

**Medicine as Colonial Enterprise:
The Founding of the Pasteur Institute in Saigon, 1891**

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Table of Contents

Acknowledgements.....	ii
Maps.....	iii
A Note on Translation.....	v
Introduction: Towards a History of Colonialism.....	1
Chapter 1: A Colonial Medical Institute.....	9
Scientific Vision.....	13
Colonial Vision.....	17
Chapter 2: Good News from Saigon.....	23
Metropolitan Knowledge, Disseminated.....	25
Smallpox Vaccination and the Water Buffalo.....	34
Chapter 3: Empire through Medicine.....	45
Entering a System of Colonial Medicine.....	46
Dominance in Southeast Asia.....	49
Conclusion: Medicine, Colonialism, and Power.....	52
Bibliography.....	54

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Maps

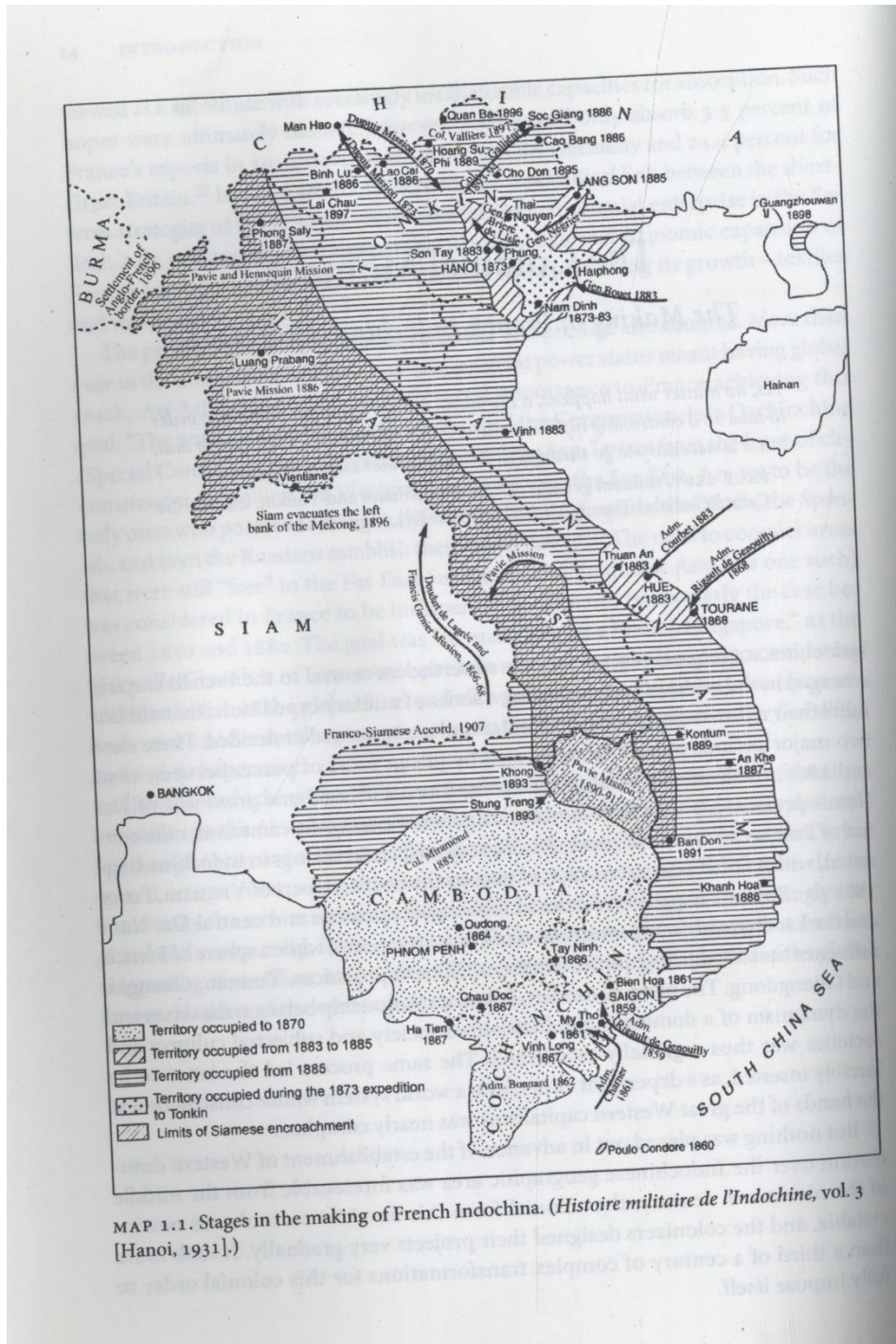


Figure 1: The French colonization of Indochina.¹

¹ Pierre Brocheux and Daniel Hémyery, *Indochina : An Ambiguous Colonization, 1858-1954*, trans. Ly Lan Dill-Klein, From Indochina to Vietnam (Berkeley: University of California Press, 2009), 16.

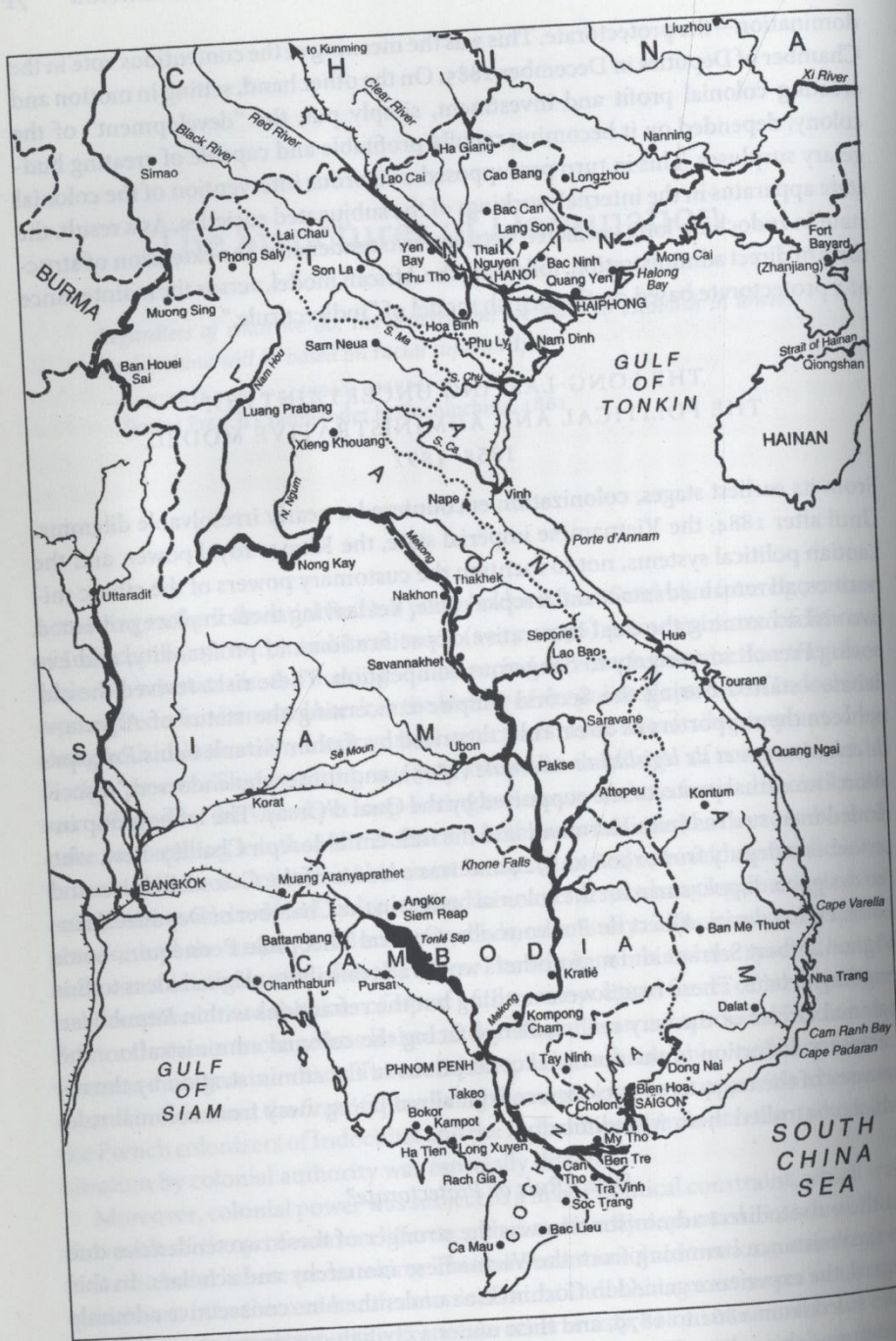


Figure 2: Regions of French Indochina.²

² Ibid., 72.

A Note on Translation

Except for those quotations cited from other secondary sources, I translated all French primary source material, such as newspaper articles, letters, and reports.

Introduction: Towards a History of Colonialism

In 1891, naval physician Albert Calmette successfully lobbied the French government for the creation of a medical laboratory to study smallpox, rabies, cholera, and other diseases; he would also produce smallpox and rabies serum for local vaccinations. The proposal was a historical landmark not only because it became the first expansion of the Pasteur Institute in Paris—a government-sanctioned institution that continued Louis Pasteur’s recent discoveries in microbiology—but also because the laboratory was to be in Saigon.³ That the first offshoot of a French scientific body should be so far from the metropole, and extant merely three years after the Paris Institute’s 1888 founding, merits investigation. Science and medicine were not isolated in an ivory tower but were deeply engaged in society: at the turn of the 20th century, European society was preoccupied with colonialism. It is no accident that the heyday of European expansion and control overseas was also the heyday of the expansion of “Western” science and medicine outside of Europe.⁴ The founding of the Pasteur Institute in Saigon provides a case study of the ways in which colonialism impinged on all aspects of society, including medicine, and as importantly, how medicine influenced colonialism.

In alignment with the general historiographical thread of colonial medicine, I am, in the words of David Arnold, “not so much [concerned] with disease and medicine as such as with their *instrumentality* – what they reveal about the nature and preoccupations, the ambitions and the methods of an encompassing imperialism.”⁵ Rather than being interested in medicine in colonial contexts for its own sake, as part of a “history of medicine,” I envision this work as part of a larger “history of colonialism.” The early years of the Saigon Institute become a way of

³ Today Ho Chi Minh City. I will use place names contemporaneous to the time whenever possible, though clarifying with modern names in the case of locations that are not as immediately familiar to a modern reader.

⁴ David Arnold, “Introduction: Disease, Medicine and Empire,” in *Imperial Medicine and Indigenous Societies*, ed. David Arnold, *Studies in Imperialism* (Manchester: Manchester University Press, 1988), 18.

⁵ *Ibid.*, 2. Italics mine.

investigating the extent to which European colonial enterprises reached beyond economic and political concerns and into the realm of the intellectual and the social. Thus, this paper will explore the French colonial empire as seen through the lens of colonialism's reciprocal relationship with its medicine. It will attempt to reconcile the "good" of medicine with the totalizing imperialism and exploitation of colonialism. The conclusions I will draw, however, are not only those relating to the imperialist spread or imposition of "Western" science on "traditional" societies; in fact, they will demonstrate the extent to which dialogue among the colonizers about the colonial project was informed by the place of medicine in that project. The ways in which the mission of the Saigon Institute fit (or did not fit) into the intellectual spirit of the age provide a window into the complexity of colonialism as a worldview and a fact in the world.

The remainder of this introduction situates my work within the scholarship relating to my subject. I have attempted, as shown below, to include analysis that may fall outside of traditional historical scholarship on colonial medicine, for two reasons. In the first instance, there has been limited work of the same perspective as mine, since historians of science rather than historians of colonialism have written most treatises on medicine in colonial societies. The second, and more important, reason is that philosophic and humanistic investigations of medicine constitute a discipline unto themselves. Therefore, significant theoretical and methodological groundwork outside of the bounds of, for instance, modern European political history, must be completed in any attempt to understand medicine and society together.

The historiography of colonial medicine can generally be defined, as with the historiography of colonialism as a whole, by two waves. Before the end of colonial empire as a political reality in the world, the overwhelming majority of scholarship on it was understandably

written through the imperialist lens of the contemporary European. Situated within the very project which he was attempting to explain, the French, British, or even American historian did not have the advantage of the passage of time to give a less invested reading; nor did he have the advantage of postcolonial theory. Inevitably celebratory of colonialism, this period of discourse has been discounted by modern historiography. By the 1960s and on, however, with Frantz Fanon's *The Wretched of the Earth* and Edward Said's *Orientalism*, the historiography becomes increasingly critical of the colonial project. Not only in polemical terms (given decolonization as political reality) but also in terms of scholarly appraisals, a much more nuanced approach becomes accepted, one that explores colonialism's imperial characteristics and especially its effects on the colonized. As such, the study of colonialism has expanded in the last half century beyond discussions of diplomatic intrigue and European military conquest to include economic, social, and, recently, intellectual spaces. This expanding realm of study becomes indispensable to any scholar who truly attempts to understand the colonial enterprise. For instance, the impact of the subaltern studies movement through the works of those such as Ranajit Guha, Partha Chatterjee, and Gayatri Spivak has been to require anyone who works seriously in the field today to respond to questions not only of the "great men" or elite ideologies of colonialism but also of popular action and responses in both colony and metropole. Gender, religion, and even art in colonial contexts have all been refigured as important modes of understanding the operation of colonialism in the daily life of the era—and also its influence on worlds seemingly far removed from London or Paris.

Although the study of colonial medicine followed the above historiographical shift later than that of other subjects, by the 1980s it too began to be seen as a part of a larger social,

political, and ideological framework.⁶ A defining work in this historiographical moment, *Imperial Medicine and Indigenous Societies*, edited by David Arnold, outlines the ongoing debate among scholars of the time about how medicine interacted with colonial empire, offering a series of case studies that demonstrate the varied perspectives and modes of interpretation possible. Nevertheless, they all agree that doctors did not just pick up and go to Africa or Asia to “help people”; the complicated motivations behind medicine as a colonial enterprise, as well as how ideals and motivations translated to actual practice, are a given in modern historiography.

Another point of consensus for modern scholarship has been the non-neutral space modern medicine inhabited in European colonies; to study colonial medicine is to study the imperialist imposition of a “Western” empirical epistemology upon pre-existing worldviews and peoples. Such an interaction was a monumental disruption in the lives of both colonizer and colonized, and it is certainly a matter of scholarly debate. But we have already acknowledged that the new epistemology, the new science, did not arrive in a vacuum; it was accompanied by all the trappings and baggage of colonial power. Whether consciously or not, European governmental expansion in the 19th century included the expansion of the state into medicine. Michel Foucault argued that this extension of control over the bodies of individuals and populations was in fact a wholly new power relationship, which he called “biopower.” Medicine, for Foucault, was more than just another field that governments could increasingly regulate; it actually allowed a new form of governance altogether. It is one thing to pay taxes to a king or parliament; it is another to be forcefully injected with a strange serum. This argument is especially relevant when studying colonies, where the increased reach of the new European

⁶ Ibid., 1.

governance starkly contrasted with less intrusive indigenous systems of tribute.⁷ Thus, in a colonial context, the inherent power that a doctor had over a patient became loaded with additional power considerations.⁸

Virtually all current scholarship on colonial medicine must therefore respond in some way to Foucault's legacy. David Arnold, even as he describes a largely pragmatic imperialist rationale for medicine, acknowledges a paternalistic and ideological European drive both to control and to better the native populations through the imposition of modern medicine.⁹ More recently, a study of French colonial medicine in Indochina directly engages with Foucault; examining French colonial medicine in Cambodia, the authors ask to what extent native populations and individual "imperial" actors (e.g. physicians) accepted or countered the push towards increased offering and compulsion of the new medicine.¹⁰ In such a case, initiatives like training the indigenous to become medical providers and mandatory vaccination for smallpox are considered not as signposts in the expansion of modern medicine *per se*, but as exercises of imperial power in a colonial state. Most explicitly, one reads works that directly reference their debt to Foucault, in summarizing the interaction between medicine and the colonial project: "Both medicine and colonialism, as networks of institutions and fields of practice, are intimately concerned with what Foucault called 'biopower.'" ¹¹

Having moved beyond the contemporary colonial portrayal "of the colonial physician as a humanitarian hero,"¹² current work on colonial medicine explores the bi-directional

⁷ Ing-Britt Trankell and Jan Ovesen, "French Colonial Medicine in Cambodia: Reflections of Governmentality," *Anthropology & Medicine* 11, no. 1 (2004).

⁸ For more on the development of the power relationships inherent in modern medicine, see Michel Foucault, *The Birth of the Clinic: An Archaeology of Medical Perception* (New York: Vintage Books, 1994).

⁹ Arnold, "Introduction: Disease, Medicine and Empire," 16.

¹⁰ Trankell and Ovesen, "French Colonial Medicine in Cambodia: Reflections of Governmentality," 103.

¹¹ Poonam Bala, *Biomedicine as a Contested Site: Some Revelations in Imperial Contexts* (Lanham, MD: Lexington Books, 2009), 2.

¹² Trankell and Ovesen, "French Colonial Medicine in Cambodia: Reflections of Governmentality," 92.

relationship between medical practice and the colonial project of which it was a part. Much of the field now rests on the discussion of how, and in what ways, medicine was contingent on colonialism and vice-versa. Saying that a “medical history is also a social history” is now considered firm praise from a reviewer.¹³ My study of the Saigon Institute will directly engage with the two major historiographical themes discussed above. It will investigate how that specific project (and colonial medicine more generally) was situated within larger colonial ideals and enterprises, and how this ultimately informed and impacted imperial power in the colonies. It will also go beyond the classical analyses of imperialism as viewed through medicine, however. Examining the Saigon Institute’s work problematizes the unidirectional, imperialist projection of knowledge and power from metropole and colony accepted contemporaneously to colonialism and studied since. I complicate the relationship between Paris and Saigon, proposing a framework of co-dependence strengthened by a developing system of medicine that connected the two.

In the first chapter of this essay, I summarize the conception and creation of the Saigon Institute. Situating the personal ambitions behind its founding within the larger scientific and colonial contexts in which it developed reveal that, far from being a historical accident or idiosyncratic event, the placement of a medical laboratory in French Indochina was a carefully conceived act. It was meant as a model of the potential offered by both French science and French colonialism. In the second chapter, I show that the potential has been fulfilled; the early accomplishments of the Saigon Institute, almost immediately after its founding, confirmed or helped shape the rationale behind the colonial project. For instance, successes such as the development of local serum for smallpox vaccination (rather than importing it from Europe)

¹³ Jacques Dalloz, "Monnais-Rousselot Laurence, Médecine et colonisation. L'aventure indochinoise (1860-1939)," *Vingtième siècle. Revue d'histoire* (2000), 197.

influenced French views of their ability to govern their colonized peoples. These same successes, however, also increased the autonomy of the colony from Paris, creating tensions in the classical, unidirectional imperial framework. In chapter three, I show how the Saigon Institute precipitated the development of a coherent system of colonial medicine that would expand throughout the French empire. The French system would, I posit, provide a ready entry point for individual metropolitan actors (e.g. physicians) into the colonial project. I conclude by returning to a discussion of how colonial medicine may have reinforced or provided a justification for colonialism, also considering if and how medicine was used as a tool of colonial governments to increase their power. Finally, I end with a brief description of the fate of the Saigon Institute in a post-colonial world.

Since the bulk of my analysis focuses on the early years of the Saigon Institute, I naturally rely on a variety of correspondence, reports, and publications from that time which document the formation and work of the Institute. Some of these sources were inaccessible to me, as the bulk of the archival material on those most intimately connected to the scientific and political considerations of the Institute's founding, such as Calmette, are in France, at the *Archives de l'Institut Pasteur* and the *Archives Nationales d'Outre-Mer* in Paris and Aix-en-Provence respectively. Nevertheless, the letters and documents I was able to access electronically or through archival collections in the United States provide a range of perspectives both private and public as well as medical and colonial. Beyond engaging with a body of primary material on the topic, I also draw from recent work done directly relating to French colonial medicine in Indochina at the turn of the 20th century. Unfortunately, this is a rather new and still somewhat sparse area for historians, especially when compared to the more mature literature on colonial medicine in various parts of the British Empire, so there are only a few current authors worth

pursuing.¹⁴ I will, however, consider the work of Annick Guénel, cited above, who writes specifically on Calmette's role in founding of the Saigon Institute.¹⁵ More broadly, Laurence Monnais-Rousselot provides possibly the most comprehensive (though still incomplete) overview of French colonial medicine in Indochina, which provides the reader with a general idea of how medicine operated within that context.¹⁶ For general background on the colonial situation, Pierre Brocheux and Daniel Hémerly's *Indochina*, recently available in English translation, is a broadly accepted secondary source among scholars in the field.¹⁷

¹⁴ Ilana Löwy, "Laurence Monnais-Rousselot, Médecine et colonisation: l'aventure indochinoise, 1860–1939, Paris, Cnrs Editions, 1999, Pp. 248 (2-271-05657-8)," *Medical History* 45, no. 03 (2001), 417.

¹⁵ See Annick Guénel, "The Creation of the First Overseas Pasteur Institute, or the Beginning of Albert Calmette's Pastorian Career," *Medical History* 43, no. 1 (1999).

¹⁶ Laurence Monnais-Rousselot, *Médecine et colonisation : l'aventure indochinoise 1860-1939*, Cnrs Histoire (Paris: CNRS editions, 1999).

¹⁷ See Brocheux and Hémerly, *Indochina : An Ambiguous Colonization, 1858-1954*.

Chapter 1: A Colonial Medical Institute

On July 5, 1885, Louis Pasteur administered a vaccine he had developed with Emile Roux to a nine-year-old boy, Joseph Meister, who had been bitten by a rabid dog. Rabies was, without exaggeration, a death sentence: first fever, nausea, malaise; then, uncontrollable spasms and unbearable pain, as you are taken away from your family and strapped to a hospital bed; finally, hallucinations, delirium, a visceral and abject fear of water, and, within a few months, death. Such, invariably, was the course of disease.

Meister survived, and with the successful inoculation, a disease with a hundred percent mortality rate “whose horror struck the imagination” had been conquered.¹⁸ As the good news spread, patients, doctors, and researchers from across Europe flocked to Pasteur’s lab in Paris. Dubbed the “Pasteur Institute,” it received funds from public subscription (and later the French government) to produce the vaccine and conduct further biological research. This Paris Institute was the culmination of a spate of revolutionary scientific discoveries that gave medicine the first real understanding of how to combat disease. Pasteur, along with German doctor Robert Koch, had proven a little over a decade earlier that germs—not “miasmas,” squalid living conditions, or being sinful—caused disease. Around the same time, British surgeon Joseph Lister published a series of ground-breaking scientific articles that introduced antiseptics as a way of drastically decreasing infection.¹⁹ Finally, in 1882, Koch isolated the bacterium that caused tuberculosis, the first step in understanding a disease which, at the time, caused one-seventh of all human

¹⁸ Anne Marie Moulin, “Patriarchal Science: the Network of the Overseas Pasteur Institutes,” in *Science and Empires: Historical Studies About Scientific Development and European Expansion*, ed. Patrick Petitjean, Catherine Jami, and Anne Marie Moulin (Dordrecht: Kluwer Academic Publishers, 1992), 309.

¹⁹ Joseph Lister, “On a New Method of Treating Compound Fracture, Abscess, Etc.: With Observations on the Conditions of Suppuration,” *The Lancet* 89, no. 2272 (1867), and “On the Antiseptic Principle in the Practice of Surgery,” *BMJ* 2, no. 351 (1867).

mortality.²⁰ In short, the years leading up to the founding of the Saigon Institute were filled not only with optimism and faith in medicine; there was in fact a conviction that the new science would make disease curable—conquerable—for the first time in human history.

It was under these conditions that the European colonial powers became interested in medicine beyond the occasional military hospital (mainly for the few Europeans having official functions in a colony) or small-scale religious mission. While doctors did participate in colonial enterprises generally, they were not physicians or surgeons first: rather, they were administrators, soldiers, explorers, missionaries, businessmen—the familiar roles of European colonists. British doctor, missionary, and explorer David Livingstone provides perhaps the most famous example of the type. Closer to our topic, Jean Marie de Lanessan, who had been stationed as a Navy doctor in Cochinchina during the Second Empire, became Governor-General of French Indochina in 1891. Certainly, doctors continued to play an important administrative role in colonialism for both French and British up until the very end of colonialism.

In the 1880s, however, interest in the medical problems of the colonies and the first official metropolitan interventions into the health of the colonies developed. In the first case, tropical medicine was seen as an exciting field opened up to the investigative techniques of modern scientific medicine and newly accessible with the expansion and consolidation of colonial territories.²¹ For example, Calmette himself, in his first deployment after graduating from the *École de Santé Navale* at Brest, participated in the Sino-French War and there became enamoured with “the study of exotic pathologies according to modern methods.”²² I elaborate on

²⁰ "Robert Koch and Tuberculosis," Nobelprize.org, <http://www.nobelprize.org/educational/medicine/tuberculosis/readmore.html>.

²¹ For instance, with the 1885 victory in the Sino-French War, Tonkin (northern Vietnam) became the last section of modern-day Vietnam to become a colony. In 1887, French colonies in the Far East became consolidated administratively into French Indochina.

²² Quoted in Guénel, "The Creation of the First Overseas Pasteur Institute, or the Beginning of Albert Calmette's Pastorian Career," 3.

the specific motivations of Calmette and others directly involved in the founding of the Saigon Institute later in this chapter.

As to the latter contact between official colonialism and medicine, even as the Saigon Institute was being conceived and organized in 1890, President Sadi Carnot authorized the creation of a *Corps de santé colonial* which would exclusively cater to the health of the colonies. Separate from the Navy, it would report directly to the minister for the colonies. The same decree created a *Conseil Supérieur de Santé des Colonies* and a similar council for each of the colonies, reporting directly to the minister or the colonial governor respectively, that would manage all colonial health issues.²³ The separation of colonial affairs and colonial health from the Navy represented more than a simple bureaucratic reorganization. It was part of a larger intellectual and administrative re-envisioning of the colonies as a holistic entity unto themselves, more than the sum of its economic, military, naval, and religious parts. Four short years later, for instance, the minister of state for the colonies would be elevated to a first-level executive office with the consolidation of colonial administration into the Ministry of Colonies. Around the same time, a group of French businessmen, politicians, writers, and others—mostly in Paris but also in the port cities of Le Havre and Marseille—began to refer to themselves as a *parti colonial* and, indeed, to be referred to in public with capital letters as the *Parti Colonial Français*.²⁴ This informal party constituted a lobby that would grow to include powerful organizations such as the *Comité de l'Afrique française* and the *Union colonial française* over the decade. Already in 1890, however, the colonial germ was present. The *Alliance française* (founded in 1883), which would in later decades become a vocal supporter of the French *mission civilisatrice*, advocated for

²³ France and J.B. Duvergier, *Collection complète des lois, décrets d'intérêt général, traités internationaux, arrêtés, circulaires, instructions, etc* (Recueil Sirey, 1890), 67-8.

²⁴ Charles Robert Ageron, *France coloniale ou parti colonial?*, 1. âed. ed., pays d'outre-mer (Paris: Presses universitaires de France, 1978), 131.

French language instruction in the colonies; half a century after decolonization, it remains today the preeminent organization for the promotion of French language and culture abroad. Eugène Etienne, who would later come to be acknowledged as the “founder of French West Africa,” used his position as Under-Secretary of State for the Colonies to create a block in Parliament friendly to colonialism.²⁵ The Saigon Institute was not conceived in a vacuum. On the eve of its creation, individual, idiosyncratic, and peripheral interests in colonialism had begun to coalesce into coherent organizations and a coherent vision for a second French Colonial Empire. And for the first time, colonial health—that is, medicine explicitly directed and implemented in the service of colonial goals—fit into that vision.

One major question remains: why Saigon? At first glance, Algeria, France’s first new colony (post-Revolution) and since 1848 a full department of France, might have seemed a more natural choice for a first colonial medical outpost. The more developed administrative structure, the large population of French colonists, and proximity to the metropole all suggest North Africa. The desire to integrate Algeria into metropolitan France also suggests it as a good waypoint for a systematic expansion of French medicine outwards in its empire. A port city like Marseille or Bordeaux might also have made sense, given the exposure to “exotic” diseases that sailors and others returning from the colonies had. By 1875, half of all French shipping to and from the colonies passed through the port of Marseille, and numerous deadly European epidemics of cholera and other tropical illnesses arrived on the continent via the city.²⁶ Examining the goals of those involved in the Saigon Institute’s founding, however, reveal why Indochina was the ideal location for the research and practice of colonial medicine.

²⁵ Ibid., 150, 162.

²⁶ Michael A. Osborne, *The Emergence of Tropical Medicine in France*, (Chicago: University of Chicago Press, 2014), e-book, 170.

Scientific Vision

The scientific community in Europe was eager to bring their recent discoveries to the tropics and the colonies. This did not only mean vaccinating the natives for smallpox (which the British had been doing in India for generations) or even rabies, though disseminating the benefits of these interventions was certainly a motivation—which I explore in the following section. For Calmette and his peers, this also meant bringing the methods of scientific inquiry that had been so successful in Western Europe to bear on new populations and new diseases. These “Pastorians” firmly subscribed to Louis Pasteur’s idiosyncratic, almost monastic devotion to a type of medical research that consciously linked clinical improvements and basic scientific discovery. Thus, Pasteur’s vaccine was not just a victory over rabies. It was also a victory for the entire model of French science, over British and especially German competition. Expanding access to this therapy in the colonies therefore expanded the accomplishments of French science. This would pale in comparison, however, to a breakthrough by a Frenchman on any of the diseases that was a scourge in the tropics, such as cholera, malaria, or rinderpest, but about which Europeans knew little. Adding a sense of urgency to his interests, Calmette felt that the French had a relative deficit in education and research into colonial medical problems compared to the international competition. “We are decidedly lagging far behind in our Navy and colonial hospitals,” he wrote in 1890, “When will we be taught what we need to know if we do not want to appear ignorant, and be given the working instruments that are lacking everywhere?”²⁷ The understanding that his work in tropical medicine, if successful, would do more than bring him recognition motivated Calmette; it would also be a further vindication of the gospel of Pasteur and a national victory for France.

²⁷ Quoted in Guénel, “The Creation of the First Overseas Pasteur Institute, or the Beginning of Albert Calmette’s Pastorian Career,” 4.

As a Pastorian, Calmette could rely on the sympathy and guidance of his peers, colleagues, and mentors in the Pasteur Institute in Paris for his desire to do work in tropical medicine. Emile Roux, long-time friend of Pasteur and a founding member of the Paris Institute,²⁸ similarly recognized the potential prestige that discoveries in tropical medicine could bring to the Institute. He was also in a position to realize that patients were coming not only from all over Europe for the rabies vaccine but also from France's colonies: in October 1890, a Frenchman in Tonkin had actually been evacuated to Paris after contracting rabies.²⁹ Convinced that the demand existed for the services of a Pastorian overseas, Roux in effect branded Calmette and his project with the label of Pasteur. In late 1890, Roux was offering the first classes of a *grand cours* in microbiology at the Paris Institute for interested doctors; Calmette, who knew Roux from a previous collaboration on a disease in cod, asked to be included in the class. Given what he felt was a "lack of training for French doctors in the colonies," Calmette saw Roux's course as a "unique and prestigious" substitute that would prepare him for the work he wanted to pursue in tropical medicine.³⁰ Upon hearing of Calmette's interests and plan to open a laboratory in the colonies, however, Roux did one better, giving him a "small private laboratory" at the Paris Institute and visiting him daily.³¹ A willing inculcation in the scientific precepts of Pasteur from the source immediately before Calmette was to leave for Saigon was no fortuitous coincidence: the Paris Institute was looking to replicate its "famous small laboratory," and, in Calmette, Roux and Pasteur found a willing missionary.³² In return, Calmette received a form of

²⁸ Roux would become director of the Paris Institute in 1904 until his death in 1933.

²⁹ "Indo-Chine," *Le Temps*, 25 November 1890.

³⁰ Guénel, "The Creation of the First Overseas Pasteur Institute, or the Beginning of Albert Calmette's Pastorian Career," 4.

³¹ *Ibid.*, 6.

³² Monnais-Rousselot, *Médecine et colonisation : l'aventure indochinoise 1860-1939*, 330.

“scientific collateral” for his novel project.³³ The Saigon Institute was not to be just another idiosyncratic colonial adventure by a lone doctor with a grand idea; from its inception, it was cast as a conscious and systematic extension of the body of work of possibly the most influential scientist alive.

The exact role that Pasteur himself played in organizing the Saigon Institute is a matter of some debate, though it remains undeniable that his vision and leadership helped drive its founding. In the traditional view, the one expounded in a eulogy to Calmette in 1934, Pasteur had been in previous talks with Eugène Étienne to expand the Pasteur Institute overseas. Taking notice of Calmette’s background in the Navy and interest in tropical medicine, he asked Calmette to serve as director of the new experimental laboratory being conceived for Indochina.³⁴ Working with documents available at the *Archives de l’Institut Pasteur* in Paris, however, Annick Guénel has argued for a sequence of events reversed in chronology. According to his private letters, Calmette arranged for a meeting with Georges Treille, director of the newly founded *Corps de santé colonial*, and successfully pitched the idea of a medical laboratory in the colonies. The proposal then worked its way up the ranks of both the Pasteur Institute and the French government, until Pasteur and Étienne simply signed off on Calmette’s plan.³⁵ Regardless of the version to which one subscribes, Pasteur approved of and contributed his considerable influence to the project. In fact, that the former sequence of events became the “official” version of events—to the point of myth in France—underlines the legitimacy granted by the association with Pasteur. The pull of the narrative, whether more or less true, demonstrates the importance of the Pastorian brand in the public consciousness. Calling the new laboratory in Saigon a “branch

³³ Guénel, "The Creation of the First Overseas Pasteur Institute, or the Beginning of Albert Calmette's Pastorian Career," 7.

³⁴ Found in *ibid.*, Pasteur Vallery-Radot, "Albert Calmette," *Revue des Deux Mondes* (1934), 302.

³⁵ Guénel, "The Creation of the First Overseas Pasteur Institute, or the Beginning of Albert Calmette's Pastorian Career," 5-8.

of the Pasteur Institute” immediately conveyed, to the metropolitan readership of *Le Temps*—to the man on the street in Paris—that it would perform experiments with economic and social value, it would pursue discoveries of clinical importance, and, of course, it would disseminate Pasteur’s flagship therapy, the rabies vaccine.³⁶ Additionally, writing as early as 1868 for the need to create modern, independent laboratories, Pasteur had linked scientific discovery to national progress and lamented the French focus on “sterile research into the best form of government” while Germany was founding vast laboratories and universities.³⁷ Pasteur’s nationalism went beyond the laboratory as well. Wanting to see France maintain its place culturally as well as scientifically, he was in 1883 a founding member of the *Alliance française* (see above).³⁸ The Saigon Institute, then, explicitly linking expansion of French scientific research to the French colonial enterprise, was clearly aligned with Pasteur’s own long-held interests.

The Pastorian push towards the Saigon Institute therefore coupled a scientific consensus that tropical medicine harboured the next round of great scientific breakthroughs with a sense of competition on national lines. Calmette’s personal interests and ambition, shaped both by the colonial exposure he initially had as a Navy doctor in Indochina and by the scientific exposure he had received from previous collaborations with Roux, meant that he was not simply asking for a small laboratory of his own in 1890. Instead, he consciously and willingly entered the existing framework of national scientific “champions,” with Lister representing the UK, Koch representing Germany, and Pasteur representing France. Pasteur and his Pastorians recognized that expansion into Saigon, deemed the most fertile ground for Calmette’s research, would

³⁶ “Indo-Chine.” *Le Temps*, 25 November 1890.

³⁷ Pasteur Vallery-Radot, “L’institut Pasteur,” *Revue des Deux Mondes* (1939). 606.

³⁸ “Who Are We?,” *Alliance Française*, <http://www.alliancefr.org/en/who-are-we>.

cement the validity of his vision and ideology. It would also cement the place of France, long the centre of culture and politics in Europe, as the centre of scientific innovation as well.

Colonial Vision

Metropolitan colonial administrators shared the interest in tropical medicine—or, more precisely, medicine in the tropics—though not necessarily for the pursuit of scientific knowledge in its own right that was central to Pastorian rhetoric. Perhaps the most obvious motivation was the well-being of the French soldiers and colonial administrators that served in the new Indochinese colonies. While Europeans had, as early as 1697, documented the deplorable state of health in Indochina, it was with the Cochinchina campaign from 1858–62 and the conquest of Saigon that French began building their Indochinese colonies;³⁹ arriving in an official capacity and in increasing numbers, soldiers and other Frenchmen started to feel the toll of local diseases and prolonged exposure to the “tropics.” Malaria, dysentery, cholera, various kinds of fevers: these would continue to plague Europeans in Indochina through the span of the colony’s existence. Thus, some of the first public health measures in Indochina—and, indeed, anywhere in the French colonial empire, including the metropole—occurred in the two decades prior to the Saigon Institute’s creation in order to protect the Frenchmen who opened, maintained, and expanded the colony. These included the 1860 establishment of a naval hospital in Saigon, “the jewel of French medicine in Southeast Asia,”⁴⁰ and an organized response to an 1882 cholera epidemic in Cochinchina that successfully protected soldiers’ health. The latter event is especially noteworthy, not only because it represented some of the earliest uses both of quarantine and of the public’s health as a justification for colonial policy in Indochina, but also

³⁹ Annick Guénel, "Lutte contre la variole en Indochine: variolisation contre vaccination?," *History and Philosophy of the Life Sciences* 17, no. 1 (1995), 57.

⁴⁰ Y. Pirame, "[Memorial to French Medical Action in Indochina. Nhi Dong 2 - Grall Hospital in Saigon]," *Med Trop (Mars)* 65, no. 3 (2005), 278.

because similar cholera outbreaks had not been as well controlled in France itself!⁴¹ Naval doctors such as Armand Corre documented the barrage of illnesses attacking French soldiers in Indochina for official records and were also positioned to disseminate this knowledge directly in the metropole; Corre was one of Calmette's professors at Brest.

With the war against the Chinese in 1885 and the subsequent administrative consolidation of Indochina, the number of French soldiers and officials in the colony increased dramatically, and with them, the effects of tropical diseases. Simply put, many more Frenchmen died of tropical diseases in the 1880s because so many more of them were now in the tropics: of the 45,000 French troops in Indochina in 1885, a huge increase over the few army companies representing a couple thousand men before the war, 4% died that year of cholera.⁴² Additionally, a growing local civil service meant more effective public health decision-making, which was felt in Paris. At one meeting in May 1886, for instance, the colonial health council in Saigon ordered the repatriation of 147 sick soldiers. From 1885 to 1889, hospitalisation or recovery from illness accounted for 95% of people returning to the metropole from Tonkin.⁴³ The severity of the threat posed by tropical medicine to colonial officials therefore became ever more apparent in the years immediately prior to 1891. The interests of Frenchmen in Indochina were not forgotten in the establishment of the Saigon Institute, as the diseases of research, such as cholera and dysentery, were largely those that disproportionately affected French soldiers rather than the natives.⁴⁴ For a project approved and funded by the French government "in the service of the colonies,"⁴⁵ serving French colonists—however many or few there were—was a given.

⁴¹ Monnais-Rousselot, *Médecine et colonisation : l'aventure indochinoise 1860-1939*, 38.

⁴² Brocheux and Hémerly, *Indochina : An Ambiguous Colonization, 1858-1954*, 56-7.

⁴³ *Ibid.*, 37.

⁴⁴ "À travers Paris," *Le Figaro*, 11 January 1891, and Guénel, "The Creation of the First Overseas Pasteur Institute, or the Beginning of Albert Calmette's Pastorian Career," 10.

⁴⁵ Monnais-Rousselot, *Médecine et colonisation : l'aventure indochinoise 1860-1939*, 329-30.

Though explorations of tropical disease and potential discoveries were expected of the Saigon Institute, the two explicit mandates of the new laboratory were to produce and disseminate vaccines for rabies and smallpox, neither of which were “tropical diseases.” The focus on the former was explained above with reference to the Pastorian vision. Investigating the motivations behind the latter reveal the continuation and elaboration of another vision—beyond the immediate self-interest of treating soldiers in the colony.

Through the venue of smallpox vaccination, the mission of the Pasteur Institute in Saigon, from its conception, explicitly included the treatment of natives. Smallpox vaccination had been a hallmark of European colonial activity essentially ever since Edward Jenner’s discovery; the need, from a purely medical perspective, certainly existed. The British were the first to apply Jenner’s vaccine in a colony, bringing it to India as early as 1802.⁴⁶ French doctors in Indochina from the middle of the 19th century began to observe the scale of smallpox among the indigenous populations. Estimates spoke of upwards of two-thirds of children under age three dying of the disease, and, from Cambodia to Tonkin, children were generally not viewed as born (including for census and tax purposes) until they had contracted smallpox. Though vaccination seemed to have made its way to Hong Kong and Macau, before colonization there are scant records of campaigns in Indochina. An attempt by the royal court in Annam upon hearing of the vaccine and a few northern villages that benefited from the actions of local Chinese doctors were representative of the small-scale and one-off nature of any vaccination. Variolation,⁴⁷ however, was ubiquitous and, at least in the north, often the exclusive province of Chinese practitioners resident in or travelling through Indochinese villages. Among the European population, however,

⁴⁶ Arnold, "Smallpox and Colonial Medicine in Nineteenth-Century India," 45.

⁴⁷ The practice of inoculating a person against smallpox by putting them in contact with infectious material in the hopes of inducing a mild infection and subsequent immunity. The material could be dried scabs, fluid from a pustule, or blood from a patient. Contact was mediated variously through nasal inhalation (the traditional Chinese method), scratching the person superficially to expose them, or including infectious material in breast milk.

smallpox was never a major issue, since French troops had been vaccinated since 1802.⁴⁸ In the first fifteen years of French rule in Cochinchina, just twenty-two soldiers died of smallpox, out of a total of over 5,000 disease-related deaths.⁴⁹ Any concerted smallpox vaccination sponsored by colonial officials therefore represented an official service to the indigenous and needed to be justified on those grounds.

Such services began almost immediately after the beginning of French colonization. By 1867, the colonial administration organized a *Comité de la vaccine de Saigon* to promote vaccination in that city. Of course, skepticism from natives, lack of consistent access to any but the largest cities and towns, and degradation of serum during the long trip from Europe were but some of the encounters faced in the first decades of Indochinese vaccination. Nevertheless, the project was so important to the colonial government that Cochinchina decreed mandatory vaccination in 1871, decades before a similar law would be passed in France: children were to be immunized in their first year of life. Regardless of the questionable extent of actual enforcement, the gesture made it clear that France saw vaccination as essential to the colony. One major barrier to universal vaccination could be lowered by the creation of local serum, which would circumvent the problems with transporting vaccine from abroad. The Saigon Institute's mandate, therefore, responded to a pre-existing colonial priority, just as it had also reflected the colony's experience with tropical diseases.

Motivations for investing significant resources towards an ambitious project purely for the indigenous in a colony are less obvious than those for helping one's own colonial officials. Admittedly, some rationales were transparently self-serving, given the depopulation caused by

⁴⁸ Monnais-Rousselot, *Médecine et colonisation : l'aventure indochinoise 1860-1939*, 122.

⁴⁹ For more, see Guénel, "Lutte contre la variole en Indochine: variolisation contre vaccination?"

smallpox and the accompanying loss of cheap labour and tax base.⁵⁰ Cultural and imperial rivalries also played a role. Britain, for instance, ran vaccination campaigns (and colonial health generally) in their neighbouring colonies in a much more decentralized and religious manner that was seen as characteristic of that empire. The French, having gone to war multiple times with the Chinese over control over Indochina, also brought smallpox into the fight. Linking the practice of variolation to its historically Chinese practitioners and origins, the spread of vaccination (necessarily at the expense of variolation) was a victory of rational, enlightened French rule over the backwards, despotic old regime: the Chinese quack was replaced by a French doctor. Beyond these two major points, which are covered briefly in what little literature exists on the topic, other motivations are less well defined. The success that colonial vaccination campaigns represented to a skeptical metropolitan public may have been important for colonial administrators and politicians. Additionally, the straightforward humanitarian motive of wanting to prevent children from dying unnecessarily must not be overlooked. The complex logic behind smallpox vaccination serves as a proxy for that of the Saigon Institute and in turn of French colonial medicine writ large. Indeed, exploring how these motivations manifested in the early years of the Saigon Institute occupy much of the rest of this essay. Nevertheless, the point stands that even *official* colonial motivations for establishing a laboratory in Saigon centered around serving the colonized and not simply the colonizer.

The 1880s in France were a time of both scientific and colonial expansion. Pastorian successes led to increasing conviction in the potential of biological research to conquer disease. In the same moment, French politicians, businessmen, journalists and others began to envision the consolidation of their country's various scattered possessions—including, after 1885, the

⁵⁰ Ibid., 58.

whole of Indochina—into a French colonial empire. That Britain and Germany were making similar headway on both fronts provided a further sense of urgency to scientists and colonial administrators alike. Calmette, with his own personal exposure to medicine and to colonialism, was therefore perfectly positioned to marry the two in the form of the Saigon Institute. His little laboratory in Indochina was to be the testing ground and incubator of a distinct vision of colonial medicine, at once Pastorian and French. Its creation represented a conviction in the principles of Pastorian scientific discovery. And it represented a conviction in the worth of the French colonial enterprise for the colonized.

Chapter 2: Good News from Saigon



Figure 3: Saigon Military Hospital, site of the Pasteur Institute in Saigon⁵¹

Announcing the creation of the Pasteur Institute in Saigon, the editors of the *Lancet* wrote that “brilliant results are expected from the new laboratory.”⁵² Calmette soon proved them right. In the two years he spent in Saigon from 1891 to 1893, Calmette made a variety of discoveries of biological, medical, and economic importance. From providing the first effective rabies therapy in all of Southeast Asia to breaking the Chinese monopoly on rice fermentation, Calmette’s time in Saigon was extraordinarily fertile scientifically. By extension, they were also beneficial colonially, for every discovery aligned with a colonial institution or a colonial ideal. In some cases, such as Calmette’s industrial fermentation work, this was as straightforward as increasing colonial government revenues. In others, such as smallpox vaccination, the innovations of the Institute represented the “objective” benefits of the French colonial project, including for the

⁵¹ *Cochinchine – Saigon – Hôpital militaire – Entrée*, photograph, Box 1 Folder 1, Indochinese postcards, #4279, Division of Rare and Manuscript Collections, Cornell University Library, Ithaca.

⁵² “Bacteriological Institute for Saigon,” *The Lancet* 136, no. 3513 (1890).

colonized. The marriage between scientific and colonial vision that had resulted in the Saigon Institute was therefore only strengthened by the Institute's work.

Examining the varied and overlapping ways in which scientific and colonial projects mutually benefited from their compact in the form of the Saigon Institute, I find two major ways in which medicine in Indochina influenced colonialism. The first represents accomplishments that were either successful only with the intervention of the metropole or had only local effects. For instance, treating rabies was certainly impressive for those whose lives it saved, but the vaccine was brought from Paris without any major alterations and the benefits directly affected only those few dozen people treated each year. Calmette's research into opium and rice fermentation fall into this type as well, as—even though in this case the discoveries were novel—their effects were not felt much beyond the coffers of the Indochinese treasury. I also place Calmette's investigations into tropical diseases here; for all the hope that had been placed into Saigon's setting as ideal for this type of research, all of Calmette's tropical disease projects only came to fruition when supported by and continued in Europe. These discoveries followed and supported the dominant imperial perception of the relationship between colony and metropole: the former only provided resources for extraction, while “civilization,” in the form of all culture and knowledge, flowed from the latter.

The second type of the Saigon Institute's accomplishments, however, complicates this perception. Progress occurring on colonial soil, for colonial benefit, and in some cases even exported back to the metropole, showed that colonial and (later) indigenous actors could in fact influence the empire. Smallpox vaccine research and production at the Saigon Institute provides one of the more spectacular instances: Calmette, in experimenting with a local animal, the water buffalo, to produce the vaccine serum, solved issues of vaccine preservation and transportation

that had confounded scientists in Europe. As a direct result, the Saigon Institute would have a monopoly on all smallpox vaccine production from 1892 until 1904 when another production site opened in Tonkin; Indochinese smallpox vaccine originating from Calmette's research would serve much of Southeast Asia until decolonization. Even if the original impetus had come from Paris, the discoveries were seen—even contemporaneously—as a product of Pastorian ingenuity and the right local (i.e. colonial) conditions. Simply put, such an innovation could not have occurred in the metropole.

Metropolitan Knowledge, Disseminated

The production of rabies vaccine provided an unequivocal justification for the existence of the laboratory in Saigon; it also tied the institute to Pasteur and by extension to a nationalist vision of French biological science. The successful production and administration of the vaccine in a French colony—indeed, in the first place other than Pasteur's own laboratory in Paris—was therefore a major step towards the expansion of French medicine. Treating rabies would be inarguably beneficial for those living in the colonies, indigenous and European alike. In turn, such a success would lend legitimacy of the Institute's placement and continued existence in Saigon. Recalling the marriage of personal ambition and the larger scientific and colonial projects in which he was embedded, Calmette recognized the importance of rabies treatment to his larger project, writing on the way to Saigon, "The more people who come for rabies inoculations, and the more I am asked for anthrax or other vaccines, the more important my position will be." He publicized his intent to produce rabies vaccine in "all the Far Eastern press" and through notices to administrators and doctors not only throughout Indochina but also in

neighbouring colonies such as Singapore and Malaysia.⁵³ Calmette's arrival in Indochina was therefore anticipated throughout Southeast Asia.

Almost immediately upon disembarking from his ship, Calmette began preparations for the production of rabies vaccine in Saigon; given the importance and relative simplicity of the procedures, he was determined to fulfill this part of the mission for an early and high-profile success. Even in such a straightforward task, however, he met opposition: many colonial administrators, as well as some other Europeans in the colony, did not believe rabies existed in Indochina. By extension, they doubted the need for an Institut Pasteur in Saigon. Forced to justify his work in Saigon from the outset, Calmette compiled a comprehensive collection of evidence to prove beyond a doubt that rabies existed—that he was needed—in the colony. Studying records and regulations in the neighbouring British and Dutch colonies, where documentation was more thorough, he found cases of rabies reported frequently. In Singapore, for instance, since 1889 strict laws for muzzling and leashing one's dogs had been in effect, and nearly six thousand strays were killed annually, because of the public health threat posed by the disease. "It would have been surprising," Calmette wrote in the *Annales de l'Institut Pasteur*, "if only the dogs of our colony were endowed with a particular immunity." He also requested accounts from across Indochina of people bitten by "mad dogs" (which colonial administrators nonetheless insisted were not cases of rabies) and received textbook accounts of the disease, from the fear of water to the invariable mortality. Among those who submitted accounts, French doctors and veterinarians as well as native physicians wrote to express support for Calmette's assertion. Finally, he showed scientifically that rabies was indeed the same as the disease of mad dogs known to the colonial administrators. A veterinarian in Saigon brought Calmette a "mad

⁵³ Quoted in "The Creation of the First Overseas Pasteur Institute, or the Beginning of Albert Calmette's Pastorian Career," 15.

dog,” and together, they observed that the symptoms were conclusive for rabies. This dog had bitten two other dogs that later died of similar disease. Upon the dog’s death, “before witnesses, since I wanted to give publicity to the experience,” Calmette inoculated two rabbits with cerebral matter from the dead dog, producing disease consistent with rabies. At the same time, he produced rabies vaccine from rabbit brains from France and treated four Cochinchinese who had been sent to him by doctors or local administrators after a “mad dog” bite. All four recovered, meaning that rabies had caused their illness.⁵⁴ Citing precedents from nearby Dutch and British colonies, naval and colonial medical records, French and indigenous professional opinions, and direct experimental evidence, Calmette was careful to demonstrate thoroughly and publicly that the services of a Pastorian were needed in Saigon.

Results from the rabies vaccine were as lauded in Indochina as they had been initially in Paris, and Europeans and indigenous alike from Singapore to Japan came to Calmette’s laboratory for treatment. Despite the impressiveness of the cure—the only patients who died were the occasional ones who had arrived in Saigon too far along for treatment—cases per year numbered in the hundreds, orders of magnitude lower than those of plague or smallpox, for instance. The significance of the Saigon Institute’s rabies vaccine was not in the therapy itself but the larger visions it represented. The delivery of the vaccine was a clear validation of the Pastorian and “official” colonial goals of the Saigon Institute. In Calmette’s own words, “I have made no changes to the Pastorian method of treatment after a bite.”⁵⁵ From the original research, to the knowledge of what the disease looked like, to the material for vaccine production, the

⁵⁴ For the full account, see Albert Calmette, “Notes sur la rage en Indochine et sur les vaccinations antirabiques pratiqués à Saigon,” *Annales de l’Institut Pasteur* 5, no. 10 (1891). Additionally, for an overview of the Saigon Institute’s rabies therapy, see H. Arnoult, “Vaccinations antirabiques à l’Institut Pasteur de Saigon, de 1891 à 1954,” *ibid.* 88, no. 4 (1955).

⁵⁵ Albert Calmette, “Notes sur la rage en Indochine et sur les vaccinations antirabiques pratiqués à Saigon,” *ibid.* 5, no. 10 (1891). 638.

accomplishment was imported wholesale from Paris. No major part of Calmette's work on rabies was original; his role was to implement a completely metropolitan discovery in a colonial setting. That such discoveries were transferrable from the former to the latter supported the supposed universality of the Pastorian method. It also—explicitly, as we see even in Calmette's statements—supported the projection of “progressive” ideas such as modern medicine generally in colonies and other “backwards” nations. In the case of Indochina, this was evidence that France could (and by implication, should) bring its colony out of backwardness and towards development.

Calmette and other actors, such as his veterinarian peers, were consciously involved in the projection of the metropolitan body of knowledge in the colony. It would already be significant if one were to argue that Calmette was an unwitting pawn with other intentions caught up in a colonial framework, if more difficult to prove; it is another level altogether to show that he was a self-aware agent of an imperial relationship between Paris and Saigon in his colonial medical activities. That there is little ambiguity that Calmette saw the greater significance of bringing the rabies vaccine to Indochina reinforces the internal consistency of the convergence of colonial and scientific vision that resulted in the Saigon Institute. Recruiting witnesses to observe the inoculation of local rabbits with matter from the initial “mad dog” demonstrates an unequivocal confidence in his Pastorian training; it could have been the case that the colonial administrators who doubted him were completely correct, if the diseases were indeed different. What ended up being a public success that reached other colonies as well as indigenous peoples across Southeast Asia could just as well have been a high-profile failure. In supporting the superiority of his particular form of knowledge, Calmette also described the supposed treatments of “almost all Annamite and Chinese doctors, as well as many European

missionaries,” none of which were effective in the slightest. Juxtaposing the grandiose claims not only of treatment but also prophylaxis with the wry observation that bite victims would simultaneously prepare their coffins “as a precautionary measure,” Calmette documented the uselessness of local knowledge when compared to the immediate and dramatic effects of the Pastorian vaccine.⁵⁶ He also showed a stereotypically French Third Republic skepticism for the clergy by grouping their claims in with those of native and Chinese practitioners. Pastorian science and French colonialism alike had little patience for idiosyncratic, evangelic missions, rather subscribing to secular and publicly funded interventions. The grain of truth in this characterization extends beyond Calmette’s note; it was actually another way in which the French differentiated themselves from their colonized and from European competition (see chapter 3 for more). A further extension of French differentiation was also present in Calmette’s rabies work: from its inception, rabies treatment in Saigon was to be free for all, European and indigenous, French and foreigner alike. Contrasting with fees charged by local or Chinese charlatans for rabies “treatment”—or indeed fees charged by private British hospitals in Hong Kong and the like for medical attention generally—the French consciously lowered the barriers of entry for colonized peoples such as “the Annamites who, in this corner of the Far East, have a mind very accessible to our progressive ideas.”⁵⁷ French “generosity” in providing public health services free of charge was justified because it fit under the agenda to bring progress writ large to the colonies. A local actor on the ground, such as Calmette, even at arms-length (and indeed opposition) to colonial administrators, not only passively acknowledged the political relationship between colony and metropole but also actively perpetuated it through his own medical work.

⁵⁶ Ibid., 640-41.

⁵⁷ Ibid., 636.

Research into tropical disease, another stated mission of the Saigon Institute, reinforces the unequal positioning of colony and metropole illustrated through Indochinese production of rabies vaccine. Though Calmette produced substantial results in the two years he worked in Saigon, no conclusive novel discoveries occurred without ultimate verification from Paris, and Calmette in fact cautiously deferred to Roux's and others' expertise rather than announcing his results confidently. Unlike earlier European scientific missions abroad, which were deployed to study specific epidemics and thus naturally limited in scope, he had relatively free reign to try his hand at a variety of tropical diseases that caught his interest. Given dysentery's and cholera's toll on colonial soldiers and officials, the Indochinese government directed both the military and the indigenous hospitals in Saigon to provide corpses of disease victims to Calmette for autopsy. In such access, at least, he was right in his original vision, as such a ready supply of patients was only achievable in a tropical colony like Indochina. For dysentery, within a few months of arriving, Calmette identified a bacterium in both the water supply and in patients' guts that was a probable disease agent. Although he did not identify the amoebas we now know as the actual cause, his work spurred officials in Saigon to improve the city's water sanitation. Nevertheless, he expressed regret that his results did not live up to the Pastorian method he was using to produce them; lack of resources, difficulty of collaboration, and limited impact—in short, distance from the metropole—hampered Calmette's work. The deference shown to Paris was even clearer in the case of cholera: though Calmette was able to demonstrate immunization against cholera toxins, he “preferred to postpone publication of the cholera study, ‘for fear of offending M. Roux.’” Indeed, as the Paris Institute picked up the investigation, he observed, “There is a veritable steeple chase underway between European laboratories, especially Paris and Berlin” and shortly thereafter focused his interests in other research.⁵⁸ As a Pastorian, Calmette

⁵⁸ Calmette, quoted in Guénel, “The Creation of the First Overseas Pasteur Institute, or the Beginning of Albert

acknowledged that he was a single functionary at the periphery of French science and that the dominance of the metropolitan core was not easily disputed.

A final point on the Saigon Institute conforming to contemporary imperialist views of the role of a colony involves research that, while not strictly medical, was certainly Pastorian and colonial in nature: investigation into opium and rice alcohol production. Fermentation research, especially with a view towards industrial benefits, was central to the Pastorian method. Showing microbe reproduction caused fermentation was, of course, Pasteur's original and greatest discovery; it is no accident that pasteurization, the process of beverage sterilization, bears his name. In fact, research translating microbiological and other basic scientific discoveries into practical applications was, in general, a Pastorian tenet, whether these applications were commercial or medical (as we have been discussing up to this point). Official government records announcing the Saigon Institute's formation include fermentation research as one of its services.⁵⁹ It is no surprise that Calmette devoted his energies towards these studies, adapted to the specifics of the colonial environment.

Opium, a state monopoly, required about a year of fermentation before it was ready to be smoked. In October 1891, Calmette successfully isolated the fungus responsible for fermentation, reducing the time required to two weeks, thus greatly increasing the volume that could be produced for sale. The resulting praise from Indochinese Customs, his superior in the *Corps de santé* Treille, and the public press actually bemused Calmette, for whom this had been a straightforward and classic set of experiments.⁶⁰ The extensive use of opium as a means of

Calmette's Pastorian Career," 13. Guénel also gives a discussion of Calmette's work on snake antivenom, coming to similar conclusions as I do here for cholera and dysentery.

⁵⁹ Indochine, "Arrêté réglant le fonctionnement de l'institut microbiologique de vaccine animale installé à Saigon," *Bulletin officiel de l'Indochine française*, no. 4 (1891).

⁶⁰ Guénel, "The Creation of the First Overseas Pasteur Institute, or the Beginning of Albert Calmette's Pastorian Career."

exploitation of colonized peoples, as well as a justification for colonial expansion, is well documented.⁶¹ I only need to observe here that it was completely within a French doctor's interests and beliefs to actively aid in this exploitation.

Alcohol was a similarly well-documented means of exploitation,⁶² but the Indochinese case was slightly different from that of opium because the colonial government had previously sold the monopoly on rice alcohol to Chinese producers. Additionally, only the Chinese knew how to produce the yeast used in rice fermentation, which was superior to European yeasts more accustomed to barley; more importantly, the Chinese yeast did not have to be imported from France, making it economically viable for industrial use in Indochina. Both Calmette and the Indochinese government had taken an interest in the Chinese yeast, since the Chinese monopoly on alcohol production would expire on January 1, 1894. If a French distillery were to take over Indochinese alcohol production after this date, it would have to find a strain of yeast competitive with that of the Chinese. Doing so would be doubly lucrative, as Calmette observed, for the "almost five million" franc annual profit realized by Chinese alcohol producers would then flow instead into colonial coffers, and "the extremely cheap rice and labour" available in Indochina meant such alcohol could also be sold to the metropole at reduced cost. The issue of rice fermentation therefore fed into the general sense of competition with the Chinese over Indochina; the war had been won in 1885, of course, but as mentioned in discussion of rabies treatments above, the rivalry remained in cultural, economic, and scientific arenas.

In isolating the strain of yeast in 1892, Calmette was actively and consciously expressing the superiority of French knowledge over that of the indigenous and Chinese. Throughout his

⁶¹ The literature this topic is expansive: see, for instance, chapter five of Michael Greenberg, *British Trade and the Opening of China, 1800-42*, Cambridge Studies in Economic History (Cambridge, Eng.: Cambridge University Press, 1951), for a classic analysis of the British opium trade.

⁶² For an overview of how the colonial administration in Indochina used alcohol, see Brocheux and Hémery, *Indochina : An Ambiguous Colonization, 1858-1954*, 93.

article in the *Annales de l'Institut Pasteur*, he noted how local ignorance has prevented advances in the understanding or application of fermentation. For instance, such ignorance had prevented the Chinese from preparing isolated and active cultures rather than simply selling blocks of yeast. After isolating the Chinese yeast, he identified certain toxins produced that were neutralized by the addition of other cultures, thus producing cleaner and more palatable alcohol than the Chinese product. Calmette also noted that in the Chinese preparation the yeast was unnecessarily mixed with herbs that, “in the imagination of the indigenous consumers,” were a panacea for many diseases. Not only did indigenous and Chinese ignorance prevent them from understanding, for instance, the scientific principles behind fermentation, it also prevented them from attaining the same industrial and medical ability of the French. By implication, only French knowledge would be useful in the colonies—rather than other forms of knowledge, such as the backwards ways of the Chinese. Calmette explicitly stated his confidence in French capacity over that of the Chinese for alcohol production: “Nothing therefore prevents our national industry, better armed for the fight, from in the future striving to exploit for its profit this source of wealth, in a colony which, after all, exists only for the economic expansion of France, and not for that of the Chinese.”⁶³ A succinct and apt description of a colony’s relationship to its metropole!

Prevalent though it was, it would be an oversimplification to state that the entirety of the relationship between colony and metropole was encapsulated in Calmette’s statement. Extracting wealth from a colony was certainly a priority; disseminating knowledge and “civilization” to it was certainly a justification. Even in the example of Indochinese alcohol production, however, there were elements of a more complex relationship, including that which involved the metropole

⁶³ Albert Calmette, “Contribution à l’étude des ferments de l’amidon. La levure chinoise,” *Annales de l'Institut Pasteur* 6, no. 9 (1892), 607.

depending on or being defined by the colony. Licensing his patents for fermentation for industrial use, Calmette received 250,000 francs in compensation.⁶⁴ He immediately donated the entire sum to the Pasteur Institute in Paris, at a time when the French government was debating whether to fund it at 125,000 francs annually.⁶⁵ As a microcosm of the codependency of colony and metropole, metropolitan knowledge was applied and adapted in a colony to generate new knowledge that would in turn fund and further similar research back at the original source in Paris.

Smallpox Vaccination and the Water Buffalo

Producing smallpox vaccine, Calmette's other major assignment in Saigon, resulted in scientific advances that had far-reaching medical, diplomatic, and political consequences. His work on smallpox provided the first centre for the production of the vaccine in all of Southeast Asia, saving thousands of lives over nearly a century of vaccination. In doing so, it helped define the philosophical underpinnings of French colonial medicine. It also contributed to progress in European public health science and policy. Advances that could only have occurred in a colonial environment thus brought new knowledge that influenced science and society in the metropole.

Despite the 1871 policy of universal immunization, major challenges remained to smallpox vaccination in Indochina. One of the most intractable was the preservation of vaccine serum so it would still be viable when administered. As there was no site of vaccine production in Indochina before the Saigon Institute, vaccine had to be transported from Japan or even France. Without adequate refrigeration, such transport was simply impractical and often resulted in degraded lymph, besides being prohibitively expensive. The solution was to use human

⁶⁴ Approximately 962,000 in 2013 euros. "Convertisseur franc-euro : pouvoir d'achat de l'euro et du franc," Institut national de la statistique et des études économiques, <http://www.insee.fr/fr/themes/calcul-pouvoir-achat.asp>.

⁶⁵ "Séance du mercredi 24 janvier," *Journal officiel de la République française. Débats parlementaires. Chambre des députés* (1900), 190.

carriers of the vaccine: vaccinifers. These were children who were inoculated with the vaccine, which could then be reconstituted from their blood. Such children were used both for the voyage from France and for vaccinating communities far from Indochinese ports. In the former case, the colonial government had to rely on the chance of French children travelling to Indochina whose parents would allow them to serve as vaccinifers (for nominal monetary compensation). In the latter, while parents were similarly compensated, the colonial government could requisition children through the *corvée*—though this was obviously unpopular and often unsuccessful due to local opposition. Using vaccinifers was clearly not an efficient means of producing a vaccine supply for an entire colony. It was also unsafe: French doctors and colonial officials knew they risked transmitting diseases such as leprosy and syphilis through this “arm to arm” method.⁶⁶ Doctors in Indochina had long called for reforms, since they believed that stopping the use of vaccinifers was the last major hurdle to indigenous acceptance of the vaccine.⁶⁷ Calmette’s task would thus increase the trust of the indigenous towards their French colonizers and decrease Indochina’s dependence on metropolitan France.

The Saigon Institute’s production of vaccine would be a success beyond even Calmette’s wildest ambitions, but it would not come from the accepted European knowledge on vaccines or smallpox. Initially, Calmette simply attempted to reproduce the smallpox vaccine according to the standard methods, in much the same way he reproduced rabies vaccine. Using cow lymph from the Institut Chambon in Paris, he inoculated cows in Saigon and then extracted vaccine serum from them, just as was done in Europe. Not all the inoculated animals developed the requisite cowpox pustules signalling a successful infection, however, with results varying from

⁶⁶ Guénel, "Lutte contre la variole en Indochine: variolisation contre vaccination?" 65.

⁶⁷ Albert Calmette and E.M.G. Lépinyay, "Rapport général sur les vaccinations de 1867 à 1892 et sur le fonctionnement de l’institut vaccinogène de Saïgon en 1892," *Archives de médecine navale et coloniale*, no. 61 (1894), 216.

animal to animal and from each separate container of lymph. The vaccine serum produced was often completely unusable. Inconsistency, Calmette speculated, might be explained by degradation of the original lymph, natural immunity or previous exposure of the cows to cowpox, or even that Indochinese cattle were weaker and smaller than their European counterparts. Additionally, inoculation would often provoke fatal enteritis in the cow, obviously making it useless for vaccine serum generation. Nevertheless, by adhering as faithfully to the European best practices for vaccine production as possible, by October 1981 the Saigon Institute could produce relatively consistent vaccine serum from two cows—with new lymph from Paris every two weeks. Though it did solve the solution of having a regular supply of vaccine in the first place, this was clearly not a solution to dependence on the metropole. The European methods had fallen short. Experimenting with modifications to the scheme in 1892, Calmette injected some lymph in an animal native to Indochina, the water buffalo, rather than the cattle that had been the source of smallpox vaccine since Jenner. The pustules that developed were as good as any that appeared on the best vaccine-producing cattle. Calmette reported, “We immediately tested the vaccine [from the water buffalo] on some children, and a provision was sent to Dr. Marchoux, vaccinating doctor for the Western provinces, who immediately got 100% success.” Water buffalo maintained the virus’s virulence (necessary for vaccine production) longer than cattle did, never had serious ill effects from inoculation, and could provide more vaccine serum faster.⁶⁸ Importantly, water buffalo vaccine serum was also more resilient to unrefrigerated storage, lasting up to eight weeks.⁶⁹ Quick to capitalize on the discovery, the Indochinese government decreed in the same year that all smallpox vaccination in the colony had

⁶⁸ Ibid., 217-19.

⁶⁹ Monnais-Rousselot, *Médecine et colonisation : l’aventure indochinoise 1860-1939*, 128.

to use to serum from the Saigon Institute and no other source.⁷⁰ With the water buffalo, Indochina could now not only produce smallpox vaccine independently of France, but also vaccine that was arguably superior to that of European stock.

Calmette's discovery extended at a stroke the reach of French medicine in Southeast Asia. The number of vaccinations increased year after year, from 88,712 in 1890 prior to the Saigon Institute's founding to 1.3 million by 1898.⁷¹ The longevity of the vaccine meant that communities previously too remote to be vaccinated successfully could now be reached with active serum. In this way, the Saigon Institute provided an impetus for the expansion of mobile vaccination outside of major Indochinese ports and cities, turning previous one-off sessions to vaccination tours in the Indochinese interior. By 1893, such tours were already commonplace enough that the term "*tournée de vaccins*" was understood by laypeople in France without any explanation.⁷² Admittedly, their successes would be limited by inadequate staffing until the training of indigenous doctors began in earnest in the twentieth century; the dream of universal vaccination would not be achieved in practice until the 1940s. The water buffalo vaccine nevertheless allowed colonial doctors and administrators to envision the realistic fulfillment of the dream for the first time given the simple fact that they could now supply vaccine to the entire colony. The Saigon Institute's monopoly extended even beyond the French decree and the borders of Indochina. In its first year of production, tubes of water buffalo vaccine were sent to French diplomatic posts in China and Thailand, missionaries, the French Navy, and all

⁷⁰ Guénel, "Lutte contre la variole en Indochine: variolisation contre vaccination?" 66-67.

⁷¹ Calmette and Lépinay, "Rapport général sur les vaccinations de 1867 à 1892 et sur le fonctionnement de l'institut vaccinogène de Saïgon en 1892," 224, and Monnais-Rousselot, *Médecine et colonisation : l'aventure indochinoise 1860-1939*, 128.

⁷² Alexandre Yersin to Fanny Yersin (mother), letter, 20 October 1893, Box YER.Cor.1-2, Fonds Yersin, Archives de l'Institut Pasteur, Paris.

neighbouring colonies, representing the British, Spanish, Portuguese, and Dutch empires (see Table 1).

TABLEAU A
STATISTIQUE DES TUBES DE PULPE GLYCÉRINÉE EXPÉDIÉS PAR L'INSTITUT DE SAIGON
EN 1892

Destinations.	Nombre de tubes expédiés.
Tonkin (Direction du service de santé, vaccine mobile, troupes et postes).	975
Annam (Légation de Hué. Troupes. Résidences de Tourane et de Nha-Trang).	82
Cambodge (hôpital mixte de Pnom-Penh).	27
Cochinchine (vaccines mobiles. Postes. Services municipaux de Saïgon et de Cholon).	7,251
Navires de la division locale. Transports et affrétés.	57
Division navale de l'extrême Orient	9
Pékin (Légation de France).	12
Tien-Tsin (canonnière <i>le Lion</i>).	5
Shanghai (missions).	40
Hong-Kong (Consulat de France. Institut vaccinal anglais).	70
Macao (Gouvernement)	40
Lang-Tchéou (Chine). Consulat de France.	10
Manille. (Gouvernement. Direction de la santé, docteurs Esmerado, Felipe Zamora).	54
Missions catholiques de la province de Canton.	25
Singapore (Gouvernement).	20
Bangkok (Légation de France).	55
Madras (Sanitary board).	6
Total.	8,676

Table 1: Recipients of Smallpox Vaccine from the Saigon Institute in 1892.⁷³

In 1894, the British created a site for smallpox vaccine production in Hong Kong but encountered many of the same problems as Calmette had initially with the local cattle. The Saigon Institute supplied Hong Kong with lymph—just as Paris had for Saigon—and convinced the British to make the switch to water buffalo. Additionally, in September of the same year, a Spanish doctor visited the Saigon Institute at the request of the Philippine government to receive guidance on successfully conducting similar vaccine production in Manila.⁷⁴ While before Indochina had relied on Paris for continued vaccine supply, it now supplied the same for all of Southeast Asia through the Saigon Institute.

⁷³ Calmette and Lépinay, "Rapport général sur les vaccinations de 1867 à 1892 et sur le fonctionnement de l'institut vaccino-gène de Saïgon en 1892," 221.

⁷⁴ *Ibid.*, 220.

Ending the use of indigenous children as vaccinifers with the Saigon Institute's creation also proved to be as much of a success as Calmette and the Indochinese government could have hoped for. Purposefully infecting children with a disease—even if it was minor, as was cowpox—was obviously unpopular, and tainted the entire vaccination enterprise. Vaccinifers had also practically limited the scope and success of vaccination campaigns, since bringing a young child along had prevented excursions into the more remote regions of the colony. With the water buffalo vaccine, “instead of collecting like before all the children of a region in a center where they will find, at a fixed date, the vaccinifer, we can now spare the Annamites the annoyance of having to travel, and we bring, so to speak, the vaccine to their doors.”⁷⁵ Being able to bring the vaccine to the indigenous instead of the other way around, by removing the need for them to actively seek out the service, significantly lowered the barriers to vaccination. Multiple accounts by vaccinating doctors in the years immediately following the founding of the Saigon Institute report the increased willingness of the indigenous populations to be vaccinated. The correspondence of Swiss-French physician Alexandre Yersin, who made his career in Indochina, provides a representative case of the relative ease of vaccination with the Saigon serum. On an 1893 geographic and ethnographic expedition to the mountainous regions of Cochinchina, Yersin brought a few tubes of the Saigon vaccine with him, just as he brought rifles, a telescope, and photographic equipment, hoping to vaccinate a few children if he found the opportunity. Stopping in the village of Tanh Linh, he asked the local chief if he could vaccinate some children. Yersin writes, “Immediately, he [the chief] brought me his entire family, and in the afternoon, the entire village was assembled to be vaccinated.”⁷⁶ “The success surpassed my

⁷⁵ *Ibid.*, 223.

⁷⁶ Alexandre Yersin to Jean-Marie de Lanessan (Governor-General of Indochina), “Le Docteur Yersin en mission à Monsieur le Gouverneur de l'Indochine,” report, 15 March 1893, Box 4 Folder 7, François-Jules Harmand Papers, #3481, Division of Rare and Manuscript Collections, Cornell University Library, Ithaca.

expectations: all [the serum] was used and I had to telegraph Saigon to ask for more; I vaccinated 160 Mois en route and 150 Annamite children here.”⁷⁷ Supplying a doctor travelling into the interior of the colony with vaccine as a matter of course, even if the mission was not specifically for vaccination, was possible only with regular vaccine production at the Saigon Institute. Where the vaccine was needed most, in places like Tanh Linh, which had been “ravaged” by smallpox, the populations were increasingly receptive. Older children and adults, who were not bound by law to be immunized, began to come forward voluntarily. A decade later, the resident-administrator of Bac Giang, a city in Tonkin, summarized the observations of the 1904 vaccination tour in his area to the Resident Superior, essentially outlining the requirements, from a colonial administrative standpoint, for successful vaccination:

1. Eagerness of parents to voluntarily present their children to the vaccinator.
2. Desire manifested by French agents for the establishment of annual vaccine tours.
3. Goodwill provided for the occasion by the provincial authorities to facilitate the task of the operator.
4. Absolute necessity of leaving to the previous the time necessary to inspect his operations.
5. Utility of imposing on agents of the general services [...] the obligation of presenting themselves to the vaccinating doctor at the simple invitation of the chief Resident of the province.⁷⁸

With feasibility grew the scope and powers of the vaccinating doctors. There would be no more abortive attempts to experiment with methods of vaccination, as had been typical of Indochinese immunization until 1891. The Saigon Institute thus provided the impetus for the solidification of a rational, systemic formula for smallpox immunization that had widespread support from doctors and colonial administrators alike—and that reduced active indigenous opposition to French medicine.

⁷⁷ Alexandre Yersin to Fanny Yersin (mother), letter, 21 March 1893, Box YER.Cor.1-2, Fonds Yersin, Archives de l’Institut Pasteur, Paris. “Moi” was a catch-all term for the various montagnard indigenous peoples, meaning “savage.” For more, see Brocheux and Hémery, *Indochina : An Ambiguous Colonization, 1858-1954*, 85.

⁷⁸ Sallet quoted in Monnais-Rousselot, *Médecine et colonisation : l’aventure indochinoise 1860-1939*, 136.

There is no doubt that Calmette's success with the water buffalo vaccine fit the classically imperialist rhetoric of colonization. At its core, his discovery was that of a Frenchman applying European knowledge in the colony. Moreover, smallpox vaccination, unlike rice fermentation, for instance, could be justified entirely on the basis of improving the lot of the colonized. Along the same lines as the scientific advances discussed earlier this chapter, the rivalry with the Chinese, in the form of variolation—which never completely went away even in the 20th century—strengthened the argument that the French could bring superior knowledge and governance to Indochina. Rivalry with other colonial powers also manifested itself in smallpox vaccination. As with other Pastorian discoveries, Calmette's work with the water buffalo was a point of national scientific pride, provoking favourable comparisons to similar work done by other countries. Physicians across Southeast Asia recognized the quality of the Saigon Institute's vaccine: doctors in Hong Kong, for instance, stated that they got better results with Calmette's serum than that of the Japanese.⁷⁹ Pointing to the Saigon Institute's supply of vaccine, the French could claim that their colonies were the most developed in the region, again supporting their ability as colonizers to bring civilization to their colonized.

But the impact of the water buffalo vaccine was not unidirectional. Most obviously, one explicit goal of the Saigon Institute was to reduce Indochina's dependency on metropolitan vaccine serum, and fulfilling that was an important victory for supporters of colonization in both colony and metropole. Increased autonomy added to a nascent identity of European colonists, in Indochina as elsewhere in the empire, that was distinct from France and a step towards self-sufficiency. Colonial partisans in France, whether in government, science, media, or business, could point to the colony's increasing self-sufficiency as a sign of long-term sustainability in the

⁷⁹ Calmette and Lépiny, "Rapport général sur les vaccinations de 1867 à 1892 et sur le fonctionnement de l'institut vaccinogène de Saïgon en 1892," 221.

face of criticism that the colonial enterprise was too costly—important for a colony that, at the turn of the twentieth century, was yet to show “profitability” for the French.⁸⁰

While the initial materials for Calmette’s discovery might have been French, the substance of his work was thoroughly colonial in nature and as such also reversed the dominant narrative of colonial science. Only in Indochina could the solution of the water buffalo have been discovered. The attendant improvements in vaccine preservation and delivery, as well as the superior quality of the Saigon strain itself, returned to benefit European vaccination. There were even attempts to acclimatize water buffalo to the south of France.⁸¹ The return was thus not only in knowledge but also in physical serum! What is more, even Calmette’s experience with the animal was counter to dominant European beliefs. Almost as if Europeans had extended their views of indigenous peoples to indigenous fauna, water buffalo were believed to be ferocious and savage, in contrast with docile and cooperative European cattle. Yet “among 123 consecutive buffalo” that Calmette worked with “over a year in our establishment at the colonial hospital, one did not find a single one ferocious enough that it could not be used...these animals are, to the contrary, perfectly easy to handle, very gentle, and of a calmer temperament than the calves.”⁸² This amusing episode is representative of European misconceptions of their colonies more generally—and of the ways in which indigenous and colonial knowledge, in dispelling some of these myths, altered metropolitan knowledge.

The perceived successes of Indochinese smallpox vaccination also had political reverberations in France, contributing to the development of the nascent French doctrine on colonial medicine. The Indochinese experience provided proof that investments in and

⁸⁰ Brocheux and Hémery, *Indochina : An Ambiguous Colonization, 1858-1954*, 117-18.

⁸¹ Guénel, "Lutte contre la variole en Indochine: variolisation contre vaccination?" 69-70.

⁸² Calmette and Lépiny, "Rapport général sur les vaccinations de 1867 à 1892 et sur le fonctionnement de l'institut vaccinogène de Saïgon en 1892," 219.

management of medicine by the state were both feasible and useful: indigenous hearts and minds could be won for and through vaccination. The creation of the Saigon Institute had been, from the beginning, an experiment in rationalizing and systematizing the delivery of medicine in the colonies. Recall that in the first couple of decades of the colony's existence, Indochinese smallpox vaccination was a policy set and executed locally, and often haphazardly, to mixed results. The Saigon Institute's role in rationalizing the principles of colonial immunization were perhaps the strongest evidence that it had fulfilled its mission. As I shall observe in chapter three, the consequence was the entrenchment of the Saigon "model," including the partnership between Pastorians and colonial administrators and the provision of services free of charge, in subsequent colonial medical enterprises.

Finally, smallpox vaccination in Indochina prefigured similar vaccination in France. Though the initial vaccine may have come from Europe, I have noted above that universal immunization became law in the colony in 1871; France would not adopt such a law until 1902. The 1871 policy was, of course, cited in the intervening years as the example *par excellence* of French contributions to the development of its colonized. Importantly, however, it was also cited as an example of the feasibility and merits of compulsory universal vaccination.⁸³ While the British experience in neighbouring India had led to "a fear of the consequences of compulsion," which was "an important check on the state and on the medical profession's interventionist ambitions,"⁸⁴ positive French perceptions of Indochinese vaccination had allowed medicine as an official arm of the colonial state to expand its reach. A whole system of colonial health developed around the success of the water buffalo vaccine. The interventionist ambitions, unchecked by political reticence as in India, found their way back to France. Thus, an expansion

⁸³ Guénel, "Lutte contre la variole en Indochine: variolisation contre vaccination?" 70.

⁸⁴ Arnold, "Smallpox and Colonial Medicine in Nineteenth-Century India," 62.

of state power that had its roots in colonial medical innovations influenced a similar expansion in the metropole. If the “implantation of a ‘state machine’ more demanding than any precolonial system” in Indochina through “biopower” is widely recognized and accepted in present scholarship,⁸⁵ smallpox vaccination reveals that a similar “state machine” was equally as foreign to a precolonial France. In a reversal of the dominant historiographical argument, the implantation of such a system in the metropole was at least in part dependent on its pre-existence in a colony.

⁸⁵ Brocheux and Hémerly, *Indochina : An Ambiguous Colonization, 1858-1954*, 376.

Chapter 3: Empire through Medicine

By 1901, the French government could explicitly define how medicine fit into its colonial and foreign policies.

The role of a French doctor in Pakhoi should include, in my opinion:

1. To engage in as complete a study as possible into the difficulties caused by the plague, to locally test known sera, and to inform our bacteriological institutes of his observations as well as the results he obtains during epidemics;
2. To treat for free and without distinction, Chinese and Europeans suffering from any disease, and to which remedies should be provided no less freely.⁸⁶

Gaston Liébert, French legation to Pakhoi (today Beihai, in Southern China), wrote the above in announcing the creation of a French medical service in his city. The principles of French colonial and overseas medicine were at this point unambiguous. The question, then, is how they arrived at this point—how a French diplomat could reasonably provide free medical care to people who were not even French colonial subjects. The answer lies in large part with the legacy of the Saigon Institute. It could, of course, act as a successful model to be emulated, as I suggested at the end of the previous chapter. But it also directly caused or influenced the expansion of medicine in Southeast Asia and across the French colonial empire through the people and ideas that came out of its halls.

⁸⁶ Gaston Liébert to Théophile Delcassé (Minister of Foreign Affairs), “Organisation d'un service médical français à Pakhoi. Demande d'un crédit pour la construction et l'installation du dispensaire,” letter, 17 September 1900, Box 1 Folder 12, Gaston Liébert Papers, #4435, Division of Rare and Manuscript Collections, Cornell University Library, Ithaca.

In the original French:

Le rôle d'un médecin français à Pakhoi devrait être consister, à mon avis :

1. À se livrer à une étude aussi complète que possible de la peste sur ses difficultés formes [*sic*], à faire sur place l'essai des sérums connus, et à renseigner nos instituts bactériologiques sur ses observations aussi que les résultats obtenues par lui en temps d'épidémie;
2. À soigner indistinctement et gratuitement, Chinois et Européens atteints de maladies quelconques, et auxquels les remèdes devraient être fournis non moins gratuitement.

Two case studies are illustrative. Alexandre Yersin, another Pastorian who happened to be in Saigon in 1891 at the same time as Calmette, witnessed first-hand the erection of the new medical laboratory. The Saigon Institute and Calmette influenced him to the extent that he changed his career trajectory, including, significantly, joining the *Corps de santé colonial*. On the new path he set out on after Saigon, Yersin would discover the bacteria that caused plague and a cure for it, among other major contributions to Indochina and to medicine generally. In turn, Yersin's work influenced the practice of medicine across Southeast Asia, leading to the second case: the proposed French hospital in Pakhoi. The Saigon Institute also continued to influence the practice of colonial medicine directly, as the doctors who were to staff Pakhoi's hospital were sent on assignment from Indochina, where they had been trained at the Institute. The hospital could not have become the flagship expression of French colonialism it was without the mediation of the Saigon Institute.

Entering a System of Colonial Medicine

Born and raised in Switzerland, Yersin moved to Paris in 1885 to study medicine. He soon showed an aptitude for laboratory research, in 1888 joining the Pastorian ranks with a collaboration with Emile Roux. Roux and Yersin isolated the toxin produced by the diphtheria bacterium, the first time a microbial toxin had been identified.⁸⁷ Such high-profile work attracted international attention, including that of one Albert Calmette, who was on assignment with the Navy in Saint-Pierre-et-Miquelon at the time.⁸⁸ Yersin, however, did not enjoy the confines of Paris and of his laboratory, having become enamoured of adventure overseas. A leave of absence from the Paris Institute to serve as a merchant marine ship doctor thus brought him to Saigon in

⁸⁷ J. E. Moseley, "Travels of Alexandre Yersin: Letters of a Pastorian in Indochina, 1890-1894," *Perspectives in biology and medicine* 24, no. 4 (1981), 609.

⁸⁸ Guénel, "The Creation of the First Overseas Pasteur Institute, or the Beginning of Albert Calmette's Pastorian Career," 3.

1890. The longer he spent travelling up and down Indochina, the harder he found it to justify returning to cold, dreary France and the monotony of the laboratory.⁸⁹ His only regret was that he felt the actual work he was doing as a ship physician was somewhat boring.⁹⁰

A solution would present itself on February 27, 1891, when Yersin met Calmette for the first time.⁹¹ The two became fast friends, and Yersin recognized the interesting, important, and difficult work Calmette was doing at the Saigon Institute. For his part, Calmette began trying to convince Yersin almost as soon as meeting him to take a commission in the *Corps de santé colonial*. Though Yersin soon resolved not to return to the Paris Institute, he did not accept Calmette's suggestion immediately, rather weighing his options and delaying by going on the first of his exploratory scientific missions in the Indochinese interior.⁹² It was upon returning from this expedition that Yersin decided he wanted to conduct medicine and science in Indochina long-term, combining his laboratory aptitude with service to the peoples of what would become his adopted home. He knew this was a life he could lead; he had seen Calmette live it at the Saigon Institute. Thus, the ideal way to pursue his scientific interests was to follow Calmette's example and apply for a commission. By doing so, he received all the benefits of becoming an agent of the French government—connections, a better salary, a funded laboratory, prestige—but none of the downsides that might be expected from military service. Despite being over the age limit to join the *Corps*, and asking for an “indefinite leave” for scientific pursuits as part of his commission, Yersin was welcomed with open arms by Treille and granted the independence he wanted.⁹³ The guidance Yersin received in Saigon led directly to his career in colonial medicine.

⁸⁹ Moseley, "Travels of Alexandre Yersin: Letters of a Pastorian in Indochina, 1890-1894," 612-13.

⁹⁰ J. C. Rosenberg, "Alexandre Yersin," *New England Journal of Medicine* 278, no. 5 (1968), 262.

⁹¹ Alexandre Yersin to Fanny Yersin (mother), letter, 27 February 1891, Box YER.Cor.1-2, Fonds Yersin, Archives de l'Institut Pasteur, Paris.

⁹² *Ibid.*, 6 September 1891.

⁹³ *Ibid.*, 16 November 1892.

This career notably included his 1894 identification of the plague bacterium in Hong Kong and the development of a serum to treat the plague. Far from simply being in the right place at the right time, Yersin's crowning accomplishment was a product of the French system of colonial medicine, of which the Saigon Institute was an important part. I have commented above on the unusual flexibility the *Corps de santé colonial* offered for a military body. Such accommodation to the requests of doctors like Yersin was instrumental his discovery. While Yersin wanted to visit Hong Kong to study the new outbreak of plague there, the Governor General of Indochina intended to send him on a mission to Yunnan instead. In response, Yersin circumvented the entire military and colonial chain of command, contacting Calmette (who was by now back in Paris) to express his interest in Hong Kong.⁹⁴ Calmette and Roux pulled strings in the metropole, the result of which was the Minister for the Colonies telegraphed Yersin "ordering" him to study the plague in Hong Kong.⁹⁵ The blurring between medical and colonial apparatuses represented by the *Corps* is illustrative of the cooperation between the "official" colonial enterprise and that of medicine in the French system. While British doctors in the colonies, for instance, were often missionaries or otherwise independent actors only bound to the British Medical Association, their professional organization, French colonial doctors like Calmette and Yersin were explicitly linked and managed through military and colonial branches of the state.⁹⁶ Personal ambition fit perfectly into the French system of colonial medicine. The Saigon Institute (and the growing network of Pasteur Institutes in the French empire), as demonstrated in Calmette's intervention on behalf of Yersin, was an important voice for scientific interests within the French system.

⁹⁴ Ibid., 8 June 1894.

⁹⁵ Alexandre Yersin, "La peste bubonique à Hong-Kong," *Annales de l'Institut Pasteur* 8, no. 9 (1894).

⁹⁶ Sokhieng Au, *Mixed Medicines: Health and Culture in French Colonial Cambodia*, (Chicago: The University of Chicago Press, 2011), e-book, 30.

Dominance in Southeast Asia

The discoveries of Calmette, Yersin, and other Pastorians, coupled with the expansion and consolidation of the French colonial empire, led to the expansion of the French system of colonial medicine. The formula for such expansion was set in Southeast Asia, with the experience of the Saigon Institute at its core. In 1901 in Pakhoi, “as in every treaty port in South China,”⁹⁷ an English journalist wrote, “a French naval or military surgeon has been appointed to the port who attends native patients free of charge. These surgeons are always willing to respond to any call, European or Chinese, and no charge is made if the patient be of limited means.”⁹⁸ As with many other cases, the appointed doctor in Pakhoi was sent from Indochina to direct the nascent medical service. His first task was to provide smallpox vaccination, free of charge (unlike the English doctors, who charged “the exorbitant sum of one dollar”), using serum sent from Saigon. As Calmette and Indochina had learned a decade earlier, doing so was a quick and easy way to ingratiate the medical service with the local population; according to Liébert, the Chinese population “warmly welcomed the arrival of our compatriot whom they immediately asked to vaccinate their children.”⁹⁹ French colonial doctors were then to conduct epidemiological and scientific research into diseases of local importance and report to their local Pasteur Institute. As quoted above, this meant studying the highly prevalent plague in Pakhoi, reporting to Saigon, and disseminating the Pastorian remedy—Yersin’s serum. Again, all services were to be provided free of charge to indigenous and European alike. The generalized

⁹⁷ Pakhoi (Beihai) was one of the cities opened up to foreign trade by the unequal treaties signed in the wake of the Opium Wars, hence the usage of the term “treaty port.”

⁹⁸ Alfred Cunningham, *The French in Tonkin and South China* (Hong Kong: Printed at the office of the “Hong Kong Daily Press” ; Marston & co., 1902), 42.

⁹⁹ Gaston Liébert to Stéphen Pichon (Minister Plenipotentiary to Beijing), “A [propos] de la création d’un service médical dans la circonscription de Pakhoi et Tung-Hing,” letter, 11 April 1900, Box 1 Folder 12, Gaston Liébert Papers, #4435, Division of Rare and Manuscript Collections, Cornell University Library, Ithaca.

model of French colonial medicine, of which Pakhoi was a representative example, clearly showed the impact of the political and scientific innovations of the Saigon Institute.

The ideological underpinnings of such a system of colonial medicine were also indebted to the Saigon Institute. Liébert's criticism of the British hospital in Pakhoi illuminates the French motivations for their own medical service. He noted that the religious nature of the British hospital, being run by a missionary society, interfered with their medical practice. The Chinese, Liébert observed, were distrustful of the British doctors—and by extension the British in general—because they did not appreciate being preached to. It also limited the British scope of interest in leprosy because of its religious connotations, while ignoring much more pressing diseases such as plague.¹⁰⁰ Such criticism reflected the central place secularism held in the French national consciousness. But it also reflected the French desire to extend their “civilization” to colonized and indigenous peoples. Even in cases such as Pakhoi, which were not French colonies, belief in a pacifying European influence, supported by the Saigon Institute's experience (for example with smallpox vaccination), led to the expansion of French medicine. The Institute's original vision had also included the investigation of diseases at their source, to prevent harm to European colonists and to Europe; Liébert's hospital was in line here as well. Plague was explicitly spelled out as the subject of French medical investigation because Liébert recognized that Pakhoi, being a port, risked exporting the disease back to the metropole.¹⁰¹ French colonial medicine—even when practiced outside a colony—could be justified (and funded) in large part due to the precedents set by the Saigon Institute.

¹⁰⁰ Gaston Liébert to Théophile Delcassé (Minister of Foreign Affairs), “Organisation d'un service médical français à Pakhoi. Demande d'un crédit pour la construction et l'installation du dispensaire,” letter, 17 September 1900, Box 1 Folder 12, Gaston Liébert Papers, #4435, Division of Rare and Manuscript Collections, Cornell University Library, Ithaca.

¹⁰¹ Ibid.

Because of the system the Saigon Institute helped create, French colonial medicine could expand based on an accepted set of motivations and following an established model. Military, colonial, and scientific consensus on the reciprocal benefits from a marriage of medicine and colonialism ultimately strengthened the position of both in the French colonial empire.

Conclusion: Medicine, Colonialism, and Power

The creation of the Institut Pasteur in Saigon was a project at once medical and colonial. In its first decade, it would contribute to the consolidation of the two into a coherent practice that could be properly called colonial medicine. As a tool of empire, it was indispensable for extending the power of the colonial state over the colonized. In the first instance, medicine, by protecting European soldiers and colonists from disease, made countries safe for colonization.¹⁰² And once controlled, the very bodies of colonized peoples became subject to regulation: mandatory smallpox vaccination is the classic example. Colonial and medical actors were at times even conscious of this expansion of state power: Calmette observed that colonial medicine, in “healing the ailments” of the indigenous, penetrated “even into the privacy of their homes.”¹⁰³ Such a narrative is incomplete, however. Examining the Saigon Institute has revealed, for instance, that the colonizer did not exclusively cause the expansion of state power in the colony; in the case of smallpox vaccination, the influence was actually reversed, with a tool of colonial governance being extended to the metropole.

The discourse on power in colonial medicine, well-documented though it is,¹⁰⁴ in skipping directly to the tools and outcomes of colonialism, also misses the causes and justifications of colonialism in the first place. As with histories of colonialism more generally, literature that seriously examines stated colonial ideologies and attempts to connect them to actual policy is relatively sparse.¹⁰⁵ Admittedly, much of colonial medicine existed for the self-serving, utilitarian purpose of protecting Europeans at home and abroad. I have shown, however,

¹⁰² Albert Calmette, "Le rôle des sciences médicales dans la colonisation," *Revue scientifique* 3 (1905), 418.

¹⁰³ *Ibid.*, 420.

¹⁰⁴ See, for instance, David Arnold, "Touching the Body: Perspectives on the Indian Plague, 1896-1900," in *Selected Subaltern Studies*, ed. Ranajit Guha and Gayatri Chakravorty Spivak (New York: Oxford University Press, 1988).

¹⁰⁵ Alice L. Conklin, "Colonialism and Human Rights, a Contradiction in Terms? The Case of France and West Africa, 1895-1914," *The American Historical Review* 103, no. 2 (1998), 420.

that the work of the Saigon Institute was driven by and lent support to the imperialist logic of the French *mission civilisatrice*, in which superior metropolitan knowledge was to be disseminated to the backwards colonized. Their particular model of colonial medicine thus became an important point of national pride for the French and provided an argument for their moral, intellectual, and political superiority when contextualized in the European great power rivalries of the late 1800s. Importantly, this provided a rationale not only for the colonial project writ large but also for the participation of doctors in it. Doctors working in the French colonial empire genuinely believed there was no contradiction between the medicine they practiced—the genuine “good” they were able to accomplish—and the colonial system that allowed them to practice this medicine.

We cannot avoid this contradiction in looking back on the Saigon Institute’s legacy. The contributions that French colonial medicine made to scientific progress, as well as the lives it saved in Indochina, are undeniable. Yet its accomplishments are tainted by the colonialism that not only made it possible but also claimed it as a source of legitimacy. Perhaps reconciliation lies in the fate of the Saigon Institute at the hands of the Vietnamese. During the First Indochina War, the Viet Minh stole smallpox vaccine serum from the Saigon Institute and reproduced it in their “jungle laboratories.”¹⁰⁶ Today, the Saigon Institute continues to exist, operated by the Vietnamese government.¹⁰⁷ And Yersin is one of the few Frenchmen to still have streets in Vietnam bearing his name.¹⁰⁸ Post-colonial Vietnam has appropriated the work and legacy of the Saigon Institute from its former colonizers, taking it as its own and discarding its imperialist baggage.

¹⁰⁶ Guénel, “Lutte contre la variole en Indochine: variolisation contre vaccination?” 77.

¹⁰⁷ “Institut Pasteur in Ho Chi Minh City,” Institut Pasteur International Network, <http://www.pasteur-international.org/ip/easysite/pasteur-international-en/institut-pasteur-international-network/the-network/institut-pasteur-in-ho-chi-minh-city>.

¹⁰⁸ Rosenberg, “Alexandre Yersin,” 263.

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