The Balmis expedition of 1803 and the debate about the merits of Spanish colonialism

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Abstract. As with any other European imperial power, Spain has in recent decades been subject to post-colonial critiques for its rule over colonies. Admittedly, much blood was spilled during the conquest of the Americas, and Spanish rule of the colonies was despotic. But, the more benign aspects of Spanish colonial rule are often ignored. One particularly enlightened moment of Spanish colonialism was the Balmis expedition of 1803. In the Spanish colonies, smallpox had been rampant, and it had contributed to reducing indigenous population during the conquest. In colonial times, it persisted as a major public health problem. The Spanish monarchy then decided to organize a major vaccination expedition in the colonies, under the command of Francisco Javier Balmis. In this article, I review the importance of that expedition for the history of medicine. I also consider some of its ethical shortcomings, and the way it contributes to the current debate about the merits of Spanish colonialism.

Key words: Balmis expedition, Spain, smallpox, vaccines, spanish black legend

Introduction

The "black legend" was the term used by historian Julian Juderias in 1914, to describe the common historiographical claims regarding the behavior of Spanish explorers, conquerors and administrators, in the colonization of the Americas beginning in the 16th Century. In Juderias' words, the concept refers to the "grotesque descriptions that have always been made of the national character of Spaniards as individuals and as a collective, the denial or at least the systematic ignorance of everything that is favorable and beautiful in the diverse manifestations of culture and art, the accusations that at all times have been levelled against Spain, on the grounds of exaggerated facts" (1).

This black legend has its origins in *A Short Account of the Destruction of the Indies*, published in 1542. This is a report written by Bartolome de Las Casas, a Benedict friar who sought to defend the indigenous people of the Americas, during the Spanish conquest. Las Casas describes multiple crimes committed by Spanish conquerors and administrators, with great vividness and richness of details.

Yet, the consensus amongst historians is that Las Casas could not have directly witnessed many of the things he describes, and most likely, his reports are gross exaggerations (2). Although Las Casas may have written out of genuine compassion (but with little adherence to the truth of the events), his work was eventually seized upon by Dutch and English propagandists who were eager to defame Spanish authorities, in the context of Europe's wars of religion between Catholics and Protestants, and also in the context of colonialist rivalries in the expansion towards new territories (3).

Dutch and English propagandists were very effective in this endeavor, and to this day, amongst popular audiences there persists the trope of the bloody conquistador who engages in all sorts of massacres (4). Likewise, up until de 20th Century, Spain as a whole was frequently portrayed as a backwards country dedicated to religious fanaticism, completely alien

to enlightened ideals and scientific enterprise. In the wars of independence of the Spanish colonies in the Americas, this was a common leitmotiv in the rhetoric of revolutionaries who advocated an end to Spanish colonial rule (5).

As with any imperial power, Spain had despotic policies towards its colonies, and that motivated a legitimate struggle for independence. But, historiography is in need of a more nuanced account of the merits of Spanish colonial administration. For, as it happens, in the Americas there were some positive episodes in the history of Spanish colonial administration, and a consideration of these should provide a more balanced perspective in the face of the black legend.

In this article, I shall approach one such episode, to which historians of medicine have paid little attention. In 1803, a Spanish expedition led by Francisco Javier Balmis embarked towards the Spanish colonies in America, to advance a massive campaign of vaccination against smallpox. This turned out to be a rotund success and a major milestone in the history of public health. Yet, despite its evident worth, Balmis' expedition still deserves a more critical ethical scrutiny. Thus, while highlighting this episode as a way to counter the black legend narrative, I shall also point out some of its moral shortcomings.

The context of the expedition

Following Las Casas' exaggerated descriptions, a typical accusation against the Spanish conquistadors of the Americas is that they perpetrated an act of genocide against the indigenous populations of the Americas. This is not strictly accurate. It is true that, in the span of one hundred years, the indigenous population was severely reduced, and this facilitated the Spanish conquest. But, there is little (if any) evidence that the Spanish crown had a premeditated plan for extermination. In fact, most indigenous deaths came as a result of epidemics, *not* as a result of violent action. As Jared Diamond describes it in his influential treatise *Germs, Guns and Steel,* "smallpox, measles, influenza, typhus, bubonic plague, and other infectious diseases endemic in Europe played a decisive role in European conquests, by decimating many peoples on other continents. For example, a smallpox epidemic devastated the Aztecs after the failure of the first Spanish attack in 1520 and killed Cuitláhuac, the Aztec emperor who briefly succeeded Montezuma. Throughout the Americas, diseases introduced with Europeans spread from tribe to tribe far in advance of the Europeans themselves, killing an estimated 95 percent of the pre-Columbian Native American population" (6).

The disease that resulted most lethal to natives was smallpox. Even if the Spanish conquistadors can be partially defended on account that they did not willingly perpetrate a genocide, they can still be held responsible as being the originators of introducing a disease for which natives had no immunological response. It is commonly agreed by historians that, prior to contact with European explorer, the Americas were free of this disease. As stated by Suzanne Austin (7), smallpox "first appeared on the island of Hispaniola in 1518. From there, the disease spread throughout the Caribbean and onto the Mexican mainland by 1520. During the sixteenth, seventeenth, and eighteenth centuries, major epidemics of smallpox occurred every 10 to 20 years throughout the Spanish and Portuguese colonies".

Smallpox outbreaks had a significant cultural impact in the everyday lives of the inhabitants of the Spanish colonies. Given the strong influence of Catholic clergy, epidemics were frequently interpreted as divine punishment for sins. States of terror and confusion were quite frequent, especially in the native population. This aroused the frequent appearance of messianic movements, most notably, the Santidade movement that came out in areas of Brazil and Peru, as a reaction to a smallpox outbreak in 1562 (8).

As in the rest of the world, physicians had little resource to counter the advances of these epidemics, other than the conventional quarantines. Yet, in the history of smallpox, some methods were developed, with mixed results. Most notably, the technique of variolation was possibly first instrumented in China (9). In this method, powdered smallpox fluids from pustules would be inserted into superficial scratches in the skin; the purpose of this was for the patient to develop the same pustules as those caused by smallpox, and would then go on to develop a less severe disease, and after three weeks, the patient would fully recover and be immunized.

By the 18th Century, this method had spread to Europe. It was particularly popular amongst the English nobility. Lady Mary Wortley Montagu, the wife of an English diplomat in China, had encountered the method, and upon her return tom England in 1717, successfully applied it to her own children. Eventually, children of the royal family would also undergo this procedure.

Yet, variolation was quite risky, and in many cases, instead of serving as prevention, actually contributed to further spread of the disease. Only in 1796, did a truly effective measure against smallpox appeared. Edward Jenner famously noticed that women who milked cows were far more immune to the disease. He then took pus from the milkmaids' blisters, and inoculated it in James Phipps, an eight-year old boy. No disease followed. The first vaccine was thus invented (10).

However, it took some time for this major breakthrough to reach all of Europe, so Spain still languished in its management of smallpox. The vaccine against smallpox was only introduced in Spain in 1800. As opposed to English advances in variolation, Spanish authorities had always resisted the introduction of this technique, given its considerable risks. So, even though in 1798 Jenner had published *An Inquiry Concerning the History of the Cowpox, Principally with a View to Supersede and Extinguish the Smallpox*, the text in which he describes his experiment, it still took two more years for vaccines to reach Spain.

In 1798, King Carlos IV's daughter Maria Isabel caught smallpox, and although she survived, the disease left scars on her face. King Carlos was not an able administrator, but he did have strong emotional attachments to his family. His daughter's experience with smallpox had a significant emotional impact on him, and this motivated him to take more active measures towards a wider distribution of smallpox vaccines in Spanish territories.

In 1802, one particular outbreak of smallpox took place in Nueva Granada, and this epidemic had big proportions. Given that the colonial administrators knew that there was an available vaccine in Spain, they made the following request to the Crown: "to expand the vaccine to overseas countries, and to investigate what means would be most fitting for this endeavor" (11).

Jose Felipe de Flores, the Royal Physician, acquiesced to the request. King Carlos's court went on to organize an expedition that would visit the viceroyalties in the Americas. This was to be financed with the taxes that, by design, had been collected from natives in the Americas, ever since Spanish rule was imposed, as well as ecclesiastical tithes in the colonies. The expedition would be commanded by physician Francisco Javier Balmis. In turn, Balmis designated Jose Slavany as his chief aide, and Manuel Julian Grajales and Antonio Gutierrez Robredo as assistants.

The expedition

Jenner's vaccine had been effectively spread in Europe. But, spreading it in overseas territories represented more of a challenge, because there are difficulties in keeping vaccine fluid alive once it is outside of the bodies of humans or cows for extended periods of time. At first, the design of the expedition contemplated the idea of embarking cows, but this proved to be difficult to carry out.

Balmis opted for a more ingenious method. He figured he could seek children and load them into the ship. By doing that, the fluid would be transferred from child to child during the sea voyage. This made sense, as the vaccine would take around one week to produce the immunological response, and create the blisters in the patients' arms. Balmis considered that if he drained pus from the pustules each week, and he injected them as vaccines into the arms of other children, that would preserve the power of the vaccine until they reached the shores of the Spanish colonies. In this ingenious method of "human chains", Balmis would use two children at a time (12).

The children had to be free from smallpox; otherwise, the immunization plan would not work. They had to be in the age group of eight to ten years old. Balmis had the challenge of finding these children, since naturally enough, no family was going to give them away, given the risks associated with the enterprise. In order to take care of this problem, Balmis sought public orphanages, and managed to collect twenty-two orphans for the expedition (13).

Balmis requested Spanish authorities to offer some benefits in compensation, and the authorities promised that the orphans would be provided with an education upon their return to Spain. The official document stated: "they will be well-treated, nourished and educated, until they have a job or a destiny that allows them to live, conforming to their class and they shall be returned to their towns" (14).

To ensure that, along the voyage, children would be properly taken care of, Balmis also recruited a woman, Isabel Zendal y Gomez. Historians frequently point out Florence Nightingale as the first nurse. But, that is a debatable proposition, if we take into account that more tan half a century before Nightingale, Zendal stands out as the first woman who actively took on nursing duties, in a major expedition to administer smallpox vaccines (15).

Balmis' expedition departed from Coruna on November 30th, 1803. The first stop was Tenerife. There, the first round of vaccinations was carried out. The expedition then moved to Puerto Rico. Balmis was not warmly received in Puerto Rico, presumably because there had already been a prior vaccination campaign, carried out by Francisco Oller y Ferrer (16), who had imported vaccines from the island of Saint Thomas. Each city that welcomed the expedition would have to pay part of the expenses. Consequently, those cities that already had carried out a vaccination campaign, did not offer a warm reception to the expedition, as they saw no value in a big investment to solve a problem that, in their view, was already taken care of. This lack of enthusiasm presented a new problem for Balmis. He was running out of children to keep the expedition going, but the governor of the island, Ramon de Castro, refused to cooperate in finding new children for the endeavor. Consequently, Balmis opted to sail towards Venezuela.

On March 20th, 1804, Balmis reached Puerto Cabello. From there, the expedition was split into three groups, and eventually reached Caracas via different routes, some by sea, others by land. Caracas proved to be a far more welcoming city. As opposed to Puerto Rico, there had been no prior vaccination campaign in Venezuela, and the country had a long history of difficulties containing smallpox epidemics (17), so naturally, the arrival of the expedition was met with enthusiasm.

Noted Venezuelan poet Andres Bello wrote at the time a now-famous poem, *Ode to the Vaccine*. He dedicated the ode to one Vasconcelos (governor of Venezuela at the time), and describes him "dignified representative of great Carlos/ who in his name receives the just myrrh of gratitude/ who in his august person/ tributes the tenderness of the peoples" (18). Regrettably, Balmis himself is never acknowledged in the literary piece. But, presumably, Bello himself was not aware of who Balmis was; in contrast, King Carlos is mentioned in honor, given that, as monarchical customs of the time would dictate it, the expedition was done in his name, and consequently beneficiaries would be aware of it.

The Venezuelan enthusiasm contrasts with the initial hostile reaction that, in some regions of Europe (but most ironically, in England itself), vaccines aroused. Given the origin of the smallpox vaccine, it was rumored that whoever received the vaccine would grow horns as cows do (19). By 1853, Parliament had to pass the Vaccination Act, which made vaccination compulsory. This particular legislation had to be passed, because in some sectors of English public opinion, there was resistance to vaccination efforts (20). In contrast, little adverse reaction was found throughout the Spanish colonies.

From Caracas, Balmis sought to reach Nueva Granada, the same viceroyalty from whence the 1802 outbreak originated, and encouraged the request to King Carlos. Yet, unbeknown to Balmis, in the wake of the 1802 outbreak, the Nueva Granada viceroy had commissioned Lorenzo Verges with managing the epidemic, and this physician took the initiative to administer vaccines on his own. By the time Balmis reached Nueva Granada, there was little enthusiasm for the expedition, and it seems that both Balmis and Verges got entangled in personal rivalries, criticizing each other's approach and methodology to vaccination.

However, Verges died on April 9th, 1804, and with him out of the way, this opened the path for Balmis to continue the expedition. This time, given the vastness of the territory to be covered with vaccines, Balmis split the expedition in two groups: one group led by Salvany, would travel further to the southern areas of South America; the second group, led by Balmis, would head to Mexico.

On the way to Mexico, Balmis landed in Havana. There, he discovered that another physician, Tomas Romay, had also carried out a vaccination campaign (21). Having learned from the previous experiences in Puerto Rico and Nueva Granada, Balmis decided to waste no time, and continued to Mexico. Yet, this time, before departing, he had run out of children in his "human chain" for the preservation of fluids. Balmis attempted to get new children in Cuba, but did not get any. Eventually, he bought three slaves that, very much as the children had done, would be the transmitters of the fluids in the route to Mexico.

Balmis' expedition reached Mexico, and toured various cities, establishing vaccination committees to increase the outreach of the campaign. Yet, by the time the Mexican tour was over, Balmis was once again concerned by the difficulties in finding new children to be incorporated into the "human chain". Eventually, once in Mexico City, Balmis managed to recruit 26 new children. The origin of this new cohort is uncertain, but we may presume that they were also taken from orphanages in the region. However, unlike the first cohort coming from Spain, we do know that a few of the Mexican children were given by their families, in exchange for money.

With this new provision of children, Balmis sought out a new ambitious plan. On February 7th, 1805, he sailed towards the Philippines, a Spanish colonial possession at the time. Once there, he visited Manila, Cebu, Mizamiso, Mindanao and Zambuanga. His modus operandi remained the same: in each location, he would establish committees that would further take vaccines to more remote areas. Yet, as his own writings testify, during this trajectory of the expedition, the new cohort of children had to endure excruciating sailing conditions while crossing the Pacific: "they were in a very bad state; placed in a spot of Santa Barbara [the ship], full of filth, and huge rats that scared them, they were laid on the ground, rolling around with the movement, and hitting each other" (22).

By this time, Balmis was suffering from dysentery, and once the mission in Philipines was accomplished, he decided not to return to Mexico, but rather, to go further East to Macao. The ship was severely hit by a typhoon, and Balmis was rescued by a small Chinese fishing boat that took him to Macao's shores. Once in Macao, he further established some vaccination committees. Having accomplished that goal, Balmis finally decided to return to Spain, on board a Portuguese ship.

On the way to Spain, the ship made a stop in Saint Helena, the British possession that would years later be Napoleon's final place of exile. Balmis seized the opportunity to further administer vaccines in Saint Helena. But, very much as had happened in Nueva Granada and Puerto Rico, Balmis encountered a lack of cooperation from the authorities, this time governor Robert Patton (23). Yet, whereas in Nueva Granada and Puerto Rico, the opposition came from the fact that previous vaccination campaigns had already taken place, it is not clear what the motive for opposition in Saint Helena was.

Very cleverly, Balmis then opted to appeal to local physicians. Tellingly, Spain was at war with England at the time, as the Battle of Trafalgar had taken place on October 21, 1805. Yet, even as a representative of King Carlos (whose fleet had been defeated in Trafalgar), Balmis refused to engage in his own country's nationalist feelings and animosity towards England, and superseded those nationalist tendencies in favor of the advance of medicine. He appealed to an English accomplishment addressing local physicians in Saint Helena. Balmis persuaded local physicians that it had been an Englishman (Jenner) who had first come up with vaccines, and thus, they should continue their countryman's endeavor, by extending vaccination in the island. Balmis' strategy worked, as Governor Patton finally acquiesced to Balmis' vaccination campaign.

Balmis then continued the sea voyage to Lisbon, and from there, to Spain. He was welcomed there by King Carlos on September 7th, 1806, thereby reporting the successful completion of his long expedition.

A moral evaluation

The noted German scientist Alexander Von Humboldt, had made extensive travels of South America in the early 19th Century. Amongst his many impressions, he noted that the social and political conditions were ripe for revolt (24). Spanish domination had run its course. Humboldt was fully aware of the despotism that had characterized Spanish colonial rule had been

too much for local elites to bear. Humboldt had doubts about whether there could be strong leaders to launch independence movements, but the social conditions were certainly present.

Yet, for all his strong criticisms of Spanish imperialism, Humboldt himself had nothing but praise for Balmis' expedition, thus writing in his *Political Essay on the Kingdom of New Spain*, that "this voyage will remain as the most memorable in the annals of history" (25).

Humboldt's perspective is very fitting as to what the historiographical approach to Spanish imperialism ought to be. We may well agree with postcolonial critics, who make the case that there was no justification whatsoever for the conquest of America (26). Although Las Casas' descriptions are largely inaccurate, it is nevertheless true that in the conquest of America there were atrocities.

Yet, the greatest death toll was claimed, not by atrocities, but by smallpox. And, while the conquest of America was unjustified, and posterior Spanish rule in the colonies was seriously mismanaged (to the point that it finally succumbed to revolt), there were some enlightened moments. Balmis' expedition was one of them, and in a sense, it sought to redeem the massive and recurrent smallpox epidemics that had made the conquest possible in the first place.

Balmis' contribution to the history of medicine is invaluable, to the extent that it represented the first major global effort at public health. Jenner had the genius to come up with the procedure for vaccination in the first place, but Balmis had the courage and initiative to embark on a massive project to expand worldwide the fruits of Jenner's innovation. Furthermore, Balmis himself had to come up with a very ingenious procedure of "human chains" made up of children, in order to transport vaccines over long distances.

Consequently, Balmis' expedition provides strong grounds to push against the conventional narrative that relies on the black legend, to portray Spain as an obscurantist nation, and Spanish rule in the Americas as particularly vicious. The Spanish black legend is built upon some factual events during the conquest and despotic policies during colonial administration, but historians have not traditionally been apt enough to consider some of the positive aspects of the Spanish empire, such as Balmis' expedition.

Yet, for all the praiseworthiness of Balmis' endeavor, ethicists must still question some of his procedures. The expedition was financed by taxes provided by natives. In the Spanish colonial system, natives were burdened with an additional tax, even though they did not receive additional benefits in that race-based system. Even though Balmis' expedition was mostly financed with taxes provided by natives, the main beneficiaries were not natives. For the most part, natives lived removed from major towns and ports. So, they were largely left out in the administration of vaccines, as only the indigenous elites were close to the cities, where the vaccination committees were established. And precisely for this reason, native populations continued to decline in the subsequent smallpox epidemics that continued throughout Latin American nations in the 19th Century.

Another moral shortcoming of Balmis' expedition was his acquisition of slaves in Cuba, in order to carry the vaccine to Mexico. In his defense, we could well argue that slavery was an established institution in the Spanish colonies, and it would be anachronic to condemn Balmis for using slavery to advance his vaccination campaign.

It would be likewise anachronic to condemn Balmis for the way he used children in his expedition. Yet, we must come to terms with the fact that, in our current ethical understanding, Balmis engaged in activities that would be considered immoral today. Informed consent is a prime condition for any ethical experimental procedure (27). Children do not have the autonomy to provide informed consent (28), so it is widely considered unethical to use children in procedures such as the one carried out by Balmis.

Admittedly, in Balmis' time, the notion of children as a special group of people that deserve additional protections, was only beginning to take shape (29), so it may have seemed strange for any physician or a member of Balmis' expedition, to ponder whether or not what they were doing was ethically suitable. Yet, the fact that Balmis had to gather children from orphanages because no family was willing to provide their own, reveals that, indeed, the procedure was very risky. Furthermore, recall that in Mexico, Balmis did not only rely on orphanages, but also paid families for turning over their unwanted children, thus completing

a form of sale that, in other circumstances, would amount to human trafficking.

Although in some modern retellings of Balmis' expedition, these children are referred to as "heroes" for their participation in a hugely successful campaign to vaccinate against smallpox (30), it is nevertheless true that they were fundamentally forced to participate in this endeavor. Ultimately, their own autonomy was violated, as they were used as means to an end, and never as ends in and of themselves.

We know nothing about the ultimate fate of these children, but we do know that Balmis was disappointed that the promises made by the Spanish authorities regarding their compensation and education, fell short. Posterior retellings of the story try to overcome this fundamental injustice, by rending homage to their memory. Yet, sadly, it is only the children from the Spanish orphanages who are given this recognition; the Mexican children that accompanied Balmis from Mexico to the Philippines are seldom (if ever) included, thus reproducing the colonialist prejudices that privileged people from the metropoles far above the peoples from the colonies, precisely the kind of injustice that fed the black legend narrative in the first place.

Conclusion

After various decades of extensive post-colonial scholarship that has highlighted the corrosive nature of empires and their effects on public health, some historiographical revisionism is now required. Although the balance is most likely against the benevolence of European (and in particular, Spanish) colonialism, historians must remain open to the idea that, in some cases, empires did advance beneficial programs.

The history of medicine is no exception. As recounted in this article, Balmis' successful attempt to expand the smallpox vaccine ought to be included as one of the greatest accomplishments in the history of public health. And yet, the use of children in Balmis' expedition raises some ethical concern that contemporary ethicists must not neglect.

Be that as it may, Balmis' ambitious project should be occasion to further consider the ethical aspects of vaccination in our modern world. Partly due to Balmis' initiative, smallpox was finally eradicated almost two centuries after Balmis' expedition (31). Yet, other diseases are still prevalent, many of which could be prevented with vaccines. Just as there was initially opposition to Jenner's innovation and rumors that vaccines would make people grow horns, there are now conspiracy theorists who claim that vaccines lead to autism, infertility, and other afflictions. In our age, we have a pressing need to counter these conspiracy theories, and intensify vaccinations programs. In this endeavor, we can look up to Balmis as a great model of courage and humanitarianism.

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