

"The Compass Follows the Flag": The French Scientific Mission to Mexico, 1864-1867

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Abstract. During the French Intervention in Mexico, 1861-67, the French Ministry of Public Instruction established a scientific commission (Commission scientifique du Mexique, 1864-1867) that would perform functions similar to those of earlier missions to Egypt, Greece, and Algeria. This paper places the work of the Commission in the context of 19th-century French science and complements recent studies on scientific colonialism or imperialism. The role of geography and geographers is emphasized.

Key Words: Mexico, French science, history of science, history of geography.

1860s, its predecessors and its aftermath, from Alexander von Humboldt's visit to Mexico in 1803 to the publication of the last mission reports in World War I, a half-century after the departure of the French soldiers and scientists. According to the Mexican historian of science Enrique Beltrán, French science was more influential in Mexico than that of any other nation for about a century after 1821, until American (U.S.) science finally gained the position of primacy (Beltrán 1960).

French Scientific Missions to Egypt and Algeria

The French scientific expeditions to Egypt (1798-1801), Algeria (1839-1842), and Greece (1829-1831) were used as examples of what could be accomplished in Mexico during the 1860s. The Egyptian mission was especially fruitful and was said to have brought Egypt out of its "lethargy" by unveiling mysteries that had been hidden for fifteen centuries (Broc 1981; CSMA 1865). The Mexican monuments will also find their Champollion, said the French geographer Louis Vivien de Saint-Martin in 1865, recalling the famous decipherment of the Egyptian Rosetta Stone by the French scholar Jean-François Champollion in 1828 (Vivien 1864, 1867). Parallels were drawn between ancient Egypt and prehistoric Mexico in ways that showed the superiority of the latter as a field of study. When the French military effort was failing in Mexico and withdrawal of troops became necessary, it was rationalized that French scientific efforts there would continue to flourish, just as in Egypt when the army departed. It soon became clear, however, that the Commission scientifique du Mexique would not

"L A boussole suit toujours le drapeau" (The compass always follows the flag), as Numa Broc has so aptly characterized the French scientific and military expeditions of the nineteenth century, when scientific observers and mapmakers accompanied or followed soon after the French army into such places as Egypt, Greece, Algeria, Mexico, and Indo-China (Broc 1981, 347). Apart from meeting the needs of the military for accurate geographical information, the scientists seemed to feel that they were doing their reluctant hosts a favor by unlocking at last the intellectual treasures of these ancient lands and bringing them into the mainstream of world science. The Egyptian venture (1798-1801) was the first and in many ways the most fruitful of the scientific missions; it was hoped that the others might build on this model. That the results fell short of the goals in no way diminishes interest in the missions as active agencies in the diffusion of nineteenth-century European science. The present paper describes the work of the French scientific mission to Mexico in the

produce such important results as the Commission d'Égypte (Vivien 1869).

In Algeria, too, French scientists accompanied the invading army, with the difference from Mexico being that both were to remain and increase, along with the number of French civilians generally. In comparing Algeria with Mexico as a field for French activity in the 1830s, Brissot struck the prescient note that, although Algeria has the advantage of proximity to France, the Mexican people were much easier to deal with than the Algerians; in Algeria "each settler must be a soldier" (Brissot 1837, 380–381).

The French in Mexico

Although foreigners (non-Spaniards) were kept out of Mexico (New Spain) and other Spanish colonies before they gained their independence in 1821, a small number of French men and women managed to find their way to Mexico, beginning in the sixteenth century. More than 800 French residents have been identified in eighteenth-century Mexico (Houdaille 1961), and the numbers grew after restrictions against foreigners were relaxed in the 1820s. The first of the famous *Barcelonnettes*, those French shopkeepers who derived from one small valley in southern France, arrived in 1821; they ultimately formed the largest part of the French population in Mexico (Meyer 1974; Micard 1927; Gouy 1980). An unsuccessful agricultural scheme brought 500 French settlers to Coatzacoalcos in southern Veracruz State in the period 1829–1834 (Meyer 1974; Brissot 1837; Charpenne 1836). Estimates of the numbers of French in Mexico during the 1840s and 1850s range from 2,000 to 7,000, making them the second largest foreign contingent, behind the Spanish (Meyer 1974; Fossey 1857; Barker 1976).

During this period a large number of travel accounts were published in France, and French readers were getting a vivid and often highly romanticized picture of Mexico, which they regarded as a potentially rich but benighted land whose resources could best be brought out with European, and especially French, guidance. The paternalistic notion of supplying a European monarch for Mexico went back to the first years of Mexican independence, and the prolonged anarchy in the country only seemed to prove that the Mexicans were unable to govern themselves. In 1844 Alleye de

Cyprey, the French minister to Mexico, called for a march of 22,000 French soldiers on Mexico City to place a Frenchman on the throne (Barker 1973). As a prince Louis-Napoleon had looked to Mexico as a place for an isthmian canal; as emperor he had an even grander notion—his "*grande pensée*"—in mind. By the 1850s the French had deluded themselves into thinking that they were uniquely qualified to bring an end to the anarchy and civil war in Mexico and thus to introduce, or to restore, prosperity to that Eden *manqué*. It was necessary to intervene in order to save the Mexicans from themselves.

Apart from the comic-opera episode known as the "*Pastry War*" in 1838, the French did not directly intervene in Mexican affairs until 1861, when it was thought that they might hasten the payment of debts by joining with Spanish and English allies in a show of force before the port of Veracruz. The allies soon found excuses to absent themselves, and the French were left to pursue their crusade alone. This they did, with intermittent fervor, for the next five years until Napoleon III finally gave up his "*grande pensée*" of Gallicizing the recalcitrant Mexicans. As exemplars, he had sent 30,000 French troops to Mexico, supplemented with small numbers of Austrian and Belgian soldiers. The idealistic young Austrian archduke Maximilian was installed as Emperor of Mexico in 1864, but he miscalculated the degree of affection of his Mexican subjects and chose to stay on after the withdrawal of the French army; he suffered the rude shock of instant recall by a Mexican firing squad in 1867.

In some parts of the world, the end of the French military adventure might have meant an end to French influence generally, but French cultural and commercial ties to Mexico scarcely skipped a beat. Whatever enmity the Mexicans felt against the invaders was quickly transferred back to their Latin cousins, the Spaniards. Even today, while Mexicans celebrate one of their great national holidays, the "*Cinco de Mayo*," which commemorates the Mexican victory over the French at Puebla on 5 May 1862, the popular mind has conveniently forgotten the identity of the European antagonists. When asked to identify the *Cinco de Mayo*, most Mexicans would probably guess that it refers to a victory over the Spaniards in the Independence period (1810–1821). In any event the French seem to have emerged relatively unscathed from the

Mexican debacle of the 1860s (Barker 1979; Schefer 1939).

Francophone Scientists in Mexico before 1864

The greatest scientific work on Mexico before the French efforts of the 1860s was that of Alexander von Humboldt, who has been credited with the "second discovery" or "second conquest" of Mexico, after that of Hernán Cortés in 1519–1521 (CSMA 1865). Humboldt spent a year in Mexico, 1803–04, and later produced the *Essai politique sur le royaume de la Nouvelle-Espagne* (1811a), which has been called "the point of departure for the scientific study of Mexico" (CSMA 1865). It is still regarded as a model of good regional geography (Brand 1959). Humboldt only traveled in central Mexico, between Acapulco and Veracruz and between Mexico City and Guanajuato, which was usually the only area seen by subsequent travelers and which would be the main arena of French work in the 1860s. Apart from his acute observations while traversing the country, Humboldt's original scientific work in Mexico consisted of determining more precisely the latitude and longitude of 33 places (Humboldt 1811a). He was pleased with Spanish progress in mapping Mexico and also remarked on the high quality of their work in botany and chemistry. He said that the Spaniards no longer feared that if they made detailed maps, they would be used against them by their enemies; he also made specific mention of the superior instruction given by the School of Mines in Mexico City to prepare young Mexicans for topographic and marine survey (Humboldt 1811a; Chambers 1987).

Although Humboldt's admirers were legion, he was not without critics. The English translator of the *Essai politique*, John Black, grumbled that Humboldt was prolix and repetitious like German writers generally (Humboldt 1811b). The Swiss naturalist Henri de Saussure praised Humboldt publicly but criticized his work privately. Saussure visited Mexico in 1855–1856 and later published a remarkable book, *Coup d'oeil sur l'hydrologie du Mexique* (1862), whose title belies the breadth of the actual coverage. In 1856 in a letter to his brother Théodore from Veracruz, Henri de Saussure projected five books on Mexico, including one that would

redress Humboldt's errors. All Mexican statistics are false, said Saussure, beginning with those of Humboldt. Saussure thought that it was impossible to have correct data in a country that had no proper administrative apparatus to collect them (BPUG, vol. 234, 84). He claimed that Humboldt missed some noteworthy volcanic features in the vicinity of Mt. Orizaba (BPUG, vol. 234, 33). To his aunt, Saussure passed on the following gossip about Humboldt: contrary to what Europeans had heard, Humboldt did not really work very hard in Mexico. He spent a tranquil half-year in a "charming place with a certain countess from Mexico City," while half a dozen men ran around the country collecting data of varying degrees of accuracy that Humboldt accepted as genuine (BPUG, vol. 234, 33).

Like Humboldt, Saussure was anxious to scale high peaks in Mexico, an activity that nineteenth-century Europeans believed essential for geographers but Mexicans found quite incomprehensible (Saussure 1863; Leclercq 1885). Whereas Humboldt praised the Mexican people and the splendor of their landscapes, especially the mountains, Saussure denigrated both. He said that tropical nature is admittedly beautiful but cannot compare with his native Switzerland (BPUG, vol. 234, 30, 34). Both Humboldt and Saussure compared Mexican mountains with the Alps. Humboldt declared that there hardly exists a place on earth where mountains are as significant as they are in Mexico. The Central Plateau of Mexico is much higher than the plateaus of Switzerland and instead resembles the high plains of Asia and the two Castilles (Humboldt 1811a). Saussure noted that Mexico does not have great mountain chains like the Alps and Pyrenees. Vegetation on Mexican mountains differs, he said, from that of the Alps in two ways: the forest area is larger and the grasslands are smaller. He further noted that Mexican mountains do not have the same hydrologic function as European mountains. In Mexico there is not so much snow and rain comes mostly in the summer (Saussure 1862). Like many European travelers, Saussure was frustrated in his attempts to visit many parts of Mexico because of "the perpetual revolution" (Saussure 1862, 5). During the 1860s Saussure spoke out against French military involvement in Mexico but praised the scientific efforts. He served as a corresponding member of the Commission scientifique du Mexique and wrote

the Commission reports on insects that were published in 1870 and 1872 (CSM, *Mission scientifique*).

Among other important French-language works on Mexico before 1864 were those of Michel Chevalier and Lucien Biart. Chevalier's book, *Le Mexique ancien et moderne* (1863), was cited by Vivien de Saint-Martin as the best available book on Mexico (Vivien 1863; Chevalier 1863). Chevalier was the chair of the Commission scientifique committee on political economy and wrote a brief but instructive report on Mexican industry and commerce (CSMA 1865). Lucien Biart had resided in Mexico for eighteen years before he was made a correspondent of the Commission scientifique in 1864 (CSMA 1865; AN F¹⁷2909). His work was also praised by Vivien, although some critics thought that he put too much color into his writings (Vivien 1863; Lejeune 1892). In 1865 Biart returned to France with a considerable collection of artifacts that he offered to the Louvre and biological specimens that he gave to the Museum of Natural History (AN F¹⁷2911). Biart hailed the Intervention and Maximilian and stressed the strong bonds of affection between France and Mexico (Biart 1865).

Commission Scientifique du Mexique

Apparently the notion of dispatching a scientific mission to Mexico goes back to the beginning of the Intervention, but it is not possible to give it an exact date or to attribute its authorship to an individual (Vivien 1863). An early published statement of the need for such a mission came in the report of the geographer Victor-Adolphe Malte-Brun to the Paris Geographical Society in December 1862. Malte-Brun hoped that science would not be neglected in the military expedition to Mexico. May we not do for Mexico, he asked, what our fathers did for Egypt and bring back to light an indigenous civilization that the Spanish conquest brought to an end (Malte-Brun 1863)? The science that Malte-Brun had in mind was archaeology. Mexican linguistics and archaeology were considered the key elements in "American studies" and could by extrapolation throw new light on wider areas of the Americas. French savants could make great strides by ap-

plying the methods of the new science of comparative philology, created in Europe only a generation earlier (Vivien 1866b). In the end, however, it was natural history, and zoology in particular, that was to benefit most from the work of the French scientists in Mexico in the 1860s.

Founding of The Commission

The Commission scientifique du Mexique (hereafter CSM) was brought into existence in February 1864 by Victor Duruy, the French Minister of Public Instruction, at an organizational meeting in Paris at which he named the original members of the CSM. It was proposed that the Commission would meet periodically at the Ministry of Public Instruction, give advice to scientific travelers, follow the progress of the expeditions, and arrange for publication of the results (CSMA 1865). The rather large sum of 200,000 francs was requested for the initial expenses of the CSM and unhesitatingly granted by the Emperor. This subvention was renewed in the two remaining years of the CSM's life (1865 and 1866) and seems to have been more than adequate to cover the basic field expenses of the scientific travelers dispatched by the Commission and some of the initial publication costs. Publication of the research results cost almost 66,000 francs in the period 1866-72 and much smaller amounts thereafter (AN F¹⁷2914'). The CSM immediately received a pledge of support from the Ministry of War, a very necessary condition for it would have been difficult for French travelers to visit any part of Mexico that was not under the control of the French army. The field of investigation was grandly described as the entire area from the Gulf of Darien to the headwaters of the Colorado River and Rio Grande, giving the French explorers very wide latitude indeed (CSMA 1865). The liberality of this charge made it possible for some travelers to spend part of their time in areas north and south of Mexico.

Complementary Organizations in Mexico City

A complement to the Paris-based CSM was established in Mexico City in March 1864 by the commander of the French army, General Achille Bazaine, under the name of the Com-

mission scientifique, littéraire et statistique du Mexique (AN F¹⁷2909; Pyenson 1985). This Commission was made up of Mexican, as well as French members, who met periodically to discuss matters of scientific interest. This Mexican Commission cooperated with the CSM, and both commissions coopted the support of the Mexican Geographical Society (Sociedad mexicana de geografía y estadística—hereafter SMGE). The Mexican Commission was headed by Bazaine's chief lieutenant, Colonel Louis Doutrelaine, who was made a member of the Paris Commission in June 1864 and was to prove invaluable in furthering the work of the CSM (CSMA 1865).

The French Ministry of War gave Doutrelaine grants of 10,000 francs a year during the period 1864–1867 to aid the scientific travelers sent out by the CSM (AN F¹⁷2913). He arranged for an exchange of publications between the CSM and SMGE. Perhaps his greatest achievement was in commissioning a map of Mexico at the scale of 1/1,000,000 to be made up from army officers' notes. The resulting manuscript map was sent to Paris in 1866, but the CSM did not have the means to publish it and so it was sent to the *Dépôt de la guerre* (Ministry of War) where it would be resurrected as the *Niox 1/3,000,000* map of Mexico published in 1873 (Vivien 1867).

Another scientific organization that did not long survive was the *Academia Imperial de Ciencias y Literatura*, founded by the Emperor Maximilian in April 1865 (Civeira Taboada 1968). At the opening session of the Academy in July, Maximilian called for the full development and utilization of Mexico's resources (Virlet d'Aoust 1865). Like most European observers in modern times, Maximilian saw the paradox of a rich country inhabited by poor people. The most pressing task of his regime, according to Maximilian, would be the drainage of the Valley of Mexico, and he resolved "to do immediately what the Aztec emperors, the Spanish Viceroy, and the Presidents of the Mexican Republic had not been able to do" ("Dessèchement," 1866, 244).

The Mexican Geographical Society (SMGE), which claims to be the oldest geographical society in the Americas (founded 1833), was active throughout the period of the French Intervention. In 1864 the SMGE pledged its cooperation with the Paris and Mexican scientific commissions and with the Paris Geographical Society.

The SMGE had long wanted an improved map of Mexico. A new map was begun in 1841 and completed in 1850, but it still remained in manuscript form in 1864. According to Vivien de Saint-Martin, the Mexicans had not made much progress in cartography since the time of Humboldt (Vivien 1865). The Mexican geographer Antonio García y Cubas had used the manuscript map to prepare his own four-sheet map of Mexico (1864), which Vivien had grudgingly praised as "the last word in cartography exclusively based on indigenous materials" (Vivien 1864).

The Mexicans naturally bridled at the French charges of inaccuracy in their maps. The French called for more precise topographic mapping. They thought that by instructing Mexicans in the proper method of triangulation, improved mapping could begin in the vicinity of Mexico City and eventually be extended to the rest of the country (AN F¹⁷2909). Duruy did not think that the French could undertake alone the immense work of a complete map of Mexico. The CSM and French army could be a big help, but the task properly belonged to the regular government that would eventually be established in Mexico (CSMA 1865).

In 1865 the SMGE appointed a commission to investigate the French allegations that Mexican maps are inaccurate (SMGE 5 January 1865). Characteristically, the Society then appointed five committees "in order to evaluate correctly the importance of the *Archives de la Commission scientifique*" (SMGE 7 September 1865). Another committee was formed to convert to Mexican varas the metric elevation of places in Mexico and also to convert to the Mexican meridian the data that appeared in the *Archives* of the CSM based on the Paris meridian (SMGE 7 July 1865).

Such concerns seemed to take up much of the time of the SMGE, and its members were rarely moved to constructive action. Some of the French were elected to corresponding or honorary membership in the SMGE. Col. Doutrelaine, an honorary member, was especially helpful in transmitting French maps and other publications to the Society, including an interesting paper by a French military engineer discussing the application of photography to surveying (SMGE 27 July 1865). The CSM must have loaned some furniture or equipment to the SMGE, because in February 1867, after the Commission was disbanded, the Mexican Min-

istry of Development asked the SMGE to turn the "furniture" that belonged to the Commission over to the Deaf and Dumb School in Mexico City (SMGE 16 February 1867).

Agents of the Commission

One of the scientists sent to Mexico by the CSM in 1864 had been a member of the SMGE since 1858. This was Andrés Poey, a Cuban scientist whose paternal grandfather had emigrated from France in the eighteenth century (Peraza Sarausa 1955). As a Cuban, Poey was able to operate in Mexico with greater freedom than the other French agents enjoyed. He received some 8,000 francs from the CSM for instruments and monthly expenses in the period 1865–1867. He was granted an extension to remain in Mexico until April 1867 to complete his work and then was granted an additional 770 francs to travel from Veracruz to St. Nazaire on the French steamer (AN F¹⁷2912). Poey addressed the SMGE on the climate of Mexico in 1866, after which he entered into a debate with two of the Mexican members on the question of the presence or absence of sodium in the Valley of Mexico. Incidentally, Poey delivered his address in French, although his audience undoubtedly consisted mostly of Mexicans, which probably attests to the snob appeal of French culture to the Mexican upper class at that time (SMGE 18 October 1865; cf. Pyenson 1985).

At first Victor Duruy wanted the French scientific travelers to concentrate their research investigations on one part of Mexico at a time. Yucatan was chosen as the first area to be studied, but geologists were exempted in order that they might go to geologically more interesting areas (CSMA 1865). As it turned out, Yucatan proved to be off-limits to French travelers during the Intervention period because the French army did not penetrate far into Yucatan and could not guarantee the travelers' safety. Most of western and southern Mexico was out-of-bounds to the French for the same reason (Vivien 1866). Sonora and Chihuahua, with their undoubted mineral wealth, were tantalizingly out of reach to the French during the Intervention period. Although Sonora had been the scene of French adventures in the previous decade, it was reckoned that it would be too costly to maintain and defend mining colonies there

against Indians and other possible marauders. As one observer remarked, "It would be a sort of Algerian war on the Pacific ocean" (Saussure 1863, 169).

One enterprising traveler, the Abbé Emmanuel Domenech, even managed to tag along on a military expedition to Durango in the spring of 1865 by serving as a chaplain (Domenech 1866). Domenech had had the longest experience in Mexico of all the French scientists. In December 1864 he wanted to be made a corresponding member of the CSM "in order to continue for the Commission the archaeological, ethnographic and historical work to which I have dedicated myself for eighteen years" (AN F¹⁷2911). Domenech complained to Duruy about European prejudice against Mexican scholars, who, he said, knew more than any foreigner could ever hope to know about Mexico (AN F¹⁷2910). He spoke disparagingly of "les touristes affairés, les voyageurs incompetents ou prévenus, les historiens et les géographes qui ne quittent leur robe de chambre que pour prendre le classique bonnet de coton" (Domenech 1867, 25). One of Domenech's friends, whom he identified only as a member of the CSM, said that Mexicans were ignorant and did not know their own country, but Domenech said that individual had made a great reputation in France by buying old Spanish books, pillaging Mexican libraries, and then publishing bad translations and senseless compilations in Paris. Domenech said that Mexican scholars were just as erudite as European scholars (Domenech 1867). He was an honorary member of the SMGE and served as a liaison between that society and the Paris Geographical Society (SMGE 23 February 1865).

It is tempting to try to guess which member of the CSM Domenech was referring to in such a deliciously malicious fashion. Could it have been his fellow priest, the Abbé Brasseur de Bourbourg? Brasseur had been sent to Mexico in 1859 by the Ministry of Public Instruction and traveled through Chiapas and Guatemala in 1859–1860 ("Voyage" 1860; Brasseur 1861–1862). In 1864 he was sent back to Mexico, accompanied by J. A. Bourgeois, to study the history, linguistics, and archaeology (CSMA 1865). Brasseur wrote prolifically on Mexican antiquities and was responsible for fueling much speculation about the possibility of finding ancient connections between Egypt and Mexico (SMGE 1 June 1865; Larrainzer 1865). Ferdinand de Les-

seps, the builder of the Suez Canal, heard Brasseur lecture at the Sorbonne in 1864 on the topic of New World antiquities and was struck by the similarities with Egypt (AN F¹⁷2910). These attempts to forge connections between the Old World and the New were in keeping with the diffusionist spirit of the times and may have had more to do with the freshness of the French experiences in Egypt and Mexico than with the superficial similarities in the monumental architecture, especially pyramid building, of the two areas. In any event, Brasseur's work was perhaps the most popular and least enduring of all the French scientific reports on Mexico.

Other agents of the CSM who had had previous experience in Egypt were Alphonse Lami and Léon Méhédin. Lami, a French sculptor and anatomist, had applied to the CSM from Port Said to go to Mexico. He said that his travels in Egypt had given him immunity to tropical diseases (AN F¹⁷2912). He was sent out to Mexico to study anthropological questions, but he arrived in Veracruz drunk and disorderly on an English ship and was soon sent back to France (AN F¹⁷2912).

More successful was Léon Méhédin, an artist, architect, and dabbler in geology, who wanted to study Mexican monuments. He boldly asked for 50,000 francs, including 18,000 for himself ("a quarter of what a prima donna at the opera earns") (AN F¹⁷2913). When Méhédin applied to the Imperial Observatory in Paris for instruction in the use of scientific instruments, the Director complained to Duruy that Méhédin was entirely inept but that they would attempt to teach him a little something in the short time available. Soon after his arrival in Mexico, Méhédin complained about his reception by the military and said that working in Mexico involved more politics than science, more prudence than courage. Three months later he shipped his first consignment of archaeological and biological materials to France, a case weighing 600 kg. Méhédin hoped to work in Yucatan, but he claimed that the Indians there were in full revolt, so he then decided to work in the Valley of Mexico instead (AN F¹⁷2913).

Two teams were sent to Mexico by the CSM to study geology and related earth sciences. Eugène de Montserrat and Auguste Dollfus, who had been trained as civil engineers, went to Mexico to study geology and paleontology. After spending eighteen months in central Mexico between Mexico City and Veracruz,

they complained of the increasing difficulties of doing field work there, so they took advantage of the wide latitude given them in their original charge and moved the scene of their operations to Guatemala for eight months (CSMA 1865; Dollfus and Montserrat 1868). Of special interest are the prefatory remarks of Dollfus and Montserrat on the problems of making superficial reconnaissances in previously little-known lands. In a nearly virgin land, the scientist is allowed to wander even into ethnographic and social matters. Dollfus and Montserrat thought of themselves as adding a stone "to the sublime edifice of science and progress" (Dollfus and Montserrat 1868, iv-v, x).

Two other geologists, Edmond Guillemin Tarayre and M. Coignet, were sent to Mexico to study mineral deposits. They went first to California and Nevada where they spent three months investigating mining methods, perhaps on the excuse that these areas were part of Mexico less than two decades earlier (CSMA 1865, 1867). They then wanted to work their way southward into Mexico but were warned by the French consuls in San Francisco and Mazatlán that northwestern Mexico might not be hospitable to French scientists and that they should stick to places like Guadalajara and Guanajuato (AN F¹⁷2912). Guillemin and Coignet had a falling-out, so the former was left to carry on alone in Mexico. In 1865 Guillemin wanted to extend his research as far as Panama, but the directors of the CSM in Paris thought that Panama would be too far outside the Commission's frame of reference (CSMA, vol. 2, 1867). Guillemin's work was cited by Vivien de Saint-Martin as among the best works published on Mexico since Humboldt (Vivien 1869). In the period 1868-1870, after his return to France, Guillemin tried to win support for a laboratory to study the mineralogical specimens that he had brought back from Mexico (AN F¹⁷2912).

No geographers were sent to Mexico by the CSM, but the work of the Commission was of great interest to the geographers of the day. Much of the work of the CSM was geographical, although there was no committee specifically charged with working on the geography of Mexico. The Paris geographer Vivien de Saint-Martin was a member of the Physical and Chemical Sciences Committee of the CSM. At the first meeting of the Commission, Vivien and Alfred Maury, who were both members of the

Paris Geographical Society, proposed that a bibliography of Mexico be prepared, and Vivien also suggested that the Commission establish contact with the SMGE (CSMA 1865).

Vivien started the bibliographical work immediately, and in May 1864 he and César Daly were commissioned to draw up a program that would serve as a sort of guide for travelers on what was known of the geography of Mexico (CSMA 1865). Vivien became discouraged because he thought that geography was being slighted by the CSM, but in July 1864 he redoubled his efforts and plunged into work on a critical, annotated (and "complete"!) bibliography of "the history, geography, archaeology, linguistics, and natural sciences of Mexico and Central America" (AN F¹⁷2909). He wanted to indicate the state of Mexican geography at the time of Humboldt's publications, to describe what had been done since Humboldt's time, and to illustrate these studies on a map, thereby exposing the lacunae. It is unfortunate that the map never materialized, but Vivien produced a very useful bibliographical essay on Mexican geography since Humboldt ("Rapport sur l'état actuel de la géographie du Mexique"), which contained long appendices of tables of latitude and longitude of various places. Vivien was particularly concerned with the improvement of Mexican cartography (CSMA, vol. 1 [1865], vol. 2 [1867]; AN F¹⁷2909).

In November 1864 Edouard Dalloz made up a twelve-page printed questionnaire to be sent to each state in Mexico in order to ascertain the commercial possibilities for European merchants and immigrants. These questionnaires, containing eighty questions, were a nineteenth-century version of the *Relaciones geográficas* of the Spanish colonial period (AN F¹⁷2910; Edwards 1969). Although there was considerable interest in Mexico's colonization possibilities, the CSM thought that it ought to stick to its purely scientific role and not undertake studies of commercial or industrial matters (CSMA, vol. 2, 1867).

Not all the French scientists were satisfied with merely traveling and adding to the store of scientific knowledge. Adolphe Boucard, for example, made it plain that he would like to receive the Cross of the Legion of Honor for his natural history work in Mexico. He even tried to strengthen his bid by sending some Mexican featherwork to the Empress Eugénie (AN F¹⁷2911).

Aftermath

The CSM has had an enduring influence on Mexican science, despite the sudden end of both Intervention and Commission. The French people seemed to be embarrassed by the whole affair and to want to forget that they were ever involved in Mexico. In 1865 it was hoped that the French scientists would display the fruits of their Mexican labors at the Paris Exposition of 1867, but when the Exposition opened, the Mexican debacle was so fresh in everyone's mind that such display was thought unseemly. In 1865 Maximilian had appointed M. Hidalgo, his envoy to Paris, to organize Mexico's participation in the 1867 Exposition, but Hidalgo claimed that he did not have the time, so it was hoped that the CSM would plan a suitable exhibition (AN F¹⁷2914²).

Thereupon Léon Méhédin shipped his first consignment of archaeological materials to Paris with the hope that they would be displayed at the Exposition (AN F¹⁷2913). In fact, Méhédin mounted the only significant display of Mexican materials at the Exposition. A Mexican temple, called the Temple of Xochicalco, was erected near the northern end of the Champ de Mars, the exposition grounds, where Méhédin displayed his artifacts and photographs from both Mexico and Egypt. It was claimed that "all the curiosities of this particular exhibition belong to M. Léon Méhédin and are the product of distant explorations undertaken by him at his own expense without commission or help from the government" (Gautier 1867, 61). Although the temple was quickly dismantled at the end of the Exposition, Méhédin hoped to find a permanent home for his Mexican artifacts. In 1874 he tried to gain support for a Cercle des Explorateurs at Meudon, the center of which would be a Mexican temple furnished with laboratories and instruments (AN F¹⁷2913). Ten years later he was still hoping to create an ethnographic museum and school for explorers, this time at Cabourg in Normandy, but the plan never came to fruition. The Ministry of Public Instruction thought that Méhédin's materials really belonged to the state and not to him personally, but they did not seem to be interested in taking them over (AN F¹⁷2913).

Of all the publications spawned by the CSM, the greatest were the sixteen volumes of reports published between 1868 and 1915. The first four volumes concern archaeology and ge-

ology, and the rest deal with zoology, except for Volume 16, which has to do with botany. The authors of the botanical volume even made use of specimens collected by Humboldt and Bonpland at the beginning of the century (CSM, *Mission scientifique* 1886). Although it was claimed that most of the zoological specimens collected by the CSM in Mexico were destroyed by the Prussian bombardment of Paris in January 1871, the zoologists were able to produce numerous volumes that have served as basic works in Mexican science down to the present day (Beltrán 1960).

Since much of the work of the CSM was in the general area of natural history, it is not surprising that the Mexican Society for Natural History (*Sociedad mexicana de historia natural*) was founded in 1868 on the model of the French commission. Another ongoing institution that is continuing work begun by the CSM is the Mexican National Academy of Medicine (*Academia nacional de medicina*), which is an outgrowth of the medical section of the CSM. The Academy's journal, *Gaceta medical*, has been published without interruption since 1864 (Beltrán 1960, 1968; Gortari 1980). The proliferation of societies and journals in the 1860s can be attributed to the rising influence of Comtean positivism on both the French and the Mexicans. Positivism was specifically invoked by Gabina Barreda, who had studied in France, when he established the National Preparatory School (*Escuela nacional preparatoria*) in 1868 as a training-school for the future leaders of Mexico (Beltrán 1960, 1968; Haller 1904; Chinchilla Pawling 1985).

Another immediate French contribution to Mexican science was the 1/3,000,000 map of Mexico edited by Gustave-Léon Niox and printed in Paris in 1873. The Niox map was the published version of the manuscript map that Doutrelaine had sent to Paris in 1866 (Vivien 1867). The map was made up mostly from notes that French army officers had made on expeditions to various parts of Mexico. The areas actually traversed were presumably the ones most faithfully represented on the map. Those areas were shown on an inset (Figure 1). The Niox map and the publications of the CSM were praised as noteworthy contributions by the French geographer-anarchist Elisée Reclus, who was usually rather harsh in his treatment of European overseas ventures (Reclus 1891).

It is interesting to compare the CSM with

similar European ventures in other parts of the world, especially with the Spanish Scientific Commission of the Pacific, which presents many parallels. The Spanish Commission, which lasted from 1862 to 1866, visited a dozen Latin American countries and brought back natural history collections that are still studied in Spanish museums. The Commission was transported in Spanish naval vessels, which started out with seemingly peaceful intentions but ended by making war on four of Spain's former South American colonies. It was not a coincidence that the French and Spanish missions were sent to Latin America during the American Civil War, when the United States was unable to uphold the Monroe Doctrine, which guaranteed American support to resist European invasion of any part of the Western Hemisphere. Although some Latin American writers have assumed that the scientists of the French and Spanish commissions were willing agents or "tools" of the military, it would appear that economic expediency rather than subterfuge put the scientists and military officers together (Miller 1968). The commissions were similar in that they represented the last large-scale efforts of European nations to sponsor scientific/military expeditions overseas; both sent back thousands of specimens to enrich museums; and both had ambitious programs to publish the mountains of data acquired in Latin America.

These commissions are of further interest because they occurred on the eve of the great period of the renovation of western universities and the emergence of geography and the other modern university disciplines. No longer would the likes of Lami and Méhédin be able to offer themselves as serious candidates for overseas scientific assignments. The nations of western and central Europe, along with their hobbledehoy stepchild in North America, launched a new era of colonialism. French geographers took an active interest in the newer colonial adventures in such places as Indo-China, Madagascar, Tunisia, Morocco, and West and Central Africa, as well as in the older colonies of French India and Algeria. A new field of colonial geography became established in French universities, and, although the name was dropped, along with the colonies, after World War II, French geographers have maintained strong overseas interests, as manifest in such journals as *Les cahiers d'outre-mer* and in insti-

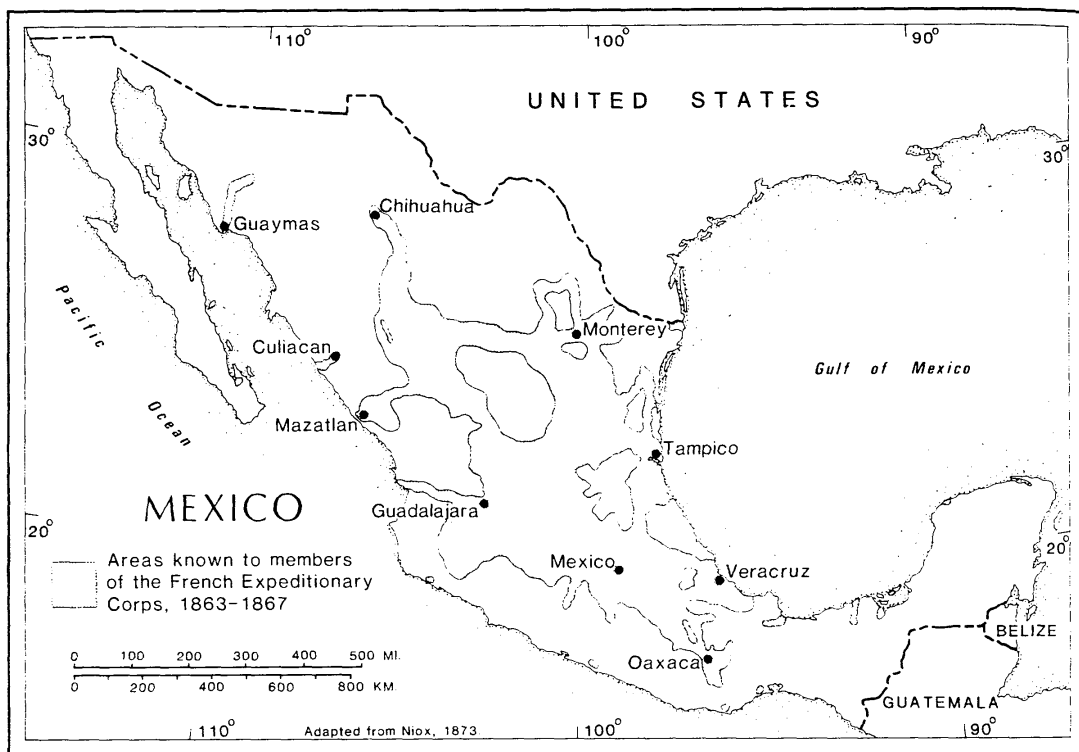


Figure 1. Mexico, indicating the arenas of French military and scientific activity during the Intervention period.

tutions such as IFAN (originally Institut français d'Afrique noire, now Institut fondamental d'Afrique noire, headquartered in Dakar, Sénégal). Mexico retains a certain fascination for the French, just as France has an allure for the Mexicans.

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References

Archival Sources

[AN] Archives nationales (Paris, France), Papers of the Commission scientifique du Mexique, F¹⁷2909-2914 (six cartons).

[BPUG] Bibliothèque publique et universitaire de Genève (Geneva, Switzerland), Département des manuscrits, Archives de Saussure, vols. 234-235.
[SMGE] Sociedad mexicana de geografía y estadística (Mexico City), Archives, Actas, vol. 8-9; and Documentos relativos a los locales, vol. 1.

Published Works

- Barker, N. N.** 1973. Voyageurs français au Mexique. fourriers de l'intervention. *Revue d'histoire contemporaine* 87:96-114.
———. 1976. The French colony in Mexico, 1821-61: generator of intervention. *French Historical Studies* 9:596-618.
———. 1979. *The French experience in Mexico, 1821-1861: A history of constant misunderstanding*. Chapel Hill: University of North Carolina Press.
Beltrán, E. 1960. La science française au Mexique. *Culture française* 9(4):9-22.
———. 1968. El Primer Centenario de la Sociedad Mexicana de Historia Natural (1868-1968). *Revista de la Sociedad Mexicana de Historia Natural* 29: 111-180.

- Biard, L.** 1865. *Le Mexique d'hier et le Mexique de demain*. Paris: E. Dentu, Libraire-Editeur.
- Brand, D. D.** 1959. Humboldt's Essai Politique sur le Royaume de la Nouvelle-Espagne. In *Alexander von Humboldt: Studien zu seiner universalen Geisteshaltung*, ed. J. Schultze, pp. 123-41. Berlin: Verlag Walter de Gruyter & Co.
- Brasseur de Bourbourg, C.-E.** 1861-1862. Voyage sur l'isthme de Tehuantepec, dans l'état de Chiapas et la république de Guatemala, dans les années 1859 et 1860. *Nouvelles annales des voyages* ... 172:129-96, 274-370; 173:47-89.
- Brisson, A.** 1837. *Voyage au Guazacoalco, aux Antilles et aux Etats-Unis*. Paris: Arthus Bertrand.
- Broc, N.** 1981. Les grandes missions scientifiques françaises aux XIXe siècle (Morée, Algérie, Mexique) et leurs travaux géographiques. *Revue d'histoire des sciences et de leurs applications* 34: 319-58.
- Chambers, D. W.** 1987. Period and Process in Colonial and National Science. In *Scientific colonialism: A cross-cultural comparison*, ed. N. Reingold and M. Rothenburg, pp. 297-321. Washington, D.C./London: Smithsonian Institution Press.
- Charpenne, P.** 1836. *Mon voyage au Mexique, ou le colon de Guazacoalco*. 2 vols. Paris: Roux, Editeur.
- Chevalier, M.** 1863. *Le Mexique ancien et moderne*. Paris: Librairie de L. Hachette et Cie.
- Chinchilla Pawling, P.** 1985. Introducción. In *Historia de la ciencia en México: Estudios y textos*, Volume 4, *Siglo XIX: la ciencia mexicana del período nacional*, pp. 9-25. Mexico City: Fondo de Cultura Economica.
- Civeira Taboada, M.** 1968. *Benito Juárez en la Sociedad mexicana de geografía y estadística*. Mexico City: B. Costa-Amic, Editor.
- Commission scientifique du Mexique, Paris.** 1865-1867. *Archives de la Commission scientifique du Mexique*, 3 vols. Paris: Imprimerie impériale. [Cited as CSMA]
- Commission scientifique du Mexique, Paris.** 1868-1915. *Mission scientifique au Mexique et dans l'Amérique centrale*. 16 vols. Paris: Imprimerie impériale (Imprimerie nationale after 1870).
- Dessèchement de la Vallée de Mexico. 1866. *Nouvelles annales des voyages* ... 191:241-44.
- Dollfus, A. and Montserrat, E. de.** 1868. *Voyage géologique dans les républiques de Guatemala et de Salvador*. Paris: Imprimerie impériale.
- Domenech, E.** 1866. *De Mexico à Durango*. Extract from the *Bulletin of the Paris Geographical Society* (September 1866).
- . 1867. *Le Mexique tel qu'il est*. Paris: E. Dentu, Libraire-Editeur.
- Edwards, C. R.** 1969. Mapping by questionnaire: An early Spanish attempt to determine New World geographical positions. *Imago Mundi* 23: 17-28.
- Fossey, M. de.** 1857. *Le Mexique*. Paris: Henri Plon.
- Gautier, H.** 1867. *Les curiosités de l'Exposition universelle de 1867*. Paris: Ch. Delagrave et Cie.
- Gortari, E. de.** 1980. *La Ciencia en la Historia de Mexico*. Mexico City: Editorial Grijalbo, S.A.
- Gouy, P.** 1980. *Pérégrinations des 'Barcelonnettes' au Mexique*. Grenoble: Presses universitaires de Grenoble.
- Haller, A.** 1904. Sciences. In *Le Mexique au début du XXe siècle*, vol. 2, pp. 203-222. Paris: Librairie Ch. Delagrave.
- Houdaille, J.** 1961. Les français au Mexique et leur influence politique et sociale (1760-1800). *Revue française d'outre-mer* 48:143-233.
- Humboldt, A. von.** 1811a. *Essai politique sur le royaume de la Nouvelle-Espagne*. 5 vols. Paris: F. Schoell, Libraire.
- . 1811b. *Political essay on the kingdom of New Spain*. 2 vols. Translated by J. Black. New York: I. Riley.
- Larrainzer, M.** 1865. Si existe el origen de la historia primitiva de México en los monumentos egipcios, y el de la historia primitiva del Antiguo Mundo en los monumentos americanos. *Boletín de la Sociedad mexicana de geografía y estadística* 11:281-303.
- Leclercq, J.** 1885. *Voyage au Mexique*. Paris: Librairie Hachette et Cie.
- Lejeune, L.** 1892. *Au Mexique*. Paris: L. Cerf.
- Malte-Brun, V.-A.** 1863. Rapport sur les travaux de la Société de géographie et sur les progrès des sciences pendant l'année 1862. *Bulletin de la Société de géographie* (Paris) 5:11-70.
- Meyer, J.** 1974. Les français au Mexique au XIXe siècle. *Cahiers des Amériques latines* (Series "Science de l'homme"), no. 9-10:43-86.
- Micard, E.** 1927. *La France au Mexique*. Paris: Les éditions du monde moderne.
- Miller, R. R.** 1968. *For science and national glory: The Spanish scientific expedition to America, 1862-1866*. Norman: University of Oklahoma Press.
- Peraza Sarausa, F.** 1955. *Diccionario biográfico cubano*. Vol. 4. Havana: Ediciones anuario bibliográfico cubano.
- Pyenson, L.** 1985. Functionaries and Seekers in Latin America: Missionary Diffusion of the Exact Sciences, 1850-1930. *Quiipu: Revista latinoamericana de historia de las ciencias y la tecnología* 2:387-420.
- Reclus, E.** 1891. *Nouvelle géographie universelle*, vol. 17, *Indes occidentales*. Paris: Librairie Hachette et Cie.
- Saussure, H. de.** 1862. *Coup d'oeil sur l'hydrologie du Mexique*. Geneva: Imprimerie de Jules-G^m Fick.
- . 1863. *Le Mexique et l'expédition française*. Geneva: imprimerie Ramboz et Schuchardt.

Schefer, C. 1939. *La grande pensée de Napoleon III: les origines de l'expédition du Mexique (1858-1862)*. Paris: Librairie Marcel Rivière & Cie.

Voyage de M. l'abbé Brasseur de Bourbourg à Tehuantepec, dans l'état de Chiapas, et son arrivé à Guatemala. 1860. *Nouvelles annales des voyages* . . . 166:5-13.

Virlet d'Aoust, P.-T. 1865. Coup d'oeil général sur la topographie et la géologie du mexique et de

l'Amérique centrale. *Bulletin de la Société géologique de France* 23:14-50.

Vivien de Saint-Martin, L. 1862-1869. Le Mexique. *L'année géographique*, 1:366-72; 2:162-68; 3:290-97; 4:316-34; 5:230-43; 6:361-64; 7:321-22; 8:154-65.

———. 1866b. *Revue géographique*, 1866 (deuxième semestre). *Le tour du monde* 14:417-24.

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