties were immense: the trajectory was covered by boats, mules, and on foot.



32d Congress, 2d Session. SENATE. Executive, No. 36.

EXPLORATION

OF THE

VALLEY OF THE AMAZON,

MADE UNDER DIRECTION OF

THE NAVY DEPARTMENT,

BY

WM. LEWIS HERNDON AND LARDNER GIBBON,

LIEUTENANTS UNITED STATES NAVY.

PART II.

BY LT. LARDNER GIBBON.

WASHINGTON:
A. O. P. NICHOLSON, PUBLIC PRINTER.
1854.

Two years later an exploratory mission of the River Plate, commanded by Thomas Jefferson Page, travelled up the Paraná River, reaching the Paraguai. Page had served in China and had been overlooked by the U.S. Navy in the exploration of the Yangtze. As a counterpart, he was sent to South America. At the beginning of the 1850s, the Americans were exploring the two large river basins in the South American continent: the Amazon and the Plate.

These expeditions had more modest pretensions than, for example, the U. S. Exploring Expedition*.* However, they were responsible for the collection of valuable information about the region. In addition to the objective of the explorations, mapping, description of inhabitants, and flora and fauna, they also inspected economic possibilities, with authorization for diplomatic accords.

In the 1850s two expeditions specifically deserve mention, although their objective was not the Atlantic, but rather the Far East. Reference to them is important because it reveals, in addition to the dimensions of US interests around the world, their notable success. Between 1852 and 1855, two expeditions, both approved by Congress, were carried out by Commander Mathew Perry to China and Japan, though interest was concentrated on the latter. These voyages are celebrated, since they are considered to have opened the doors of Japan to the West, highlighting the nautical activity of the United States and guaranteeing its trade in the Pacific.

Exploration in Central America: the search for a place to construct the interoceanic canal.

The US Navy's impulse around the world cooled during the Civil War (1861-1865), since ships, officers, and sailors were divided between the belligerents north and south. After the conflict, although the scientific objectives remained, the Navy's activities were redirected in the Atlantic. Now the aim was to

shorten routes. With the construction of the Suez Canal, the passage by the Cape of Good Hope in South Africa stopped being the preferential route to Asia. It was also intended to avoid the dangerous passage along the southernmost point of South America: the Magellan Straits or Cape Horn. To reach California, recently annexed from Mexico, after the War of 1846 - 1848, the Americans had to cross the straits, since land routes had not been established.

The United States did what it could to obtain control over the possible interoceanic canal in Central America. In the 1850s, the Clayton-Bulwer Agreement was signed, stating that neither the United States nor Britain would have exclusive rights over the possible interoceanic passage. This agreement was ignored. Despite English and French interest in the region, including demanding voyages for this purpose, a systematic inspection (topographic and cartographic surveys, engineering projects, geological data) was made by the United States. Distinct regions were examined: Nicaragua, Panama (then a province of Colombia), Honduras, and Southern Mexico.

In 1870, Thomas Oliver Selfridge, with two steamships, explored the Darien Straits in Panama. With more technical objectives, specialists in topographic surveys, an electrical specialist, a geologist, and a photographer embarked on the expedition. In 1872, it was the turn of Robert Ilson Shulfedt to follow two other routes: through the Nicaraguan lakes and Tehuantepec, in Mexico. He brought a team consisting of an engineer, topographer, photographer, and a naturalist. Due to its lakes, which would facilitate the construction of the canal, and its proximity to the south of the country, Nicaragua remained for a long time in the eyes of American naval officers and politicians the most suitable region for the construction of the passage, to the detriment of Panama.

In 1872 and 1875, Captain Edward Lull, who had been part of Shufeldt's expedition, once again inspected Nicaragua and Panama, at times following the routes of his predecessors, at other times choosing new ones. These voyages were carried out with the consent of the Latin Americans and often had a specialist or agent of the relevant government on board.

It was decided in the 1880s that the canal would be built, but the doubt remained whether it would be Panama or Nicaragua. Two expeditions were carried out by James Grimmes Walker who presided the Nicaragua Canal Commission and afterward the Isthmian Canal Commission. The travel report produced by Walker were essential for the Americans to decide on Panama, ruling out the passage through Nicaragua.



Photograph of the exploration of WALKER

Source: James Grimmes, Ocean to Ocean. An account personal and historical of Nicaragua and its people. Chicago: A. C. McLurg & Co, 1902, p. 155.

Finally, the US Congress decided, supported by US Navy reports, to acquire the concession of the private French company — led by Ferdinand de Lesseps, the French engineer responsible for the Suez Canal — which had unsuccessfully begun the construction of the canal in Colômbia, South America. However, the Latin American company did not accept the US proposal. The results of this are well known: the United States supported a separatist rebellion in Panama and were the first to recognize its independence. In the agreement with the Panamanians they got control of what came to be known as the Canal Zone. The engineering work began in 1907 and the canal was opened in 1914.

Official travel writing and account: the problem of truth.

Scientific expeditions carried out by navies depended on well-prepared accounts/ travel writings, since these were reports which justified government expenditure on the venture, a large part of which did not have immediate results and conferred credibility on scientific measurements or discoveries. The voyage was only part of the work. The report was written on the return, when in national waters. Gradually, through travel writing from one or another expedition, the world was mapped based on new calculations and instruments, such as the chronometer: accurate hydrographic surveys were published, ever more precise nautical charts drafted. Moreover, the description of other places attracted the curiosity of readers to the parts of the world considered to be 'unknown.'

The success of the scientific expedition depended on the report/travel writing. In addition to the circulation of the travel report itself, the dissemination of scientific exploration was the heart of the enterprise: the achievements of the nation were published in newspapers and magazines for a broader public, or in specialized journals in determined fields of knowledge, reaching specific publics. Foreign periodicals also published accounts of important journals and discoveries.

Reports of scientific expeditions had to be objective and precise. However, it is important to highlight that this type of source has a limitation. Since the end of the twentieth century, travel writings have been questioned by historians, literary critics, and others. Rather than a reliable source on the places visited, they have become a source that reveals more the vision of the traveler, immersed in a determined culture, about the places they visited, reiterating stereotypes and judgments about remote spaces, notwithstanding certain exceptions. Scholars' concerns have moved to the cultural sphere. As a result, the representations of the places visited are discussed, instead of conceiving these reports as an authorized source abut a determined reality.

It is known that the source corpus called travel writings is marked by heterogeneity. They include official government reports or by government representatives, scientific accounts, personal ones, writings in the diary format, non-linear narratives, etc. Many difficulties are involved: it is enough for someone to have gone from one place to another and have written about the experience for the text to be recognized as a travel writing.

Another problem that should be highlighted is the authorship of the text: in the case of scientific journeys, in particular in the first half of the nineteenth century, it was not certain that the commander of the expedition had written the text. For example, the report of the first circumnavigation by the legendary eighteenth-century captain, James Cook, was written by the specialist John Hawkesworth, based on Cook's notes. Charles Wilkes, commander of the U. S. Exploring Expedition*,* after returning to the United States after four years of exploration, had to undergo various courts-martials for imposing excessive corporal punishments on sailors and for "manipulating data and information," prejudicing the officers under his command. In the US Navy it was discussed whether he would write the narrative of the expedition he had led. Wilker had been given charge of the mission, but the narrative of the exploration consisted of, in addition to the justification of the voyage and the achievements of the operation, his defense against the accusations he had received, even if this was subliminal.

Furthermore, absences, what is not said, are common and revealing in the reports of the strategic expeditions, since much information or even discoveries were not stated in the narratives, nor in determined published maps, becoming useful information for the country which had invested in the exploration.

These incidents compromised in one manner or another the veracity of reports, even the scientific ones. It is possible to find fictional elements in a large part of travel writings, which does not mean that a scientific report should be read as if it were a novel. An educated traveler would certainly know how to use sophisticated resources to narrate their experience. It was common to keep in shadow what it was wanted to hide and highlight the writer's qualities and exploits. However, the fact that the travel reports related to these expeditions are sources whose veracity is questioned does not mean that they do not confirm data of scientific measurements. Rather they express that those interested in understanding the circulation of men, ideas, and aspects of science through these sources should be aware of their many possibilities, but also their limits.

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