

ENCOUNTERING THE UNKNOWN: THE MEXICAN-AMERICAN BOUNDARY SURVEY, 1849–1854

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The Treaty of Guadalupe Hidalgo, signed on February 2, 1848, concluded the US-Mexican War of 1846–1848, and resulted in a major shift in the power relations of the American continent (Israel 733–751; Kökény; Perrigo 134; Calvert and De León 103; Connor 155; Chávez 214; Vázquez and Meyer 61; Salvat and Rosas 1806). The new boundary dramatically altered the political geography of North America. The Republic of Mexico was forced to cede the northern half of the country—a territory of 529,189 square miles—to the United States. Thus the boundary was moved to the southern edges of today's California, Arizona, New Mexico, and Texas, an expanse of nearly two thousand miles (Israel 736–737). Some of the land was settled by Mexican ranchers and farmers, but much of the territory was unexplored, and to Americans, it was an unknown land.

In the Peace Treaty, the two countries agreed to send representatives to survey and mark a new international boundary from the Pacific Ocean to the Gulf of Mexico. Article V specified that

In order to designate the boundary line with due precision, upon authoritative maps, and to establish upon the ground land-marks which shall show the limits of both republics, as described in the present article, the two Governments shall each appoint a commissioner and a surveyor, who, before the expiration of one year from the date of the exchange of ratifications of this treaty shall meet at the port of San Diego, and proceed to run and mark the said boundary in its whole course to the mouth of the Rio Bravo del Norte [i.e. Rio Grande] (Israel 737).

The ratified copies of the Treaty were exchanged at Querétaro on May 30, 1848, and the fieldwork lasted from the summer of 1849 to the fall of 1853 (Goetzmann 153–208; Meinig 151–152; Pletcher 567; Werne 15).

In my paper, I will outline, analyze, and evaluate the work of the American boundary commission. Their responsibility and power was extensive, as the Treaty provided that “the result agreed upon by them shall be deemed a part of the treaty, and shall have the same force as if it were inserted therein” (Israel 737). Thus, the members of the boundary commission had to be individuals who possessed not only a thorough knowledge of topographic and survey skills, but also diplomatic abilities.

Logic suggests that the work be done by the nation's best-trained and most experienced surveyors, West Point-trained members of the U.S. Army Corps of Topographical Engineers. Domestic politics and regional interests, however, required that politicians lead them. 1848 was an election year, and, in its last few months in office,

the Democratic administration of President James K. Polk filled the position of commissioner and surveyor with people affiliated with the Democratic Party. This eleventh-hour appointment in December 1848 by a lame-duck president infuriated Whigs, who controlled the House of Representatives after the election. The new president, Zachary Taylor, was also a Whig, and was eager to dispense patronage to the boundary commission and appoint his own men (Goetzmann 153–154; Rebert 435; Weber and Elder xx).

Today, Mexicans and Americans crowd up against the border, but, back in the middle of the 19th century, beyond a few small Mexican settlements (for example, San Diego, El Paso del Norte, and Matamoros), the border region was mainly the domain of independent Indian tribes who had no reason to recognize lines drawn through their territory by distant diplomats. Even though, in the end, the threat from Indians never put the boundary commission in real danger, distance from settlements and supplies, summer heat, and difficult terrain made the surveyors' work quite strenuous.

Surveying on such a large scale had to take the curvature of the Earth into account, and that required geodesic surveying, which depended heavily on astronomy. Plane surveying, used to measure and mark small portions of Earth's surface, was not sufficient. Long stretches of the new border followed two rivers, the Gila and the Rio Grande. Along those rivers, the surveyors had to find the deepest channels, as required by the Peace Treaty (Israel 736). Between the Pacific Ocean and the Gila River and between the Gila and the Rio Grande, their task was even harder. No rivers or other geographical features marked the new border. In the absence of landmarks, the surveyors had to mark a line on the ground and erect or place physical markers. They only put up a few of these, as they supposed that neither Mexicans nor Americans would ever settle in the arid border region in significant numbers (Emory, 5; Weber and Elder xviii, Werne 32, 35).

However difficult the American surveyors found conditions in the field, the greatest impediment to their work came from Washington D. C. In addition, conflict between political appointees and topographical engineers began almost immediately, and it plagued the survey to the end (Goetzmann 167–195; Werne 22–23, 34).

The job of boundary commissioner for the United States was assigned to John B. Weller. By profession a lawyer and politician, he had previously been a three-term Democratic congressman from Ohio and an unsuccessful candidate for governor of that state.

As he was a political appointee of James K. Polk, Zachary Taylor, the new president, called him in June 1849 and replaced him with John Charles Frémont. The famous explorer, however, declined the commissioner's post and ran for the senatorial seat of California instead – and won. All this caused considerable delay in the work of the surveying party, especially because the new boundary commissioner was only appointed on May 4, 1850. John Russell Bartlett had no surveying, or diplomatic skills. He was a prominent bibliophile and amateur ethnologist from Providence, Rhode Island, who, at the time of his appointment, ran a bookstore and publishing house in New York City, which specialized in foreign books and travel accounts. He organized a party of topographical engineers, civilian surveyors, mechanics, and field scientists and left New York at the beginning of August, 1850. However, it took him

several months to reach El Paso (Emory 1; Goetzmann 163–173; Weber and Elder xx–xxii; Werne 20–21, 45–50).

James K. Polk gave the post of surveyor to 29-year-old Andrew Belcher Gray. He was an experienced surveyor who worked for the Republic of Texas on the United States-Texas Sabine River Survey in 1840. However, his civilian status and rudimentary knowledge of astronomy put him at odds with the survey's West-Point-trained topographical engineers (Bailey xi–xiii; Goetzmann 158, Rebert 436; Weber and Elder xx–xxi).

Appointed as “Chief Astronomer and Commander of the Escort” for the survey party was Major William Hemsley Emory. His qualifications for inclusion on the delegation were exceptional. He had graduated from West Point in 1831 and entered the Corps of Topographical Engineers in 1838, when it was formed under the War Department. By 1849, his considerable experience included two years of surveying the Canadian-U.S. boundary. Moreover, he was the only American scientist to have travelled across the Southwest, from Santa Fe to Los Angeles. When the United States declared war on Mexico in 1846, Emory had been assigned to accompany General Stephen Watts Kearny on an almost two-thousand-mile trek to New Mexico and California — through much of the territory scheduled for survey by the boundary commission. Along the way, Emory had mapped the route, and he produced a scientific report upon his return (Emory 1; Goetzmann 128–130, 158; Weber and Elder xix; Werne 2–4).

Emory's assistants were Lieutenant Edmund L. F. Hardcastle, who had conducted a reconnaissance of the valley of Mexico, and a young lieutenant from Massachusetts, Amiel Weeks Whipple. Whipple was a West Point-graduate, and, for the previous five years, he had been working on the Northeastern Boundary Survey dividing Canada and the United States. Altogether, the total complement of the commission consisted of thirty-nine men directly involved with survey operations, an army escort of a hundred and fifty soldiers, and a variety of civilian employees. Their contingent included a physician, an interpreter, a quartermaster, a laundress, a carpenter, and a draftsman, as well as cooks, butchers, tailors, several servants, instrument carriers, target men, chain men, and stone cutters. As the task of the boundary commission was not only surveying and marking the boundary, but also scientific exploration, there were meteorologists, geologists, botanists, and naturalists, magnetic, barometric, and thermometric recorders, mining engineers, and artists in the survey party (Emory 3; Goetzmann 158, 201–205; Rebert 439).

Most of them received their appointment in February, 1849, and were supposed to meet the Mexican commissioners in May, 1849, and start the boundary survey from a point specified by the peace treaty south of San Diego Bay. However, not all left for San Diego under similar circumstances. Soon after the group's organization, news reached the East Coast of the discovery of gold in California and caused such congestion of available modes of transportation that it looked as if the boundary survey would have to be delayed. Most of the crew eventually obtained passage on several ships departing from New Orleans for the Isthmus of Panama, where they planned to make connections with steamers leaving for the West Coast. (Goetzmann 158, Weber and Elder 2; Werne 22)

By the middle of March, 1849, most of the commission's major members had arrived in Chagres, Panama (Emory 1). Their progress, however, was impeded by some 4,000 gold seekers who anxiously awaited steamers to complete their journey to California. The few vessels that were available quickly began charging such an enormous price for tickets and were so crowded that the survey party soon found itself virtually stranded. Emory did not consider it a waste of time, instead "seeing that there was little probability of our obtaining passage to San Diego before that middle of May, I unpacked the instruments, and set them up for the double purpose of practicing my assistants and making observations at Panama for latitude and longitude, magnetic dip and intensity, and other phenomena" (Emory 2). At long last, after a wait of two months, during which a cholera epidemic also hit the region, a ship was finally secured to transport some of the commission to San Diego.

They reached California on June 1, much later than planned. They were surprised to discover, however, that the Mexican commission had not yet arrived. Experiencing delays comparable to their American counterparts, they only arrived in the San Diego harbor on July 3. Commissioner General Pedro García Conde was accompanied by surveyor José Salazar Ylarregui, two first class engineers, two second class engineers, and Felipe de Iturbide, a son of the Mexican Emperor, who served as official translator. Some one hundred and fifty soldiers also accompanied the Mexicans (Emory 3; Goetzmann 159–160; Weber and Elder 47; Werne 23–27).

The joint Boundary Commission held its first meeting on July 6 (Emory 4; Werne 28). The essential task facing the delegation involved the plotting of the boundary's western terminus in the Pacific, and the exact location of the confluence of the Gila and Colorado rivers. According to the terms of the Treaty,

The boundary line between the two Republics shall commence in the Gulf of Mexico, three leagues from land, opposite the mouth of the Rio Grande, otherwise called Rio Bravo del Norte, or Opposite the mouth of its deepest branch, if it should have more than one branch emptying directly into the sea; from thence up the middle of that river, following the deepest channel, where it has more than one, to the point where it strikes the southern boundary of New Mexico; thence, westwardly, along the whole southern boundary of New Mexico (which runs north of the town called Paso) to its western termination; thence, northward, along the western line of New Mexico, until it intersects the first branch of the river Gila; (or if it should not intersect any branch of that river, then to the point on the said line nearest to such branch, and thence in a direct line to the same); thence down the middle of the said branch and of the said river, until it empties into the Rio Colorado; thence across the Rio Colorado, following the division line between Upper and Lower California, to the Pacific Ocean.

The southern and western limits of New Mexico, mentioned in the article, are those laid down in the map entitled "Map of the United Mexican States, as organized and defined by various acts of the Congress of said republic, and constructed according to the best authorities. Revised edition. Published at New York, in 1847, by J. Disturnell," of which map a copy is added to this treaty, bearing the signatures and seals of the undersigned Plenipotentiaries (Israel 736–737).

Major Emory took charge of determining the initial point in the Pacific, while Gray surveyed the port of San Diego. One of Emory's assistants, Whipple, who had recently arrived from Panama, was given the task of charting the junction of the Gila and Colorado. Lieutenant Hardcastle was assigned the job of gaining a basic knowledge of some of the topography between these two points, so they could be connected in longitude by gunpowder flashes (Emory 4; Goetzmann 161, Weber and Elder 49; Werne 28–30). On each of these operations a Mexican engineer was on hand to verify the results by means of his own observations. In fact, the Mexicans, because of their inferior instruments, were forced to depend on the services of the American engineers.

For most of the survey, the two commissions worked together, often complementing and always double-checking each other's work. Trouble arose, however, when it came to marking the boundary between El Paso and the Rio Grande. The Peace Treaty said that the boundary should turn west from the river at a point eight miles north of El Paso, but the astronomical readings taken by the surveyors showed that El Paso was, in fact, about thirty-six miles farther south and about a hundred and thirty miles farther west than the Disturnell map indicated. The disputed area involved a few thousand square miles, and the territory had about three thousand inhabitants. The biggest problem was that, if the inaccurate map was used in marking the boundary, the United States stood to lose the Mesilla Valley, which appeared to be the only practicable pathway for a southern rail route to the Pacific Ocean. After four months of arguing, the American and the Mexican commissioners made a compromise. They agreed that the treaty map would prevail with regard to El Paso, so the Mesilla valley would remain part of Mexico, but the boundary would be extended a hundred and twenty miles farther west than the Disturnell map had shown before it turned north toward the Gila River. Major Emory, Lieutenant Gray, and southern Democrats in Congress, who favored a Texas-New Mexico rail route, attacked Commissioner Bartlett for surrendering the Mesilla Valley and blocked further funding of the boundary survey. The Mexican government, on the other hand, welcomed the compromise and made an effort to extend the jurisdiction and administration of the neighboring province, Chihuahua, over the Mesilla Valley (Emory 16–19, 20–21; Goetzmann 173–177, 191; Kluger 491–492; Reinhartz and Saxon 163; Weber and Elder 162–164).

In the end, surveying and marking the boundary was carried out according to the Bartlett-Conde compromise, and, on December 22, 1852, the American boundary commission was disbanded. Bartlett and Emory left for Washington D. C., where they arrived by February 1, 1853 (Goetzmann 193; Werne 128–131).

High-ranking officials from both Mexican and American sides left a substantial written record of their difficulties and achievements in surveying the border. There are also personal accounts of individuals who report on the survey party's logistical and financial problems, the personal and political rivalries of leading figures, the quarrels between the civilian and military members of the survey party, and the homely details. Unfortunately, they say very little about the day-to-day routine of the survey party. One such recently published personal account is George Clinton Gardner, Major Emory's junior assistant's correspondence from the boundary survey (Weber – Elder).

The official *Report on the United States and Mexican Boundary Survey* of the American Boundary Commission was published between 1857 and 1859 in two volumes (Emory). Major William H. Emory's name appeared on the title page as author, but in fact it was a collection of reports and studies by many authors. The different parts make up an encyclopedia of the Southwest, as the *Report* presents not only the results of the boundary survey, but also the results of the scientific investigations connected with the survey. As I have indicated before, some of the land the Peace Treaty transferred to the United States was settled by Mexican ranchers and farmers, but much of the territory was unexplored, and it was an unknown land to Americans. The *Report* also contains essays on the geography of the region and the Indian communities that inhabited it. There are also articles on geology, paleontology, meteorology, magnetism, minerals, and plants, as well as vast catalogs of the plants, animals, and fossils that the boundary commission's collectors gathered for study by scientists.

The administrative center for the American Boundary Commission was in Washington, D. C. It was directed by the topographical engineers, who superintended the production of the boundary maps and the work of civilian clerks, who worked on computations, compilations, and drew all the finished maps. The commissioners entrusted with the establishment of the U.S.-Mexico boundary intended that the maps and points of view together would document the boundary survey and demonstrate the location of the line, and would thereby legally establish the boundary. However, neither the maps nor the views could show the boundary in all its detail as a feature on the surface of the earth. Additionally, the sketches are neither systematic nor complete in their geographical coverage (Emory 15; Rebert 440; Weber and Elder 328).

Still, the *Report* is one of the most highly illustrated government publications of the nineteenth century. In addition to the pictures in the natural history chapters of the *Report*, there are also scenes of Indian and frontier society. Views of cities and forts built by Spanish and Anglo settlers further reveal border life. The *Report* contains three maps, including a general map of the West, a geological map, and a map of magnetic observations. Conspicuously absent from the *Report*, however, are any maps of the boundary. Although at least some of the boundary maps were originally planned for publication with the *Report*, the American Congress did not provide funds, and they were never published (Emory 2; Goetzmann 205).

The desert lands between the Rio Grande and the Colorado River, so difficult to survey, were regarded by the boundary commissioners as inaccessible and thus of little interest to American or Mexican citizens. Consequently, the boundary was marked with only a few monuments. The boundary between the Rio Grande and the Colorado is some 530 miles long, but only forty-six monuments were established, and many of them were made only of piled-up rocks. As a result, in the 1890s it was necessary to resurvey the line and build additional monuments. (Werne 226–227)

Between 1849 and 1853 the American and Mexican commissions performed an enormous task in surveying the border under the terms of the Treaty of Guadalupe Hidalgo, despite difficult circumstances and undependable support from their respective governments. Just as the surveyors completed their work, however, a new treaty made parts of their survey irrelevant.

The region of present-day southern Arizona and southwestern New Mexico was purchased by the United States for 10 million dollars in a treaty signed by James Gadsden, the American ambassador to Mexico at the time, on December 30, 1853 (Israel 753–758). The purchase also included the Mesilla Valley, the area debated during the Mexican-American boundary survey. The lands south of the Gila River and west of the Rio Grande – a region of 29,670 square miles – were the last major territorial acquisition in the contiguous United States of America, which was essential for the construction of a transcontinental railroad along a deep southern route (Goetzmann 194–195; Kluger 499–504; Meinig 152–153; Weber and Elder 325–326; Werne 188–189).

The Gadsden Treaty called for the U.S. and Mexico to appoint boundary commissioners, who would meet in El Paso three months after the exchange of ratifications and begin surveying. (Israel 754) Once again, Major William H. Emory won the assignment, but this time he held all three positions of commissioner, surveyor, and chief astronomer. He did not have to answer to a civilian political appointee, so he could work much faster. He reached El Paso at the end of November, 1854, and, by the end of September the following year, he and his Mexican counterpart, once again José Salazar Ylarregui, had finished the fieldwork. (Goetzmann 195–197; Weber and Elder 326; Werne 194–210)

Exploration of the new lands and discovery of their resources were goals as important as marking the boundary. Scientific discovery and mapping the boundary were the first steps in the process of incorporating the region into the United States of America.

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