CONQUERING CINCHONA

HOW COLONIAL EXPANSION BUILDS UPON ITSELF

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LV-Leitung: Dr. Gottfried Liedl

Linus A. Krois
Matrikel-Nr.: 11821693
a11821693@unet.univie.ac.at

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1. Abstract

"Conquering Cinchona" is a paper dedicated to exploring the process of colonial expansion in the latter half of the 19th century using the example of the Cinchona tree. Cinchona, a tree of Andean origin is remarkable for its bark and the medicinal properties therein. Brought to the interest of European powers by the Spanish conquest of large swaths of South America, Cinchona was found to mitigate the worst vicissitudes of tropical fever caused by malaria. Originally used by the various native peoples of the Andes, large scale use of the plant was only possible in the 19th century, when a newly invented chemical process allowed for Cinchona to be distilled into quinine, a powerful drug that acted a potent prophylaxis against malaria. This paper shows that through the advent of British power in India, a need for just such a medicine was becoming increasingly apparent. Detailing the journey from South America to India, this paper explores how Cinchona might be seen as more than just a part of the story, but an actor in and of itself. Describing Cinchona's role from within as well as from an outside perspective opens up new avenues of thought regarding colonial expansion and its effects. These effects as well as the structure undergirding expansion are further explored throughout the paper. Cinchona and its valuable by-product quinine are shown to have been invaluable in securing further expansion on behalf of the British Empire. This process of expansion is detailed further with a thesis stating that colonial expansion builds upon itself in a cycle. The paper clearly shows how British expansion in India opened up the possibility of British expansion in Africa, leading to this cycle of expansion. This perspective is then further reinforced by comparing and contrasting the British experience of expansion in Africa with that of the French experience of expansion in Africa. This example plainly shows the various stages associated with this cycle of expansion. The paper concludes with a thorough examination of how Cinchona played a part in this cycle of expansion and how it should be seen simultaneously as a spoil of conquest, a tool of conquest and a conqueror in its own right.

2. Why Chinchona? Introducing the Tree and its Properties

European expansionism in the 19th century saw colonial empires the likes of Great Britain, France, the Netherlands and others reach almost every corner of the earth. These new frontiers brought with them a host of challenges for these empires to either master or succumb to. Amongst these challenges, malaria proved to be the chief threat to Europeans. Malaria affected explorers, missionaries and colonizers alike, killing indiscriminately and proving as effective a deterrent as any army. Not until the wide spread utilization of Chinchona, a South American tree sometimes referred to as the "fever tree" due to its remarkable bark capable of producing a powerful prophylaxis, would an effective tool against the disease be found. In this chapter I would like the explore what makes the Chinchona tree so valuable in the fight against malaria, showing where it came from and how it was used.

The origin story of the introduction of Cinchona into European circles, as well as that name "Cinchona" is surrounded by a hazy mist of uncertainty. A popular recounting of the "discovery" by Europeans and Latin Americans in the 17th century has the wife of the Viceroy of Peru popularizing it. According to this tale, when the countess of Chinchon fell ill with a severe fever, she was offered a plant-based remedy that cured her affliction with great speed. Entirely convinced of the healing power contained within this remedy, the countess made it her life's work to spread the joyous discovery of this miracle cure to all the sick and ailing of the world. It is then said that this healing poultice was made up of powdered bark from a local tree found in the wooded areas of the Andes. Owing to the popularization of the remedy, the tree was named after the countess in her honor, and so the name Chinchona has struck to this day.² As one might come to expect from such a "pop-history" telling, the story is rooted more in myth and legend then any discernable fact.

Author A. W. Haggis in his book "Fundamental errors in the early history of Cinchona" goes into great detail on the inaccuracy of the countess story while providing the reader with a

¹ Luciano, Pellegrino A. "When Quinine was King: A note on the global ecology of health" Practicing Anthropology 37, no. 2 (2015) 31-34.

² Haggis, A. W. 1941 Fundamental errors in the early history of cinchona. Bull. Hist. Med. 10, 586-92 (Haggis elaborates a great deal on the source on which this story is based on, showing that in fact the whole popular retelling is based on only one letter referencing the countess and her remedy. The holes in the story go so far as to cast doubt over whether the countess was even alive during that time)

more sober account of the etymology and origin of Chinchona. I will not go into any details in this paper, but suffice it to say that the introduction of Cinchona to Europeans had a lot more to do with the various indigenous groups who had been using the bark of that tree for a long time as a traditional healing remedy before any Peruvian countess "discovered it". What is important to take from this story however is the fact that sometime in the 17th century, Spanish-American interest in the plant began to pick up. What was also becoming increasingly clear is that the bark of the plant might be ground to a powder which when ingested showed real promise in diminishing the effects of fever on the afflicted.

It is important here to note that Chinchona powder, and later quinine (something that will be addressed in a later chapter), did not constitute a cure for malaria or any other disease. Instead, it was primarily intended and used as a prophylactic against disease as well as being used in combating the worst effects of fever on the human body. It would take until the end of the 19th century to even understand how malaria spread, so until then prophylactic remedies proved the best course of action for those involved in combating the disease.³

Failing to constitute a complete cure was not the only thing hampering the success of Cinchona on the world stage. The relative geographic isolation of the Andes foothills meant that the tree was not only shielded from an early adoption by Europeans, but also that the natural habitat of the tree was not easily accessible to non-natives. Couple this with the fact that Chinchona powder on its own is hard to digest and requires considerable resources to produce, the risk-reward calculations on the side of the Europeans were always skewed towards the negative. It would take a new way of processing the raw bark in order for Europeans to really start getting interested in the tree. So, for the meantime it was only the native population that sought to exploit the tree for its remarkable healing properties. How this relationship functioned will be explored in the next chapter.

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³ Macleod, Roy. Lewis, Milton J. "Disease, Medicine and Empire: Perspectives on Western Medicine and the Experience of European Expansion" 1988. 23.

⁴ Williams, Donovan. "Clements Robert Markham and the Introduction of the Cinchona Tree into British India, 1861." The Geographical Journal 128, no. 4 (1962): 431–433.

2.1 Indigenous Use and Environmental Concerns

As mentioned in the chapter above, the indigenous peoples of the Andes, around Ecuador, Peru and Bolivia had a practice of using the bark of Cinchona as a traditional remedy. Venturing out into the woods, these peoples would cut down the trees and strip them of their bark entirely for later use in producing the powder. While no information on the beginning of this practice exists, as the dawn of the 19th century approached, it became increasingly clear that this form of exploitation of this natural resource was not sustainable in its current state. Adding to this the increasing prevalence of Spanish-American logging speculators in the area, concerns over the survivability of the tree started to take hold. ⁵

Increased attention directed towards the tree, be it either from Europeans or indigenous peoples would mean risking the long-term survival of the Chinchona species. This dual threat emanating from both native and foreign populations might at first be seen as a counter example to the prevailing narrative that only Western European resource collecting ventures threaten the balance of nature. And while it remains true that in this case the tree was threatened from both "sides", it is not to say that they both exerted the same amount of pressure on the natural habitat of the tree. With the rise of attractiveness of the products taken from the Chinchona tree, so rose European interests in the species. However, the governments in charge of the area in question realized from an early point on that over-exploitation might result in a complete loss of any value the tree might bring. In addition to maybe losing the tree completely, eagerness in harvesting as much bark as possible had already resulted in negative consequences. Various reports from the time indicate that the size and quality of the bark gathered suffered from over-taxing the trees too severely, effectively decreasing profits from an otherwise potentially lucrative business. Coupling this with the long periods of time associated with having to regrow entire trees instead of mere crops, the Chinchona business faced a problem that might only be solved through propagating the species elsewhere.⁶

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⁵ Williams, Clements Robert Markham. 431-432

⁶ Williams, Clements Robert Markham. 431-432

2.2 Monopolizing Chinchona

In 1820 the history of the Chinchona tree would take a radical turn. French chemists Pelletier and Caventou developed a process to isolate two of the four main alkaloids present in the Chinchona tree bark. With this knowledge, sulphate of quinine was able to be produced, a far more potent and easily digestible version than the traditional way of producing the remedy. This discovery prompted interest in the tree to increase exponentially.⁷

Naturally the Andean governments of Ecuador, Peru and Bolivia sought to protect this natural resource, which had seemingly been gifted to them and them alone. And while some limited concessions were made to European powers, these three countries maintained a tight monopoly on Chinchona, much to the envy of foreign interests. Not content with the status quo, these foreign interests made it their mission to extract Chinchona from its natural habitat and to transplant it to somewhere under their jurisdiction.

Before going into how exactly this transpired, I would like to briefly explore the motivations behind these endeavors. Naturally the hegemonic colonial powers of Great Britain and the like where in no way accustomed to, what in their mind would be considered second-rate nations, to dictate trade relations and resource extraction protocols. So, it is clear that European ambition, especially again that of Great Britain, lay in not being relegated to the role of an inferior trading partner. On the other hand, it is important to return to the fact of the species` survivability mentioned in the previous section. It might be no understatement to claim that only through transplanting Chinchona to foreign lands could the species survive in the long term. This is no plea to the reader to see the British in the coming chapters as primarily interested in protecting the flora of South America, it is however an attempt to show the reader that conservation can come in many different forms and should not be relegated to a black and white view of the world.

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⁷ Williams, Clements Robert Markham. 431

2.3 The Race for the Fever Tree

With the apparent value of Cinchona now having substantially increased due to the aforementioned breakthroughs in science, interest in securing this valuable resource became a priority for the various colonial governments of the time. As this paper chooses to primarily focus on the British perspective on this matter, it is now time to discuss the connection between British India and the race for the "fever tree".

With the rapid consolidation of British power in the Indian subcontinent having become a top priority for the imperial government, methods to aid in this endeavor were greatly sought after. The interests of the British India Office in such matters regarding Cinchona culminated in 1859 with multiple proposals being set forth calling for immediate action in procuring viable samples of the tree for use in India. Crucially, one must focus on the word "viable" here. As already mentioned, Cinchona was native to a very select region of the South American Andes and therefore acclimated to a specific climate and terrain. Expeditions geared toward the procurement of Cinchona samples needed to take this vital bit of information to heart as any successful mission would need not only to transplant the trees but replant them successfully as well.

Dutch botanical expeditions, for example, paid especially close attention to this fact. In their eventual mission to acquire a Cinchona sample for their own budding colonial empire, they took care to only extract what they saw as the sturdiest examples of the tree, focusing on maximizing output and longevity of the tree. This eventually would lead their efforts in cultivating that species to great success, eventually culminating in their holdings in Java being the most productive quinine producing region in the world.⁹

Clearly therefore, the British effort to capture Cinchona for themselves would need to be headed by a man endowed with substantial botanical and horticultural knowledge. Most fortuitous for the British, such a man was to be found by the name of Clements Robert Markham.

⁸ Williams, Clements Robert Markham. 433

⁹ Headrick, Daniel R. "The Tools of Empire: Technology and European Imperialism in the Nineteenth Century" 1981.

3. Clements Robert Markham and the Transplantation to India

Clements Robert Markham was born in 1830 in Stillingfleet, England. Already at an early age he showed great interest in exploration and in becoming a naturalist. Having traveled to numerous parts of the world, including South America and even the Antarctic, his expertise in the matter would prove invaluable during his mission to transplant Cinchona. Fortunately for posterity, alongside him being a proliferent explorer, he also committed his storied life to paper, a guide which significantly helps us reconstruct Cinchonas voyage and importance. Employed in the India Office just in time for Cinchona and quinine to become a priority for that institution, Markham was tasked in part by his government and in part of his own volition to head a forthcoming mission to Peru with the stated goal of procuring enough samples of the valued tree to be brought back to India. ¹⁰

It is prudent at this point to remind readers that while botanical expeditions alone are not inherently illegal, removing a valued commodity which was designated to not be exported by the local government was assuredly illegal. Fully conscious of their planned actions, Markham and his fellow expeditionary forces embarked for Peru in 1859, planning on securing Cinchona for good. What followed might be considered a swashbuckling adventure for the betterment of health worldwide or a sinister plot to rob less developed nations of their precious resources. Interpretations vary, with the truth likely falling somewhere in the middle.

Dogging Peruvian officials and their military, braving the jungles, rivers and mountains of the mighty Andes, Markham and his expedition managed to find what they were looking for. Gathering thousands of plant specimens, Cinchona being the main part but certainly not the only, the expedition had got what they were looking for. Markham managed to successfully pack up his precious cargo and load it on a steam ship convoy headed for India. Even on this relatively straightforward leg of the trip, Markham and his expedition were met with further obstacles. Having to endure long travel time alongside extreme heat as well as engine failure along the way, the by now much battered plants and their human companions reached India in 1860. Sadly, further delays in disembarking the cargo in the sweltering heat of the Indian subcontinent led to this first batch of Cinchona perishing before being successfully replanted.

¹⁰ Williams, Clements Robert Markham 432

Only subsequent shipments handled by Markham's colleagues would in the end arrive safely at their destination.¹¹

3.1 Expansion into India

By 1866, Cinchona in India was flourishing in its new Home of Nilgiris, southern India. Chosen for its relatively comparable climate, terrain and altitude features, Cinchona had been successfully transplanted. Taken from Peru and given a new home, these plants had effectively expanded their ecological foothold.

This ecological expansion into a new continent came with all the hallmarks one might be able to recognize with human expansion into foreign lands. In order for the tree to have commercial value to the British, it needed to be grown in large plantation style fields. Gone were the days of indigenous peoples harvesting the tree when the need may arise. Cinchona's new purpose was to be industrially planted, harvested and re-planted in order to ensure maximum output. The initial count of near 3000 specimens in 1861 had risen to over 100 thousand over the course of only one year. By the time five years had passed, Cinchona had become a permanent fixture in the landscape. 12

Effects of this expansion included the need for large swaths of jungle and plant life indigenous to the region to be cleared for these new plantations. Much as British colonialism often meant the death of traditional ways of life and existing power-structures, so too would their introduction of this new species prove to be an agent of change and usurpation. But not only in the plant realm would Cinchona be effective in promulgating expansion, by its very nature as a medicine against tropical disease, Cinchona and its by-product were utilized by the British colonial forces to further expand their holdings in the continent. This interplay between the literal expansion of the plant, pushing out already existing flora and the more figurative expansion of the plant in use by the British to sustain their colonial campaign is a dynamic that will be covered extensively in a subsequent chapter.

Suffice it to say, that by the 1860s, Cinchona had taken root, spreading its metaphorical and actual roots from Nilgiris to Ceylon, Sikkim and other places in India.

¹¹ Williams, Clements Robert Markham 434-436

¹² Williams, Clements Robert Markham 436

3.2 The Cinchona Perspective

In recounting the exciting tale of Robert Clement Markham and his quest for Cinchona one might be forgiven for seeing this chapter of history entirely through the eyes of Markham and the British Empire behind him. This paper has tried to make clear that along side this perspective, there is also that of the various Andean governments being deprived of their natural monopoly of this resource. What this paper has not done, and will now try to rectify, is to tell this story from the perspective of the Cinchona tree itself. Naturally a tree does not posses the same faculties as a human or nor does it possess agency in the same way an animal might. However, following some basic evolutionary guidelines, the emphasis being on the basic here, as this paper does not endeavor to be taken as a commentary on the minutiae of biological workings, one can establish Cinchona as more than just a prop in this story, but rather as an actor all in itself.

Taking the basic evolutionary principle of an organism's desire to reproduce and propagate, how would this map onto Cinchona and its journey from Peru to India? While some individual specimens did not survive the journey, the plant species as a whole did. And while conditions in this new home were not identical to the ones found in the Andes, they were adequate enough for propagation. And while yes, plantation-style agriculture meant that Cinchona's life expectancy regarding the individual tree must have shrunk, the species was able to reproduce faster than it was harvested. Judging then by these facts, Cinchona seems to have benefited greatly from its eastward expansion. It is only natural to hesitate proclaiming, what in anthropomorphic terms could be considered a forceful kidnapping and continuous servitude in a foreign land as a net good. But if one were to take a step back and try to view it through the point of view of the plant, what we would see is nothing more than an unmitigated success story.

By becoming of interest to humans, Cinchona manages to employ a new host of caretakers that ensure it will not only survive but propagate as well. In addition to this, by expanding beyond its Andean roots, Cinchona became a trans-continental species, now able to survive potential shocks to the system better by having the insurance of always having a foothold elsewhere.

4. Expansion Building upon Expansion

Expansion, that is to be more precise, colonial expansion in the 19th century has been a guiding theme in retelling the story of Cinchona. Be it Spanish inroads into South America allowing for Cinchona to be discovered by western powers in the first place, or British expansion into India demanding a greater supply of medicine as it makes its way across the subcontinent. Expansion built upon itself throughout this time. In the following paragraphs this paper will explore how exactly expansion builds upon itself as well as providing a further example by discussing the so called "scramble for Africa".

The conquest of the New World by Spanish forces marks the beginning of a continuous cycle of expansion which has come to define the story of Cinchona. However, if the scope of the paper allowed it, one could theoretically trace Spanish expansion in the Andes back to their first colonial efforts in the Caribbean. Furthermore, one could trace these Caribbean conquests back to their origin to the Castilian Reconquista of Granada. If one were so inclined then, an unbroken line of expansion leading to the next expansion could be drawn ever further back in time. In the interest of narrative and brevity however, these following thoughts on expansion will strictly focus on how expansion and its consequences played out form the Spanish conquest of South America to the British and their colonial ventures in the 19th century.

By establishing a western foothold in the South American continent, Spain provided solid footing for naturalists, explores and the like to chart the natural abundance of the continent they had just subjugated. As shown in previous chapters, Europeans were far from the first peoples to recognize in Chinchona a valuable resource. Native use of the tree had already been going on long before the Spanish understood its properties. What the natives however could not or would not see, was the global potential and ramifications of this marvelous plant. It would take a nation with globe-spanning power to envision a use for the tree beyond its natural boundaries.

British colonial administration in India displayed an eagerness to harness the potential of a plant that might help them combat the ever-present foe of tropical disease. The near unchallenged status of British power in the 19th century, a product of expansion to be sure, allowed them to get a hold of this newest tool of expansion. By then securing a supply of Cinchona in their own territory, British power had been given new ways of furthering

expansion into India. Emboldened by their success there, soon the gaze of the empire would center on a new target.

4.1 The Scramble for Africa

Africa had been determined by colonial powers of the 19th century to be the next great target after the subjugation of the Americas and large parts of Asia. Up until this time, Africa had been spared widespread conquest and colonialization by the nature of its natural hazards. To be more precise, malaria. Deemed the "White man's grave" due to the extremely high mortality suffered by any European who stayed there for too long, Africa had been off limits to the type of subjugation India and the Americas had undergone. With the introduction of Cinchona and quinine, all this changed.

With plantations of Cinchona a clear success, British designs on the African continent moved from the planning stage into a more concrete reality. In his article: "The End of the "White Man's Grave"? Nineteenth-Century Mortality in West Africa" author Phillip Curtin goes into detail regarding the sheer numbers of dead on the European side before the widespread introduction of quinine prophylaxis. Expectations on the side of Europeans were that for every force they sent to Africa, a quarter would perish due to Malaria and similar disease.¹⁴ This deathrate posing a natural barrier to European expansion, Africa, excluding a handful of regions with more agreeable climate for the Europeans, remained relatively safe from total annexation. An example from Curtin's numbers is the year 1859, when British military mortality numbered over 600 dead per 1000 troops stationed in West Africa.¹⁵

This shockingly high rate of death took a drastic turn in the years following the introduction of quinine to British colonial forces. In the 1860s and 1870s, death rates can be seen to plummet by sizeable amounts. Curtin mentions the death rate of British sailors in West Africa dropping by nearly 60%. Furthermore, he argues that if British forces had not simultaneously been engaged in fighting various native kingdoms like the Ashanti in this time, the death rate would have likely plummeted even further. 16

¹³ Curtin, Philip D. "The End of the 'White Man's Grave'? Nineteenth-Century Mortality in West Africa." The Journal of Interdisciplinary History 21, no. 1 (1990): 63

¹⁴ Curtin, The End of the White Man's Grave? 67

¹⁵ Curtin, The End of the White Man's Grave? 71

¹⁶ Curtin, The End of the White Man's Grave? 71-74

It therefore seems clear that quinine and thus also Cinchona had a considerable impact on the expansion of colonial power in Africa. A further look into the timeline of quinine use in Africa shows that with universal adoption of the medicine, alongside a broader understanding of germ theory and the spread of disease, malaria and its power to turn Africa into a "White man's grave" had largely dissipated although not entirely ceased.¹⁷

4.2 French and British Colonial Strategies

In order to show more precisely that it was indeed the adoption of quinine, and therefore the previous expansion of Cinchona into India, that boosted British expansion into the region, this paper will now look at how British colonial strategy differed from French colonial strategy.

In "Malaria and French Imperialism" author William B. Cohen describes the colonial efforts of France in Africa in the later half of the 20th century. His work is crucial in understanding the differences in British and French modes of expansion in Africa. Referring to the use of Cinchona and quinine by French forces in places like Algeria and Senegal, Cohen, much like Curtin goes into the mortality rates of European forces stationed in Africa. By analyzing these death rates as well as correlating these numbers to the adoption of quinine by French forces, Cohen finds that French units did not see the same sharp decline in fatal illness like their British counterparts.¹⁸

Cohen's research shows that while French adoption of quinine was happening at the time it did not automatically reduce fatality. In establishing why these two experiences of the British and the French are so different, Cohen has multiple explanations. For one it was not that quinine or Cinchona was not a valuable medicine after all, but that adoption of this drug was not as straightforward as it might seem. While British forces used Cinchona and quinine as a prophylactic, intended to prevent malaria and strengthen the body beforehand, French use of the medicine was seen more as curative. This led to many being struck down by the disease before getting the chance to acclimatize to the conditions surrounding them.¹⁹

¹⁷ Curtin, The End of the White Man's Grave? 88

¹⁸ Cohen, William B. "Malaria and French Imperialism" The Journal of African History

^{24,} no. 1 (1983) 23-36.

19 Cohen, Malaria and French Imperialism 26

With quinine used as a cure more so than a preventative, French forces continued to suffer at similar rates of disease as before the introduction of quinine. However, the French colonial empire expanded nonetheless. How is this to be explained? Cohen posses the following solution to this. Rather than rely on quinine to shield European forces from the vicissitudes of tropical disease, native forces would fill this gap. Constructed from peoples already more climatized to their surroundings and the malaria that has been a mainstay there for centuries, these colonial troops proved to be much hardier than their European counterparts. As the African colonial empire of France grew, so did their recruiting potential, negating the need for quinine to fuel their expansion.²⁰

Two nations, two strategies, one outcome. How does the theory of expansion building upon itself still apply in this case? Whereas the British case is clear, the French one is less so. British expansion in India and their use of Cinchona led them to be able to expand in Africa. Expansion building upon expansion. The French did not have the same experience with Cinchona and so did not grasp the full potential of its properties, however they did expand in Africa like the British did. Cohen and others point out that while quinine did not fuel French expansion to the same level as British expansion, the expansion in Africa itself fueled further inroads into the continent. What is meant by this is that French forces suffered higher casualty rates in the opening stages of their African scramble, but by establishing footholds and so building infrastructure that negated the presence of malaria, they were able to expand just as well as their British counterparts. This infrastructure, roads, hospitals and communications primarily made already conquered regions good jumping off points for further conquest.

In essence the French experience in Africa represents the first step in the cycle of expansion explained earlier. With the first step towards expansion taken, the subsequent steps become easier and easier as conquest follows conquest. It is therefore not that the French experience of expansion is fundamentally different, but rather that their time in Africa merely represents a step in the cycle of expansion that Britain had already gone through. The end result of the French colonial presence is a testament to how much can be achieved as soon as the cycle of expansion gets going.

That being said, it is probably prudent here to remind oneself that just because the end-result was similar, that quinine should not be seen as insignificant in its role as an expansion-tool. There should be no doubt that Cinchona's role as a conqueror cannot be understated.

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²⁰ Cohen, Malaria and French Imperialism 34-36

5. Conquering Cinchona?

Conqueror or conquered? The title of "Conquering Cinchona" allows for interpretation in both ways. Was Cinchona's role in this paper a spoil of conquest and expansion? Uprooted from its native land, transported to foreign shores, exploited for its bark and used to fuel the unending appetite of colonial conquest, Cinchona saw itself instrumentalized and weaponized for the gain of others. However, that is not the only way to see its role, perhaps Cinchona was the one doing the conquering? Its medicinal attributes waking the interests of humankind, it had bought itself an opportunity to propagate in new lands, securing its continued survival. The value humans placed on it meant it had become something worth safeguarding, worth preserving and worth expanding. Cinchona had conquered new land for itself to grow and had instrumentalized the British and others to further its goals.

Perhaps both interpretations have merit, certain, however, is the role Cinchona played in the cycle of expansion that came to define colonial expansion of the 19th century. Its humble origins as a natural medicine utilized by the natives of the Andes was soon supplanted at first by tentative Spanish rule and later assertive efforts by the British colonial empire to utilize the plant on a mass scale. Its transplantation to India ushered in a new chapter in the fortune and fate of the fabled fever tree. At first the prize of British expansion, now it was to be transformed into an instrument of expansion itself. First in India then in Africa, Cinchona proved its value in fending of the worst calamities of tropical malarial disease.

Throughout this journey and ultimate transformation, this paper has shown how the colonial powers of the 19th century, primarily using Britain as an example, engaged in a cycle of expansion. One expansion after another, the process of expansion builds upon itself. It has gone through the process of delineating the progression of how expansion in one place facilitates the further expansion in another place. By giving the example of French and British colonial strategies, this paper has shown how the effects of expansion are cumulative, as being further down the line in the cycle of expansion alleviates the continuing process of expansion. As shown in the African example British efforts were greatly aided by having an established knowledge and access to Cinchona and its product quinine. The French on the other hand needed their colonial expansion in Africa to kickstart further efforts in the same continent.

In concluding this paper, it is therefore permitted to state that "Conquering Cinchona" refers to a fascinating plant so intertwined with the process of expansion that it has a valid claim to be listed as synonymous with word expansion itself.

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