Colonial Medicine, Atlantic History and the Place of Latin America
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Abstract
This paper tries to demonstrate that it could be productive to think about the future of medical historiography in Latin America as a critical dialogue between the history of colonial medicine and the history of the Atlantic world. The introduction shows how a North Atlantic bias in medical historiography has resulted in the over-representation of Africa and Asia in the history of colonial medicine. The main two sections of the paper explores the potential benefits and limitations of using the Atlantic as a unit of analysis in the reconstruction of this history. A few suggestions about possible ways to place Latin American medical historiography within an Atlantic framework, taking advantage of the rich contributions made by historians of science and technology, are discussed in the conclusions.

Introduction
“(…) our geographic default mode is the North Atlantic. We have not given explicit attention to the vigorous work that has emerged both from history and from area studies on medicine, health, and healing in Africa, Asia, and Latin America” (Huisman and Warner 2004: 19).

Historians of medicine in Africa, Asia and Latin America are doing very well. Two decades ago, their efforts went mostly ignored in Northern Europe and the United States. Nowadays, the editors of the most comprehensive anthology on Western medical historiography ever assembled, at least have the courtesy of acknowledging that they have decided not to give explicit attention to their vigorous work. This is, of course, not very funny at all. The fact that their compilation is titled “Locating Medical History” makes such editorial decision even more problematic. Despite this obvious gaffe, however, the book is excellent. No other overview of the existing literature on the history of medicine (in the North Atlantic) is more incisive or revealing. Going beyond artificial
distinctions between old and new medical history, the essays included in this volume show the extraordinary span and depth of the field. Its developments, we learn, have been shaped by (and contributed to) some of the most radical transformations at the core of the humanities and social sciences. Established sub-disciplines like population studies, history of medicine, and the sociology of public health are evolving to accommodate more aspects of the complex interaction between patients, practitioners, and the society at large. The field has been enriched by the incorporation of fresh anthropological perspectives on the cultural determinants of health and healing. Scholars working at the intersection of literary theory and cultural studies are acquiring a taste for the historical analysis of biomedical narratives, while social scientists interested on central categories like gender, race, and class are intrigued by multiple connections between medical knowledge, health policy, and identity politics. More importantly, the book teaches us that these scholarly transformations are far from being linear. Today, the social and cultural history of disease, medicine, and health constitutes a field in flux, crisscrossed by multiple epistemic avenues. All these marvelous developments, however, seem to be somehow located in the North Atlantic.

All except for one: the anthology includes an essay by Warwick Anderson titled "Postcolonial Histories of Medicine" where he reviews the literature on the relationship between imperial expansion and medical colonialism. Anderson (2004: 287) frames his selection in rather inclusive terms: “In this chapter I outline the development of new histories of colonial medicine and discuss their significance for medical history more generally.” A note at the end of this sentence, however, redefines the geopolitical span of his actual coverage:

In this essay I will emphasize work on Africa and the Asia-Pacific region, though on occasion I refer to studies of Latin American medicine. Nonwestern medical systems, such as Aryuveda and Chinese medicine, have separate historical literatures, which are not considered here. (Anderson 2004: 300)

Why is the historiography of medicine in Latin America marginalized in the context of an essay that deals explicitly with systemic forms of marginalization? Even among "Postcolonial Histories of Medicine" the region seems to be located outside some grand epistemic design. What
is going on here? In a recent overview of the literature, Linda Newson (2006: 368) presents a plausible explanation for this apparent disjunction:

Perhaps because the rise of scientific medicine coincided with accelerated imperial expansion in the nineteenth century, most studies have focused on Africa and Asia. In Latin America scientific medicine has been linked more to nation building, with public health initiatives being seen as part of newly independent states’ modernising agendas and serving to legitimise state control through their perceived beneficial and ‘civilizing’ effects.

I personally believe that Anderson’s emphasis on selective areas of Africa and Asia echoes a bias toward Northern Europe (and its colonies) that dominates medical historiography in the West. The Iberian Empire has been excluded from his survey for the same reason that Spain and Portugal are systematic marginalized in accounts of the history of European medicine. In fact, “Locating Medical History” fails to acknowledge a single Iberian contribution to the field. In an ironic twist of fate, only the colonies of the North Atlantic powers get to be fully redeemed through the critical gaze of postcolonial studies. Even when Anderson makes an occasional reference to the literature on Latin America, the issue at hand seems to be the problematic relationship between the continent and the United States.

In order to go beyond this North Atlantic bias, it is important to understand how deeply ingrained it is within labels such as Western medicine or even Atlantic World. Creating a more inclusive understanding of the relationship between Europe, Africa and the Americas requires a redefinition of the notion of the Atlantic itself. It has been, for a long time, synonymous with the geographic area defined by the historical relationship between England and the United States. It has been reduced, once an again, to the North Atlantic. In this essay, however, when I say Atlantic World, I am referring to the whole thing, from Liverpool to Buenos Aires, and from Boston to Luanda.
Where is the Atlantic History of Medicine?

We need to recognize that the basic language of Western medicine, with its claims to universalism and modernity, has always used, as it still does, the vocabulary of empire. We need to listen for the global circulation—not merely the transmission from Europe—of metaphor, assumption, and practice. We need to learn how historians might become, not imperialists or nationalists of the text, but true nomads themselves, understanding migrancy as much as situatedness (Anderson 1998: 528).

Professor Warwick Anderson launched this challenge in a manifesto masked as a book review and titled with a question. “Where is the Postcolonial History of Medicine?” he asked. The query was anything but innocent. Anderson was trying to warn the scholarly community against the perils of developing a transnational medical historiography based on the concept of diffusion and centered on the agency of European imperial officials. At the same time, he was arguing that many nationalist alternatives to the logic of imperial diffusion could make colonial scholars fall for yet another Eurocentric trap. The risk here was to reproduce in the so-called periphery, the master narrative of the center, by reducing all medical interventions taking place in a given colony to mere ingredients in a well-known recipe for modernization along European models. An example running through his piece (the peripatetic history of the spread of germ theories at the end of the nineteenth century) illustrated these dual dangers very well. Historians working on the issue were forced to navigate between the Scylla of imperial diffusion, with European agents at the helm of a global modernizing enterprise, and the Charybdis of nationalist appropriation, with local elites taking control of their own medical destinies only to build some replica of a modern nation just like Europeans did.

Although his diagnosis of the problem was incisive, and for the most part rather accurate, Anderson suggested very little in terms of practical solutions. Passing references to the work of David Arnold, Megan Vaughan, and Shula Marks allowed him to outline what amounts to merely the shadow of a research program. According to this program, we should recast Western medicine itself as an imperial enterprise that operates through a systematic colonization of the body, in Europe as well as overseas. Such a methodological move would be based on the notion that the
relationship between elite doctors and poor patients in nineteenth century England or France was inspired by the same civilizing impulses that determined the outcome of imperial public health in Africa or Southeast Asia.

The idea opens two interesting alternatives to the still dominant discourses of diffusion from the center or appropriation from the peripheries. First, we can envision a model based on circulation, mutual learning, and epistemic exchange between colonial and metropolitan medicine. After serving in the colonies, European doctors and public health bureaucrats brought back home some important lessons. These include not only practical knowledge about exotic diseases or miraculous herbal remedies, but also new ideas regarding the ultimate role of medicine and health in the civilizing process. Albeit tremendously asymmetrical, this model involves at least a partial inversion of the traditional roles of the colonizing master and the colonized apprentice. It also opens the door for more complex depictions of the relationship between central and peripheral healers, or even between metropolitan and colonial patients.

Working from this perspective we could apply the notion of colonies as laboratories of modernity (Stoler 1995: 15-16) to the development of Western medicine, with every wave of colonial expansion involving reconfigurations of power in both centers and peripheries. There is, however, a second alternative to the traditional dichotomies between diffusion and appropriation, one that involves something more interesting than just a partial redistribution of pedagogical roles among colonial and metropolitan actors. If the historical development of Western medicine was based on the same colonial relationship between healers and bodies, at home or abroad, perhaps it is time to reconsider what could constitute effective units of analysis for the systematic reconstruction of this history. After all, certain phenomena can only be described by referring to very large geopolitical entities. Wind patterns, oceanic currents, pandemics, long-distance trade, and transcontinental human migration are categories that only make sense when examined from global or macro-regional points of view. I believe that Western medicine is one of these categories. In order to grasp its complex role in the development of modern imperialism, we have
to redefine Western medicine as an Atlantic rather than a European invention. Only by altering the scale of our analysis would we be able to understand migrancy as much as situatedness. In order to address Anderson's challenge we ought to write an Atlantic history of Western medicine.

Using the Atlantic as a geopolitical unit to recast the history of Western medicine could be as useful as using it to rediscover the history of capitalism, republicanism, or slavery. No more, no less. All the usual advantages and limitations associated with the notion of Atlantic history (Games 2006) would surely apply to this case. The most obvious problem is that the Atlantic is too big. Many local dynamics would be missed by a history of medicine focused on the role of long-distance interactions and transatlantic exchanges. The risk here is to overlook some of that situatedness that made certain colonial healing practices so unique to specific geopolitical locations and historical contexts. Even in fields like the history of slavery, where a big picture approach can be particularly rewarding (Davis 2000), the risk of missing the "small-scale dynamics of large-scale processes" (Scott 2000) is very real. The other, less obvious, problem is that the Atlantic is too small. As a discrete unit of analysis, it fails to account for interactions that extend beyond its artificial borders (Coclanis 2007). It constitutes, in that sense, a poor framework for writing a truly global history of European expansion (Coclanis 2006). At the same time the concept of Atlantic history adds a geographic dimension to the problematic distinction between earlier and later stages of empire building (Stern 2006), while taking away some analytical possibilities opened by notions like transcontinental or hemispheric history (Mapp 2006). Going back to Anderson's proposal, we could say that an Atlantic history of medicine could miss some important instances of migrancy, not only those extending beyond the physical limits of the ocean, but also many others that took place within its realm but were not mediated by transatlantic exchanges. Such a history would probably misrepresent the relative weight of several crucial interactions by privileging transoceanic exchanges between Western Europe, Western Africa, and the Americas over those taking place between Eastern and Western Europe, between North and South America, or between Western and Eastern medicine.
What is the point, then, of switching from a problematic dichotomy between diffusion and appropriation to a similarly challenging emphasis on the Atlantic as a unit of analysis for reconstructing the history of medicine in the West? In the first place, I think that it could help us redefine our goals. More than trying to chart all “small-scale dynamics” for each and every “large-scale process”, what we need is to produce a working model that would explain at least some of the linkages between local and global trends in the history of imperialism and medicine. For that limited purpose, the Atlantic is “big enough” to test a few basic hypotheses about the nature of those interactions, but still “small enough” to make such a research project at least conceivable, if not manageable. On the other hand, as latecomers to the realm of Atlantic history, medical historians would benefit from the cumulative critical wisdom of their colleagues working in other fields. Particularly, their cousins in the history of science and technology. Some of the most obvious analytical traps could be avoided, precisely because the efforts of an entire generation of scholars have made them so noticeable. Shoulders of giants and all that.

There is, however, a more important reason to use the Atlantic as a unit of analysis. In the introduction to one of the most lucid and comprehensive surveys of its history, the late Roy Porter (1998: 6) argued that “western medicine has developed in ways which have made it uniquely powerful and led it to become uniquely global.” He then continued:

Its ceaseless spread throughout the world owes much, doubtless, to western political and economic domination. But its dominance has increased because it is perceived, by societies and the sick, to “work” uniquely well, at least for many major classes of disorders. (Parenthetically, it can be argued that western political and economic domination owes something to the path-breaking powers of quinine, antibiotics and the like.)

Porter believed that Western medicine was, at the same time, imposed by the West and welcomed by the Rest. I agree with him, up to a certain point, because I believe that the Medicalization of the West and the Westernization of the World were (are) two sides of the same (imperial) coin. I also agree with Porter on another crucial issue: there is something truly unique about Western medicine. It is not, however, its intrinsic ability to “work” well in some universal,
biological, or self-evident sense. From my point of view, the comparative advantage of Western medicine arises from its historical capacity to incorporate disparate practices and foreign bodies of knowledge. Western medicine was born in the Mediterranean world, as the result of cross fertilizations between the rich healing traditions of peoples living in Southern Europe, Northern Africa and the Near East. It came of age, however, in the Atlantic world. In this new reincarnation, Western medicine was the result of creative exchanges that took place between the Renaissance and the Enlightenment and involved people living and working in Europe, Western Africa, and the Americas. Contributions from Eastern Africa and Southeast Asia were also very important, but even those were mediated mostly by imperial linkages established through the Atlantic. In more than one sense, the establishment of long-distance sea routes from Europe to Southeast Asia and the Americas amounted to a veritable Oceanic Revolution (Bender 2007) that had a huge impact on early modern medicine. Healers, patients, exotic diseases, and miraculous drugs moved across these transatlantic circuits of exploration, colonization, and trade. Such movements have been usually understood as examples of ecological disturbance, cultural diffusion, or imperial exploitation. Using a bit of (tongue-in-cheek) Marxist jargon I would say that early modern transatlantic circulation can be also described as a mode of production. Thousands of agents living and working in the Atlantic World fueled this mode of production with their labor. Vast networks of ports, workshops, shipyards, garrisons, hospitals, etc, provided the means of production. These two productive forces (nomadic laborers and long-distance networks) operated through a system of relations of production based on successive waves of hybridization. Western medicine, as we know it, was one of the hybrid outputs of this circulatory mode of production.

In other words, Western medicine came of age as a result of interactions between nomadic agents circulating across long distance networks. It was already a hybrid product (a product of the Mediterranean) and it evolved through further hybridization. In order to illustrate my point, I would like to revisit a very familiar story. Bear with me.
Malaria, Quinine and the Limits of the Atlantic

western political and economic domination owes something to the path-breaking powers of quinine, antibiotics and the like. (Porter 1998: 6)

Malaria is one of the names given to a complex of infections caused by different species of protozoa belonging to the genus *Plasmodium*. Of these species, *Plasmodium vivax* and *Plasmodium falciparum* are the most important from the point of view of global epidemiology. Infections in humans result from the proliferation of the *Plasmodium* parasite in the bloodstream of the patient. Symptoms of a mild attack of malaria include fever, chills, headache, nausea, vomiting, and general malaise. Severe infections, commonly associated with *P. falciparum*, involve major organ malfunctions including neurological disorders, pulmonary edema, cardiovascular shock, and kidney failure. Transmission from human to human is mediated by female mosquitoes of the genus *Anopheles*. After a mosquito takes a blood meal from an infected individual, the *Plasmodium* enters the body of the insect where it goes through a growth cycle that would allow it to infect other people once the mosquito bites again. A complex balance between human population immunities, mosquito distribution and behavior, weather conditions, and parasite ecology determines the local epidemiology of malaria in every given territory. Given the fact that vector control, availability of treatment, and nutritional levels are dependent on socioeconomic variables, the global epidemiology of malaria reflects trends in human development as well as changes in biogeography or ecology. According to the Center for Disease Control (2010) an estimated 700,000 to one million people die of malaria every year, and 75 % of them are African children.

This is, in a very condensed and oversimplified form, the public narrative that we associate with malaria today. Centuries ago, the same disease was understood and experienced very differently by people living in the four corners of the Atlantic world. Not only was their understanding of the phenomenon framed by different cosmologies, but their actual biological interaction with mosquitoes and parasites was also very different. Nutrition levels, frequency of
communications, housing architecture, agricultural practices, water usage, and dozens of other factors affected the epidemiology of the disease, the ecology of the parasite, and the distribution of the vectors. Those circumstances, in turn, resulted in a radically different kind of malarial infection. In fact, the prognosis, clinical manifestations, and biogeography of early modern malaria were distinctive enough to make any identification between their disease and ours something rather artificial. Only by forcing our historical imagination can we establish a genealogy linking early modern malaria with the disease described as malaria today. This effort, however, is necessary. In symbolic terms, the continuities underlying historical epidemiology are valid, even if enough epistemological and biological evidence can be gathered to demonstrate the distinctiveness of each singular manifestation of the same morbid entity, across time and space. Providing each disease with a genealogy is essential, because each of them is, after all, a multilayered historical aggregate. If we fail to invent it, disease does not exist.

After this disclaimer, we are now ready to follow the story of the rise of quinine as a specific treatment for malaria. The literature on this topic is rich and full of debates. Apparently, native people from the highlands of the Viceroyalty of Peru drank a hot infusion of the bark of a tree they called quarango to fight cramps, chills, and other fever symptoms. At some point during the 1620s, Jesuit priests learned of the practice and started to use the remedy themselves. In the process, they stumbled upon the specific anti-malarial properties of the quarango bark. Juan de Vega, personal doctor of the Viceroy Count of Chichón, became familiar with the use of the drug during the 1630s. According to some authors, Vega was responsible for introducing the bark to Europe in 1641, at his return to Seville. In 1663 Gaspar Caldera de Heredia published a detailed account of the role of Vega in this process (López Piñero and Calero, 1992). From this point of view, the spread of the drug has a lot to do with the work of those communities of experts, operating from the Casa de Contratación in Seville, which Antonio Barrera (2006: 56-79) discusses so well. Other scholars emphasize the role of the Jesuits in the early introduction of the substance. It is clear that itinerant priests with scientific inclinations, such as Barnabé de Cobo
and Bartolomé Tafur, were instrumental in establishing direct links between Lima and Rome (Harris, 1998: 290-292). At least Cobo knew of the properties of the bark and was in touch with Cardinal Juan de Lugo, an ex-Jesuit widely credited with its distribution in Italy during the 1640s. This connection points to the role of the Order in the production of scientific knowledge using what Harris (2005: 72) calls “the most extensive and complex institutional networks of the ancien régime.”

The fact that the Jesuit Order remained associated with the delivery of the bark explains why its use became so widespread in certain areas of Europe, like Italy or Spain, and so controversial in protestant countries like England. Debates regarding the curative properties of the substance were entangled with theological and political disputes about the ultimate goals of its main promoters. Willis endorsed the bark in 1660 and Sydenham rejected it at first but had accepted its value by 1676. Many other English physicians, however, remained firmly opposed to the use of the substance and mocked those among their contemporaries that were willing to experiment with it (Jarcho 1993: 44-58). In 1678, Robert Talbor, became the personal physician of Charles II after curing the king from malaria using a secret drug. This apothecary was so worried about the ideological consequences of using the Peruvian bark that he even wrote against it, despite the fact that this was the main active ingredient in his miraculous concoction. It took until the last decades of the seventeenth century for the virtues of the bark to be widely accepted in England (Honigsbaum, 2001: 38-43).

In the meantime, an alternative story about the original introduction of the bark into Europe was gaining public acceptance. In 1663 Genoese physician Sebastianus Badus (or Baldus) published an account of the events, based on a letter he claimed to have received from an Italian merchant. According to Badus, the wife of the Count of Chinchón had a severe attack of tertian fever (another name for malaria), from which she was cured using the bark, already popular in Lima. Impressed with the effects of the drug, the Countess brought with her a sizable amount of the bark to distribute among the poor, after returning to Spain. The story appealed to late
sixteenth century sensibilities, perhaps because the notorious Jesuits played a lesser role in this version of the events, or maybe even due to the fact that this pious narrative conferred a symbolic aura of aristocratic charity to what was already becoming a burgeoning form of transatlantic trade. Nowadays, enough evidence exists to demonstrate that the Countess of Chinchón was not involved in the introduction of the drug into Spain, because she died in Cartagena de Indias during her trip back to Madrid in 1641 (Jarcho, 1993: 1-4).

A century after her death, however, the name of the Countess became firmly attached to the genealogy of the Peruvian bark, when Carl Linnaeus created the genus *Cinchona* to identify the tree that produced it. His description, included in the second edition of *Genera Plantarum*, was based on a memoir that Charles-Marie de La Condamine had published in Paris in 1738 (Kirkbride, 1982: 696). At the time, this famous explorer and mathematician was about to complete a journey through South America. The crowns of France and Spain sponsored this trip to determine the shape and size of the earth by measuring the length of a degree of meridian near the equator. Other official objectives of the expedition, magistrally studied by Safier (2008), included charting the course of the Amazon and establishing if a tribe of legendary women warriors (after whom the river was supposedly named) actually lived in the area. La Condamine and at least one of his companions, the botanist Joseph de Jussieu, had yet another goal. They wanted to smuggle back to Paris some seeds and plantings of the tree that produced the valuable Peruvian bark (Schiebinger and Swan, 2004: 1-6). With the assistance of native guides, the French explorers managed to secure some specimens, but the young trees died on their way to Europe. Spain was able to preserve its monopoly on the production and transatlantic transportation of the bark, but the European side of the trade was actually dominated by Dutch merchants (Jarcho, 1993: 192-210).

The importance of the cinchona bark increased after 1818 when French pharmacists Pierre Joseph Pelletier and Joseph Caventou managed to isolate its active principle, an alkaloid they named quinine. This breakthrough was based upon the work of Portuguese doctor Bernardino
António Gomes, who had analyzed the bark and published his preliminary results in Lisbon in 1812. The isolation of quinine was central to the development of anti-malarial prophylaxis because it standardized the drug, thus opening the door to the establishment of precise dosage. Efforts in that direction involved several generations of healers working in Europe, Africa, Southeast Asia, and the Americas, all the way until the end of the nineteenth century. The drug became very popular in the United States during the 1820s, when frontier physicians made important contributions to the dosage question (Smith 1976). In Algeria, during the 1830s, French colonial doctors developed a very effective protocol for the administration of quinine. The British Navy had pioneered the systematic use of cinchona bark mixed with wine or gin as a prophylactic against the ravages of malaria, and they embraced quinine with enthusiasm. The health of the imperial troops in Africa, a matter of serious concern in London and Paris, changed dramatically during the 1840s, with mortality rates dropping sharply due to the widespread use of quinine (Curtin 1989: 62-66). During the second half of the nineteenth century, the strategic value of the drug pushed imperial demand to even higher levels.

After gaining their independence from Spain, the Andean Republics exported large amounts of cinchona bark, reaching a staggering two million pounds by 1860. In June of that year, a British botanist named Richard Spruce managed to ship 100 000 seeds and more than 600 seedlings of cinchona to London, out of the port of Guayaquil. Experts at the Kew Garden received the consignment and took care of the plants before shipping them again, this time to the Nilgiri hills of Southern India. The acclimation of the plant was a success, but the quinine content in the bark of this particular species of cinchona was naturally low, so Indian plantations produced small yields of the drug. In 1865, another British adventurer named Charles Ledger managed to smuggle a pound of cinchona seeds out of Bolivia. He tried to sell the material to the British government but his offer was rejected. Eventually, Ledger sold the seeds to the Dutch, who created a plantation in Java. This time, they had stumbled upon a species of cinchona with high quinine content. After experimenting with hybridization and grafting techniques, local experts
managed to improve the overall efficiency of the process. By 1940, the Dutch plantations in Java supplied 97 percent of the quinine consumed worldwide. Today, the Democratic Republic of the Congo is the first global producer of the drug in its natural form. India and Java still grow cinchona, but the production of Peru, Bolivia, and Ecuador is very small (Musgrave and Musgrave, 2000: 141-161).

In the preceding pages I have failed to do any justice to the rich history of malaria, cinchona and quinine. This brief overview, however, can be used to illustrate the role of transatlantic exchanges in the development of Western medical knowledge and therapeutic practices. In the seventeenth century, Iberian imperial networks of exploration and trade, working in tandem with the vast institutional web of the Jesuit Order, brought to Europe an anti-malarial drug from the Amazonian side of the Andes, after learning about its properties from local native users. First as cinchona bark and later as quinine, the use of this remedy spread across Europe, the Americas, Africa, Asia, playing a central role in imperial expansion, from the eighteenth century to World War II. At the same time, healers, chemists, botanists, planters, merchants, soldiers, and patients working, living, and dying along the way contributed to the development of the substantial amounts of knowledge required to make anti-malarial therapy and prophylaxis a reality.

It is clear that, as Porter (1998: 6) said: “western political and economic domination owes something to the path-breaking powers of quinine, antibiotics and the like.” The powers of these drugs, however, were not an intrinsic property of the substance themselves, or something that emerged exclusively as a result of work done in Europe before the expansion of the West. As physical artifacts, they were discovered, refined, traded, mass-produced, and systematically consumed along those very same imperial networks that made “political and economic domination” possible. Their “path-breaking powers,” furthermore, were based on the articulation of technologies, ideas, and practices as diverse as the hot/cold epistemology of Andean healers, the protocols for chemical analysis used in Parisian laboratories, the empirical trials on dosage
conducted in the Ohio Valley, the compilation of sanitary statistics in West African garrisons, the standards for international industrial espionage developed at Kew Gardens, and the grafting skills of Javanese plantation workers. In that sense, the history of the rise of quinine is just one out of many similar narratives describing the development of drug therapies. I have decided to showcase this particular story not only because it illustrates the importance of using the Atlantic as a unit of analysis in medical history. When taken as a whole, the development of cinchona cultivation techniques and quinine-based therapies also shows how the Atlantic circuits of knowledge production became entangled with other large imperial networks built across the Indian Ocean.

This is not, however, a global history. Before the 1860s, exchanges between West Africa and the Caribbean or between the South American Republics and Europe were frequent enough for those networks to play a key role in the systematic production of knowledge about the therapeutic use of cinchona bark and quinine. In the same way, connections between planters in British India and Dutch Java, during the second half of the nineteenth century, were intimate enough to allow for the circulation of hybrid specimens and cultivation technologies that ultimately resulted in the agronomic domestication of the cinchona tree. The points of articulation between these large oceanic networks were very important for the overall story we are telling here, but direct exchanges between Java and the Andes remained sporadic and were heavily mediated by imperial institutions. When considering the history of other key drugs, like opium and morphine, the geography, genealogy, and relative importance of these articulations between the Atlantic and the Indian Ocean would be substantially altered (Musgrave and Musgrave, 2000: 116-139). Even in these cases, however, a fully global approach would be insufficient to explain complex regional issues such as the Opium Wars.

In general, we can say that the history of Western medicine is as hard to understand in narrow local terms, as it is to place in a universalistic framework. The Atlantic can provide a happy medium to this epistemic dilemma, but only if we acknowledge its limitations. In order to write an Atlantic history of Western medicine we have to realize that this model only works well when
applied to certain issues. Appropriating an often quoted typology (Armitage 2002: 11-27), we could say that there are at least three major ways of writing Atlantic histories of medicine. The Circum-Atlantic approach embraces the ocean in its totality, emphasizing long-distance integration, and/or circulation. “The Columbian Exchange,” by Alfred Crosby (1972), is a paradigmatic example of research crafted from that totalizing perspective. The Trans-Atlantic approach, according to Armitage (2002: 18) is “the history of the Atlantic world told through comparisons”. The classic example from our field is a compilation titled “Medicine in the New World: New Spain, New France, and New England” (Numbers, 1980) where three scholars examine the development of colonial institutions and practices in three different regions of the Americas, following a common set of guidelines. The third approach is what Armitage (2002: 22) calls Cis-Atlantic history: “the history of any particular place – a nation, a state, a region, even a specific institution – in relation to the wider Atlantic world”. One of the most inspiring works written from this perspective is “Race, Place, and Medicine” (Peard 1999) a monograph centered on the history of the Escola Tropicalista Bahiana but finely attuned to the complexities of pan-Atlantic knowledge circulation during the nineteenth century.

I am interested in exploring the multiple implications of this particular approach, because it could provide a solution to the formidable challenge that Warwick Anderson had launched in 1998. According to Armitage (2002: 23) “Cis-Atlantic history may overcome artificial, but nonetheless enduring, divisions between histories usually distinguished from each other as internal and external, domestic and foreign, or national and imperial.” However, in order to take advantage of this huge heuristic potential, historians of medicine in Latin American should learn from the historians of imperial science that embraced the Atlantic paradigm before them. In the conclusions I will suggest a few ways for us to do so.
Conclusions

As a recent review clearly demonstrates (Armus and López-Denis 2010) the historiography of medicine in Latin America constitutes an impressive body of literature that is seldom recognized as such. It is clear that historians of science and medicine using the North Atlantic as their “geographic default mode” often fail to appreciate the contributions of their colleagues working on Latin American problems. Most scholars dealing with the general history of the region, on the other hand, pay little or no attention to the impact of medical and scientific issues during the colonial period. This has to do with an even larger problem. Spanish and Portuguese contributions the development of early modern science has been systematically excluded from most historical explanations of the Scientific Revolution. Iberian imperial networks, however, were essential to the articulation of entire fields like military technology, cosmography, mining, urban design, natural history, and pharmacology. Reasons for this exclusion are manifold. As Cañizares-Esguerra (2004, 2005) clearly shows, the historiography of science produced in North Atlantic countries echoes an old Black Legend that portrayed Iberian powers as backward political entities dominated by religious intolerance. The intellectual genealogy of these prejudices can be traced back to propaganda campaigns orchestrated in a context of imperial and ideological conflicts, from the Protestant Reformation to the Enlightenment. Of course, Spanish and Portuguese historians had produced a substantial amount of literature vindicating the role of Iberian imperial science since the Renaissance, but geopolitical, economic, and linguistic gradients still favor North Atlantic traditional explanations over their South Atlantic alternatives. Iberian scientists (and historians of science) are still considered less Western (and less modern) than their Anglo-American, French, or Dutch counterparts. A “global circulation of metaphor, assumption, and practice” along these asymmetric channels effectively “situates” Portugal and Spain at the margins of Europe.

Iberian imperial science has been further marginalized from the master narrative of scientific progress in the West for reasons that go beyond the perpetuation of the Black Legend. While some of their most obvious contributions have been misinterpreted or ignored, other have
remained hidden mostly because they were unrecognizable as “science” in a narrow sense. The methodologies underlying the production and distribution of knowledge in the Iberian empire was dramatically different from those of the North-Atlantic nations. As recounted by Antonio Barrera (2006: 56-79), these efforts were based upon loosely connected “communities of experts” driven by empirical and utilitarian principles. Wide networks of bureaucrats, sailors, physicians, and colonial settlers gathered vast amounts of information that was usually recycled into the system in the form of direct practical applications. Although informed by classical learning, they produced more internal reports to the King than actual books. A clear division of labor between collectors of raw facts operating in the colonial “peripheries” and analysts or compilers mapping those facts from the imperial “centers” was never fully implemented in the Iberian world. Most “communities of experts” were articulated around shipyards, mines, military hospitals, and plantation clusters located in the colonies rather than been based on Europeans universities or academies. If the French and British colonies of the late imperial period were “laboratories of modernity”, then the Iberian colonies of the sixteenth and seventeenth century were its workshop.

What happened to this South Atlantic mode of scientific production during the Enlightenment? Should we assume that its rich inheritance was lost in the second half of the seventeenth century as a result of the “decline” of Spain? After all, the master narrative that presents Spanish American colonial scientists of the Enlightenment period as consumers of British, Dutch, and French knowledge has been promoted not only by historians using the North Atlantic as their “geographic default mode.” Even nationalist scholars of the South Atlantic have argued that Spain, Portugal, and their colonies witnessed a rebirth of scientific activity during the Enlightenment. Almost every Latin American nation traces the birth of its modern science to some momentous series of events at the turn of the eighteenth century, when a select handful of innovators challenged the academic scholasticism of the Iberian empire. This process has been in turn connected with the rise of Creole patriotism that preceded the wars for Spanish American independence (Peset 1993, Quevedo 1993). According to Glick (1991: 308-309), this renovation
involved curricular battles in the universities over the introduction of fresh North Atlantic paradigms (those of Newton in physics, Linnaeus in taxonomy, Boerhaave in medical theory, and Sydenham in clinical practice). Such modernizing trends were accompanied by a reaction against other recent theories circulating around Europe at the time. In what has been called “the dispute of the New World” (Gerbi 1973), Creole intellectuals rallied to rebut explanations of the supposed inferiority of animals and people living under the deleterious influence of the climate of the Western Hemisphere. The Americas were young continents, immature masses of land that exerted debilitating and feminizing influences over nature and culture. These theories were advanced by renowned scholars like Buffon, Raynal, Cornelius de Pauw, and William Robertson. Among their critics were many Spanish American intellectuals and some Anglo American ones, like Thomas Jefferson. Jesuit scholars living in exile in Italy after the expulsion of the order from the Iberian empire in 1767 were particularly involved in the defense of the Americas. The whole debate had wider political and epistemic repercussions, shaping academic perspectives on the New World for several decades (Cañizares-Esguerra 2001). Implicit in all these narratives of Creole patriotism is the assumption that Spanish American elites defined their own scientific identity around the acceptance or rejection of Enlightenment ideals originally produced within the North Atlantic academic circuits.

I would claim, however, that formal institutions for the production and dissemination of knowledge established throughout the Iberian empire during the Enlightenment never really replaced the informal communities of experts in existence there since the sixteenth century. Academic and non-academic strategies evolved along interconnected paths and complemented each other through complex synergic mechanisms. This, in turn, resulted in the creation of new transnational networks that outgrew and outlived the Iberian empire itself. Reconstructing the evolution of these networks would allow us to place the history of the relationship between medicine and colonialism in Latin America in its global context.
References


